EXHIBIT A

KRRC Response

1. Please file the California Funding Agreement for the California Public Utility Commission's disbursement of the California customer surcharge.

Response:

The Klamath River Renewal Corporation ("KRRC") and the California Public Utility Commission ("CPUC") staff are actively working on a draft Funding Agreement. This draft has not yet been completed, although productive discussions and meetings between representatives of KRRC and CPUC staff are ongoing. Based on those discussions KRRC anticipates that the final agreement will be very similar in form and substance to KRRC's funding agreement with the Oregon PUC.

The foregoing discussions have taken place in the context of PacifiCorp's pending application for a modification of CPUC's prior decision approving customer surcharges and establishing trust accounts for the deposit of those surcharges (D.11-05-002, issued May 5, 2011). PacifiCorp's application seeks modifications of the existing order to reflect the Amended KHSA's approach for pursuing decommissioning and facilities removal under FERC's license transfer and surrender procedures. Because the funding agreement will be part of the ongoing proceeding, KRRC cannot currently predict the timing of its completion and execution. KRRC will, however, promptly file the agreement with FERC as soon as it is finalized and executed.

2. Please provide an update on the status of Klamath River Renewal Corporation's decommissioning plan. Please also provide any updated cost estimates of dam removal and restoration.

Response:

A. Status of Decommissioning Plan:

Summary: The "Detailed Plan" submitted to FERC as Exhibit E.3 to its Application for Surrender of License for Major Project and Removal of Project Works[1] ("Surrender Application") provides a comprehensive plan for the decommissioning of the Lower Klamath Project[2]. The Detailed Plan is being updated and augmented so as to satisfy the requirements of the "Definite Plan" for purposes of § 7.2 of the Klamath Hydroelectric Settlement Agreement, as amended (the "Amended KHSA"). KRRC has committed to file the Definite Plan with FERC by the end of this year.[3] When completed and so filed with FERC, the Definite Plan will supersede and replace the Detailed Plan as KRRC's proposed comprehensive plan for decommissioning of the Lower Klamath Project.

Detailed Plan: The Detailed Plan describes two dam removal alternatives: (a) the removal of all appurtenant features at each dam site, with the exception of buried features (the "Full Removal Alternative") and (b) the retention of certain project features, while providing the minimum removal limits to meet the requirements for a free-flowing river and for volitional fish passage through all four dam sites (the "Partial Removal Alternative"). The Detailed Plan contains a full description of the existing project features at each dam; describes the hydrologic conditions for the dam sites; provides detailed dam removal plans for both alternatives; summarizes reservoir sediment studies, including the estimation of sediment thickness and volume, physical properties, and sediment release rates during reservoir drawdown; describes the existing recreation facilities and their removal requirements, goals, and objectives for reservoir restoration, revegetation estimates, invasive weed management plans, and a reservoir restoration schedule; describes the Yreka City water supply pipeline and intake modifications included in

[1]FERC Nos. P-14803-001 and P-2082-063 (FERC Accession # 20160923-5370).
[2] The proposed Lower Klamath Project would be comprised of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments.
[3] Surrender Application at p. 3.

the dam removal plans and provides the basis for the construction cost estimates for both alternatives, including the methods used to develop feasibility-level cost estimates for all project features, and for non-contract costs including engineering, procurement, construction management, mitigation measures, and monitoring.

Environmental Review of Detailed Plan: Environmental review of the Detailed Plan was undertaken by the U.S. Department of the Interior and the California Department of Fish and Wildlife for purposes of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). *See Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Reports* (the "EIS/EIR").[4] The Alternative 2 (or the "Proposed Action" reviewed in the EIR/EIS) provides a full and complete review of the Full Removal Alternative described in the Detailed Plan. Alternative 3 provides a full and complete review of the Partial Removal Alternative described in the Detailed Plan. The EIS/EIR includes specific mitigation proposals for species impacts (coho salmon, steelhead, pacific lamprey, green sturgeon and freshwater mussels), air quality impacts, greenhouse gas/climate change impacts, cultural and historic resource impacts, scenic quality impacts, noise and vibration that will be incorporated (as appropriate) in the final decommissioning plan.

In 2016 the U.S. Department of the Interior ("DOI") Bureau of Reclamation ("Reclamation") prepared a Draft Supplemental Information Report ("Draft SIR") that identified changes to the Proposed Action since completion of the EIS/EIR. Primary amongst these changes was the expiration of the Klamath Basin Restoration Agreement ("KBRA") which was included in the EIS/EIR as a connected action. The KBRA entailed a restoration program and water sharing agreement focused on water quality, fisheries, and socioeconomic improvements

[4] Surrender Application, Exhibit E.1.

primarily in the Upper Klamath Basin. DOI's preliminary review of the changes to the Proposed Action concluded the following:

> With the KBRA's expiration in 2015, some benefits provided by the KBRA are no longer a part of the Proposed Action, but overall the changes in approval authority were not relevant to the environmental impact analysis or determinations. The team also reviewed relevant technical information that may have not been available at the time the EIS/EIR analysis was completed; however, none of that technical information materially changes interpretations or conclusions about the effects of dam removal described in the EIS/EIR. Thus, the existing Klamath Facilities Removal EIS/EIR adequately addresses environmental impacts related to facilities removal and could provide a sufficient basis for decision-making by another federal agency.

Draft SIR (Executive Summary). A copy of the Draft SIR is attached for FERC's reference and information as Attachment A.

AECOM Retained to Prepare Definite Plan: In March of this year, KRRC advised FERC[5] that AECOM was selected as KRRC's technical representative. AECOM's scope of work includes assisting KRRC in preparing the Definite Plan for decommissioning "based on the Detailed Plan and consistent with all permitting and FERC requirements." AECOM and its subcontractors have experience with developing and implementing decommissioning plans, most recently including the San Clemente dam removal project in Monterey County, California, and the Penobscot River restoration project (removal of Veazie and Great Works hydroelectric dams and bypass around Howland dam) in Penobscot County, Maine, both of which completed construction within the past five years. Other ongoing or completed dam removal projects led by key members of the AECOM team include: (1) removal of Elwha and Glines Canyon dams on the Elwha River; (2) removal of the Matilija dam and associated ecosystem restoration work; (3) removal/bypass of the Searsville Dam; (4) removal of the Condit Dam; (5) removal of the Boardman, Sabin and Union Street dams; (6) the removal of the Odell Creek Dam; and (7)

[5] *Klamath River Renewal Corporation's Informational Filing*, March 1, 2017; FERC Accession #20170301-5273 ("March Informational Filing")

removal of the Fielder Dam. For the majority of these projects, the scope of services included field investigations, environmental review support, engineering design, permitting, and construction management.

AECOM has been hard at work conducting field studies, inspections, and technical analyses needed to prepare the Definite Plan. This work includes the following:

- *Dam inspections:* The condition of the dams, particularly the appurtenant works that will be used to control releases from the reservoirs during dewatering (diversion intake at Copco No. 1, diversion tunnel at Iron Gate, and diversion culvert at J.C. Boyle) is being assessed to develop designs for required temporary dam infrastructure modifications (to facilitate drawdown). Some of these facilities (J.C. Boyle, Copco No. 1 and Iron Gate diversion tunnels) require divers to perform the assessments. The assessment includes structural analyses of the blind flange and reinforced concrete ring downstream of the concrete gates in the Iron Gate diversion tunnel to confirm that they are able to accommodate full reservoir head during installation of a large roller gate. Dam condition assessments also include collection of all available construction as-built drawings and construction photographs to support the determination of the physical methods of removal. Some objectives of the assessments are to determine if the downstream Iron Gate diversion tunnel condition could be assessed before construction, and whether the gate slot could be adequately investigated before installation to be certain of gate requirements for fabrication, which may have a long lead time. Information from the assessments will be used in a re-evaluation of the drawdown scenarios presented in the Detailed Plan as well as for engineering the demolition of the dams, updating project costs and schedule, and ensuring adequate structural stability and flood protection during

the removal. This assessment will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.

- *Geotechnical Investigations:* Geotechnical investigations of the embankment dams (J. C. Boyle and Iron Gate) and the portions of the reservoir rims (Copco No. 1 and Iron Gate) may be required to document the geologic setting and to characterize embankment materials and materials in the reservoir rim. Currently, the need for embankment borings is not anticipated. Any proposed geotechnical investigations will be reviewed and approved by PacifiCorp's Chief of Dam Safety and FERC, as necessary. This data will be being utilized for completion of analyses to confirm drawdown rates to be used during reservoir drawdown and subsequent dam removal. This investigation will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.
- *Hazardous Material Investigations:* An investigation to determine whether there are hazardous materials is being completed at each dam and hydropower development. This investigation will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.
- *Biological Resource Reconnaissance Surveys:* Existing biological conditions must be well documented for all project areas where physical disturbance may occur as a result of the project, so that potential impacts to biological resources can be understood and addressed in the Definite Plan and other environmental and permitting documents. Substantial effort has already been invested in documenting fisheries and other biological resources in the project area, and a thorough review of existing information, combined with biological reconnaissance surveys, is being conducted to confirm adequacy of existing information to minimize biological impacts and support project approvals.

Biological resource reconnaissance surveys will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.

- *Cultural Resource Survey*s: The 2012 Detailed Plan outlined four measures for the mitigation of impacts to cultural resources/historic properties. Initial efforts will focus on the implementation of measures identified in CHR-1, which identifies steps to resolve the effects of dam removal on the four hydroelectric developments and on the Klamath Hydroelectric Historic District (KHHD); CHR-2, which identifies steps to resolve the effects of the Proposed Action on prehistoric and historic archaeological properties and historical resources; CHR-3, which identifies steps to resolve the effects of dam removal on Traditional Cultural Places (TCPs) and cultural landscapes; and CHR-4, which identifies steps to resolve the effects of dam removal on Native American burials. AECOM's current efforts are to further obtain the knowledge and data needed to fulfill these mitigation measures, to support the National Historic Preservation Act Section 106 consultation process, to avoid or reduce impacts by coordinating the engineering design with the cultural resource knowledge, and to update project costs with the costs of cultural resource mitigation. Cultural resource reconnaissance surveys will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.

In addition to these field studies, AECOM has been undertaking additional technical analyses and engineering needed to prepare the Definite Plan, including the following:

- *Restoration Approach:* Field-based vegetation surveys of native vegetation at Copco No. 1, Iron Gate, and J.C. Boyle are being conducted to support the development of reservoir restoration plans based upon native plant species. Reservoir restoration will serve to restore the reservoirs and stabilize reservoir soils from erosion in future years.

Historic topography maps are being reviewed to inform the assessment of where the channel may establish during and after accumulated sediment flushing. The field information will feed into the restoration plan design included in the Definite Plan submittal to FERC.

- *Reservoir Rim and Embankment Stability:* AECOM is performing analysis of reservoir slope stability under drawdown rates proposed in the Detailed Plan. Existing geotechnical data are being reviewed to develop an understanding of the geology of the reservoir banks. Additional geotechnical data are being collected as part of the geotechnical investigation to confirm the understanding of the geology and to provide the information required to develop estimates of material parameters for the slope-stability analyses. AECOM is also performing analysis of embankment stability under drawdown rates proposed in the Detailed Plan. For the J.C. Boyle and Iron Gate embankment dams, limit-equilibrium slope stability analyses are being performed on one cross section for each dam. Existing dam design drawings and geotechnical data are being reviewed to develop an understanding of the internal configurations of the dams. Additional geotechnical data are being collected as part of the geotechnical investigation to confirm the understanding of the dam configurations and to provide the information required to develop estimates of material parameters for the slope stability analyses. Slope stability analyses are being performed using the computer program Slope/W (Geo-Slope International, 2015). Rapid drawdown slope stability analyses are being performed in accordance with the state of the practice. Stability analyses will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.

- *Drawdown Rate Confirmation:* Reservoir drawdown rates required for dam demolition are being confirmed through stability analyses (see above) and using the information obtained through the geotechnical investigations. Analyses are also being performed on the hydraulic capacity of the outlet controls and use previously developed hydrology data to verify the probability of the drawdown schedules for various flow scenarios. Drawdown rate confirmation will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.
- *Staging and Stockpiling Assessment:* The size and locations of proposed staging and stockpile areas are being reviewed and preliminary layouts prepared for the Definite Plan.
- *Onsite and Offsite Disposal Assessment:* AECOM is performing an inventory of all powerhouse and electrical equipment in coordination with PacifiCorp to confirm what equipment will be salvaged, recycled, and disposed of, and to confirm unit costs. AECOM will confirm the availability of facilities for disposing of the various materials and hauling distances. In addition, a feasibility study of embankment material disposal is being completed. AECOM is completing geotechnical reconnaissance to confirm suitability and availability of the disposal sites identified in the Detailed Plan and evaluated at a program level in the EIS/EIR. The disposal assessment will be complete by fall 2017 and will be incorporated into the Definite Plan submittal to FERC.
- *Preliminary Designs for Dam Removal, Recreation Facilities, Road Improvements, Flood Mitigation Improvements, and Water Supply Improvements:* The Definite Plan will contain the level of engineering detail necessary to clearly delineate project footprints and quantities for all components of the project, including dam and hydropower temporary modification and permanent removal, road improvements, City of Yreka water supply

improvements, recreation improvements, flood control improvements, as well as plans for reservoir area restoration. Numerous possible mitigation-related improvements (recreation, flood control, transportation, etc.) were identified in the Detailed Plan, but not all may be needed after further detailed review and feasibility analyses. AECOM is reviewing each improvement location and will confirm the need for improvement. Those locations and components that are determined to require improvement will be designed to a preliminary design level (drawings and design report), appropriate for use in construction procurement and the development of permit applications.

The Definite Plan will be prepared to the level of detail that is sufficient to provide FERC with a basis for environmental review and issuance of a surrender order. The Definite Plan will identify drawdown rates and details, dam and hydropower facilities removal methods and details, disposal area extents and earthwork, locations of property acquisition, risk analyses, access road routes and improvements, plans for sediment management during and post-drawdown, and appropriate post-construction monitoring activities. The construction cost estimate will be refined and updated based on the latest engineering design, and a detailed project construction schedule will be developed.

Mitigation of Impacts: The Definite Plan will also include plans and measures to mitigate project impacts to environmental resources. This will include measures to avoid or minimize adverse downstream impacts to water quality, channel form, and fisheries resulting from the discharge of sediments. To minimize impacts on fish, particularly Endangered Species Act listed coho salmon, removal of all four dams is targeted for a single year, which will prevent sequential stresses from suspended sediment releases from the reservoirs on various life stages of fish (e.g., returning adult salmon, rearing salmon, or out-migrating juveniles). In addition, drawdown of

the three largest reservoirs (behind J.C. Boyle, Copco No. 1, and Iron Gate dams) will occur in the winter months, thereby releasing the largest loads of sediments from the reservoirs when the most sensitive fish species are in the ocean or in tributaries of the Klamath River and therefore not exposed to sediment being transported through the main-stem river. The Definite Plan will include measures to minimize short-term water quality impacts, and with respect to some water quality measures (e.g., temperature and DO) there will be immediate improvements. Longer term, dam removal will result in multiple benefits to water quality in the Klamath Basin by creating a free-flowing river that opens up former spawning and rearing habitat in the hydroelectric reach and in the upper basin, restoring natural sediment transport processes that create healthy spawning beds, reducing juvenile fish disease below the dams, improving water quality and water temperature conditions for fish, opening up cold-water refugia in the upper basin to help offset the impacts of climate change, and creating a more natural hydrograph.

Additional Environmental Review: The California State Water Resources Control Board ("Water Board") is preparing an Environmental Impact Report under CEQA to support its consideration of KRRC's request for Water Quality Certification. A scoping report for this Environmental Impact Report was issued on April 28, 2017, and is attached for FERC's reference and information as Attachment B. On June 1, 2017, KRRC sent a letter to the Water Board informing the Water Board of KRRC's decision on a proposed project. The KRRC's proposed project and the Proposed Action for purposes of environmental review is the Full Removal Alternative described in the Detailed Plan. KRRC also encouraged the Water Board to consider in its CEQA analysis the Partial Removal Alternative as described in the Detailed Plan. The June 1, 2017 letter is attached for FERC's reference and information as Attachment C.

KRRC anticipates that the Water Board will issue a Draft Environmental Impact Report before the end of the first quarter of 2018.

Completion of Definite Plan: When AECOM has completed its work it will provide KRRC with a Definite Plan in compliance with § 7.2 of the Amended KHSA. In this regard the Amended KHSA provides the following at § 7.2.1 A:

> The Definite Plan may be based on all elements of the Detailed Plan described in Section 7.2.2[6] and will be consistent with FERC requirements for surrender. Such elements shall be in the form required for physical performance, such as engineering specifications for a construction activity, and shall also include consideration of prudent cost overrun management tools such as performance bonds. The Definite Plan shall also include:
>
> (1) A detailed estimate of the actual or foreseeable costs associated with: the physical performance of Facilities Removal consistent with the Detailed Plan; each of the tasks associated with the performance of the DRE's obligations as stated in Section 7.1; seeking and securing permits and other authorizations; and insurance, performance bond, or similar measures, as set forth in Appendix L to this Settlement;
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> (2) The DRE's analysis demonstrating that the total cost of Facilities Removal is likely to be less than the State Cost Cap, which is the total of Customer Contribution and California Bond Funding as specified in Section 4;
>
> (3) Appropriate procedures consistent with state law to provide for cost-effective expenditures within the cost estimates stated in (1);
>
> (4) Accounting procedures that will result in the earliest practicable disclosure of any actual or foreseeable overrun of cost of any task relative to the detailed estimate stated in (1); and
>
> (5) Appropriate mechanisms to modify or suspend performance of any task subject to such overrun. Upon receipt of Notice from the DRE of any actual or foreseeable cost overrun pursuant to (2), the Parties shall use the Meet and Confer procedures to modify the task (to the extent permitted by the FERC surrender order, an applicable permit, or other authorization) or to modify this Settlement as appropriate to permit Facilities Removal to proceed

[6] The requirements of Section 7.2.2 include:

> Timetable for decommissioning
> The physical methods to be undertaken to effect facilities removal
> Plan for site remediation and restoration
> Plan to avoid or minimize adverse downstream impacts
> Plan for compliance with all applicable laws (including anticipated permits and permit conditions)
> Detailed statement of the estimated costs of Facilities Removal
> Statement of measures to reduce risks of cost overruns, delays, or other impediments to Facilities Removal

When KRRC is satisfied that the Definite Plan is complete it will so notify the parties to the Amended KHSA in accordance with § 7.2.1 B of the agreement. Thereafter, the Definite Plan will be filed with FERC as its proposed decommissioning plan. KRRC has committed to FERC to make this filing on or before December 31, 2017.

B. Decommissioning Plan Cost Estimate

At KRRC's request, AECOM has reviewed the cost estimates included in the Detailed Plan and provided KRRC with an update. AECOM's updated cost estimate for the Full Removal Alternative is $274,350,000 (2020 dollars).

In undertaking this analysis, AECOM prepared two comparisons to the 2010 Reclamation project cost estimate. The first comparison considered only the escalation of the 2010 line item costs. In 2010, Reclamation forecasted price increases for the period between 2010 and 2020 to arrive at an estimated cost in 2020 dollars. Since some time has passed since that estimate, AECOM used historical price increase data to complete the escalation from 2010 to 2017. AECOM used Engineering News-Record's Construction Cost Index to increase line-item costs from 2010 to 2017 and then future projection for the period between 2017 and 2020. The second comparison involved building up unit costs for the line items comprising approximately 95% of the total direct cost, which were all line items over $100,000 in cost. Historical production rates, Davis Bacon Wage Determination, regional equipment rates, local fuel prices, and supplier/vendor inputs were utilized to build up unit costs for these line items in 2017 dollars. These line items were then escalated to 2020 dollars using the future projection between 2017 and 2020 described above, and all remaining, non-built up line items were escalated between 2010 and 2020 as described above.

Based upon this analysis, AECOM adjusted Reclamation's 2010 cost estimate to $291,600,000 (2020 dollars). AECOM's 2017 independent estimate for the Full Removal Alternative is $274,350,000 (2020 dollars). AECOM's 2017 independent estimate for the Full Removal Alternative reflects an anticipated reduction in total project cost of approximately $17.3 million. AECOM's cost estimates are appended hereto as Attachment C.

3. Please provide detailed information on how the Klamath River Renewal Corporation would address any cost overruns for project decommissioning and dam removal, including copies of executed performance bonds, insurance agreements, or other contractual agreements, etc.

Response:

KRRC will employ the following risk-management tools and procedures to prevent any cost overruns in connection with implementing the decommissioning plan.

Risk Register and Risk-Management Plan: AECOM will develop a risk-management plan to identify all potential project risks and develop mitigation strategies to assist in avoiding or reducing unexpected events and outcomes. A simple but key tool that will be developed along with the plan is a risk-register. This register will be prepared with the participation of the full project team (client, consultants, and Amended KHSA signatories) and will help identify potential negative outcomes and impacts that could affect project success. Once identified, the events in the register can be prioritized and proactively addressed. A qualitative risk-assessment process based on the protocols provided in the Project Risk Management Handbook, Second Edition, developed by the California Department of Transportation (Caltrans Handbook) will be used to assess risks associated with the project. Risk-management starts with a preliminary identification of risk elements, including their likelihood and the consequences of occurrence.

The risk-register will contain main columns including Risk ID, Opportunity or Threat, Risk Category, Risk Sub- Category, Risk Description, Root Cause(s), Secondary Issue, Primary Objective, Probability, Linear/Non-Linear Scoring, Impact, Risk Weight, Overall Rating, Mitigations Measures and Comments. The risk-management and risk-register processes are ongoing activities that start with the project planning phase and are revisited and updated in the subsequent phases of design, construction, and post-construction monitoring. Use of a risk-management plan and risk-register reduces the likelihood of project cost overruns by providing early identification of potential issues or conditions and allowing for early development of mitigation strategies to avoid additional costs.

Project Delivery Method and Contractor Selection Process: KRRC expects to enter into a project agreement for the performance of the project decommissioning and dam removal work on a fixed price (or guaranteed maximum price) basis with a highly qualified contractor. The project agreement will provide that both design and deconstruction will be done on an integrated basis by one overall contractor and will assure that, absent contractually defined uncontrollable circumstances, the work will be performed without cost overruns. Thus, any project costs incurred within the defined work scope that are in excess of the guaranteed price will be the responsibility of the project contractor, not KRRC.

The project contractor will be chosen using a qualifications-based-selection ("QBS") process. QBS standards will include:

- Past performance of similar projects in scope, magnitude (complexity and size, such as but not limited to performance of work at multiple locations at the same time), and type (waterway work; environmentally regulated);

- Sufficient financial strength, including basic financial metrics such as corporate net worth and profitability;
- Experience with federally regulated permitting processes; and
- Longevity in industry.

Three or four pre-qualified firms will be invited to make project submittals on a competitive proposal basis in response to a request for proposals ("RFP") issued by KRRC. The requirements for making project proposals will be set forth in the RFP and will be based on the terms of the Definite Plan. The proposer submitting the best value proposal (best overall price and technical merit) will be selected to perform the work and enter into a comprehensive project agreement with KRRC. The sates of California and Oregon and PacifiCorp will have the opportunity to review and comment on the selection process and resulting fixed-price project agreement to assure that their interests are protected and that the project work will be properly carried out. The work may be divided into two or three segments, contracted separately, as determined by KRRC to be in its best interests.

In addition to committing to a fixed price, the project contractor will agree to complete the project and perform the work to specified technical standards by a guaranteed completion date. Proposers will be required to include details proposals on the proposed means and methods of dam removal, consistent with regulatory requirements. Means and methods that offer greater promise of lessening potential liability or lowering costs can be scored higher in determining a proposal's best value. Daily liquidated damages will be payable to KRRC for unexcused delays, and KRRC will not be responsible for any cost overruns except those caused by predetermined risks that are outside the project contractor's ability to reasonably manage and control. A

qualified construction-management entity will oversee the performance of the dam decommissioning and removal work under the project agreement.

This integrated project-delivery approach will be particularly useful for the Lower Klamath Project because it will mitigate several elements of project-completion risk, in addition to the general price risk inherent in all construction projects. Integrated project delivery involves a self-selected team of highly qualified firms whose business interests are aligned, thus decreasing the risk of disputes among team members. By addressing multiple aspects of the work in a single contract, integrated project delivery also has the key advantage of creating one point of accountability for the project, allowing KRRC to bring a claim against a single entity for any flawed work. Furthermore, considering that dam removal is a specialized area, integrated project delivery gives the prequalified entity the opportunity to make an innovative and cost-effective proposal to execute the work. Additional benefits of integrated project delivery include accelerated project delivery and improved project quality.

Risks transferred to the project contractor under the project agreement will include the risk of unexcused delays; unexpected work that the project contractor needs to perform to carry out the basic work scope; unavailability of materials; non-compliance with the decommissioning plan, applicable law and governmental approvals; intellectual property infringement; and the risk of exacerbating any existing hazardous substances or other pollution conditions. These risks are regarded in the industry as within the control of the project contractor team and are generally assumed contractually by the contractor without adding a risk premium to the contract price. KRRC, on the other hand, will retain the risk of any delays caused by uncontrollable circumstances (such as changes in law, force majeure, the discovery of cultural resources, and dam conditions unknown at the time the contract is entered into); any work scope changes

directed by KRRC; and the inaccuracy of any information provided by KRRC to the project contractor that formed the basis of the decommissioning plan and that could not reasonably be verified by the project contractor.

Thus, in general, if accurate information is supplied to the project contractor, no scope changes are requested by KRRC after contract execution, and no uncontrollable circumstances occur, the project contractor will be obligated to complete the project for a fixed price competitively established at contract signing. On the other hand, if any of the risks retained by KRRC occur, KRRC as the project owner will bear the costs. Accordingly, the project budget will include an appropriate contingency reserve for any such risks. The amount of the reserve will be determined by KRRC in consultation with its consultants and professional advisors.

The project contractor will furnish a conventional performance bond from a financially sound surety company, further assuring KRRC that the project agreement will be performed as required. The performance bond operates to mitigate the risk of any project contractor insolvency or non-performance of the responsibilities and risks undertaken in the project agreement. A performance bond is not "insurance" or a "guarantee" in a strict legal sense, but in broad general terms operates in a similar fashion. The surety's liability, like that of the project contractor, does not extend to uncontrollable circumstances, and KRRC will continue to bear any such risks. As an alternative or in addition to a performance bond, the project contractor may also be asked to provide a parent company guaranty or to furnish a standby letter of credit securing performance of the project agreement. KRRC will have the right to call upon any such guaranty or to draw on any such letter of credit if a project contractor fails to perform and use the proceeds to pay any non-performance damages it is owed under the project agreement.

The project contractor will also indemnify KRRC for any loss or expense incurred by third parties resulting from an unexcused breach of the contract or any negligence or willful misconduct by the contractor. Each party, as is conventional in contracts of this nature, will waive the right to make a claim for punitive or consequential damages.

Project Management: A qualified construction-management entity will provide oversight of the project contractor, including detailed design review and full construction-management services throughout the duration of the project agreement. The construction manager will participate in the contractor's design development meetings and will review all final design documents developed by the contractor. KRRC anticipates detailed reviews at the 60%, 90% and 100% completion levels, as well as review of final Construction Documents (plans, specifications, design report and cost estimate). The construction manager will be involved in recurring activities such as progress meetings, pay estimates, weekly progress reporting, and schedule updates. These recurring activities are the basic machinery for transferring information, making decisions, and identifying potential risks during construction. The construction manager will meet weekly with the contractor to review the current status of completed work onsite. A written safety plan will be developed that the selected contractor would be required to follow, thus providing a uniform approach toward project safety.

Other Risk-Management Tools: In the March Informational Filing, KRRC advised FERC that it had retained the firm of Willis Towers Watson ("Willis") to provide specialized guidance and advice regarding risk-management strategies. Willis is a global firm that provides a wide range of insurance brokerage, reinsurance, and risk-management consulting services. Working with Willis as its insurance advisor, KRRC has established and will maintain a robust insurance program to minimize liability risks to the project and to KRRC. The insurance policies

purchased (or to be purchased) by either KRRC or the project contractor, as applicable, are expected to include the following:

- Commercial General Liability policy to cover third-party property damage and third-party bodily injury. A CGL policy is in place (*see* "Certificate of Insurance," Attachment H to March Informational Filing *and see* Attachment E hereto "Insurance Policies"). The sufficiency of CGL coverages is reviewed on a not-less-than-annual basis relative to the then-current stage of project implementation.

- Workers Compensation / Employer's Liability / USL&H policy to provide coverage for injuries that occur on the deconstruction site to individual workers. It is premature to secure coverage for injuries that occur on the deconstruction site to individual workers; these coverages will be provided at the appropriate time, and KRRC will then provide FERC with certificates of insurance evidencing that these insurance policies are in full force and effect.

- Builder's Risk / Inland Marine or Commercial Property policy to provide property coverage for damage to any equipment or components of the dam that will be restored or salvaged. It is premature to secure Builder's Risk / Inland Marine or Commercial Property insurance; these coverages will be provided at the appropriate time, and KRRC will then provide FERC with certificates of insurance evidencing that these insurance policies are in full force and effect.

- Automobile Liability policy to provide coverage for third-party property damage and third-party bodily injury for the auto fleet used for construction activities. It is premature to secure insurance for the auto fleet to be used for construction activities; these

coverages will be provided at the appropriate time, and KRRC will then provide FERC with certificates of insurance evidencing that these insurance policies are in full force and effect.

- Umbrella Liability policy to provide excess coverage for General Liability and Automobile Liability. An umbrella policy is in place (*see* "Certificate of Insurance," Attachment H to March Informational Filing *and see* Attachment E hereto "Insurance Policies"). The sufficiency of excess coverage for General Liability and Automobile Liability is reviewed on a not less than annual basis relative to the then-current stage of project implementation.

- Contractors Pollution Liability policy to provide third-party coverage for cleanup and remediation costs, bodily injury, property damage (including natural resource damages, loss of use and diminution in value) and legal defense expenses, as a result of pollution conditions arising from operations performed by or on behalf of the contractor. It is premature to secure Contractors Pollution Liability insurance; these coverages will be provided at the appropriate time, and KRRC will then provide FERC with certificates of insurance evidencing that these insurance policies are in full force and effect.

- Fixed Site Pollution Liability policy to provide coverage for on-site and off-site clean-up/remediation costs, third-party claims for bodily injury and property damage (including natural resource damages, loss of use and diminution in value) and defense expenses and legal costs not otherwise addressed by the CPL (i.e., pollution conditions not caused or exacerbated by the contractors) and arising from pollution conditions on, at, under, migrating to and migrating from property owned or leased by the Insured. It is premature to secure Fixed Site Pollution Liability insurance; these coverages will be provided at the

appropriate time, and KRRC will then provide FERC with certificates of insurance evidencing that these insurance policies are in full force and effect.

- Professional liability/errors and omissions insurance policy to cover design aspects of the dam-removal project. Directors and Officers Liability Insurance ($1,000,000 each claim, $1,000,000 aggregate) is in place (*see* "Certificate of Insurance," Attachment H to March Informational Filing *and see* Attachment E hereto "Insurance Policies"[7]). The need for additional coverages is reviewed on a not-less-than-annual basis relative to the then-current stage of project implementation.

All policies will be specifically tailored to cover all risks to be encountered at each stage of project implementation. All policies of insurance will be reviewed on a not-less-than-annual basis by KRRC and Willis to make sure that they are sufficient.

As discussed above, KRRC will contract with entities that will be required to provide conventional performance and payment bonding. All such bonds must be provided by a financially sound surety company as security to ensure that decommissioning activities will be performed as required. Bond requirements include bid bonds, performance bonds (in an amount equivalent to original contract value) and payment bonds (in an amount equivalent to original contract value). These bonds will be secured in connection with awarding contracts to undertake decommissioning activities. As with insurance coverages, KRRC will seek guidance to ensure that all payment and performance of obligations owed to KRRC are adequately secured. As general matter, the insurance policies and surety bonds that KRRC will be putting in place will

[7] KRRC upgraded its D&O coverage, effective May 1, 2017. These polices were not available, however, as of the date of this filing.

be provided in standard-industry form and, in most cases, at the time the project agreement is executed.

In entering into the project agreement, KRRC will comply with the requirements of Appendix L to the Amended KHSA to identify and contract with a specialty corporate indemnitor to protect the states of California and Oregon and PacifiCorp from certain potential liabilities. KRRC, in conducting the competitive proposal-based procurement process and in establishing the program of required insurance, will determine the most appropriate manner of meeting this requirement. The project contractor is expected to have the general responsibilities of the corporate indemnitor, and the program of required insurance is expected to include special liability insurance provisions in the manner contemplated by the Amended KHSA. Further, per Appendix L to the Amended KHSA, the selection of a "Liability Transfer Corp." will be subject to the approval of the States and PacifiCorp, in consultation with DOI and the United States Department of Commerce's National Marine Fisheries Service.

As noted above, updated cost estimates for the work completed by AECOM anticipate expenditures of approximately $275 million to implement the Full Removal Alternative. To date, approximately $450 million has been committed to this task, and 92% of these funds are currently in hand. In addition to this surplus, the risk-management strategy to be employed by KRRC is prudent and sufficient and will be effective to manage the risk of any cost overruns for implementation of the decommissioning plan.

4. Page 5 of Appendix A in Attachment F (Oregon Public Utility Commission Funding Agreement) of the March 1, 2017 Supplemental Filing states "On November 30, 2016, the parties to the KHSA again amended the KHSA to modify the process for transferring funds to the KRRC." Please file a copy of the latest Klamath Hydroelectric Settlement Agreement.

Response:

The latest version of the Amended KHSA is appended at Attachment F. As described in Appendix A to the Public Utility Commission Funding Agreement, attached as Attachment to the March 1, 2017 Informational Filing, the parties to the KHSA amended the KHSA to modify the process by which funds would be requested of the Oregon Public Utility Commission. The revisions are limited to Sections 3.2 and 4.12 of the KHSA and are designed to clarify that the KRRC will engage directly with the Oregon Commission to execute the funding agreement and to request funds from the Oregon trust account administered by the Oregon Commission pursuant to the funding agreement.

5. Section 16 of the Oregon Public Utility Commission Funding Agreement in Attachment F of the March 1, 2017 Supplemental Filing states that the funding agreement may terminate if "a change in law makes performance or completion of facilities removal in compliance with the KHSA no longer possible." Please explain what qualifies as a "change in law" and whether and how funds from the Oregon customer surcharge will be disbursed in the event Oregon Public Utilities Commission terminates the funding agreement.

Response:

The referenced "change in law" clause set forth in § 16 of the Oregon Public Utility Commission Funding Agreement (the "OPUC Funding Agreement") is narrow in scope. KRRC interprets this section of the OPUC Funding Agreement as follows.

What does "change in law" mean: The words "change in law" should be interpreted in accordance with their plain meaning. A change in law for purposes of § 16 would include a change to a statute, ordinance, regulation, order, or common law, occurring after the effective date of the OPUC Funding Agreement, that materially changes the rights or obligations of at least one of the parties (e.g., KRRC's obligation to perform or complete facilities removal in

compliance with the Amended KHSA).[8] The effect of any "change in law" in this context may, however, be limited by federal law to the extent that the effect of any subsequent change in state law on KRRC's performance obligations would be subject to the exclusive and preemptive authority of FERC. *First Iowa Hydro-Elec. Cooperative v. Fed. Power Comm'n, 328 U.S. 152, 66 S.Ct. 906, 90 L.Ed. 1143 (1946); California v. FERC, 495 U.S. 490, 506-07 (1990).*

How might a "change in law" effect KRRC's performance of the Amended KHSA: Interpreting § 16 of the OPUC Funding Agreement requires consideration of how a change in law is addressed under the Amended KHSA, and whether any such change in law would render KRRC's performance of that agreement "no longer possible." The force majeure clause of Amended KHSA is relevant to this inquiry and provides in pertinent part:

> The term "Force Majeure" means any event reasonably beyond a Party's control that prevents or materially interferes with the performance of an obligation of that Party, that could not be avoided with the exercise of due care, and that occurs without the fault or negligence of that Party. Force Majeure events may be unforeseen, foreseen, foreseeable, or unforeseeable, including without limitation: natural events; labor or civil disruption; breakdown or failure of Project works not caused by failure to properly design, construct, operate, or maintain; ***or new regulations or laws that are applicable to the Project*** (other than the Authorizing Legislation). Force Majeure is presumed not to include normal inclement weather, which presumption can be overcome by a preponderance of the evidence provided by the non-performing Party

Amended KHSA at § 2.1.6 (emphasis added). Thus, to the extent that a "change in law" refers to "new regulations or laws that are applicable to the Project" KRRC is "relieved of any specific obligation directly precluded by the event, as well as those other obligations performance of which is materially impaired." KRRC's performance under these circumstances is excused, not impossible. Under these circumstances, the right to terminate the OPUC Funding Agreement would not be ripe.

[8] Notably, the federal constitution and the Oregon state constitution prohibit these governments from enacting legislation that impairs its contractual obligations. *See* U.S.C. Const. art. 1, § 10; Or. Const. art. I, § 21. *See generally United States v. Winstar*, 518 U.S. 839 (1996); *Moro v. State*, 357 Or. 167, 195, 351 P.3d 1, 19 (2015).

What constitutes impossibility of performance for purposes of § 16 of the OPUC Funding Agreement: The OPUC Funding Agreement is governed by Oregon law. *See OPUC Funding Agreement § 18(e).* Under Oregon law, impossibility is narrowly construed. A change in law that, for example, delays performance or makes it more expensive, does not render it impossible. Similarly, a change in law that makes performance more complex, onerous or difficult does not render it impossible. Under Oregon law, "impossibility" means a hardship so extreme as to be outside any reasonable contemplation of the parties:

> Cases dealing with impossibility caused by court order frequently speak of situations where an injunction prevents all performance, but this is not really what happened to Savage. He was eventually able to complete his promised sandblasting, but to do so he had to spend more money than he had planned on spending to protect third persons. The alleged impossibility in this case arises out of increased expense in complying with court orders.
>
> In applying the doctrine of impossibility, courts recognize that unexpected difficulty or expense may approach such an extreme that a practical impossibility exists. See, e.g., *Natus Corporation v. United States, 371 F.2d 450 (Ct.Cl.1967)*. To operate as a discharge, however, the hardship must be so extreme as to be outside any reasonable contemplation of the parties. *Natus Corporation v. United States, supra*. And see Restatement of Contracts s 454 (1932); *Transatlantic Financing Corporation v. United States, 124 U.S.App.D.C. 183, 363 F.2d 312, 315 (1966).*
>
> Unexpected difficulties and expense, therefore, whether caused by injunction or by other causes, do not necessarily excuse performance of a contract.

Savage v. Peter Kiewit Sons' Co., 249 Or. 147, 152–53, 432 P.2d 519, 522 (1967), modified sub nom. Savage v. Peter Kiewit Sons Co., 249 Or. 147, 437 P.2d 487 (1968). Thus, without a change in law that both falls outside of the scope of the Amended KHSA's force majeure clause and gives rise to an impossibility of performance of the nature and magnitude recognized by Oregon law, the right to terminate the OPUC Funding Agreement would not be exercisable in accordance with § 16.

How would changes or conflicts with law be addressed by the parties: While the right to terminate arising under § 16 OPUC Funding Agreement is narrow in scope, the means and

methods of dealing with existing and changing legal obligations is more broadly addressed under the Amended KHSA. Implementation of the Amended KHSA will be shaped and governed by the requirements of applicable law. The parties understood that any and all such requirements must be complied with and that these requirements may well affect the timing, cost and complexity of performing the Amended KHSA. The agreement specifically provides:

> Nothing in this Settlement is intended or shall be construed to affect or limit the authority or obligation of any Party to fulfill its constitutional, statutory, and regulatory responsibilities or comply with any judicial decision. Nothing in this Settlement shall be interpreted to require the Federal Parties, the States, or any other Party to implement any action which is not authorized by Applicable Law or where sufficient funds have not been appropriated for that purpose by Congress or the States. The Parties expressly reserve all rights not granted, recognized, or relinquished in this Settlement.

Amended KHSA at § 1.6.1. If a conflict developed between the Amended KHSA and applicable law and resulted in a dispute, any such dispute would be resolved through the "Meet and Confer" and "Dispute Resolution" mechanisms provided by the agreement. These dispute-resolution mechanisms seek to resolve matters collaboratively and look to alternative solutions that are consistent with the overall intent and purpose of the agreement. Additionally, the severability clause of the Amended KHSA ensures that a discrete conflict or prohibition attributable to a change in law would not be fatal to the Amended KHSA as a whole:

> [I]f any provision of this Settlement is held by a Regulatory Agency or a court of competent jurisdiction to be invalid, illegal, or unenforceable: (1) the validity, legality, and enforceability of the remaining provisions of this Settlement are not affected or impaired in any way; and (2) the Parties shall negotiate in good faith in an attempt to agree to another provision (instead of the provision held to be invalid, illegal, or unenforceable) that is valid, legal, and enforceable and carries out the Parties' intention to the greatest lawful extent under this Settlement.

Amended KHSA at § 8.10. This is a further indication of the parties' intention to resolve matters collaboratively and look to alternative solutions that are consistent with the overall intent and purpose of the agreement.

Disbursement of Funds: The state of Oregon is a signatory to the Amended KHSA and supports its implementation. The Oregon Commission has formally determined that the settlement is in the interests of PacifiCorp's' customers. *In the Matter of PacifiCorp d/b/a Pacific Power,* Docket No. UE 219, Order No. 17-018 (Jan. 24, 2017). Accordingly, in the unlikely event that a change in law occurred that truly stymied the project as currently contemplated, it is KRRC's expectation that, rather than leading directly to a termination of the OPUC Funding Agreement, it would lead to negotiation of modifications that take account of the changed circumstances and the need to allow the Amended KHSA dispute resolution mechanisms described above to come into play. KRRC notes further that, should the OPUC Funding Agreement be terminated, that event alone would neither, as matter of law, terminate the collection of the customer surcharges or dissolve the trusts in which they are being held, nor effect a refund of any funds as might then be held in the trust accounts for the sole and express purpose of dam removal. These funds would remain in the current trust accounts until either the dam-removal project is back on track and a new OPUC Funding Agreement is put in place or the Oregon Commission takes formal action to direct otherwise.

6. Section 9.2 of the Commission's regulations requires, "[e]very application for approval of such transfer and acquisition by the proposed transferee shall set forth in appropriate detail the qualifications of the transferee to hold such license and to operate the property under license, which qualifications shall be the same as those required of applicants for license." 18 C.F.R. § 9.2 (2016). Section 9(2) of the Federal Power Act requires license applicants to provide "[s]atisfactory evidence that the applicant has complied with the laws of the State or States within which the proposed project is to be located . . . with respect to the right to engage in the business of developing, transmitting, and distributing power . . . ." 16 U.S.C. § 802(a)(2) (2012). Please file evidence that the Klamath River Renewal Corporation has the legal and financial ability to develop, transmit, and distribute power, and to operate the project for the foreseeable future.

Response:

A. Legal Ability to Operate the Project:

Summary: KRRC is a nonprofit public benefit corporation in good standing under the laws of California.[9] KRRC has the legal authority and capacity to transact business for all purposes for which the corporation was created, as defined by the KRRC's Bylaws and Articles of Incorporation. These founding documents provide KRRC with the legal capacity to engage in the business of developing, transmitting, and distributing power. In short, KRRC is a "corporation" for purposes of 16 U.S.C. § 796(3) and has the legal capacity to be a "licensee" as defined in 16 U.S.C. § 796(5), subject to the review and approval of the Commission under 16 U.S.C. § 801.

California Law: KRRC is legally authorized and able, under California state law, to develop, transmit, and distribute power, and to operate the project for the foreseeable future. Under California law, KRRC may engage in any business activity so authorized by its articles of incorporation, and may do so in California and in any other state. *See Cal Corp Code Sec. 206* ("Subject to any limitation contained in the articles and to compliance with any other applicable laws, any corporation other than a corporation subject to the Banking Law or a professional corporation may engage in any business activity"); *Cal Corp Code Sec. 207* ("Subject to any limitations contained in the articles and to compliance with other provisions of this division and any other applicable laws, a corporation shall have all of the powers of a natural person in carrying out its business activities, including, without limitation, the power to: . . . qualify to do business in any other state, territory, dependency, or foreign country"). Moreover, California state law does not impose any barriers for nonprofit corporations to "develop, transmit, and distribute power, and to operate the project for the foreseeable future." Rather, Cal Corp Code Sec. 5111 states, "Subject to any other provisions of law of this state applying to the particular

[9] Transfer Application, Attachment J "KRRC Certificate of Good Standing."

class of corporation or line of activity, a corporation may be formed under this part for any public or charitable purposes."

Nothing in the general nonprofit corporation code would suggest that engaging in the business of developing, transmitting, and distributing power would be an impermissible purpose. To the contrary, the Articles of Incorporation authorize specific "powers" of KRRC, including the explicit authorization to "maintain, ***operate***, modify, remove and restore real and personal property, improvements and facilities." Article of Incorporation § 2(b) (emphasis added). By virtue of the explicit authorization to operate facilities, KRRC has the necessary legal capacity to develop, transmit, and distribute power since the Lower Klamath Project facilities perform these very functions.

Further, KRRC's Bylaws[10] and Articles of Incorporation[11] explicitly authorize it to become a FERC licensee and to engage the services of others for purposes of taking actions necessary to implement the Amended KHSA, and to engage in activities typical of FERC licensees. KRRC's Articles of Incorporation expressly state (among other things) that authorized purposes of the corporation include "implementation of the Klamath-Hydroelectric-Settlement Agreement . . . . as it may be amended from time to time . . . . and the implementation of any related agreements among the same or similar parties with respect to the Klamath Basin, all in a manner determined by the Corporation's Board of Directors. "Implementation of the Klamath-Hydroelectric-Settlement Agreement" includes, without limitation, implementation of § § 7.1.5 and 7.1.6 of the Amended KHSA, which provide in relevant part:

[10] Transfer Application, Attachment H "Articles of Incorporation"
[11] Transfer Application, Attachment I "KRRC Bylaws."

> PacifiCorp and [KRRC] will jointly file an application to remove the Facilities from the Project license, re-designate the Facilities with a new project number, and ***transfer the re-designated FERC license for the Facilities to [KRRC]***.
>
> . . . . .
>
> ***[KRRC] and PacifiCorp will enter into an operation and maintenance agreement*** allowing PacifiCorp to continue operating the Facilities for the benefit of its customers following transfer of the FERC Facilities license to [KRRC].

(Emphasis added) Thus, the Amended KHSA clearly contemplates that KRRC will become a FERC licensee. Further, as demonstrated in the passage above, the authority to operate the Lower Klamath Project, and a proposed means of operating the Lower Klamath Project, are both within the four corners of the specific purpose for which KRRC was created: implementation of the Amended KHSA and implementation of any related agreements among the same or similar parties with respect to the Klamath Basin.

Additionally the Articles of Incorporation explicitly authorize the KRRC to engage in many activities that are common of FERC licensees, including the ability "to acquire or transfer, by deed, lease or otherwise, ownership or possession of real and personal property, improvements and facilities;" "to seek, obtain, hold, transfer, or surrender such governmental and other approvals, permits and licenses;" and "to engage the services of such consultants, advisors…and other persons…." *Id.* § 2(a), (d), and (e). Each of these explicit authorizations will be of importance as the KRRC pursues dam removal. Finally, the Articles of Incorporation include a catch-all provision permitting KRRC to "perform any and all acts and things and exercise any and all powers that may now or hereafter be lawful for KRRC to do or exercise under and pursuant to the laws of the State" to accomplish any of the explicit authorizations

described above. *Id.* § 2(f). This broad discretion provides further authority for KRRC to engage in the business of developing, transmitting, and distributing power.

While KRRC understands that implementation of the Amended KHSA may require KRRC to obtain further reviews and approvals from the state of California (e.g., issuance of a Water Quality Certification), to the best of KRRC's knowledge there are no additional California state law requirements that must be satisfied in order for KRRC to accept the License and operate the Lower Klamath Project in the manner contemplated by the FERC license and the Amended KHSA.

Oregon Law: As a California corporation, KRRC may transact business in Oregon as a non-resident entity. KRRC has made all requisite filings with the Oregon Secretary of State to transact business as a non-resident entity.[12] As in California, KRRC understands that implementation of the Amended KHSA may require KRRC to obtain further reviews and approvals from the state of Oregon, but to the best of KRRC's knowledge, there are no additional Oregon state law requirements that must be satisfied for KRRC to accept the License and operate the Lower Klamath Project in the manner contemplated by the FERC license and the Amended KHSA.

Conclusion: No additional state law requirements must be satisfied for KRRC to accept the License and operate the Project in the manner contemplated by the Amended KHSA. KRRC has therefore "complied with the laws of the State or States within which the proposed project is to be located . . . with respect to the right to engage in the business of developing, transmitting, and distributing power" for purposes of 16 U.S.C. § 802(a) (2) (2012). Evidence establishing

[12] http://egov.sos.state.or.us/br/pkg_web_name_srch_inq.show_detl?p_be_rsn=1884772&p_srce=BR_INQ&p_print=FALSE

this compliance includes KRRC's Articles of Incorporation, its Bylaws and its Certificate of Good Standing, all of which were filed with the Transfer Application.

B. Financial Ability to Operate the Project:

As previously advised, KRRC will retain PacifiCorp to operate the Lower Klamath Project in accordance with the terms and conditions of the License and any orders that FERC may issue regarding these operations. A copy of the current draft of the KRRC/PacifiCorp Operation and Maintenance Agreement ("O&M Agreement") was appended to the KRRC's March 1, 2017, Informational Filing. The parties anticipate that this agreement will be finalized and executed in the near future, and a copy will be provided to FERC.

Under the O&M Agreement, PacifiCorp will be obligated to assume the financial liabilities associated with operating and maintaining the Lower Klamath Project, pending surrender of the License. PacifiCorp is also required by the Amended KHSA to pay the costs associated with operating the dams and indemnify, defend, and hold harmless KRRC with respect to those operations.

PacifiCorp's obligation to contractually assume financial responsibility for project operations pending surrender of the transferred License is also set forth in the Amended KHSA. Relevant portions of Amended KHSA include the following:

> 7.1.6 Operation and Maintenance Agreement
>
> On or around July 1, 2016, the DRE and PacifiCorp will enter into an operation and maintenance agreement allowing PacifiCorp to continue operating the Facilities for the benefit of its customers following transfer of the FERC Facilities license to the DRE. The conditions of operation under this agreement will be consistent with interim operations described in Section 6 and Appendices B, C, and D, and will include requirements that PacifiCorp pay all costs associated with operating the Facilities and indemnify, defend, and hold harmless the DRE with respect to those operations. The DRE and PacifiCorp will obtain the concurrence of the States for any such agreement.
>
> 7.3 Schedule for Facilities Removal

The Parties agree [to]…

Implement Decommissioning and Facilities Removal in a manner that permits PacifiCorp to generate sufficient electricity at the Facilities to achieve the economic results included in PacifiCorp's Economic Analysis; and ..

Agree that PacifiCorp may continuously operate the Facilities … and generate electricity at the Facilities through December 31, 2019 …

These obligations will be carried forward to and implemented in the O&M Agreement. Relevant provisions of the O & M Agreement include the following:

5. PROJECT OPERATION:

5.1 From and after the Effective Date, PacifiCorp will, at its sole cost and expense, operate and maintain the Lower Klamath Project in accordance with the terms, conditions, and covenants contained in this Agreement.

. . . . .

5.3 PacifiCorp will comply with the requirements and conditions of all federal, state and local laws, regulations and requirements (including any final orders or regulations of regulatory or other agencies having jurisdiction) applicable to the operation or maintenance of the Lower Klamath Project, including the requirements and conditions of the FERC license and applicable directives, protocols, plans or procedures issued or required by FERC with respect to the Lower Klamath Project

. . . . .

5.5 PacifiCorp will pay promptly all sums due its employees or due any governmental or other agency on its employees' behalf, and will not permit any labor claims to become a liability of KRRC or a lien against the Lower Klamath Project

. . . . .

5.8 PacifiCorp will not do anything or fail to take any act that would impair the coverage of or increase the premium for any policy of insurance maintained by KRRC, and no provision of this Agreement will be construed as authorizing any such result

6. EXPENSE OF OPERATION, MAINTENANCE, REPAIRS AND REPLACEMENTS:

6.1 PacifiCorp will be solely responsible for all Operating Expenses, including costs of repairs, replacements, restoration, operations, maintenance, engineering, administrative, accounting and general expenses, in each instance arising in connection with the operation or maintenance of the Lower Klamath Project.

. . . . .

6.4 PacifiCorp will keep and maintain the Lower Klamath Project free from all liens or other encumbrances except for real estate taxes not yet due or encumbrances arising as a direct result of KRRC's Facilities Removal activities

"Operation and maintenance" is defined in the O&M Agreement as all "activities, services and functions necessary or otherwise performed in connection with the Lower Klamath Project, including, without limitation, their operation, maintenance, repair, replacement, refurbishment, restoration, security, safety, engineering, testing, staffing, and inspection, and any measures necessary to comply with applicable contracts, agreements, laws, regulations, requirements, permits, approvals, consents, certificates, authorizations or reporting obligations or to comply with 'operation and maintenance' standards or practices prevailing in the utility industry for hydroelectric projects of a similar size and nature." Section 6.3 carves out a very limited set of KRRC costs—(a) costs incurred by KRRC in connection with its Facilities Removal activities and (b) costs relating to the Facilities that would not have been incurred but for KRRC's Facilities Removal activities, other than immaterial costs such as costs relating to administrative functions or assistance in connection with KRRC's Facilities Removal planning. These KRRC Costs (if and to the extent incurred) are of a nature that fall within the anticipated scope and budget of KRRC's decommissioning plan.

PacifiCorp's financial responsibility is further backed by indemnities and insurance. Section 12.1 of the O&M Agreement provides that "PacifiCorp will maintain in effect at all times during the term of this Agreement, insurance for the operation and maintenance of the Lower Klamath Project in such amounts as is commercially reasonable for utility industry projects of similar size and nature. Such insurance will be maintained with responsible insurers and will name KRRC as an additional insured and with losses payable to the respective parties for their benefit as their respective interests may appear . . . ." Section 14 of the O&M Agreement provides:

> PacifiCorp will indemnify, hold harmless, and defend KRRC for, from, and against any loss, expense, cost, liability, damage, claim, fine or penalty resulting from or otherwise

> related to the operation, maintenance, replacement, restoration or repair of the Lower Klamath Project or any failure by PacifiCorp to observe and comply with the terms and conditions of this Agreement. This Section 14 will survive termination of this Agreement.

PacifiCorp brings significant financial resources and years of knowledge and experience with the operation and maintenance of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments. As noted in the March Informational Filing, KRRC could have no greater or better asset in this regard.

KRRC has the legal and financial ability and resources to develop, transmit, and distribute power, and to operate the project for the foreseeable future. KRRC believes that the information provided with the Transfer Application, as supplemented by the March Informational filing, and as further addressed in this response, fully establishes KRRC's qualifications to hold the License and to operate the Project for the foreseeable future. If FERC believes that there are any specific deficiencies with respect to these qualifications, KRRC asks to be so advised so it may fully and promptly address them, to FERC's satisfaction.

10. The second paragraph in the section "B. Project Execution" of the California Natural Resources Agency Grant Agreement in Attachment G of the March 1, 2017 Supplemental Filing states that the "Grantee shall ensure completion of the Project in accordance with the time performance set forth in the Definite Plan, unless an extension has been formally granted by the State and under the terms and conditions of this agreement. Extensions may be requested in advance and will be considered consistent with State encumbrance and expenditure deadlines, but in no event beyond June 30, 2021, or the appropriation reversion as determined in the enacted State budget for Fiscal Year 2016 . . . . ." In the event that decommissioning is not completed by June 30, 2021 and the appropriated funds for the California grant revert back to the State of California, how will funding be provided to complete the decommissioning activities in the Definite Plan and any measures required by the Commission?

Response:

The disbursement of funds to KRRC under The Natural Resources Agency Grant Agreement ("Grant Agreement") does not require any further voter approval, legislative or

executive action, or budget appropriation. The Grant Agreement fully encumbers the $249,500,000 allocated and appropriated for decommissioning, with the sum of $25 million having been advanced to KRRC to cover planning, analysis and permit approval processes. The balance of the Proposition 1 funds will be disbursed in phases. The Grant Agreement provides KRRC with legal control over the disbursement of funds, which are to be disbursed in advance in increments of up to $25 million. Disbursements are not contingent on other factors or subject to claw-back based on changing political circumstances.

As FERC has noted, however, the currently appropriated funds are available for advance under the Grant Agreement through June 30, 2021. If there is a project delay that delays withdrawal of all necessary funds by KRRC by that date, given the extensive and sophisticated project-management approaches that KRRC and its technical representative will be using, any such delay will be known well before any reversion of the appropriated funds would occur. In that case, KRRC would confer with the state of California to address the potential reversion of funds and explore any options to timely expend the funds for purposes of the appropriation despite project delays.

In anticipation of the possible need for an additional appropriation, however, the Grant Agreement provides that KRRC may request an extension or re-appropriation, and upon such a request "the State will use reasonable efforts to obtain any such extension or re-appropriation prior to the effectiveness of any such reversion." Further, in addition to its obligation under the Grant Agreement to seek any needed extension or re-appropriation, the State of California is a party to the Amended KHSA, and, by virtue of the current legislative appropriation, has demonstrated its support for the implementation of the Amended KHSA. California has also provided KRRC with a letter indicating its intent to pursue re-appropriation, if necessary. This

letter is appended hereto as Attachment G. Accordingly, KRRC believes that the likelihood of a loss of the Proposition 1 funding due to a project delay is low.

If, however, notwithstanding these protections and contractual mechanisms to request an extension, these funds were to be no longer available to KRRC, KRRC would then need to find alternative funding sources.

DECLARATION OF MICHAEL CARRIER

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PacifiCorp	)	Project No. P-2082-062
	)	Project No. P-14803-000
and	)	
	)	RESPONSE TO ADDITIONAL
Klamath River Renewal Corporation	)	INFORMATION REQUESTED
	)	REGARDING APPLICATION FOR
	)	AMENDMENT AND PARTIAL
	)	TRANSFER OF LICENSE
	)	

DECLARATION OF MICHAEL CARRIER
ON BEHALF OF
KLAMATH RIVER RENEWAL CORPORATION

I, Michael Carrier, declare under penalty of perjury that the foregoing is true and correct:

1. I am the President of the Board of Directors of the Klamath River Renewal Corporation ("KRRC"). I have been in this position since the corporation was formed in 2016. My business address is 423 Washington Street, 3rd Floor, San Francisco, California 94111. My responsibilities include presiding over meetings of the Board of Directors of the KRRC; in consultation with other officers, setting and approving agendas for board meetings; convening regular meetings of the board's executive committee; providing day-to-day guidance to the KRRC's executive director and contractors; upon authorization of the board,

executing contracts on behalf of KRRC; and soliciting and communicating legal advice from KRRC's general counsel to KRRC board and staff. I am apprised, on a regular basis, of the status of KRRC's implementation of the Klamath Hydroelectric Settlement Agreement, as amended (the "Amended KHSA") and the related matters pending before the Federal Energy Regulatory Commission ("FERC").

2. On or about April 24, 2017, I received a copy of a letter from Mr. Steve Hocking, Chief, Environmental and Project Review Branch, Division of Hydropower Administration and Compliance, Federal Energy Regulatory Commission. Mr. Hocking's letter was addressed to Ms. Sarah Kamman, Vice President and General Counsel, PacifiCorp. A copy of the letter was sent to me in my capacity as President of the KRRC Board of Directors.

3. The subject of Mr. Hocking's letter as stated therein was "Additional information requested regarding application for amendment and partial transfer of license." Mr. Hocking's letter enclosed a document referred to therein as "Schedule A." Schedule A sets forth eleven questions requesting additional information pertaining to KRRC and PacifiCorp's "Joint Application for Approval of License Amendment and License Transfer," Project No. P-2082-062 and Project No. P-14803-000 (the "Transfer Application").

4. KRRC is a co-applicant and proponent of the Transfer Application and is seeking FERC approval of the transfer of the FERC license from PacifiCorp to KRRC for four developments on the main stem of the Klamath River (J.C. Boyle,

Copco No. 1, Copco No. 2, and Iron Gate) as a new FERC project to be known as the "Lower Klamath Project."

5. Upon receipt of Mr. Hocking's letter, KRRC consulted PacifiCorp to discuss and to coordinate a response. KRRC and PacifiCorp determined and agreed that KRRC was informed and best able to respond to Schedule A questions 1, 2, 3, 4, 5, 6 and 10. It was further determined and agreed by KRRC and PacifiCorp that PacifiCorp was informed and best able to respond to Schedule A questions 7, 8, 9 and 11.

6. I subsequently directed my staff to review Mr. Hocking's letter and to prepare a response to Schedule A questions 1, 2, 3, 4, 5, 6 and 10 on behalf of KRRC. A full and complete response to these questions was prepared under my direct supervision and control, and this response is attached to this Declaration as Exhibit A (the "KRRC Response"). In its capacity co-applicant and proponent of the Transfer Application, and in response to Mr. Hocking's letter requesting additional information germane to the Transfer Application, KRRC speaks for itself.

7. With respect to all factual matters set forth in the KRRC Response (including, but not limited to, any and all attachments thereto), to the best of my the best of my knowledge, information and belief, I declare the same to be true and accurate as of the date of this Declaration.

8. In preparing the KRRC Response, I sought and obtained advice and guidance from KRRC's legal counsel as to certain matters set forth therein. I

have relied upon the advice and guidance provided by legal counsel as to any legal matters, interpretations, options or other such similar views or statements as may be set forth in the KRRC Response. The KRRC Response has been reviewed and approved by KRRC's legal counsel, specifically with respect to any legal matters, interpretations, options or other such similar views or statements as may be set forth therein.

9. Primarily with respect to Schedule A question 2, I asked for and received information from AECOM, KRRC's Technical Representative, as to the status of AECOM's work to prepare KRRC's decommissioning plan and to prepare an estimate of the cost of dam removal and restoration. AECOM's scope of work for KRRC includes assisting KRRC in preparing the "Definite Plan" for decommissioning based on the Detailed Plan set forth in the Amended KHSA and consistent with all permitting and FERC requirements. KRRC is closely monitoring this work. Based upon my review of the information provided by AECOM and my first-hand knowledge of the status of this work, I am confident that the KRRC Response provides an accurate and up to date summary of the status of KRRC's decommissioning plan and the estimated cost estimates of dam removal and restoration.

10. Prior to filing the KRRC Response with FERC, the KRRC Response was circulated to the States of California and Oregon, and to PacifiCorp, for review and comment, and as a means for KRRC to further confirm the sufficiency and accuracy of the responses provided therein.

11. Prior to filing the KRRC Response with FERC, KRRC was afforded the opportunity to review and provide comment on PacifiCorp's response to Schedule A questions 7, 8, 9 and 11. As to these matters, PacifiCorp speaks for itself. KRRC offers no further response or comment other than noting that § 7.6.6 of the Amended KHSA establishes the terms and conditions for transfer and funding of the Iron Gate Hatchery and that this matter is the subject of ongoing discussion by and between KRRC, the State of California and PacifiCorp.

EXECUTED this 22nd day of June at San Francisco, California.

Michael Carrier 6/22/17

Michael Carrier
President, Board of Directors
Klamath River Renewal Corporation

ATTACHMENTS

ATTACHMENT A

U.S. Department of the Interior Bureau
Draft Supplemental Information Report (March 2016)

Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Report

Supplemental Information Report

State Clearinghouse

#2010062060

U.S. Department of the Interior

March 2016

Mission Statements

U.S. Department of the Interior

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

Executive Summary

This supplemental information report documents the findings of a team of staff technical reviewers familiar with the *Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Report* (EIS/EIR) from the Bureau of Reclamation (Reclamation), US Fish and Wildlife Service(USFWS), National Marine Fisheries Service(NMFS), US Geological Survey(USGS), Department of Interior (DOI), State of Oregon, and State of California regarding new information relevant to facilities remove of J.C. Boyle, Copco 1, Copco 2, and Iron Gate dams (Figure 1).

The Klamath Hydroelectric Settlement Agreement (KHSA), executed in February 2010, has two related agreements: the Klamath Basin Restoration Agreement (KBRA) and the Upper Klamath Basin Comprehensive Agreement (UKBCA). The KBRA expired in December 2015, without Congressional authorization. The UKBCA is still in effect, though the agreement is not capable of being fully implemented without Congressional authorization. Dam removal can proceed without Congressional authorization via the Federal Electrical Regulatory Commission's (FERC) process for dam decommissioning as authorized by the Federal Power Act. Parties to the KHSA made amendments to that agreement, which became effective on April 6, 2016. Those amendments shift the decision on whether to remove the dams to the FERC rather than the Secretary of the Interior as originally agreed in 2010.

A team of staff technical reviewers familiar with the EIS/EIR has reviewed the EIS/EIR in light of the amendments to the KHSA. The team analyzed the Amended KHSA and expired KBRA to determine if the changes affected the utility of the environmental document for incorporation by reference or adoption by other entities as permitted by the NEPA implementing regulations. With the KBRA's expiration in 2015, some benefits provided by the KBRA are no longer a part of the Proposed Action, but overall the changes in approval authority were not relevant to the environmental impact analysis or determinations. The team also reviewed relevant technical information that may have not been available at the time the EIS/EIR analysis was completed; however, none of that technical information materially changes interpretations or conclusions about the effects of dam removal described in the EIS/EIR. Thus, the existing Klamath Facilities Removal EIS/EIR adequately addresses environmental impacts related to facilities removal and could provide a sufficient basis for decision-making by another federal agency.

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List of Abbreviations and Acronyms

µg/L	micrograms per liter
AASHTO	American Association of State Highway Transportation Officials
AB 32	Assembly Bill
ACHP	Advisory Council on Historic Preservation
Amended KHSA	Amended Klamath Hydroelectric Settlement Agreement
APE	Area of Potential Effect
Basin Study	Klamath River Basin Study
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
BMP	Best Management Practices
BOE	Board of Equalization
CA	State of California
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
cfs	cubic foot per second
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CPUC	California Public Utility Commissions
DDT	dichlorodiphenyltrichloroethane
DFG	California Department of Fish and Game (prior to January 1, 2013)
DFW	California Department of Fish and Wildlife (after January 1, 2013)
DO	dissolved oxygen
DOC	Department of Commerce
DOI	Department of Interior
DPS	Distinct Population Segment
DRE	dam removal entity
EDD	Employment Development Department
EDR	Environmental Data Resources
EDRRA	Evaluation of Dam Removal and Restoration of Anadromy
EFH	Essential Fish Habitat
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gases

HABS/HAER	Historic Architectural Building Survey/Historic Architectural Engineering Report
HALS	Historic American Landscape Survey
HCP	Habitat Conservation Plan
HGMP	Hatchery and Genetics Management Plan
HTRW	hazardous, toxic, and radiological waste
IGH	Iron Gate Hatchery
IMPLAN	Impact analysis for PLANning
ITP	Incidental Take Permit
KBRA	Klamath Basin Restoration Agreement
KHSA	Original Klamath Hydroelectric Settlement Agreement
KHHD	Klamath Hydroelectric Historic District
KHP	Klamath Hydroelectric Project
KPFA	Klamath Power and Facilities Agreement
KRRC	Klamath River Restoration Corporation
KMZ	Klamath Management Zone
KMZ-CA	Klamath Management Zone – California
KMZ-OR	Klamath Management Zone - Oregon
LWD	large woody debris
mg/L	milligrams per liter
mm	millimeters
$MMTCO_2e$	million metric tons carbon dioxide equivalent
NCRWQCB	North Coast Regional Water Quality Control Board
NBER	National Board of Economics
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen dioxide
NRDC	Natural Resources Defense Council
NWR	National Wildlife Refuge
NWS	National Weather Service
O_3	ozone
ODFW	Oregon Department of Fish and Wildlife
OEHHA	Office of Environmental Health and Hazard Assessment
O&M	operation and maintenance
OPCC	An Opinion of Probably Construction Costs
OPUC	Oregon Public Utility Commission
OR	State of Oregon
PA	Programmatic Agreement
PCEs	Primary Constituent Elements
PFMC	Pacific Fishery Management Council
$PM_{2.5}$	Particulate Matter <2.5 microns
PM_{10}	Particulate Matter <10 microns

Reclamation	United States Department of the Interior, Bureau of Reclamation
RED	Regional Economic Development
RM	river mile
ROD	Record of Decision
SHPO	State Historic Preservation Office
SO_X	sulphur oxide
SONCC	Southern Oregon Northern California Coast
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
THPO	Tribal Historic Preservation Officers
TM	Technical Memorandum
TMDL	Total Maximum Daily Load
TN	total nitrogen
TP	total phosphorous
TPI	Total Personal Income
UKBCA	Upper Klamath Basin Cooperative Agreement
UKL	Upper Klamath Lake
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Carbon
VRM	Visual Resource Management Methodology
WRD	Water
WSR	Wild and Scenic Rivers
WSRA	Wild and Scenic Rivers Act
YTEP	Yurok Tribe Environmental Program
YTFP	Yurok Tribe Fishery Program

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1.0 Introduction and Background

This document, *Klamath Facilities Removal Environmental Impact Statement/ Environmental Impact Report* (EIS/EIR) - *Supplemental Information Report* (SIR), has been developed to reexamine the potential impacts to the environment of the proposed removal of four PacifiCorp Dams (J.C. Boyle, Copco 1, Copco 2, and Iron Gate, collectively referred to herein as the Four Facilities or Facilities) on the Klamath River (Figure 1). Since the publication of the Final Klamath Facilities Removal EIS/EIR in December 2012 the Klamath Hydroelectric Settlement Agreement (KHSA), which described the proposed Facilities removal has been amended (Amended KHSA) (KHSA 2010; KHSA 2016). In this document, the term "KHSA" refers to the original KHSA, signed in 2010, and "Amended KHSA" refers to the amended document signed in 2016. The Amended KHSA remains a vital step to address continuing unresolved problems that impact natural resources and communities in the Klamath Basin.

The KHSA is linked to two related agreements—the Klamath Basin Restoration Agreement (KBRA) and the Upper Klamath Basin Comprehensive Agreement (UKBCA). When negotiated, these three agreements sought to comprehensively resolve long-standing, complex, and intractable conflicts over natural resources in the Klamath Basin. These agreements, however, required or continue to require Congressional authorization to be fully implemented as contemplated. To date, Congress has not enacted authorizing legislation. As a result, the KBRA expired on December 31, 2015. The UKBCA did not expire and currently remains in effect, although the agreement is not capable of being fully implemented as contemplated without Congressional authorization.

The parties to the KHSA in 2010 negotiated a settlement in which the Secretary of the Interior, Secretary of Commerce and the Governors of Oregon and California would make a determination as to whether removal of Klamath River dams would advance salmonid fisheries as well as be in the public interest. Authorization from Congress was required to permit the Secretary of the Interior to make such a determination. However, as the Parties have agreed in the Amended KHSA, the decision process for dam removal would occur through the Federal Electrical Regulatory Commission (FERC) process for dam decommissioning.

In this SIR and the Klamath Facilities Removal EIS/EIR, the Full Facilities Removal of Four Dams Alternative (Proposed Action) includes the removal of the Four Facilities during a 20-month period, which includes an 8-month period of site preparation and partial drawdown at Copco 1 and a 12-month period for full reservoir drawdown and removal of the Four Facilities. This alternative would include the complete removal of the dams, power generation facilities, water intake structures, canals, pipelines, ancillary buildings, and dam foundations to create a free-flowing river. Preparation for dam removal would begin in May 2019 for Iron Gate Dam and June 2019 for Copco 1 Dam. Deconstruction efforts for the J.C. Boyle and Copco 2 facilities would commence after January 1, 2020, and all four dams would be completely removed (or at least to an extent

that supports volitional fish passage) by December 31, 2020. This alternative would also include the transfer of Keno Dam to the Department of Interior (DOI) and the decommissioning of PacifiCorp's Eastside/Westside facilities. The deconstruction described in the Klamath Facilities Removal EIS/EIR remains the same in this reexamination of the Proposed Action –only the institutional process has changed under which removal of the Four Facilities would occur.

While executing the Amended KHSA, some stakeholders also executed the Klamath Power and Facilities Agreement (KPFA)(KPFA 2016). The KPFA includes some components of the KBRA such as regulatory protections and attribution of costs related to the transfer of Keno Dam and the operation and maintenance of Keno and Link River Dams. The KPFA also commits its signatories to develop agreements for the remainder of the bargained-for benefits of the KBRA, namely fisheries, water resources, regulatory assurances, tribal, and counties programs. However, the Amended KHSA does not describe an inextricable link between actions called for in the KPFA and those needed for facilities removal. For this reason the KPFA is addressed for this reexamination in Cumulative Effects Section 3.4.

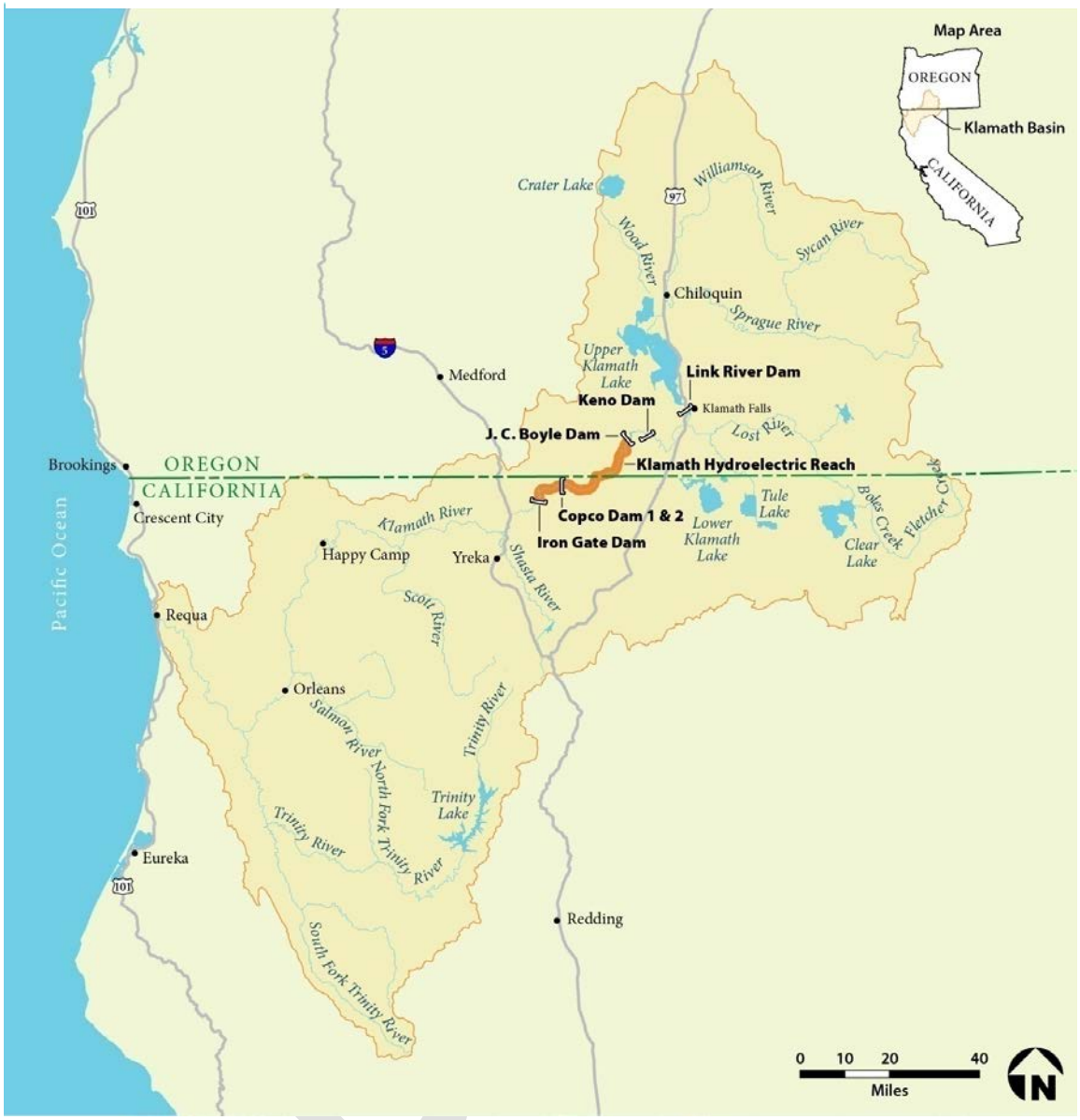

Map Area
OREGON
Klamath Basin
CALIFORNIA
Crater Lake
Williamson River
Wood River
Sycan River
Chiloquin
Sprague River
Upper Klamath Lake
Link River Dam
Keno Dam
Klamath Falls
J. C. Boyle Dam
Lost River
Medford
Brookings
OREGON
CALIFORNIA
Klamath Hydroelectric Reach
Crescent City
Copco Dam 1 & 2
Iron Gate Dam
Tule Lake
Lower Klamath Lake
Clear Lake
Fletcher Creek
Klamath River
Happy Camp
Yreka
Shasta River
Scott River
Requa
Pacific Ocean
Orleans
Salmon River
Trinity River
North Fork Trinity River
Trinity Lake
Eureka
Redding
South Fork Trinity River
0 10 20 40
Miles

Table 1. Hydroelectric Dams (Four Facilities) on the Mainstem Klamath River

Dam	Year Operational		Maximum Power Generation Capacity (megawatts)	Annual Average Generation Rate (megawatts)	Dam Height (feet)
J.C. Boyle	1958		98	38	68
Copco 1	1918		20	12	126
Copco 2	1925		27	15	33
Iron Gate	1962		18	13	194
Total	--		**163**	**78**[1]	--

Source: FERC 2007

Notes: [1] This annual average generation rate is only for the Four Facilities and does not include the Fall Creek or Eastside and Westside Facilities. Under the agencies' mandatory prescriptions and conditions, along with FERC's required conditions, average annual generation for the entire project would drop by approximately 20 megawatts.

Figure 2. JC Boyle Reservoir, Dam, and Facilities

Figure 3. Copco 1 Reservoir, Dam and Facilities

Figure 4. Copco 2 Dam and Facilities

Figure 5. Iron Gate Reservoir, Dam and Facilities

2.0 Guidance and Summary Results of Reexamination and Analysis

2.1 Guidance for NEPA Evaluation

The Council on Environmental Quality (CEQ) regulations provides direction regarding the review of an EIS and preparation of supplemental statements before a proposal has been implemented. The CEQ regulations (Section 1502.9(c)) state:

> *Agencies shall prepare supplements to either draft or final EIS's if:*
>
> *1. The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or*
>
> *2. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.*

A supplemental EIS is prepared under the above circumstances to ensure the agency has the best possible information to make any necessary substantive changes in its decisions regarding the proposal. In evaluating the present day adequacy of the Klamath Facilities Removal Final EIS/EIR, the criteria in Section 1502.9(c) of the CEQ regulations were employed to determine: (1) if substantial changes have been made to the Proposed Action since completion of the Klamath Facilities Removal Final EIS/EIR in December 2012 that are relevant to environmental concerns, and (2) if significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts have occurred since completion of the Klamath Facilities Removal Final EIS/EIR in December 2012.

2.2 Approach to the Klamath Hydroelectric Settlement Agreement in the Final Klamath Facilities Removal EIS/EIR and in this Reexamination

2.2.1 Overview of the KHSA in the Klamath Facilities Removal Final EIS/EIR

The KHSA established the process and circumstances under which facilities removal would proceed. The KHSA detailed additional studies, including the development of a "Detailed Plan for Facilities Removal" (Detailed Plan) and environmental review to support a Secretarial Determination as to whether removal of the four downstream-most PacifiCorp owned dams on the Klamath River (1) will advance restoration of the salmonid fisheries of the basin, and (2) is in the public interest, which includes, but is not limited to, consideration of the potential impacts on affected local communities and Indian Tribes.

2.2.2 Overview of the Amended KHSA in this Reexamination

Under the Amended KHSA, the signatory parties agreed to change the process under which facilities removal would occur. The primary change in process alters the nature of the Secretarial Determination to a policy evaluation using the relevant science and expert opinion to answer the KHSA questions, specifically whether dam removal (1) will advance restoration of the salmonid fisheries of the basin, and (2) is in the public interest. Furthermore, the Amended KHSA identifies a non-federal Dam Removal Entity (DRE).

Whether DOI would have or FERC now approves dam removal does not change how the dams would be removed. The Detailed Plan describes the reservoir drawdowns, deconstruction activities, and restoration of the affected areas and remains unchanged since publication of the Klamath Facilities Removal Final EIS/EIR in December of 2012. The amendment of the KHSA, such that FERC now will have final approval of dam removal, is not a change that is relevant to or produces changes to environmental concerns or impacts previously analyzed.

2.2.3 Overview of the Klamath Basin Restoration Agreement and Upper Klamath Basin Comprehensive Agreement in the Klamath Facilities Removal Final EIS/EIR

As a result of the Klamath Basin issues surrounding the limited availability of water to support agricultural, tribal, environmental, and fishery needs in many years, the United States[1], the States of California and Oregon, the Klamath, Karuk, and Yurok Tribes, Klamath Water Users Association, and other Klamath Basin stakeholders negotiated the KBRA to resolve the water conflicts among the many users, restore stressed fisheries, provide regulatory assurances, provide economic benefits to counties and tribes, and identify reliable and affordable power supplies for water management. The KBRA parties viewed the KBRA as an important part of the resolution of long-standing, complex, and difficult-to-resolve concerns over resources in the Klamath Basin.

The Klamath Facilities Removal EIS/EIR analysis treated the KBRA as a connected action because the Secretarial Determination as described in the KHSA was one of the early key milestones toward full implementation of KBRA. However another key milestone required for full implementation, federal authorizing legislation, failed to materialize prior to expiration of the KBRA agreement. On December 31, 2015, the KBRA expired and the prospects of passing federal legislation to authorize a new, similar agreement are unknown. If a new KBRA-replacement agreement is negotiated by basin parties, and is later authorized by Congress, it will not be considered a KHSA connected action under NEPA, as was done in the Klamath Facilities Removal Final EIS/EIR published in December 2012. Any impacts from a new agreement that may be negotiated would need to be analyzed prior to implementation of such agreement.

[1] Agencies involved in KBRA negotiations include: NOAA Fisheries Service, U.S. Forest Service, U.S. Department of the Interior (including, the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, and Fish and Wildlife Service).

Development of the UKBCA, which was signed in 2014, occurred after publication of the Klamath Facilities Removal EIS/EIR and was not specifically included in the Klamath Dam Removal EIS/EIR analysis. The UKBCA contains the detailed approach for ensuring 30,000 acre feet of additional water enters Upper Klamath Lake (UKL) on an annual average basis (primarily through water use retirements), protection of riparian areas, fish habitat, stream flows and water quality above UKL, all of which were key provisions in the KBRA.

2.2.4 Overview of the Klamath Basin Restoration Agreement and Upper Klamath Basin Comprehensive Agreement in this Reexamination

As a milestone in all three settlement agreements, the Secretarial Determination on dam removal influenced timing and implementation in the KBRA and UKBCA. With expiration of the KBRA, limited implementation of UKBCA, and amendment of the KHSA, the connections among the Klamath agreements has effectively been decoupled. However, because KBRA and UKBCA did not dictate the process to remove dams or mitigate the effects of dam removal, expiration of KBRA and particle implementation of the UKBCA does not change the Proposed Action considered in the Klamath Facilities Removal EIS/EIR as it relates to impacts of facilities removal on the environment. The synergistic effects of implementation of the three agreements in concert, however, have been lost and some benefits in this reexamination of facilities removal have been tempered due to the expiration of KBRA.

Specifically in the EIS/EIR, many effects of KBRA Programs were described as beneficial to the environment (primarily water quality and aquatic resources). Because KBRA is no longer an action connected to the Proposed Action, the environmental benefits of these programs are not included in the reexamination analysis. Below is a summary of the environmental benefits from KBRA Programs that were described in the EIS/EIR and actions that might be implemented in the absence of KBRA to achieve similar outcomes. KBRA would have:

- Accelerated the rate at which the Klamath River and tributaries would be expected to meet Oregon and California water temperature, nutrient, dissolved oxygen (DO), pH, and chlorophyll-a standards and goals through implementation of the Fisheries Restoration Program. Both California and Oregon have ongoing, long-term TMDL programs to meet water quality goals in the Klamath Basin, but KBRA funding would have achieved those goals more quickly.
- Expanded opportunities to create springtime flushing flows and stream-bed movement with water "reserved" in the Environmental Water Program, which is predicted to help reduce juvenile salmon disease below Iron Gate Dam. The 2013 Biological Opinion on Operation of the Klamath Reclamation Project, however, includes a similar Environmental Water Account with provisions for flow alterations to protect ESA-list species, including the release of dilution/flushing water from Upper Klamath Lake to reduce juvenile Coho Salmon disease below Iron Gate Dam.
- Improved base flows for salmonids, particularly in drought years, through the KBRA Water Resources Program, which would have improved fish health and survival. The 2013 Biological Opinion on Operation of the Klamath Reclamation Project, however,

provides minimum flows that are protective of fish especially in low flow years and supersedes the flows described in the EIS/EIR.

- Increased the pace of funding for basin-wide habitat restoration actions, coordination, monitoring, and adaptive management in the Klamath River Watershed, which would have accelerated improvements to fish habitat and populations including certain Endangered Species Act (ESA) listed fish. Restoration actions are continuing in the basin, but KBRA funding would have accelerated basin restoration actions prior to and following dam removal.
- Accelerated the effective use of the Upper Basin habitat by salmonids through the KBRA Fisheries Reintroduction and Management Plan, which would have advanced improvements to fish habitat and populations more quickly. Reintroduction of salmonids above Iron Gate Dam would occur naturally following dam removal, and the states of Oregon and California would likely institute additional measures to facilitate reintroduction as resources become available.

2.3 Summary Result of the Reexamination and Conclusions

This SIR provides a reexamination and section-by-section analysis of the Klamath Facilities Removal Final EIS/EIR in light of the renewed interest in the Klamath Facilities Removal under a FERC process. The results of this evaluation are summarized in Table 2. Overall, this reexamination concludes no significant new circumstances or release of information relevant to the Proposed Action or any of the environmental impacts addressed in the Klamath Facilities Removal Final EIS/EIR have occurred since completion of the document in December 2012. It is the opinion of the interdisciplinary technical team that performed the reexamination that a supplemental EIS/EIR is not warranted or required.

Table 2. Summary of New Information and Conclusions

Final EIS/R Section	New Information	Conclusion
Chapter 1: Introduction, Section KHSA and KBRA	Amendment of the KHSA; KBRA has expired;	The Amended KHSA now describes a FERC process to approve dam removal; however KHSA goals remain unchanged. With KBRA expiration, benefits would be reduced compared to those evaluated in the Klamath Facilities Removal EIS/EIR.
Chapter 1: Introduction, Section Purpose and Need	Amendment of the KHSA; KBRA has expired	The Amended KHSA now describes a FERC process to approve dam removal; however KHSA goals remain unchanged. Though KBRA has expired, the Proposed Action remains consistent with the goals described in that document.
Chapter 2: Proposed Action and Description of Alternatives	Dam Removal through an administrative FERC Process; Amendment of the KHSA; KBRA has expired; Continued Interim Measures Implementation; Implementation of the 2013 Joint Biological Opinion	The Detailed Plan that describes the deconstruction activities, drawdown, and restoration of the Four Facilities remains unchanged since publication of the Klamath Facilities Removal Final EIS/EIR in December of 2012. With KBRA expiration, benefits would be reduced compared to those evaluated in the EIS/EIR. The relatively small flow differences between KBRA Flows and

		2013 Joint Biological Opinion flows do not alter the conclusions drawn in the EIS/EIR for water quality, aquatic resources, flood risk, and recreation

In addition to the conclusions described above resource specific conclusions include the following:

Chapter 3: Water Quality	New research; KBRA has expired; 2013 Joint Biological Opinion	Additional research reinforces conclusions made in the Klamath Facilities Removal EIS/EIR. Expiration of KBRA lessens the benefits to water quality. The relatively small flow differences between KBRA Flows and 2013 Joint Biological Opinion flows do not alter the conclusions drawn in the EIS/EIR.
Chapter 3: Aquatic Resources	New research; KBRA has expired; Designation of critical habitat for coho salmon; Coho Habitat Conservation Plan (HCP); Sucker HCP; Hatchery and Genetic Management Plan (HGPM) for Iron Gate Hatchery; 2013 Joint Biological Opinion	Additional research reinforces conclusions made in the Klamath Facilities Removal EIS/EIR. Expiration of KBRA lessens the benefits to lower basin fisheries and results in no benefits to suckers. Impacts to aquatic resources remain unchanged in regard to new aquatic resource protections (critical habitat, HCPs, and HGMP). The relatively small flow differences between KBRA Flows and 2013 Joint Biological Opinion flows do not alter the conclusions

		drawn in the EIS/EIR.
Chapter 3: Algae	Genotyping study completed	Additional research reinforces conclusions made in the Klamath Facilities Removal EIS/EIR.
Chapter 3: Terrestrial Resources	Grey wolf occurrences in southern Oregon and northern California; Listing of Oregon Spotted Frog	Grey wolf and Oregon Spotted frog are not known to occur in the hydroelectric reach. Detailed Plan has not changed, therefore effects to terrestrial wildlife characterized in the EIS/EIR has not changed.
Chapter 3: Flood Hydrology	2013 Joint Biological Opinion	The relatively small flow differences between KBRA Flows and 2013 Joint Biological Opinion flows do not alter the conclusions drawn in the EIS/EIR.
Chapter 3: Groundwater	Expiration of KBRA	No groundwater effects are expected above Keno Reservoir. Additional research reinforces conclusions made in the Klamath Facilities Removal EIS/EIR.
Chapter 3: Water Supply/Water Rights	KBRA has Expired; 2013 Joint Biological Opinion	No water supply/water rights effects will occur in the upper Klamath Basin. The relatively small flow differences between KBRA Flows and 2013 Joint Biological

		Opinion flows do not alter the conclusions drawn in the EIS/EIR.
Chapter 3: Air Quality	No change	Detailed Plan has not changed, therefore emissions characterized in the EIS/EIR have not changed.
Chapter 3: Greenhouse Gases/Global Climate Change	No change	Detailed Plan has not changed, therefore effects to activity emissions characterized in the EIS/EIR has not changed even given reinterpretation of emissions related to Assembly Bill (AB) 32.
Chapter 3: Geology, Soils, and Geologic Hazards	No change	Detailed Plan has not changed, therefore effects to activity emissions characterized in the EIS/EIR has not changed.
Chapter 3: Tribal Trust	KBRA expiration	With the expiration of KBRA, there will be fewer benefits to fisheries and other resources traditionally used by tribes.
Chapter 3: Cultural and Historic Resources	Change in NHPA Process	With a change in lead agency, the NHPA process has changed. The mitigation measures and agreement by Tribal Preservation Officers, State Preservation Officers and Federal agencies will still be required to resolve adverse effects.

Chapter 3: Land Use, Agricultural and Forest Resources	KBRA expiration	Expiration of KBRA reduces nearly all benefits to agricultural and forest resources.
Chapter 3: Socioeconomics	KBRA expiration; Updated economic data	Expiration of KBRA reduces socioeconomic benefits to irrigated agricultural. Changes in the regional economy have generally improved since 2012 (i.e. lower unemployment and increased total personal income) thereby improving the socioeconomic conditions under which dam removal would occur.
Chapter 3: Environmental Justice	KBRA expiration; Updated economic data	Expiration of KBRA slow the realization of environmental justice benefits as fisheries and water quality will improve more slowly. Changes in the regional economy have generally lead to a stronger regional economy (i.e. lower unemployment and increased total personal income) improving the socioeconomic conditions under which dam removal would occur.
Chapter 3: Population and Housing	Updated census data	Population demographics remain similar to those reported in the Klamath Facilities

		Removal EIS/EIR
Chapter 3: Public Health and Safety, Utilities and Public Services, Solid Waste, Power	No change	
Chapter 3: Scenic Quality	No change	
Chapter 3: Recreation	2013 Joint Biological Opinion	The relatively small flow differences between KBRA Flows and 2013 Joint Biological Opinion flows do not alter the conclusions drawn in the EIS/EIR.
Chapter 3: Toxic/Hazardous Materials	No change	
Chapter 3: Traffic and Transportation	No change	
Chapter 3: Noise and Vibration	No change	
Chapter 4: Cumulative	UKBCA signed but future speculative without legislation; Signing of the KPFA in April 2016	Without federal authorization, implementation of the UKBCA is too speculative and therefore it will not be include in this reexamination. No actions described in the KPFA will occur in the Klamath Basin below Keno Reservoir and the benefits to aquatic species would not lead to additional cumulatively

		considerable effects.
Chapter 5: Other Required Disclosures	Amendment of the KHSA; KBRA has expired;	The amended KHSA now describes an administrative FERC process to approve dam removal; however KHSA goals remain unchanged. With KBRA expiration, benefits would be reduced compared to those evaluated in the EIS/EIR.
Chapter 6: Compliance with Applicable Laws Policies, and Plans	No change	
Chapter 7: Consultation and Coordination	No additional consultation or coordination has occurred regarding dam removal and NEPA, ESA, or NHPA since publication of the Klamath Facilities Removal Final EIS/EIR	No additional consultation or coordination has occurred regarding dam removal and NEPA, ESA, or NHPA since publication of the Klamath Facilities Removal Final EIS/EIR

3.0 Reexamination and Analysis

3.1 Chapter 1: Introduction

3.1.1 Amended Klamath Hydroelectric Settlement Agreement

Information in the Klamath Facilities Removal Final EIS/EIR

The 2010 KHSA established the process and circumstances under which Facilities removal would proceed. The 2010 KHSA provided details about additional studies, including the development of a Detailed Plan and environmental review to support a Secretarial Determination as to whether removal of the four downstream-most PacifiCorp owned dams on the Klamath River: (1) advance restoration of the salmonid fisheries in the Klamath Basin; and (2) be in the public interest, which includes but is not limited to, consideration of the potential impacts on affected local communities and Indian Tribes. Under the 2010 KHSA process, Congressional authorization was needed before a Secretarial Determination on Facilities removal could be issued.

New Information

Under the amended KHSA, signed in April 2016, the signatory parties agreed to change the process under which Facilities removal would be implemented. The primary change in process alters the nature of the Secretarial Determination to a policy evaluation that uses the relevant science and expert opinion to answer the above two questions. Further, the amended KHSA identifies a non-federal DRE that will be a signatory of the amended KHSA, which would proceed with Facilities Removal following the FERC process for decommissioning hydroelectric dams.

Conclusion

Whether DOI or FERC approve dam removal does not change how the dams would be removed. The Detailed Plan that describes the deconstruction activities, drawdown, and restoration of the Four Facilities remains unchanged since publication of the Klamath Facilities Removal Final EIS/EIR in December of 2012. The amendment of the KHSA, such that FERC has final approval over Facilities removal, is not a change that is relevant to environmental concerns or impacts previously analyzed.

3.1.2 Expiration of Klamath Basin Settlement Agreement

Information in the Klamath Facilities Removal Final EIS/EIR

The Klamath Facilities Removal EIS/EIR analysis treated the KBRA as a connected action because the Secretarial Determination as described in the KHSA was one of the early key milestones toward full implementation of KBRA. However, another key milestone required for full implementation, federal authorizing legislation, failed to occur prior to expiration of the KBRA agreement. As of December 31, 2015, the KBRA has expired and the prospects of passing federal legislation for a subsequent agreement are unknown. For additional context see Sections 2.2.3 and 2.2.4.

New Information

As a milestone in all three settlement agreements, the KHSA, KBRA, and the UKBCA, the Secretarial Determination on dam removal influenced timing and implementation in the KBRA and UKBCA. With expiration of the KBRA, limited implementation of UKBCA, and amendment of the KHSA, the three settlement agreements have been delinked. However, as KBRA and UKBCA did not dictate the process to remove dams nor mitigate the effects of dam removal, expiration of KBRA and the less than full implementation of the UKBCA does not change the proposed action considered in the Klamath Facilities Removal EIS/EIR or the impacts of that removal. The synergistic effects of implementation of the three agreements in concert have been lost and some benefits in this reexamination have been tempered due to the expiration of KBRA. In particular, the expiration of KBRA influences the benefit of dam removal to aquatic resources, water quality, water supply/water rights, tribal trust, and socioeconomics. The effect of expiration of KBRA is examined in more detail in those corresponding sections in this reexamination.

The Klamath Power and Facilities Agreement (KPFA) was executed in April 2016. Explicit linkages between the KPFA and the Amended KHSA were not part of the new agreement. Additionally, all the actions considered part of KPFA occur upstream of the hydroelectric reach above Keno Dam. Given the lack of connection between KPFA and the Amended KHSA and the difference in location, this reexamination is considering the KPFA in Section 3.4 Cumulative Effects.

Conclusion

The expiration of the KBRA delinks KBRA and KHSA. Though to some degree the overall benefits expected have been limited by expiration of the KBRA, no discernible adverse environmental consequence has been identified due to the expiration of the KBRA as an action connected to the Proposed Action of Facilities Removal in the EIS/EIR.

3.1.3 Purpose and Need

Information in the Klamath Facilities Removal Final EIS/EIR

The following is the Purpose and Need from the Klamath Facilities Removal EIS/EIR (Section 1.5.2.1) :

> *The Proposed Action is to remove the four lower PacifiCorp dams on the Klamath River. The need for the Proposed Action is to advance restoration of the salmonid fisheries in the Klamath Basin consistent with the KHSA and the connected KBRA. The purpose is to achieve a free flowing river condition and full volitional fish passage as well as other goals expressed in the KHSA and KBRA. By the terms of the KHSA, the Secretary will determine whether the Proposed Action is appropriate and should proceed. In making this determination, the Secretary will consider whether removal of the Four Facilities will advance the restoration of the salmonid fisheries of the Klamath Basin, and is in the best interest of the public, which includes but is not limited to consideration of potential impacts on affected local communities and Tribes.*

New Information

The Amended KHSA now provides for an existing administrative FERC process, rather than a separately congressionally authorized process, to approve Facilities removal. The primary purpose of the 2010 KHSA remains unchanged in the Amended KHSA, which is to achieve a free-flowing river and full volitional passage of fish into the upper Klamath Basin. Because KBRA was considered a connected action in the EIS/EIR, its goals were included in the Purpose and Need statement. Though KBRA has expired, the Proposed Action remains consistent with the associated KBRA goals in the EIS/EIR. The main goal of KBRA was to address long-standing natural resource issues and conflicts in the Klamath Basin. This goal will still be partially met by Klamath Facilities Removal.

Conclusion

Because there is no change to the Purpose and Need since publication of the Klamath Facilities Removal EIS/EIR, there is no change relevant to environmental concerns.

3.2 Chapter 2: The Proposed Action

3.2.1 Changes to the Proposed Action

Information in the Klamath Facilities Removal Final EIS/EIR

The KHSA established the process for additional studies, including development of the Detailed Plan and environmental review to support the removal of the four downstream-most PacifiCorp owned dams on the Klamath River. This plan and associated reports also addressed whether dam removal (1) will advance restoration of the salmonid fisheries of the basin, and (2) is in the public interest, which includes, but is not limited to, consideration of the potential impacts on affected local communities and Indian Tribes. The KHSA also included provisions for the

interim operation of the Four Facilities by PacifiCorp and the process to transfer, decommission, and remove the dams. Those interim measures remain unchanged in the Amended KHSA.

For more details related to the deconstruction of the Four Facilities see the Detailed Plan and Klamath Facilities Removal EIS/EIR, Section 2.3 Proposed Action and Alternatives. The information presented here is a summary of those more exhaustive reports.

Detailed Plan and Other Studies

The Parties[2] to the KHSA agreed further studies were needed to determine if the actions specified under the KHSA were feasible. These studies included analysis of the regional impacts of the KHSA on water quality, economics, real estate, recreation, and biology. The findings of these studies are summarized in the *Final Klamath Dam Removal Overview Report for the Secretary of the Interior – an Assessment of Science and Technical Information* (DOI and DOC [NOAA Fisheries Service] 2012). For more details related to the deconstruction of the Four Facilities see the Detailed Plan and Klamath Facilities Removal EIS/EIR, Section 2.3 Proposed Action and Alternatives. The Detailed Plan also describes the following:

- Physical methods to remove the dams and achieve a free-flowing condition.
- As necessary and appropriate, plans for management, removal, and/or disposal of sediment, debris, and other materials.
- A plan for site remediation and restoration.
- A plan for measures to avoid or minimize adverse downstream impacts.
- A plan for compliance with all applicable laws, including anticipated permits and permit conditions.
- Estimated costs for Facilities Removal and various measures to mitigate and minimize adverse impacts.

In addition to the decommissioning and removal of the Four Facilities, KHSA and the Amended KHSA call for the transfer of Keno Dam ownership from PacifiCorp to DOI.

KHSA Implementation

KHSA described the process under which PacifiCorp would transfer ownership of each facility when the DRE provides notice that all necessary permits and approvals have been obtained for removal of a facility, all contracts necessary for facility removal have been finalized, and facility removal is ready to commence. After the transfer, the DRE would remove the facilities. The target date to begin deconstruction was January 1, 2020. The Amended KHSA contemplates transfer of the Four Facilities to the DRE as soon as possible which could be within the next year. PacifiCorp will execute an operations agreement with the DRE and will continue to operate the Facilities, but will no longer be the licensee. The Amended KHSA holds the target date for decommissioning as January 1, 2020.

[2] Parties: Signatories to the Klamath Hydroelectric Settlement Agreement.

KHSA Interim Measures

The KHSA included interim measures for the operation of the Klamath Hydroelectric Project by PacifiCorp from the effective date of the agreement (February 18, 2010) or as otherwise specified for each interim measure. If the Secretary makes an Affirmative Determination, as defined in the 2010 KHSA, PacifiCorp would continue to perform the interim measures until decommissioning. These measures include the implementation of measures included as part of PacifiCorp's Interim Conservation Plan (ICP).[3] Measures from the ICP (see Appendix C of the KHSA) are included in the Habitat Conservation Plan (HCP). The HCP requires PacifiCorp to fund projects to enhance the survival and recovery of ESA-listed Coho Salmon, turbine venting to improve DO concentrations downstream from Iron Gate Dam, funding for the development and implementation of a Hatchery Genetics Management Plan for Iron Gate Hatchery, increased flow variability at Iron Gate Dam, and studies on fish disease. On March 13, 2012, National Oceanic and Atmospheric Administration (NOAA) issued an Incidental Take Permit (ITP) that authorizes potential take associated with Klamath Hydroelectric Project operations and Interim Measure implementation. In accordance with the ITP, PacifiCorp is required to implement a HCP that contains measures to minimize and mitigate Project effects on coho salmon. The HCP was developed by PacifiCorp over a period of several years with involvement from NOAA, the California Department of Fish and Wildlife (DFW), and other stakeholders in the basin.

Appendix D of the KHSA provides additional measures to be implemented during the interim period. These measures include the funding of restoration activities, water quality research, the Bureau of Land Management for the land management measures in Appendix C of the KHSA, and Iron Gate Hatchery operations and maintenance (including funding for an 8-year period after removal of Iron Gate Dam). They also include an increase in monitoring activities, the removal of the J.C. Boyle bypass barrier, and the possible removal of three diversions on Shovel and Negro Creeks.

Under the Amended KHSA, PacifiCorp shall continue to perform the Interim Measures in accordance with the terms an schedule set forth in Appendices C and D until Decommissioning. Decommissioning is defined as when PacifiCorp has physically removed any equipment and personal property that PacifiCorp determines has salvage value, and physical disconnection of the facility from PacifiCorp's transmission grid.

Decommissioning of the Four Facilities

The Full Facilities Removal of Four Dams Alternative includes the removal of the Four Facilities as described in the KHSA. This alternative would include the complete removal of the Four Facilities in 2020, including dams, power generation facilities, water intake structures, canals, pipelines, and ancillary buildings. During reservoir drawdown and Facilities deconstruction, the reservoirs would be closed to recreation. This alternative would include the transfer of Keno Dam to the DOI and decommissioning of PacifiCorp's Eastside/Westside facilities. This

[3] As described in the KHSA, the Interim Conservation Plan was developed by PacifiCorp through technical discussions with the NOAA Fisheries Service and the USFWS describing measures for the enhancement of coho salmon and suckers listed under the ESA (see KHSA Appendix A). The Interim Conservation Plan was submitted to FERC on November 25, 2008 and can be found online through the FERC Web site (http://ferc.gov).

alternative, as originally described in the Klamath Facilities Removal EIS/EIR, also included the implementation of the KBRA as a connected action as defined under NEPA. The DRE would begin preparatory work for Facilities removal in May 2019. The initial schedule for this alternative would stop power generation at the Iron Gate and J.C. Boyle facilities on December 31, 2019. Power generation would stop at Copco 2 Powerhouse in April 2020 and would cease at Copco 1 in October 2019. The Detailed Plan designed drawdown rates to protect slope stability, public safety, and structures near the reservoirs.

The result of the Proposed Action would be that the Klamath River would have no dams downstream from Keno Dam. This alternative, as originally described in the Klamath Facilities Removal EIS/EIR, also included the operation of Reclamation's Klamath Project and the decision that river flows would be modeled using hydrologic assumptions in KBRA (Reclamation 2012). These assumed flows are referred to as "KBRA Flows."

Removing the Four Facilities would release sediment currently stored behind the dams into the downstream river system. Reservoir drawdown schedules were selected to minimize release of sediment during critical times for sensitive species. Multiple drawdown timing scenarios were analyzed to avoid or minimize impacts to aquatic species, especially anadromous fishes. The challenge in selecting a drawdown period was to avoid impacts to migrating adult fish (salmonids, sturgeon, and lamprey), migrating juvenile smolts, and rearing of juveniles. During the summer months, juveniles are rearing while green sturgeon adults and spring-run Chinook salmon are migrating. During the fall, adult Coho salmon, steelhead, and fall-run Chinook salmon are migrating while smolts are out-migrating. During the spring, smolts are out-migrating; adult green sturgeon, steelhead, and spring-run Chinook adults are migrating. Drawdown would primarily occur during winter because it would be the least harmful season; however, there are still species and life stages that may be affected, such as adult migrating steelhead and lamprey. The Detailed Plan calls for all four reservoirs to be drawn down in a single year to minimize the number of months and years fish are exposed to high sediment concentrations in the mainstem Klamath river.

J.C. Boyle Dam and Powerhouse

Full removal of the J.C. Boyle Dam and Powerhouse would include removal of the dam, spillway and gates, powerhouse, powerhouse equipment, and concrete fish ladder. This alternative would also include removal of ancillary facilities, such as the canal and pipeline that convey water to the powerhouse. The extensive head cut downstream from the fore bay overflow discharge canal would be filled and stabilized with a portion of the material removed from the dam structure. Further, the DRE would fill the tailrace (where the powerhouse discharges water) to restore natural river conditions in this area. In order to access the dam for deconstruction, the DRE would perform a controlled reservoir drawdown using the spillway gates, conveyance pipeline and canal, and diversion conduit.

The deconstruction process would begin by gradually drawing down the reservoir. Reservoir drawdown would release water into the concrete canal (the power generation intake), the

spillway, and the bypass conduit through the dam depending on the water surface elevation in the reservoir. Water would flow through the Bypass Reach throughout reservoir drawdown. As the reservoir is drawn down, the DRE would remove facilities from the top down. The DRE would start by removing the spillway gates, the spillway bridge, and the upstream concrete intake structure for the powerhouse canal. The DRE would use cranes and excavators for removal; blasting may also be required to remove concrete facilities.

Copco 1 Dam and Powerhouse

The DRE would remove the entire Copco 1 Dam from canyon wall to canyon wall and 5 feet below the existing streambed (a total of 130 feet from the top of the dam). Removing all facilities would include removal of the concrete water intake structure, concrete gate houses, penstock pipes and supports, powerhouse, power generation support facilities, switchyard, and unused transmission lines.

The deconstruction process would begin by gradually drawing down the reservoir. Reservoir drawdown would release water through three primary locations: over the spillway; through the penstock pipes; and through the diversion tunnel. Use of the diversion tunnel would require the removal of three gates, three valves, and a concrete plug to make it operable. Three new gates would be placed on the diversion tunnel; these could be remotely operated. The concrete dam could safely allow flows that overtop the dam crest during dam removal without dam safety or flood concerns. The DRE would construct multiple "notches" in the dam to allow the reservoir to drain; the notches would be 20-foot wide openings that would be a minimum of 16 feet deep.

As the reservoir is drawn down, the DRE would remove facilities from the top down. This process will begin by removing the spillway gates and the spillway deck bridge, using cranes and excavators. The concrete dam will then be removed in 8-foot-high sections using drilling and blasting. Dam removal would be challenging because the dam has large boulders embedded in the concrete and is reinforced with steel rails.

The DRE would construct a cofferdam to isolate one side of the dam and remove water from the working area once the concrete dam is moved down to the water level. The dry portion of the dam would be removed to 5 feet below the existing riverbed and the river would be diverted through the new opening. The other side of the dam would be isolated and removed. The DRE would use mechanical means (such as hydraulic shears that break concrete by shearing it like scissors or an excavator with a hoe-ram attachment) to excavate the reinforced concrete in deck, wall, and floor slabs for remaining features (including powerhouse and diversion intake structure).

Copco 2 Dam and Powerhouse

At Copco 2 Dam, full facilities removal would include removal of the dam, spillway and gates, water intake structure, pipelines, penstock, power generation equipment, and unused transmission lines. The DRE would also reshape the embankment on river right to create a stable slope that blends into the natural hillslopes and river channel. Restoration would include

filling in the tailrace channel between the powerhouse and the river to restore natural river conditions. The Copco 2 substation at the powerhouse and a switchyard on a bluff north of the river would remain in service following dam removal.

Because of the small reservoir size, a river diversion and work area isolation plan would be sufficient for dam removal. The DRE would start by removing the spillway gates and the spillway bridge using cranes and excavators. Next, the river flow would be lowered and routed through the spillway gates while a cofferdam would be constructed to isolate the left half of the dam. The river flow would be routed through the two spillway gates on the right; the two spillway gates on the left and the spillway would be removed using mechanical techniques. The techniques would include use of hydraulic shears or hoe-ram attached to a track-hoe. The shears would be able to cut, or shear through the concrete like scissors while the hoe-ram is able to jackhammer the concrete into small pieces that can be removed. After the left spillway is removed, the river would be diverted through the vacated structure and the right portion of the dam would be removed using similar mechanical techniques. The remaining reinforced concrete walls and water intake structure on the side of the river would be removed after the dam is removed. The power generation water conveyance pipes and powerhouse would be removed using conventional track-hoes and off-road dump trucks.

Iron Gate Dam and Powerhouse

Removal of Iron Gate Dam and Powerhouse would include removal of the earthen dam, diversion tunnel gate structure, concrete water intake structure, powerhouse generation facility, penstock and its concrete supports, unused transmission lines, and the switchyard. The DRE would bury the concrete spillway to restore the pre-dam appearance of the right abutment bedrock canyon. Further, the DRE would fill the tailrace (where the powerhouse discharges water) to restore natural river conditions in this area.

Facilities Removal at Iron Gate Dam would include removal of the fish handling facilities at the base of the dam, but the Iron Gate Fish Hatchery would remain in place. PacifiCorp would need to identify and secure an alternate water source for the fish hatchery to remain operational because the water supply pipe from the penstock intake structure to the fish hatchery would be removed with the dam. PacifiCorp would fund eight years of hatchery operations after the decommissioning of Iron Gate Dam, after which the parties will be responsible for identifying funding for continued operation if necessary.

The DRE would draw down the reservoir by releasing water through the diversion tunnel and into the power generation facilities. The DRE would begin excavation of the embankment on the very narrow top section, which would be a slow process because of the confined work area. As the excavation is worked down from the top, the width of the excavation footprint would be wider and additional equipment could be used. The DRE would remove the riprap during embankment excavation. The DRE would then remove reinforced concrete from remaining structures (including intake structures, fish handling facilities, and powerhouse) using mechanical methods if possible (or drilling and blasting if necessary). The construction of

temporary cofferdams would be necessary to divert water and create isolated work areas for removing the base of of some dams. These cofferdams would be built using materials from the dam removal process and removed upon completion of the work.

Reservoir Restoration following Drawdown

Under the Proposed Action, there would be substantial erosion of the reservoir sediment while the reservoirs are being drawn down. The eroded sediment would then be transported downstream. Following drawdown of the reservoirs, the DRE would complete restoration actions including revegetation, recreation area maintenance, and recreation area decommissioning as described in this section.

Following drawdown of the reservoirs, revegetation efforts would be initiated to support establishment of native wetland and riparian species on newly exposed reservoir sediment. Access for ground application equipment is expected to be limited immediately following drawdown due to terrain, slope, and sediment instability. Upper areas would be reseeded from a barge until the reservoir levels become too low to operate and access the barge. As the reservoirs are drawn down, trucks will be used to apply hydroseed to all accessible areas. Aerial application would be necessary for precision applications of material near the sensitive areas and the newly established river channel, as well as in the remaining areas that are inaccessible by barge or truck.

Additional fall seeding may be necessary to supplement areas where spring hydroseeding was unsuccessful. In cases where mulch moved/degraded or otherwise exposed bare soil, aerial hydroseeding would be used again for the fall re-seeding. In other cases, where establishment failed, yet the mulch remained intact, new seed material applications may need to be incorporated in order to re-establish seed/soil contact sufficient for germination.

City of Yreka Water Supply

The city of Yreka has a municipal water supply intake on Fall Creek and a pipeline that crosses Iron Gate Reservoir; the pipeline would be affected if the Iron Gate Dam were removed. The KHSA addressed the possible impacts that facilities removal would have on the water supply pipeline for the city of Yreka and provides provisions for mitigation of impacts on this supply system. Signatories agreed not to prevent use of the city of Yreka's Water Rights permit and will study the potential risks to the water supply system from facilities removal. Necessary actions for the continued use of the City of Yreka water supply infrastructure would be funded and implemented as part of implementation of the KHSA (KHSA 2010 Section 7.2.3). Final design for a replacement pipeline, if needed, will be done in consultation with the City of Yreka. These commitments remain the same in the Amended KHSA.

Keno Facilities Transfer

The KHSA called for transferring ownership and operation of Keno Dam from PacifiCorp to DOI. The Secretary and PacifiCorp are negotiating the proposed transfer of Keno facilities (the Keno Transfer). Further, transfer of title shall be subject to completion of any necessary

improvements to the facility to meet the DOI directives and standards for dam safety identified by the DOI through a safety inspection of the Keno facility. The Klamath Facilities Removal EIS/EIR analyzed the impacts associated with the Keno Transfer as a connected action. There were no changes to the Keno Facilities Transfer provisions in the Amended KHSA.

Eastside and Westside Powerhouse Decommissioning

PacifiCorp's Eastside and Westside Facilities were proposed for decommissioning in PacifiCorp's 2004 relicensing application. Their decommissioning through the FERC process is described in the KHSA (KHSA 2010 6.4.1(B)). Removing the two facilities would result in the loss of 3.8 megawatts of generating capacity and the removal of the generating infrastructure. The Link River Dam, which is the point of diversion for the two generating facilities, is already owned by Reclamation. Link River Dam was built in 1921, and the power facilities were constructed separately later. Relicensing of the Eastside and Westside facilities would likely require upgrading the power facilities to remain in compliance with FERC standards. This would include the installation of fish screens on the power facilities, potentially requiring major construction and associated maintenance changes.

As noted above, the decommissioning of the Eastside and Westside facilities would be carried out through application to the FERC. FERC will conduct any necessary environmental analysis and make a FERC determination. The Klamath Facilities Removal EIS/EIR used a programmatic analysis to evaluate the impacts associated with the decommissioning of the Eastside and Westside Facilities.

KBRA

The Klamath Facilities Removal EIS/EIR analysis treated the KBRA as a connected action because the Secretarial Determination as described in the KHSA was one of the early key milestones toward full implementation of KBRA. The KBRA included a mix of programs including Fisheries Programs, Water Storage Projects, Water and Power Programs, Regulatory Assurances Programs, and County and Tribal Programs. The KBRA's Fisheries Program was more expressly linked to dam removal rather than the Secretarial Determination, as other programs were.

KBRA Fisheries Program

The Fisheries Program of the KBRA assisted the recolonization of fish habitat made accessible through dam removal and had three main goals:

A. Restore and maintain ecological functionality and connectivity to historic habitat.

B. Re-establish and maintain naturally sustainable and viable populations of fish to the full capacity of the restored habitats.

C. Provide for full participation in harvest opportunities by Tribes

Fisheries Restoration Plans

Implementation of the Fisheries Restoration Plan could include actions for restoration of existing fisheries in the upper basin, as well as actions necessary to prepare for reintroduction of anadromous

fish upstream of Iron Gate Dam. Specific elements could include restoration and protection of riparian vegetation, water quality improvements, restoration of stream channel functions, measures to prevent excessive sediment inputs, remediation of fish passage blockages, and prevention of entrainment into diversions (KBRA Section 10.1.2). See Klamath Facilities Removal EIS/EIR, Table 2-17, for a geographic breakdown of when and where restoration activities would occur.

Restoration activities similar to the general classes of actions described in the KBRA currently occur throughout the basin as funding is available. It was expected that the Restoration Plan would build upon existing activities.

Fisheries Reintroduction Plans

Under the KBRA, the states of California and Oregon would each have prepared separate Fisheries Reintroduction Plans that would have identified the facilities and actions that would be necessary to start reintroduction of anadromous fish upstream of Iron Gate Dam (KBRA Section 11). The Phase I Reintroduction Plans would have been prepared if there was an Affirmative Determination and each state concurred with that Determination. Reintroduction activities specifically would have excluded the Trinity River watershed upstream of the confluence with the Klamath River; Lost River and its tributaries; and Tule Lake Basin.

The Oregon Phase I Reintroduction Plan, would have been prepared by the Oregon DFW and the Klamath Tribes, and would have identified the facilities and actions necessary to start reintroduction and would be adaptable in order to incorporate information gained from the monitoring program. Oregon DFW, the Klamath Tribes, and other fish managers would have been responsible for implementation of the Phase I Reintroduction Plan.

Under the KBRA, Phase I reintroduction upstream of Iron Gate Dam would have included active intervention and movement of Chinook salmon into suitable habitats (KBRA Section 11.3). Following dam removal seasonal trap and haul operations, primarily for fall-run Chinook salmon, may have occurred around Keno Dam until water quality conditions was sufficiently improved. Activities would have been prioritized under the Reintroduction Plan and additional funding that might have become available under the KBRA would have allowed greater improvements to be realized than would occur without the KBRA.

New Information

As a milestone in all three settlement agreements (KHSA, KBRA, and UKBCA), the Secretarial Determination on dam removal influenced timing and implementation of programs in the KBRA and UKBCA. With expiration of the KBRA and limited implementation of UKBCA, the three agreements are currently unlinked. However, because KBRA and UKBCA did not dictate the process to remove dams or mitigate for the impacts of dam removal, expiration of KBRA and the less than full implementation of the UKBCA does not change the proposed action considered in the Klamath Facilities Removal EIS/EIR or the impacts of that removal. The synergistic effects of implementation of the three agreements in concert have currently been lost and some benefits in this reexamination of the EIS/EIR have been tempered due to the expiration of KBRA,

including reduced benefits to aquatic resources, water quality, water supply/water rights, tribal trust, and socioeconomics.

The KBRA included several measures focused on fish reintroduction and aquatic restoration of the upper Klamath Basin. While not strictly mitigation for removal of dams, the Fisheries Reintroduction Plan and the Fisheries Restoration Plan included actions that were primarily aimed at advancing salmonid fisheries as fish passage into the upper basin was reopened. In this reexamination, it is anticipated that the DOI, the tribes, and fish and wildlife resource management agencies will implement some actions that would have been supported by the KBRA programs (i.e. stream restoration action and some fish reintroduction actions), although implementation of these programs may not occur as rapidly as envisioned in the KBRA. Specifically, Oregon DFW has indicated that Oregon would implement actions that would have been included in the KBRA Phase I Restoration and Reintroduction Plan as resources become available for these activities (T. Wise, pers. comm. February 4, 2016).

Additionally, under the Proposed Action described in the Amended KHSA, DOI will operate and maintain Keno Dam and Link River Dam. After Facilities Removal, the operation and maintenance of Keno Dam and Link River Dam will need to be protective of anadromous fish. Those protections have been described in detail by the fish and wildlife resource agencies and it is the expectation of DOI that operation of Keno and Link River Dam will need to be consistent with *United States Department of the Interior's Filing of Modified Terms, Conditions, and Prescriptions (Klamath Hydroelectric Project, No. 2082)* (DOI 2007) and from the *National Marine Fisheries Service Modified Prescriptions for Fishways and Alternatives Analysis for the Klamath Hydroelectric Project (FERC Project No. 2082)* (NMFS 2007). All action alternatives included in the Klamath Facilities Removal EIS/EIR included explicit measures in the project description or described as part of a connected action such that all alternatives are consistent with DOI 2007 and NOAA Fisheries Service 2007. The Interim Trap and Haul Programmatic measure that was described as part of the Klamath Facilities Removal EIS/EIR remains a connected action to dam removal as part of operation and maintenance of Keno Dam and Link River Dam by DOI (See Klamath Facilities Removal EIS/EIR p. 2-90).

The expiration of KBRA and the issuance of a joint biological opinion (2013 Joint Biological Opinion) for the Reclamation's Klamath Irrigation Project (NOAA and USFWS 2013) change the likely hydrologic condition in the Klamath River during dam removal. Reclamation's Klamath Irrigation Project proposed action for 2013 to 2023 includes operation of the Klamath Project for the delivery of water for irrigation purposes consistent with historic operations, subject to water availability, while maintaining lake and river hydrologic conditions that avoid jeopardizing the continued existence of listed species and adverse modification of designated critical habitat (NOAA and USFWS 2013). Klamath Irrigation Project's proposed action was designed to optimize limited water supplies to provide greater certainty for Project Supply, and to provide Upper Klamath Lake (UKL) elevations and Klamath River flows representative of real-time hydrologic conditions. Klamath Irrigation Project's proposed action includes two

distinct operational approaches for water management for the fall/winter (October through February) and spring/summer (March through September) time periods.

Fall/winter water management implements a formulaic management approach based on current hydrologic indicators (UKL storage, UKL inflows, Klamath River accretions, and snowpack conditions) to ensure adequate water storage and sucker habitat in UKL in the fall/winter, while meeting the needs of coho almon downstream and providing fall/winter water deliveries to the Project and Lower Klamath National Wildlife Refuge (NWR). The fall/winter approach prioritizes refill of UKL to provide adequate Project supply, sucker habitat and enhanced river flows in the spring/summer period, while providing opportunity for increasing variability in daily flows that more closely mimic natural hydrology and provides ecological benefits, based on real-time hydrologic conditions in the upper Klamath Basin. Spring/summer water management implements a water supply account approach to determine a volume of water reserved in UKL for ESA-listed suckers (UKL Reserve), the amount of water available for the Klamath River Environmental Water Account (EWA), and the available water supply for Project irrigation (Project Supply). The division of the total available UKL water supply between UKL Reserve, EWA, and Project Supply was based on an analysis of the ecologic needs of ESA-listed species. The formulaic distribution of EWA in spring/summer is based on real-time hydrologic indicators in the upper Klamath Basin, primarily the Williamson River and inflows (accretions) between Link River and Iron Gate Dams, and was designed to achieve key ecological objectives for UKL and the Klamath River. The spring/summer operational approach remains consistent with historic operations by maintaining full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. To ensure Klamath Irrigation Project operations do not jeopardize listed coho salmon, Reclamation's proposed action included the minimum flows below Iron Gate Dam described in Table 3.

Month	Iron Gate Dam Average Daily Minimum Target Flows (cfs)
March	1,000 (28.3 m^3/sec)
April	1,325 (37.5 m3/sec)
May	1,175 (33.3 m3/sec)
June	1,025 (29.0 m3/sec)
July	900 (25.5 m^3/sec)
August	900 (25.5 m^3/sec)
September	1,000 (28.3 m^3/sec)

Table 3. Minimum Klamath River discharge below Iron Gate Dam (2013 Joint Biological Opinion).

The Klamath Irrigation Project's proposed action incorporates a real-time management concept into current Project operations to lessen the impacts of Project operations on ESA-listed species. A key driver and benefit of this concept is greater water supply certainty for the irrigation project and the flexibility to meet real-time species needs. This real-time management approach for UKL and the Klamath River attempts to optimize the ecologic benefit of the available water supply, resulting in the ability to maximize the amount of remaining water available for the Project. In some instances, dry hydrologic conditions characterized by limited precipitation, runoff, and inflows to UKL may create shortages in the total available UKL water supply, which can result in Project Supply that is less than the full irrigation demand.

Summary of the Effects of Changing the Proposed Action Flows

The EIS/EIR evaluated and analyzed the potential environmental impacts of the Proposed Action (removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams) on multiple Klamath Basin resources. To evaluate impacts to some resources (e.g. aquatic biota, water quality, flood plains, among others), assumptions were made about likely flow conditions before, during, and after dam removal in the EIS/EIR and other technical studies. These studies were completed using flow assumptions based on proposed operations under the KBRA (Reclamation 2012) because implementation of the Proposed Action was connected to KBRA. The KBRA expired on December 31, 2015, due to a lack of Congressional authorization, and the KHSA (and the amended KHSA signed on April 6, 2016) are no longer treated as connected actions under NEPA or CEQA. Consequently, for purposes of NEPA and CEQA, it is now appropriate to analyze the effects of the Proposed Action using flows that are defined by the NMFS and USFWS 2013 Joint Biological Opinion.

Reclamation's Proposed Action for 2013 Joint Biological Opinion was developed collaboratively by biologists and hydrologists with NOAA, USFWS, Klamath Basin Tribes, and Reclamation, and it is currently the standard to which the Klamath Irrigation Project operates. The flows under this 2013 Joint Biological Opinion are different flows than those proposed under the KBRA. This section of the SIR describes the relatively small flow differences between KBRA and 2013 Joint Biological Opinion flows, and how these flow differences do not alter major conclusions drawn in the EIS/EIR regarding environmental impacts of the Proposed Action on several resources that are closely tied to hydrology, such as aquatic resources, water quality (including sediment transport), flood hydrology, water supply/water rights, and geology, among others. The sections covering these resource areas refer back to this section in order to avoid excessive repetition of explanations, figures, and tables.

KBRA and 2013 Joint Biological Opinion flows are nearly identical when examined on an average annual basis, with flows below Iron Gate Dam averaging about 1,920 and 1,932 cubic feet per second (cfs), respectively. Similarly, KBRA and 2013 Joint Biological Opinion average annual flows are nearly identical below Keno Dam, averaging about 1,413 and 1,434 cfs, respectively. While on an average annual basis the flows above and below the Hydroelectric Reach are within a few percent of each other, average monthly flows do differ between KBRA

and 2013 Joint Biological Opinion, as evident in Tables 4 and 5. The most prominent difference is the 2013 Joint Biological Opinion requires greater flows in the fall months (October through December) and allows lesser flows in the summer months (June through August) in many years when compared to KBRA Flows, but particularly during wetter-than-average years. Below Iron Gate Dam, 2013 Joint Biological Opinion fall flows average about 216 cfs more than KBRA Flows; 2013 Joint Biological Opinion summer flows average about 114 cfs less than KBRA Flows (Table 4). These seasonal differences in 2013 Joint Biological Opinion versus KBRA Flows reflect the joint goal of NMFS and USFWS to collectively protect ESA listed fish that rely on a shared and finite aquatic resource (most notably two endangered sucker species in Upper Klamath Lake and threatened coho salmon in the Klamath River below Iron Gate Dam).

Figures 6 and 7 show the monthly flow exceedances for the 2013 Joint Biological Opinion and KBRA Flows below Iron Gate Dam and Keno Dam, respectively. Monthly flow exceedance plots are particularly useful for comparing differences between 2013 Joint Biological Opinion and KBRA Flows for different year types (e.g. wet, median, and dry years). For example, the first panel in Figure 6 shows that flows in the Klamath River below Iron Gate Dam in October under the 2013 Joint Biological Opinion are always 150 to 400 cfs greater than under the KBRA Flows, regardless of whether it is a wet year (e.g. 10 percent exceedance), a median year (50 percent exceedance), or a dry year (e.g. 90 percent exceedance). Figures 6 and 7 allow one to analyze whether the assumption of KBRA Flows versus 2013 Joint Biological Opinion flows would affect conclusions in the EIS/EIR regarding the environmental effects of the Proposed Action.

Suspended Sediment Concentrations and Effects on Aquatic Resources:
The Detailed Plan for dam removal (Reclamation 2011a) assumed that the natural release of sediment to the Klamath River from the three larger reservoirs (J.C. Boyle, Copco, and Iron Gate) would be initiated on or soon after January 1, 2020, by regulated releases from available gated spillways, powerhouse bypass facilities, and modified low-level outlets, in order to draw down the reservoirs in a controlled manner. Facilities Removal, as defined by the KHSA to produce a free-flowing river at all four facilities, would be completed prior to December 31, 2020. Drawdown of the three largest reservoirs would be completed in March 2020 (Reclamation 2012).

Based on a sediment transport model (Reclamation 2012a), which assumes KBRA Flows, the largest loads and concentrations of suspended sediment will erode downstream from January through March 2020, but significant loads and high concentrations of suspended sediment would continue through May (Figure 8). Concentration of suspended sediment would peak at about 7,000 to 14,000 mg/L during drawdown, depending on water year type (Table 6). By late spring 2020, however, the sediment transport model predicts that suspended sediment concentrations would be approaching 100 mg/L below Iron Gate Dam (Figure 5) regardless of whether drawdown occurred in a wet, median, or dry year (Reclamation 2012). Because KBRA and 2013 Joint Biological Opinion flows for January through May are nearly identical for all water year types below Keno and Iron Gate dams (generally within a few percent for the 5-month period --

see monthly exceedance Figures 6 and 7), it is reasonable to conclude that the sediment transport model would produce nearly identical suspended sediment concentrations for this January through May time period if it were run with 2013 Joint Biological Opinion flows. Small differences in flows would have negligible impacts on suspended sediment concentrations. It is also reasonable to conclude that the predicted mortality of fish due to the release of high concentrations of suspended sediment (Stillwater 2011), regardless of whether 2013 Joint Biological Opinion or KBRA Flows were assumed in the sediment transport modeling, would be the same and would remain a significant adverse impact of the Proposed Action.

Suspended Sediment Concentrations and Effects on Water Quality:
The Proposed Action would have a short term (< 2 years) adverse impact on water quality relative to suspended sediment standards regardless of whether KBRA Flows or 2013 Joint Biological Opinion flows are assumed in sediment transport model predictions (Reclamation 2012). KBRA Flows and 2013 Joint Biological Opinion flows are nearly identical on an annual basis (within 2 percent), and differ by only 0 to 21 percent for individual months below Iron Gate Dam (Table 4). These differences between KBRA and 2013 Joint Biological Opinion annual and monthly flows are small compared to the water-year types analyzed to provide a broad range of likely impacts of the Proposed Action on suspended sediment concentrations. Three representative water year types were modeled to cover a range of hydrologic conditions during and after reservoir drawdown, including a relatively dry year (in the lower quartile of flows), a more average flow year, and a very wet year. Average annual measured flows below Iron Gate Dam (USGS gage 11516530) for the three representative years ranged from 1,340 cfs (water year 2001), 2,063 cfs (water year 1976), and 3,477 cfs (water year 1984) respectively. Regardless of water year type, with their wide annual and monthly flow differences, peak suspended sediment concentrations for all water-year types were very high during reservoir drawdown (7,000 to 14,000 mg/L), concentrations were greater than or equal to 1,000 mg/L for 2 to 3 months, concentrations were greater than or equal to 100 mg/L for 5 to 7 months, and concentrations were greater than or equal to 30 mg/L for 6 to 10 months (Table 6).

Although differences in suspended sediment concentrations and durations were observed among water year types, they all would produce a significant adverse impact on water quality as concluded in the EIS/EIR. If the sediment transport model was run assuming slightly different 2013 Joint Biological Opinion flows rather than KBRA Flows, it is reasonable to conclude the effects of the Proposed Action would be bracketed by the EIS/EIR analysis, the intensity, magnitudes, and durations of high suspended sediment concentrations would be very similar, and the same conclusion of a significant adverse impact of the Proposed Action on water quality would be reached.

Effects on Flood Hydrology:
The differences between the KBRA and 2013 Joint Biological Opinion will also not affect the flood operations in Upper Klamath Lake or Keno Reservoir. The KBRA flow simulation only computes monthly average flows downstream of Keno so it is not possible to directly compare the predicted flood peaks between the KBRA and 2013 Joint Biological Opinion. However, there

are two factors that indicate that there will be no significant difference in flood conditions between the two operations. First, downstream of Iron Gate Dam, the peak flows are largely determined by the rainfall and runoff that occurs in the watershed between Keno Dam and Iron Gate Dam (Reclamation 2012), which is unaffected by Reclamation's Klamath Project. There is no new evidence that suggests the frequency of large storms has changed significantly since the analysis of KBRA Flows in 2012. Second, the maximum monthly average flows at Iron Gate Dam for the 2013 Joint Biological Opinion are less than those assumed under KBRA Flows (Figure 9) for all the months when flooding has historically occurred (December through May).

Therefore, it is reasonable to conclude that because the flood operations under the 2013 Joint Biological Opinion flows versus the KBRA Flows have not changed, and because the frequency and magnitude of large storms has not changed, the likely adverse impacts to structures in the 100-year flood plain downstream of Iron Gate, and the timing of downstream flood peaks, would be similar for both flow scenarios, with the adverse impacts being significant but reduced to less than significant with implementation of Mitigation Measure H-1 and H-2.

The expected hydrology in the Klamath River remains similar in magnitude and timing of flood peaks to that used in the Klamath Facilities Removal EIS/EIR analysis. New information and the slight change in flood hydrology under the Proposed Action do not result in a change relevant to environmental concerns.

Effects on Flood Risk during Reservoir Drawdown Prior to Dam Removal:
Because of the similarities in flow between the 2013 Joint Biological Opinion and KBRA for the months of January through March, there is expected to be no significant difference between the impacts of dam removal for the dry and average water year types. During the wetter water year types in May and June (Figure 9), there may be a slight increase in the amount of refilling of Iron Gate Reservoir under the 2013 Joint Biological Opinion, but by July the flows for the 2013 are below the low level outlet capacity of Iron Gate Dam. Additionally the flood capacity within the reservoirs increases as drawdown proceeds. If in May or June the very remote possibility of a major hydrologic event occurred, the flood water would be retained within the Four Facilities and drawdown would only resume once the risk of flood had ended. The possibility and impacts of refilling Iron Gate Reservoir is adequately analyzed in the previous work documented in Reclamation (2012) and in the Klamath Facilities Removal EIS/EIR. Therefore, the reservoir drawdown process associated with dam removal described in the Detailed Plan and the Klamath Facilities Removal EIS/EIR would not change and there is no change relevant to environmental concerns.

Effects on Water Supply/Water Rights:
The very minor changes to the hydrology between KBRA Flows and 2013 Joint Biological Opinion flows can be seen when evaluating the average monthly flows and monthly flow exceedances below Iron Gate Dam (Table 4 and Figure 6). The 2013 Joint Biological Opinion slightly increases the annual average water supply by about 9 thousand acre feet when compared with the KBRA Flows. Moreover, when compared to the KBRA Flows, the 2013 Joint

Biological Opinion maintains higher minimum summer months (July and August) during very dry years, when water demands by downstream users are greatest and tributary inputs and groundwater discharges to the river are lowest. In the Klamath Facilities Removal EIS/EIR, a 90 percent exceedance flow of 824 cfs was used to represent a dry year at Iron Gate Dam under KBRA Flows. The flow rate of 824 cfs was once the seasonal low flow during the month of July, when irrigation and livestock demands were very high. Because the 2013 Joint Biological Opinion requires the higher minimum flows of 900 cfs in July and August (Table 3), the 2013 Joint Biological Opinion increases the downstream supply of water to satisfy water rights, and for biological purposes, during the most critical months of dry years.

Effects on Recreation:

The implementation of the 2013 Joint Biological Opinion would have similar effects on the number of recreation days for white-water boating and fishing in the Klamath River as would KBRA Flows. Major trends such as significant losses of flat water fishing opportunities on the hydroelectric reservoirs and the loss of the Hell's Corner peaking flows would be similar in magnitude. However the 2013 Joint Biological Opinion does have slightly increased flows in dry water year types in July and August (Table 3). This would lead to slightly more recreational days for white water boating in the Klamath River under the 2013 Joint Biological Opinion.

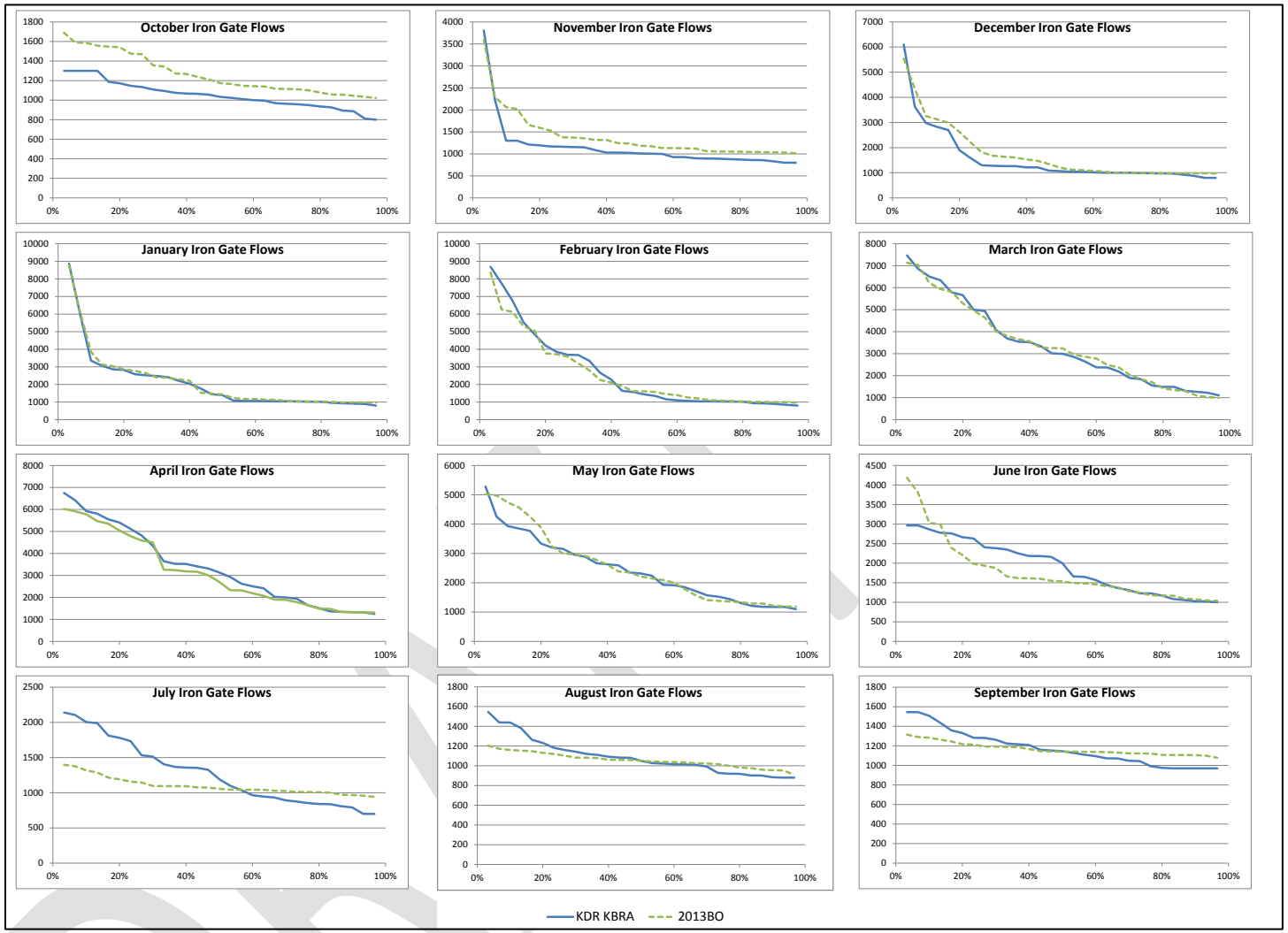


Figure 6. **KBRA** and **2013 Joint Biological Opinion** Monthly Flow Exceedance at Iron Gate Dam

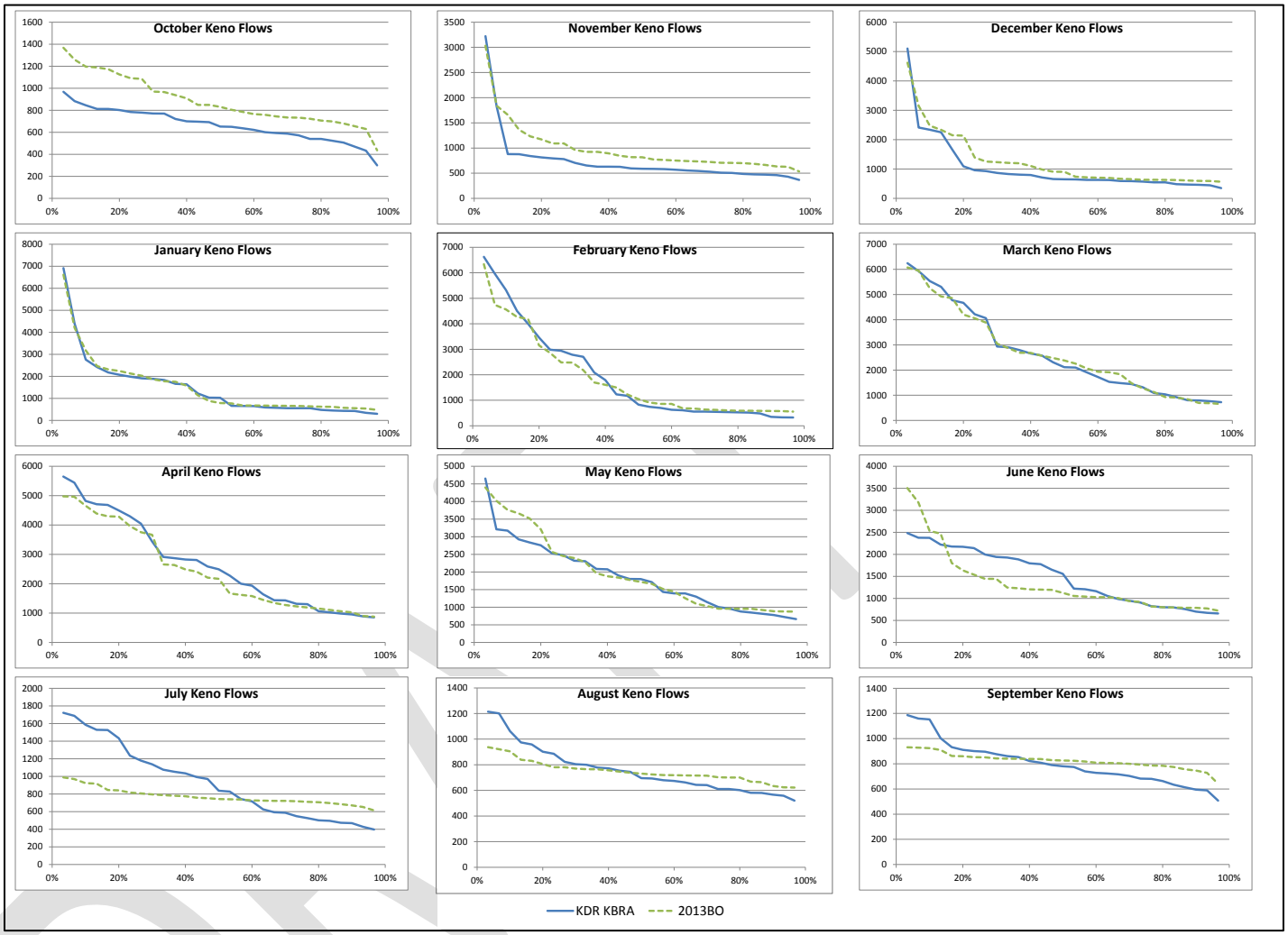


Figure 7. **KBRA** and **2013 Joint Biological Opinion** Monthly Flow Exceedance at Keno

Table 4. Monthly Average Iron Gate Flow for KBRA Flows and 2013 Joint Biological Opinion Flows

	Avg Monthly Flow		Differences (2013 BO versus KBRA)		
	KDR KBRA (cfs)	2013 Joint Biological Opinion (cfs)	(cfs)	(taf)	(%)
oct	1050	1263	213	13.1	20%
nov	1149	1387	239	14.2	21%
dec	1546	1744	197	12.1	13%
jan	2061	2131	70	4.3	3%
feb	2628	2545	-83	-4.6	-3%
mar	3390	3381	-9	-0.6	0%
apr	3340	3119	-222	-13.2	-7%
may	2431	2523	92	5.6	4%
jun	1910	1777	-132	-7.9	-7%
jul	1272	1096	-177	-10.9	-14%
aug	1090	1056	-34	-2.1	-3%
sep	1174	1167	-7	-0.4	-1%

Table 5. Monthly Average Keno Flow for KBRA Flows and 2013 Joint Biological Opinion Flows

	Average Monthly Flow		Differences (2013 BO versus KBRA)		
	KDR KBRA (cfs)	2013 BO (cfs)	(cfs)	(taf)	(%)
oct	664	885	220	13.5	33%
nov	743	980	237	14.1	32%
dec	1023	1245	222	13.7	22%
jan	1455	1510	55	3.4	4%
feb	1925	1850	-74	-4.1	-4%
mar	2644	2639	-6	-0.3	0%
apr	2661	2448	-213	-12.7	-8%
may	1858	1960	102	6.3	5%
jun	1489	1354	-135	-8.1	-9%
jul	929	770	-159	-9.8	-17%
aug	758	748	-10	-0.6	-1%
sep	803	822	19	1.2	2%

Table 6. Summary of Model Predictions (Reclamation 2012) for SSCs in the Klamath River Downstream from Iron Gate Dam for the Proposed Action (assumes KBRA Flows)

Water Year Type	Peak SSC (mg/L)	SSC≥1,000 mg/L		SSC≥100 mg/L		SSC≥30 mg/L	
		Duration (Months)	Time Period	Duration (Months)	Time Period	Duration (Months)	Time Period
Dry (WY2001)	13,600	3	January–March 2020	6	January–June 2020	10	January–October 2020
Median (WY1976)	9,900	2	January–February 2020	5	January–May 2020	6	January–June 2020
Wet (WY1984)	7,100	2	January–February 2020	7	November 2019–February 2020 and April– June 2020	9	November 2019–July 2020

Source: Reclamation 2012
Key:
WY = Water Year
SSC = suspended sediment concentration
mg/L = milligrams per liter

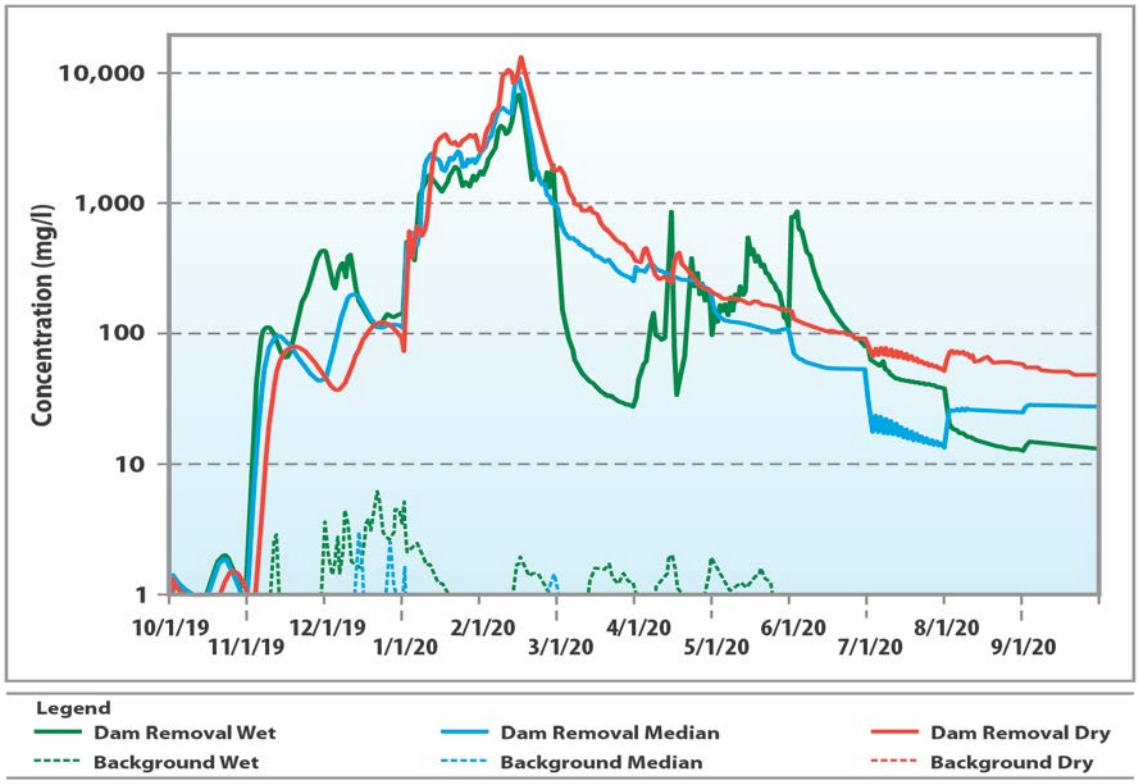


Figure 8. Modeled suspended sediment concentrations (SSC) immediately downstream of Iron Gate Dam for dam removal in dry, median, and wet water years. Background concentrations are modeled using data from all water year types for 1961–2008.

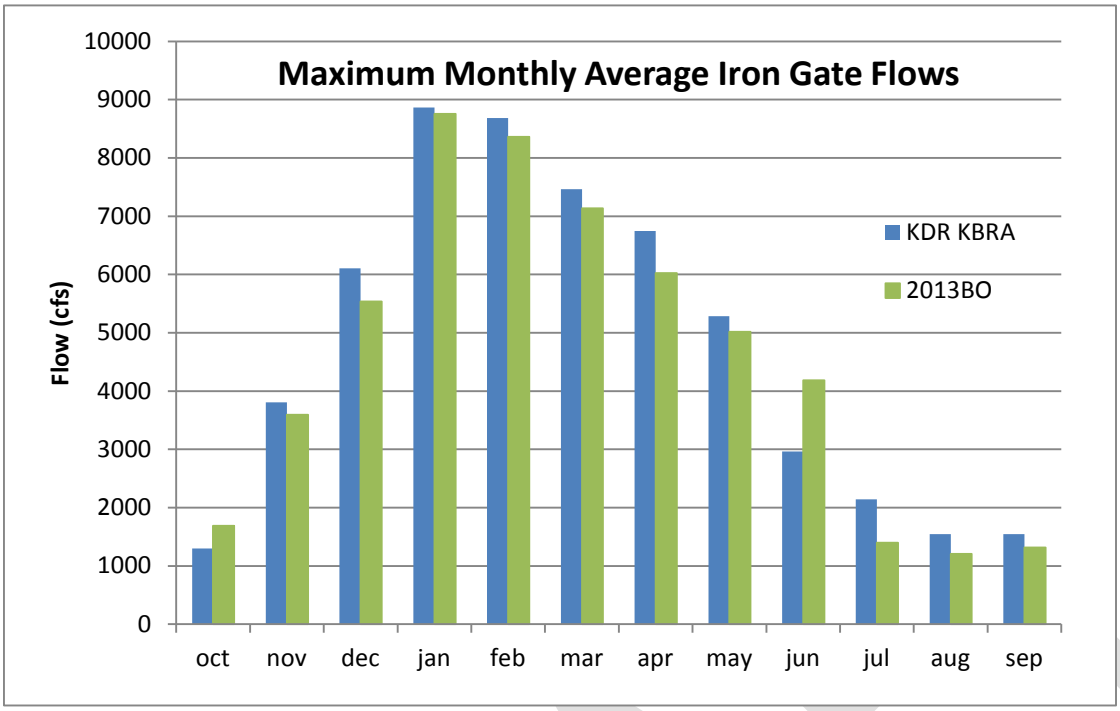
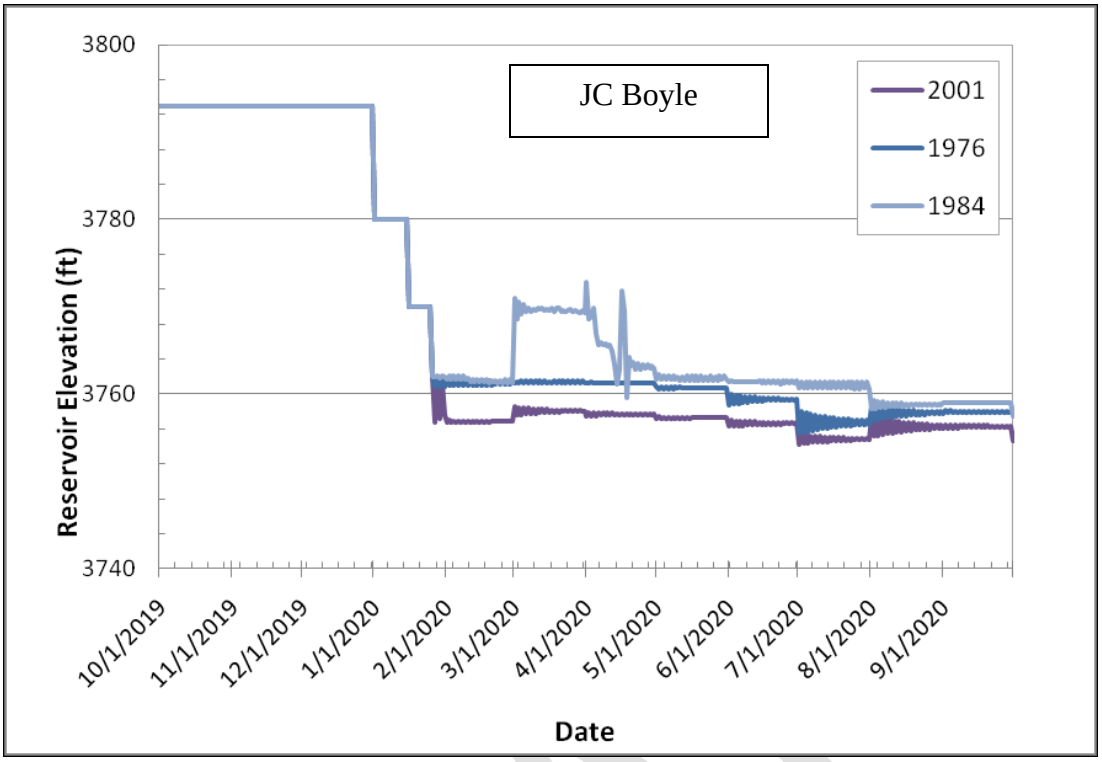
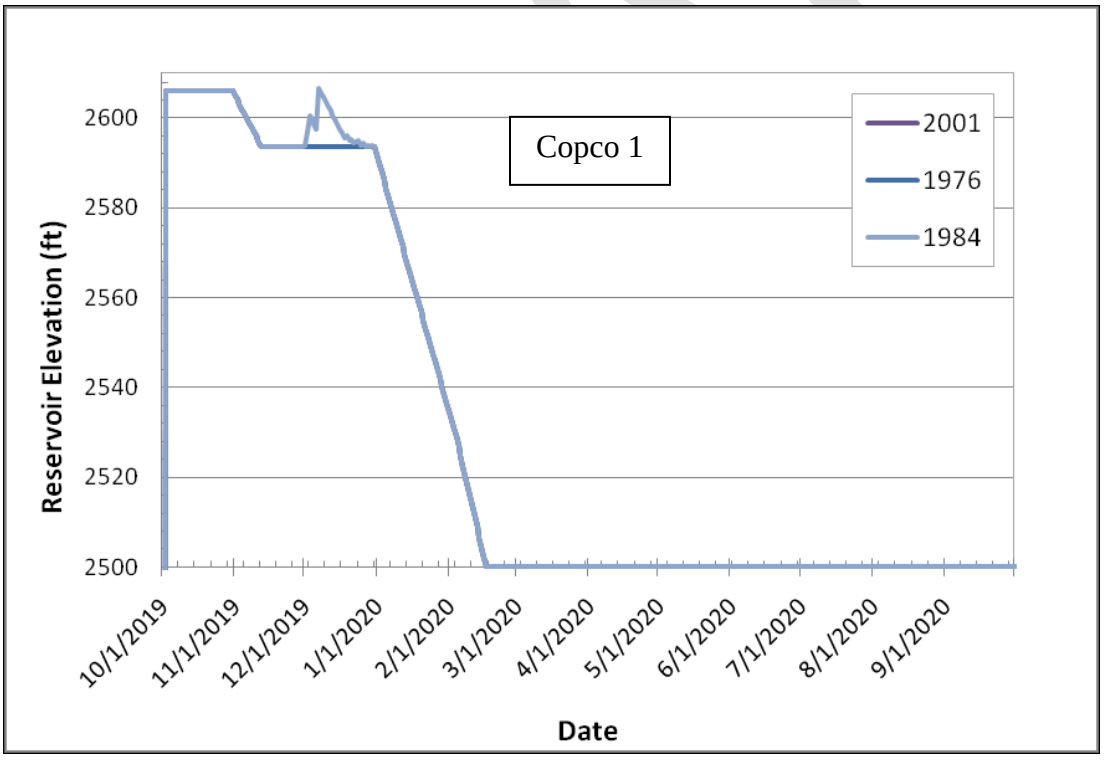


Figure 9. Maximum monthly average flows at Iron Gate Dam for KBRA Flows and 2013 Joint Biological Opinion flows.


JC Boyle
2001
1976
1984
Reservoir Elevation (ft)
3800
3780
3760
3740
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
Date


Copco 1
2001
1976
1984
Reservoir Elevation (ft)
2600
2580
2560
2540
2520
2500
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
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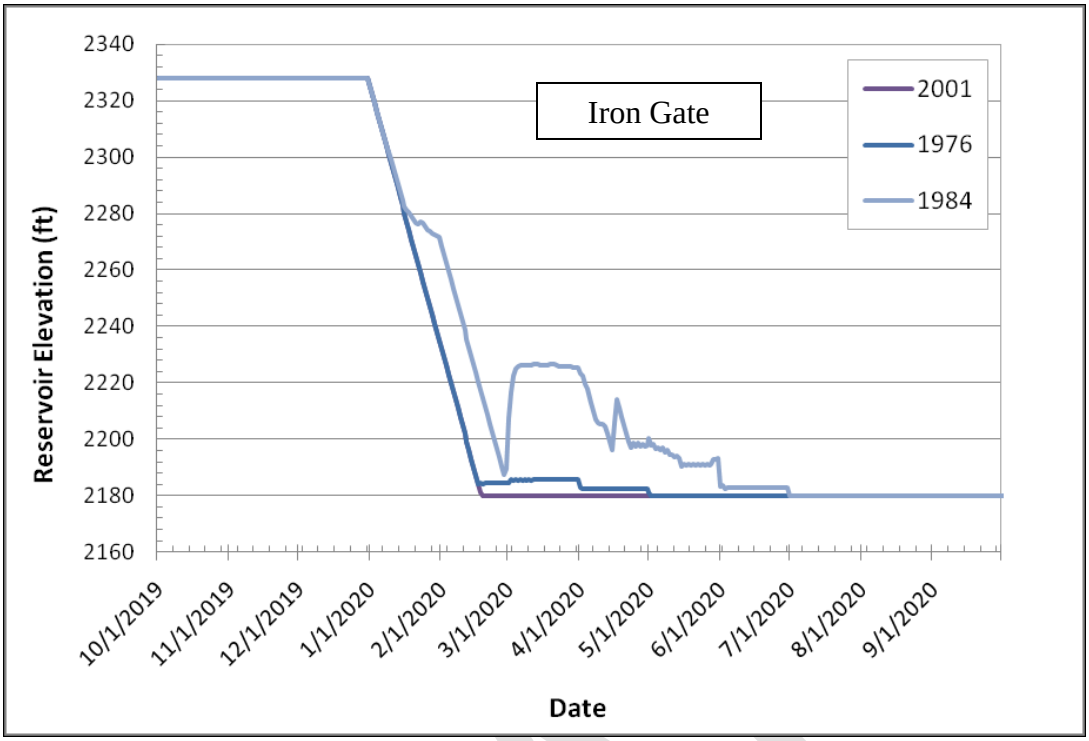

Figure 10. Reservoir elevations of JC Boyle, Copco 1, and Iron Gate reservoirs during reservoir drawdown as computed by Reclamation (2012) assuming KBRA Flows in 3 example water years, 2001 is a dry year, 1976 is an average year and 1984 is a wet year.

3.3 Chapter 3: Environmental Consequences

3.3.1 Water Quality

Environmental Setting

This section describes the effects of the Proposed Action on water temperature, suspended sediments, nutrients (total phosphorus (TP), total nitrogen (TN), ortho-phosphorus, nitrate, and ammonium), DO, pH, and inorganic and organic contaminants within the area of analysis. Effects of the Proposed Action on algae and algal toxins are covered in Section 3.4 (Algae). The Water Quality section of the EIS/EIR analyzed potential effects of the Proposed Action on water quality in Klamath Basin, excluding the Lost River watershed, Tule Lake watershed, and most of the Trinity River watershed. In the EIS/EIR some areas upstream of Link River Dam (e.g. Upper Klamath Lake and its tributaries) were included because implementation of the connected KBRA Programs could have affected water quality in these areas. These areas are not included in the analysis of the Proposed Action without KBRA because dam removal alone would not affect water quality in these parts of the Klamath Basin. The areas downstream of Link River Dam and to the top of the Hydroelectric Reach are still included in the analysis of the Proposed Action

because water quality could potentially be impacted by Eastside and Westside Facilities decommissioning and the transfer of Keno Dam.

The area of analysis also includes the Hydroelectric Reach, which extends from the upstream end of J.C. Boyle Reservoir to Iron Gate Dam, including all sections categorized as mainstem, bypass, and peaking reaches. It also includes the Lower Klamath River downstream from Iron Gate Dam, through the Klamath Estuary, and including the Pacific Ocean marine nearshore environment. Tributaries to the Klamath River in the Hydroelectric Reach and below Iron Gate Dam are not included in the analysis of the Proposed Action (without KBRA as a connected action) because dam removal alone would not affect water quality in these parts of the basin.

Impacts

Suspended Sediment:
Within the general uncertainty of the model predictions (Reclamation 2012), the Proposed Action would result in suspended sediment concentrations (SSCs) below Iron Gate Dam with peak values of 7,000–14,000 mg/L occurring sometime in the first few months of reservoir drawdown, depending on water year type (dry, average, or wet) and the timing of storm events. SSCs in excess of 1,000 mg/L would occur on a timescale of weeks to months. Predicted SSCs would remain greater than or equal to 100 mg/L for 5–7 months following drawdown, and concentrations would remain greater than or equal to 30 mg/L for 6–10 months following drawdown. Model results also indicate that while dilution in the lower river would decrease SSCs to 60–70 percent of their initial value downstream from Seiad Valley (RM 129.4) and to 40 percent of their initial value downstream from Orleans (≈RM 59), it can be conservatively assumed that SSCs in the Lower Klamath River would be sufficient (≥30 mg/L) to substantially adversely affect beneficial uses throughout the lower River and the Klamath Estuary for 6–10 months following reservoir drawdown. A more detailed analysis of the anticipated suspended sediment effects on key fish species in the lower river is presented in the Aquatic Resources section.

The sediment model (Reclamation 2012) used to predict the effects of the Proposed Action on suspended sediment concentration assumed KBRA Flows because KBRA was treated as connected action in the EIS/EIR. Because KBRA expired on December 31, 2015, it is now appropriate to analyze the effects of the Proposed Action using flows that are defined by the 2013 Joint Biological Opinion for Bureau of Reclamation's (Reclamation) Klamath Project (NMFS and USFWS 2013a). Reclamation's Proposed Action for 2013 Joint Biological Opinion was developed collaboratively by biologists and hydrologists with NMFS USFWS, Klamath Basin Tribes, and Reclamation, and it is currently the standard to which the project operates.

The Proposed Action would have a short term (< 2 years) adverse impact on water quality relative to suspended sediment standards regardless of whether KBRA Flows or 2013 Joint Biological Opinion flows are assumed in sediment transport models predictions (Reclamation 2012). KBRA Flows and 2013 Joint Biological Opinion flows are nearly identical on an annual

basis (within 2 percent), and differ by only 0 to 21 percent for individual months below Iron Gate Dam (Table 4). These differences between KBRA and 2013 Joint Biological Opinion annual and monthly flows are small compared to the water-year types analyzed to provide the full range of likely impacts of the Proposed Action on suspended sediment concentrations. Three representative water year types were modeled to bracket likely hydrologic conditions during and after reservoir drawdown, including a dry year, a median year, and a wet year. Average annual measured flows below Iron Gate Dam (USGS gage 11516530) for the three representative years ranged from 1,340 cfs for a dry year (water year 2001), 2,063 cfs for a median flow year (water year 1976), and 3,477 cfs for a wet year (water year 1984). Regardless of water year type, with their wide annual and monthly flow differences, modeled peak suspended sediment concentrations for all water-year types were very high during reservoir drawdown (7,000 to 14,000 mg/L), concentrations were greater than or equal to 1,000 mg/L for 2 to 3 months, concentrations were greater than or equal to 100 mg/L for 5 to 7 months, and concentrations were greater than or equal to 30 mg/L for 6 to 10 months (Table 6).

Although differences in suspended sediment concentrations and durations were observed among water year types, they all would produce a significant adverse impact on water quality as concluded in the EIS/EIR. If the sediment transport model was run assuming slightly different 2013 Joint Biological Opinion flows rather than KBRA Flows, it is reasonable to conclude the effects of the Proposed Action would produce a similar range of suspended sediment concentrations that were analyzed in the EIS/EIR, with similar magnitudes and durations of high concentrations, and the same conclusion of a significant adverse impact of the Proposed Action on water quality would be reached. Overall, sediment release associated with the Proposed Action of drawing down JC Boyle, Copco 1, and Iron Gate reservoirs would cause short-term (<2 years following dam removal) increases in suspended material (≥30 mg/L for 6–10 months following drawdown) that would result in non-attainment of applicable North Coast Basin Plan water quality objectives for suspended material in the Lower Klamath River and the Klamath Estuary. And as stated in the previous paragraph, for 2 to 3 months concentrations would be greater than 1,000 mg/L.

Due to the relatively small magnitude of sediment released to the nearshore environment, the anticipated rapid dilution of the sediment plume as it expands in the ocean, and the relatively low rate of deposition of sediments to the marine nearshore bottom substrates, the short-term impact of this sediment in the marine nearshore environment under the Proposed Action would be a less-than-significant impact. The long-term (2–50 years following dam removal) increases in suspended sediment in the Lower Klamath River, the Klamath Estuary, and the marine nearshore environment would be a less-than significant impact because the majority of erodible reservoir sediment is fine-grained material that would be transported to the ocean in the first two years following reservoir drawdown.

No mitigation measures are planned to reduce sediment concentrations under the Proposed Action during the period of reservoir drawdown. Dredging reservoir bottom sediments prior to dam removal to decrease loads of suspended sediments was deemed infeasible (Lynch 2011)

based on a number of factors, including the relatively small reductions in mortality of fish it would achieve, the land disturbance that would occur for sediment-containment structures, the potential disturbance of cultural resources, and the high cost of the dredging operation. In lieu of dredging, mitigation measures (e.g. trapping and relocating potentially affected fish, lamprey, and mussels during reservoir drawdown; increasing fall flows prior to reservoir drawdown; and delaying release of hatchery yearlings in the spring following reservoir drawdown) were identified to potentially minimize effects to aquatic species from sediment release associated with dam removal and to be significantly more cost effective. In addition, the planned reservoir drawdown during the winter months of a single year (2020) was timed and designed to minimize adverse impacts on key aquatic resources, such as ESA listed juvenile and adult coho salmon. Longer term mitigations (following reservoir drawdown) include replanting and reseeding newly exposed reservoir surfaces to minimize their erosion in subsequent years (Reclamation 2012).

Nutrients:
Under the Proposed Action, the short-term (<2 years following dam removal) increase in nutrients associated with eroded reservoir bottom sediments would be a less-than-significant impact in the Hydroelectric Reach, the Lower Klamath River, estuary, and the marine nearshore environment. The majority of the nutrients associated with reservoir bottom sediments is not readily bioavailable and would not significantly increase the growth of algae. Further, reservoir drawdown under the Proposed Action would occur during winter months when rates of primary productivity and microbially mediated nutrient cycling are expected to be low because of limited ambient light and cold water temperatures.

The Four Facilities, and primarily the two largest reservoirs (Copco 1 and Iron Gate Reservoirs), intercept and retain suspended material behind the dams, including phosphorus and nitrogen originating from the upper basin (Asarian et al 2010). Under the Proposed Action, these additional nutrients currently being retained in the reservoirs would be transported downstream and potentially be available for uptake (e.g., by nuisance algae species) over the long term (2-50 years). Based on available information, the slight nutrient increases in the Hydroelectric Reach would not be expected to result in exceedances of either Oregon water quality objectives for nuisance algae growth, or California North Coast Basin Plan water quality objectives for biostimulatory substances, beyond levels currently experienced. While periphyton colonization would likely increase in the Hydroelectric Reach under the Proposed Action, the increases would be due to the increased habitat for the growth of periphyton as reservoir environments are converted to riverine habitat, rather than increases in nutrient concentrations. Further, the lacustrine environment that supports the current growth of nuisance and toxic algae blooms, such as *M. aeruginosa* in Copco 1 and Iron Gate reservoirs, would be eliminated under the Proposed Action and thus these blooms would be reduced or eliminated, regardless of any increase in nutrient concentrations. Under the Proposed Action, the long-term (2–50 years following dam removal) increase in nutrients in the Hydroelectric Reach would be a less-than-significant impact.

Under the Proposed Action, the long-term increase in nutrients in the Lower Klamath River and the Klamath Estuary would also be a less-than-significant impact. Concentrations of both nitrogen and phosphorus are high enough in the river from Iron Gate Dam (RM 190.1) to approximately Seiad Valley (RM 129.4) (and potentially further downstream) that nutrients are not likely to be limiting primary productivity (i.e., periphyton growth) in this portion of the Klamath River (Asarian and others 2010). In addition, N-fixing species dominate the periphyton communities in the lower reaches of the Klamath River where inorganic nitrogen concentrations are low. Because these species can fix their own nitrogen from the atmosphere, and because dam removal will only cause a minor increase in total phosphorus concentration, the increases in total nitrogen due to dam removal would likely only result in minor increases in periphyton biomass.

Temperature:
A primary effect of the Proposed Action is still anticipated to be the return of approximately 160 miles of the Klamath River, from J.C. Boyle Reservoir (RM 224.7) to the Salmon River (RM 66), to a natural thermal regime. The effects of the Proposed Action on water temperature along this 160-miles reach varies spatially and temporally, but the temperature effects range from less-than significant to beneficial.

Current operations at J.C. Boyle Powerhouse divert relatively warm reservoir discharges around the J.C. Boyle Bypass Reach, leaving large groundwater discharges (springs) to dominate the flows in this reach. This maintains water temperatures between 5-15°C (41-59°F) in this short bypass reach throughout the year, and provides summer and fall cold-water refugia for fish. Under the Proposed Action, which includes removing J.C. Boyle Dam, all flows would be returned to the main channel (currently the bypass reach) and would mix more upstream surface water with the groundwater discharges, locally producing warmer water temperatures from spring to fall than currently exists. Adding this additional water to the bypass reach, however, would not eliminate or overwhelm the benefits of groundwater discharges to water temperatures, particularly during the warm, low-flow summer months. The summer flows in the bypass reach would be comprised of 30 to 40 percent cool groundwater (Buchanan and others 2011) and would continue to have a positive effect on water quality and temperature, and continue to enhance rearing and harvest of redband/rainbow trout. In addition, areas adjacent to the coldwater springs in the bypass reach would continue to serve as thermal refugia for aquatic species in the summer months because the springs themselves would not be affected by the Proposed Action.

Further downstream in the Klamath River, water temperatures are currently influenced by the presence of the two largest reservoirs, Copco 1 and Iron Gate, which delay the natural warming and cooling of riverine water temperatures on a seasonal basis (PacifiCorp 2005, NCRWQCB 2010b). Temperature modeling (Perry and others 2011) results (including climate change) indicate that the annual temperature cycle just downstream of Iron Gate Dam would shift earlier by approximately 18 days within the first year following dam removal, with 1–2^{o}C warmer temperatures in spring and early summer and up to approximately 4^{o}C cooler temperatures in late summer and fall. The return of cooler water

temperatures during the late summer and early fall will more closely mimic natural daily and seasonal conditions and would benefit and support rearing, migration, and earlier spawning and incubation of anadromous salmonids, particularly fall-run Chinook salmon (Bartholow 2005). Analyses suggests that re-establishment of a natural thermal regime with diel fluctuation in the springtime would result in faster growth and earlier outmigration of rearing juvenile salmon, thereby decreasing potential exposure to the comparatively high water temperatures that are experienced in late spring and early summer. This shift in thermal conditions is hypothesized to decrease the frequency and magnitude of large-scale outbreaks of disease in juvenile salmon populations that have occurred for many years in the Klamath River below Iron Gate Dam. At the confluence with the Scott River (RM 143), the differences from dam removal would be diminished, but there would still be a slight warming (<1^{o}C) in the spring and beneficial cooling (1–2^{o}C) in the late summer and fall. Further downstream, at the confluence with the Salmon River (RM 66), water temperature changes associated with the Proposed Action would be small or not discernable (Perry et al 2011).

Based on modeling results and other studies, under the Proposed Action, the short-term (<2 years following dam removal) and long-term (2–50 years following dam removal) increases in springtime water temperatures and diel temperature variation in the Hydroelectric Reach and the Klamath River down to the confluence with Salmon River would be less than significant. Decreases in late summer/fall water temperatures and restoring the natural pattern of wider diel variations in water temperatures (Huntington and Dunsmoor 2006) would be beneficial below Iron Gate Dam to the Salmon River. There would be no change from existing conditions on water temperatures for Klamath River downstream from the Salmon River, the Klamath Estuary, and the marine nearshore environment.

The temperature model used to predict the effects of the Proposed Action on water temperatures assumed KBRA Flows because KBRA was treated as connected action in the Klamath Facilities Removal EIS/EIR. Because KBRA expired on January 1, 2016, it is now appropriate to analyze the effects of the Proposed Action using flows that are defined by the 2013 Joint Biological Opinion for Bureau of Reclamation's (Reclamation) Klamath Project (NMFS and USFWS 2013a). KBRA Flows and 2013 Joint Biological Opinion flows are nearly identical on an annual basis (within 2 percent) and differ by only 0 to 21 percent for individual months below Iron Gate Dam. These flow differences may slightly alter the predicted benefits of the Proposed Action on water temperatures in the Hydroelectric Reach and downstream to the confluence with Salmon Creek, but they do not change the overall conclusion in the EIS/EIR that removal of Copco and Iron Gate dams will benefit water quality by reducing the elevated water temperatures in the late summer and fall.

Dissolved Oxygen:
Under the *Proposed Action*, long-term (2–50 years following dam removal) elimination of seasonal extremes in dissolved oxygen (DO) (i.e., super saturation in surface waters and oxygen depletion in bottom waters of reservoirs) in the river reaches replacing Copco 1 and Iron Gate reservoirs would be beneficial. In addition, modeling of DO under the Proposed Action indicates

that dam removal would increase seasonal DO concentrations in the Klamath River downstream of Iron Gate Dam (PacifiCorp 2005; NCRWQCB 2010a), as compared with current conditions, which would also be beneficial. Under current conditions, thermal stratification of the reservoirs (particularly Iron Gate Reservoir) results in severe oxygen depletion in the bottom waters (hypolimnion) due to microbial decomposition of settling algae. As a result, the dams can release water downstream with low DO concentrations by entraining hypolimnetic water in the summer when the reservoirs are stratified and in the fall when thermal stratification breaks down and the oxygen-depleted deeper water mixes with the entire water column. With the Proposed Action, DO concentrations immediately downstream of Iron Gate Dam during July through November would be greater than those under existing conditions. This condition would result from the lack of stratification and oxygen depletion in bottom waters in the upstream reservoirs, combined with the improved reaeration that occurs in a free-flowing river. As with the river downstream of J.C. Boyle Reservoir, modeling also predicts that daily fluctuations in DO just downstream of Iron Gate Dam during June through October would be greater under the Proposed Action because periphyton communities would become established in the free-flowing reaches of the river that are currently occupied by reservoirs.

Sediment release from reservoirs associated with the Proposed Action would cause short-term (<2 years following dam removal) increases in oxygen demand and reductions in DO in the Hydroelectric Reach as well as downstream from Iron Gate Dam to the confluence with Clear Creek (Stillwater Sciences 2011b). Models show that the duration of decreased DO concentrations will be up to 3 months following dam removal. This oxygen deficit will have a significant adverse impact on DO levels; however, drawing reservoirs down in the cold, high-flow winter months, which maximizes dilution and minimizes rates of biological oxygen demand, will minimize the magnitude and duration of the oxygen deficit caused by the Proposed Action. No other measures or mitigations are planned to reduce this short-term adverse impacts. These significant adverse impacts to DO levels would not extend to Klamath Estuary or the marine nearshore environment in the months following dam removal.

Chemicals in Reservoir Sediments:
Monitoring studies of reservoir bottom sediments (Shannon and Wilson Inc 2006; Reclamation 2012) generated multiple lines of evidence that were used collectively to evaluate the chemistry of trapped reservoir sediments and their potential to affect the environment and human health under the Proposed Action. Multiple potential exposure pathways were analyzed for both humans and aquatic biota for the Proposed Action, including short-term exposure to sediments flushing downstream during dam removal, long-term exposure to exposed reservoir sediments and river-bank deposits, long-term exposure to sediments deposited in the river channel, and long-term exposure to sediments deposited in the marine and near-shore environment (CDM 2011).

No chemicals were detected in sediment at concentrations exceeding available human health screening levels and the Dredge Materials Management Levels, and no other preclusions to releasing the reservoir sediments to the freshwater or marine environment were identified for

human or aquatic biota exposure. A number of chemicals and common classes of chemicals were detected; however, the results were neither surprising nor unusual. Many of the detected compounds have natural sources or are broadly distributed around the earth (e.g., arsenic, trace metals, legacy organochlorine insecticides like dichlorodiphenyltrichloroethane (DDT), and dioxins and furans), and are known to be present at trace or background concentrations in soils, streams and biota across the United States. Absolute concentrations of most chemicals in the reservoir sediments were generally relatively low compared to the screening levels, with no consistent pattern of elevated chemical composition observed within a given reservoir or between reservoirs. No chemicals were identified at levels associated with significant adverse effects (CDM 2011). However, some chemicals were identified at levels "unlikely to cause adverse effects" or with "potential to cause minor or limited adverse effects" for humans or aquatic biota under the Proposed Action.

Under the Proposed Action, the effects of reservoir sediment on human exposure to sediment-associated inorganic and organic contaminants in the Hydroelectric Reach and in the Lower Klamath River would be a less-than-significant impact. Similarly, under the Proposed Action, the effects of sediment release, transit, and deposition on aquatic species due to exposure to sediment-associated inorganic and organic contaminants in the Lower Klamath River, Klamath Estuary, and marine nearshore environment would be a less-than-significant impact.

New Information

Water-quality monitoring in the Klamath Basin has continued to be a high priority for a number of groups since the EIS/EIR was published, including basin tribes, PacifiCorp and its contractors, and government agencies, among others. The goal of the majority of this monitoring and research is focused on documenting the current conditions (water quality in the river and reservoirs with the dams in place); although this new information offers some new insights it primarily reinforces the conclusions in the EIS/EIR regarding how the system would likely change under the Proposed Action of dam removal. There is no new information to suggest adverse environmental impacts would occur beyond those identified in the EIS/EIR. For additional information, the monitoring information including monitoring of water quality constituents (e.g. nutrients, physical parameters, cyanobacteria, etc) required as part of Interim Measure 15 are available on the KBMP.net website. Areas of new (continued) monitoring and research include measurement of nutrient concentrations and loads in the Klamath River and reservoirs (Yurok Tribe Environmental Program (YTEP), 2013a and 2014; Karuk Tribe of California, 2012 and 2013; Hoopa Tribal Environmental Protection Agency, 2013), and real-time continuous monitoring of parameters such as water temperature, DO, pH, specific conductance, and turbidity, among others (Asarian, E. and J. Kann 2013; YTEP, 2013b; Karuk Tribe of California, 2012 and 2013).
In a 2012 water temperature modeling report (Risley and others, 2012), two dam scenarios were simulated: "dams in" and "dams out." The dams out scenario, which is similar to the Proposed Action, analyzed temperature changes that could be attributed to removing the dams, but using

flow conditions from the 2010 Klamath Biological Opinion rather than flows assumed flows if KBRA was implemented. The authors report:

> *Simulated water temperatures from January through June at almost all locations between J.C. Boyle Reservoir and the Pacific Ocean were higher for the "dams out" scenario than for the "dams in" scenario. The simulated mean monthly water temperature increase was highest [1.7–2.2 degrees Celsius (°C)] in May downstream of Iron Gate Dam. However, from August to December, dam removal generally cooled water temperatures. During these months, water temperatures decreased 1°C or more between Copco Lake and locations 50 miles or more downstream. The greatest mean monthly temperature decrease was 4°C in October just downstream of Iron Gate Dam. Near the ocean, the effects of dam removal were small (less than 0.2°C) for most months.*

The results from this study were very similar to the water temperature studies used to draw conclusions regarding the benefits of the Proposed Action on water temperatures in the Hydroelectric Reach and the Lower Klamath River.

Relative to the potential environmental effects of chemicals in reservoir bottom sediments, EPA Region 9 (Nancy Woo, written communication, 2015) reached the following overall conclusions: (1) the levels of chemical contaminants in sediments behind the dams largely fell below screening thresholds used to assess sediment disposition; (2) the sediments likely to be released by the Proposed Action are not likely to have significant contaminant-related effects on downstream fish, wildlife, or human receptors, especially after mixing and dilution; and (3) fish, wildlife, and human exposure to sediment contaminants would actually be reduced overall with the Proposed Action when compared to the alternative of leaving the dams in place.

Conclusion

An analysis of new information since the publication of the EIS/EIR does not change any of the conclusions regarding the environmental effects of the Proposed Action on water quality in the Klamath Basin. As identified in the EIS/EIR: (1) sediment release from reservoirs associated with the Proposed Action would cause short-term (< 2 years) increases in DO demand and adverse reductions in DO in the Hydroelectric Reach and downstream to the confluence with Clear Creek; (2) sediment release associated with the Proposed Action would cause short-term (< 2 years) increases in suspended material (≥30 mg/L for 6–10 months following reservoir drawdown) that would result in non-attainment of applicable North Coast Basin Plan water quality objectives for suspended material in the Lower Klamath River and the Klamath Estuary. The adverse impacts and the non-attainment of water quality objectives associated with the Proposed Action are predicted to occur regardless of whether KBRA or 2013 Joint Biological Opinion flows are assumed in the analysis.

3.3.2 Aquatic Resources

Environmental Setting

The area of analysis includes aquatic communities, fish health, and habitats of the Klamath River watershed currently influenced by the presence of the Four Facilities proposed for removal. The proposed removal of the four dams would provide anadromous fish with access in a free-flowing river from the Pacific Ocean to upstream fish ladders at Keno Dam and Link River Dam. Thus, the total increase in access to historical habitat upstream from Iron Gate Dam for both steelhead and salmon would be approximately 420 miles (including the Sprague, Williamson, and Wood rivers and tributaries in the Hydroelectric Reach).

In addition, these four dams and associated reservoirs influence water quality, water quantity, bedload transport, and disease downstream. Thus, the project area includes the Klamath River from Keno Dam to the Pacific Ocean. This would include areas potentially affected by changes in water supply patterns caused by removal of the Four Facilities.

Impacts

Dam removal would provide for a free-flowing river below Keno Dam to the Pacific Ocean. At Keno and Link Dams, fishways would then complete the migratory connection to the Upper Basin. With the habitat in the Hydroelectric Reach, this would re-establish migration to at least 420 stream miles of historical habitat above Iron Gate Dam for anadromous fish. Anadromous fish would also access low gradient historical habitat of critical importance to spawning and rearing under Copco 1 and Iron Gate Reservoirs. Consequently, the size and diversity of these populations is expected to increase. In addition, fish would gain access to cold water springs in the Hydroelectric Reach and the Upper Basin, offering improved winter growth opportunities for rearing and some protection against future warming water temperatures associated with climate change. Dam removal would renew bedload transport and the recruitment of gravel within and below the Hydroelectric Reach, which would benefit fish spawning and rearing.

Under the Proposed Action, the occurrence of *C. shasta*, a fish parasite known to cause high mortality in juvenile salmon in the Klamath Basin, is anticipated to be reduced as a result of changes in the overall dispersal of adult salmon carcasses, increases in bedload and sediment transport, and reductions in food resources for the intermediate host of the parasite. While there is some uncertainty associated with the causative factors of infection of *C. shasta* in juvenile salmon, a reduction in the prevalence of the disease is likely under the proposed action as it would create better conditions for fish migration, rearing, and spawning. Given the elimination of large congregations of adult salmon carcasses near Iron Gate Hatchery coupled with the release of large numbers of hatchery fry/smolts in late spring when infection rates are often high, we hypothesize that the establishment of a *C. shasta* "hot spot" above the current location of Iron Gate Dam would have a low probability of occurrence. .

Cooler fall water temperature and improvements in water quality that would result from removal of the Four Facilities are also predicted to reduce the stress and disease experienced by returning

adults. The adverse effects of peaking and entrainment in the Hydroelectric Reach on resident species such as redband trout would also be eliminated. Disease risks to resident fish would not be expected to increase in response to the proposed action; native Klamath River trout are generally resistant to *C. shasta*. Also, KHSA includes implementation of all Interim Measures funded by PacifiCorp for the period 2012 through 2020 to improve fish habitat, water quality, and to fund monitoring and critical research.

The release of sediments stored behind Copco 1 and Iron Gate dams would have negative impacts on fish and water quality in the short term (< 2 years) but would provide longer term benefits in the form of increased habitat complexity and increased movement of larger sediment substrate along the river bed (bedload transport), reductions in fish disease, and the nearly complete elimination of toxic algal blooms in the Hydroelectric Reach and the downstream transport of algal toxins. Some chemicals are present in reservoir sediments but at concentrations below critical screening levels for freshwater and marine disposal and do not preclude sediments being released downstream. Based on multiple lines of evidence, long-term adverse effects for biota would be unlikely from the chemicals present in the new river channel and downstream areas as a result of the Proposed Action (CDM 2011).

Dam removal would eliminate the recreational benefits of project reservoirs such as fishing and some white water recreation opportunities related to peaking flows in the Hydroelectric Reach; however the removal of the Four Facilities would create new recreational opportunities (rafting and fishing) in a free-flowing Hydroelectric Reach, including improved flow conditions and recreational opportunities in the J.C. Boyle and Copco 2 bypass reaches.

The Iron Gate Hatchery was originally designed to mitigate for 16 miles of habitat from IGD upstream to the Copco dams (FERC 1963). The Interim Measures of the KHSA require that PacifiCorp propose an Iron Gate Dam Mitigation Hatchery Plan that would ensure hatchery mitigation goals are met for 8 years following dam removal. After 8 years, continued hatchery operations would depend largely on: 1) realized and projected benefits of restored access to historical habitat above the current location of Iron Gate Dam; 2) the success and timeliness of habitat restoration; and 3) the timeliness and success of fish reintroduction (natural and assisted) above Iron Gate Dam.

Suspended Sediment

Downstream from Iron Gate Dam

Under the Proposed Action, full facility removal would result in the release of 5.3 to 8.6 million yd^3 (1.2 to 2.3 million tons) of sediment stored in the reservoirs into the Klamath River downstream from Iron Gate Dam (Reclamation 2012), temporarily resulting in higher suspended sediment concentrations (SSCs) than would normally occur under existing conditions (Figure 3.3-9 of the EIS/EIR). Reservoir drawdown is expected to commence in November 2019 for Copco Reservoir and in January 2020 for J.C. Boyle and Iron Gate Reservoirs.

Based on a sediment transport model (Reclamation 2012), which assumes KBRA Flows, the largest loads and concentrations of suspended sediment will erode downstream from January through March 2020, but significant loads and high concentrations of suspended sediment

would continue through May (Figure 8). Concentration of suspended sediment would peak at about 7,000 to 14,000 mg/L during drawdown, depending on water year type (Table 6). By late spring 2020, however, the sediment transport model predicts that suspended sediment concentrations would be approaching 100 mg/L below Iron Gate Dam (Figure 5) regardless of whether drawdown occurred in a wet, median, or dry year (Reclamation 2012). The SSCs will be near background conditions for all water year types within the first year following removal. At Iron Gate Dam, where SSCs are artificially low under current conditions (because of sediment trapping by the dam), SSCs would remain elevated above existing conditions throughout the first 2 years. At Orleans (Figure 3.3-10 of the EIS/EIR), where event-based SSCs under existing conditions are higher than downstream of Iron Gate Dam because of inputs of many tributaries, under a most-likely-to-occur scenario the effects of the Proposed Action would be similar to existing conditions by late April when SSCs at baseflow from the Proposed Action are predicted to decrease. Under a worst case scenario, namely reservoir drawdown in a relatively dry year, SSCs at baseflow are projected to remain somewhat elevated above existing conditions until October.

Klamath River Estuary and Pacific Ocean

Under the Proposed Action, suspended sediment would be released from reservoirs in the Hydroelectric Reach but concentrations would decrease in the downstream direction as a result of dilution by tributary inputs unaffected by dam removal and deposition of some sediment. The SSCs in the estuary under the most-likely-to-occur scenario would be similar to those that occur during existing high-flow years (e.g. a 10-year high-flow event) owing to large sediment loads entering the river from tributaries below Iron Gate Dam during the winter months. Under the worst-case simulation, SSCs concentrations would only be marginally higher than those that occur during a 10-year high flow event. Therefore, effects on aquatic species from SSCs within the estuary are not anticipated to be distinguishable from existing conditions.

Bedload Sediment

Under existing conditions, the reach below Iron Gate Dam is gravel-starved and the substrate is dominated by bedrock and large cobbles, similar to other reaches immediately downstream of dams in western rivers (Collier et al., 1996). Dam removal would release a mix of fine sediment, sands, and gravel. In the short term (within 2 years), the fines are expected to be mostly transported well downstream and into the Pacific Ocean; sand percentage in the river bed downstream of Iron Gate is expected to increase to 30-35 percent initially and reduce to 10 to 20 percent by September. Meanwhile gravels are expected to deposit largely in the reach below Iron Gate Dam, with mediate substrate size decreasing from the current condition (diameter ~100 mm) to about 50 to 55 mm within about year 5. Over the long term, the effect of the proposed action will be a more dynamic and mobile bed downstream from Iron Gate Dam, with an increased sediment supply (including spawning gravel) to channels below Iron Gate Dam that are currently sediment starved due to the presence of the Four Facilities.

Water Quality

J.C. Boyle to Iron Gate Dam - As described in the subsection of Klamath Facilities Removal EIS/EIR, Section 3.2.4.3.2, Water Quality, the Proposed Action would cause long-term increases in DO in the Hydroelectric Reach. DO in the current river reaches and the free-flowing river reaches replacing the reservoirs would no longer be affected by hydropower peaking flows or the extreme conditions of super-saturation (i.e., >100% saturation) in surface waters and hypolimnetic oxygen depletion in bottom waters of Copco 1 and Iron Gate Reservoirs during the April/May through October/November period. This would increase the likelihood of consistently supporting beneficial uses, including aquatic biota, during this time period. Some degree of diurnal fluctuation caused by photosynthesis of periphytic (attached) algae is expected because of the shift from lacustrine to riverine habitats, with continued influx of nutrient rich waters from the Klamath River upstream of the Hydroelectric Reach. However, conditions for dissolved oxygen and pH would be more consistent on a day-to-day basis and the diel extremes would decrease in a downstream direction.

Downstream from Iron Gate Dam Site–

Facilities Removal under the Proposed Action would cause long-term overall increases in DO during late summer and fall, as well as increased diel variability in DO, in the Lower Klamath River, particularly for the reach immediately downstream from Iron Gate Dam. Effects would diminish with distance downstream from Iron Gate Dam, such that no effects on DO would occur by the confluence with the Trinity River. The Proposed Action would increase the likelihood of consistently supporting beneficial uses, including aquatic biota, particularly in the summer and fall months.

Sediment release associated with the Proposed Action would cause short-term increases in oxygen demand and reductions in DO. Accounting for predicted short-term increases in oxygen demand under the Proposed Action, DO concentrations are generally expected to be greater than 5 mg/L. Exceptions to this would occur four to eight weeks following reservoir drawdown (i.e., in February 2020) for median and dry year hydrologic conditions, when DO would drop to levels below 5 mg/L from Iron Gate Dam to near the confluence with the Shasta River (RM 176.7). Recovery to the North Coast Basin Plan water quality objective of 90 percent saturation (i.e., 10–11 mg/L) would occur in the reach from Seiad Valley to the mainstem confluence with Clear Creek, and therefore DO would not be affected in the estuary or the nearshore environment.

Water Temperature

The thermal lag caused by the storage of water in J.C. Boyle, Copco 1 and Iron Gate reservoirs would be eliminated in the Lower Klamath River under the proposed action. Eliminating this thermal lag would return water temperatures to a more natural condition (seasonally, monthly, daily, and hourly) similar to pre-dam conditions, warming earlier in the spring and cooling earlier in the fall compared to current conditions, and returning natural diel (hourly) fluctuations (Hamilton et al. 2011). These more natural temperatures are better synchronized to the historical migration and spawning patterns to which Klamath River salmonids evolved.

Disease

The Proposed Action is expected to reduce fish disease impacts on salmon *C. shasta* and *Parvicapsula minibicornis* are responsible for most of the disease-related mortality of juvenile salmonids in the Lower Klamath River downstream from Iron Gate Dam. Among all salmon lifestages, juvenile are generally the most susceptible to *P.minibicornis* and *C. shasta*, particularly during their outmigration in the spring months (Beeman et al. 2008). The main factors contributing to risk of infection by *C. shasta* and *P. minibicornis* include availability of habitat (pools, eddies, and sediment) for the polychaete intermediate host; artificially stable microhabitat characteristics (static flows and low velocities); polychaete proximity to spawning areas; increased planktonic food sources from Project reservoirs; and water temperatures greater than 15°C (Bartholomew and Foott 2010).

Adult salmonids are also currently impacted by fish diseases, with improvements predicted under the Proposed Action. Adult salmonids also become infected with *C. shasta*, when they return to the Klamath River to spawn. Although there is no evidence that these infections negatively impact the adult population, these infected adults complete the *C. shasta* disease cycle by releasing spores to infect the intermediate host polychaete worms. Cooler fall water temperatures associated with the Proposed Action are also predicted to reduce the infection prevalence of adults and may reduce the transport of *C. shasta* back into upper reaches of the river.

Though not as common as the frequent annual *C. shasta* outbreaks that impact juvenile salmonids, the fall of 2002 was marred by the large-scale fish adult salmonid mortality event caused by Ich and columnaris. Cooler fall water temperature and improvements in water quality that would result from removal of the Four Facilities are predicted to reduce the stress experienced by upstream migrant pre-spawn adults. Additional reductions in disease are anticipated from increased dispersal of returning adult salmonids into the newly created upstream spawning habitat.

Algal Toxins

Removal of the Four Facilities under the Proposed Action would eliminate the reservoirs that promote the growth of toxin-producing nuisance algal blooms (e.g. *Microsystis aeruginosa*) in the Hydroelectric Reach, thereby alleviating high seasonal concentrations of algal toxins and the bioaccumulation of microcystin in fish tissue in Copco 1, Iron Gate reservoirs and in the river below Iron Gate Dam. While some microcystin may be transported downstream from algal blooms in Upper Klamath Lake, the levels would not be as high as those currently experienced due to the prevalence of seasonal in-reservoir blooms in Copco 1 and Iron Gate reservoirs. Overall, bioaccumulation of algal toxins in fish tissue would be expected to decrease in the Hydroelectric Reach and downstream, and would be beneficial to aquatic biota.

Critical Habitat

Coho Salmon

Under the Proposed Action, elevated levels of SSCs would occur for 3 to 4 months during and after reservoir drawdown, which would temporarily degrade critical habitat for coho salmon. Bedload movement following dam removal would increase supply of gravel downstream from Iron Gate Dam as far downstream as Cottonwood Creek. In the long-term, this bedload movement would potentially improve critical habitat for coho salmon by reducing median substrate to a size more favorable for spawning and increasing the suppy of gravel for spawning (Reclamation 2012).

The Proposed Action would increase the amount of habitat available to coho salmon upstream of, and improve water quality within, the currently designated critical habitat in the mainstem Klamath River within current critical habitat. NOAA Fisheries Service may consider whether to designate the newly available habitat as critical habitat as part of its 5-year status review or as a separate reconsideration of the critical habitat designation for coho salmon (J. Simondet, NMFS, pers. comm., 2011). The Proposed Action would restore access for upper Klamath River population of coho salmon into habitat within the Hydroelectric Reach, expanding their distribution to include historical habitat along the mainstem Klamath River and in Jenny, and Fall Creeks (Hamilton et al 2005). In addition, coho salmon could find suitable temperatures for holding in pockets within the J.C. Boyle Bypass Reach, although the average and maximum temperatures in this reach are seasonally expected to exceed optimal temperatures for coho salmon. On an annual basis, access to this habitat would increase the availability of spawning sites, result in additional food resources, and provide access to areas of better water quality. Water quality conditions would also improve within the mainstem river downstream from the J.C. Boyle Powerhouse. As discussed in detail in the EIS/EIR, the thermal lag caused by water storage in Copco 1 and Iron Gate reservoirs would be eliminated in the Lower Klamath River. Water temperatures would have more natural seasonal and daily variations, and would become better synchronized with historical coho migration and spawning periods in the Klamath River. Overall, these changes would result in water temperature more favorable for coho salmon in the mainstem. After the initial negative impacts, removal of the Four Facilities would also improve long term DO concentrations and the conversion of Copco 1 and Iron Gate reservoir habitat to restored river habitat would greatly reduce or eliminate the growth of toxic algae. These changes would be beneficial for coho salmon critical habitat.

Based on reductions in habitat quality during reservoir drawdown, which would be detrimental to Primary Constituent Elements (PCEs), the Proposed Action would have a significant short term adverse impact on coho salmon critical habitat. Based on benefits to the PCEs, the Proposed Action would have long-term beneficial effect on critical habitat for coho salmon.

Bull Trout
Based on the restricted distribution of bull trout, implementation of the Proposed Action would not affect the physical or chemical components of critical habitat. However, the Proposed Action would allow Chinook salmon and steelhead to access areas they have not been able to access since the construction of the Copco 1 Dam. These species would potentially compete with and prey upon bull trout fry and juveniles; however, bull trout would also be expected to consume the eggs and fry of Chinook salmon and steelhead. These species co-evolved in the watershed and as such, it is anticipated that they would co-exist in the future.

The Proposed Action would have a less-than-significant or minor impact on critical habitat for bull trout in the short and long term.

Southern Resident Killer Whale
Klamath River salmon are anticipated to provide less than 1 percent of the diet of Southern Resident Killer Whales in most months. The Proposed Action would not be likely to materially affect the food supply of Southern Resident Killer Whales.

Based on small influence of the Klamath River on PCEs of Southern Resident Killer Whale, the Proposed Action would have a less-than-significant impact on critical habitat for Southern Resident Killer Whales in the short and long term.

Eulachon
Under the Proposed Action, PCEs of critical habitat supporting eulachon would be degraded in the short term, including adverse effects of suspended sediment on spawning and egg incubation habitat, and adult and larval migration habitat for southern Distinct Population Segment (DPS) eulachon. Critical habitat for the Southern DPS eulachon includes approximately 539 miles of riverine and estuarine habitat in California, Oregon, and Washington. In the Klamath River, critical habitat only comprises a small portion (<2%) of the Klamath River and is designated from the mouth of the Klamath River upstream to the confluence with Omogar Creek at approximately river mile (RM) 10.5 from the mouth; however, critical habitat does not include any tribal lands of the Yurok Tribe or the Resighini Rancheria. With the removal of the Four Facilities, along with continued implementation of TMDLs, water quality improvements in the estuary are expected, which would be beneficial to eulachon. Although the Proposed Action would result in short-term reductions in habitat quality detrimental to PCEs, a very small proportion (< 2%) of eulachon critical habitat would be affected, and thus the Proposed Action would have a less-than significant effect on eulachon critical habitat. Based on water-quality benefits to the PCEs, the Proposed Action would likely have a beneficial effect on critical habitat for eulachon in the long term.

Essential Fish Habitat (EFH)

Chinook and Coho Salmon EFH

The short-term release of sediment from the dams under the Proposed Action would be detrimental to Chinook and coho salmon EFH during the months when SSC concentrations are elevated. In the long term, the Proposed Action would increase habitat for Chinook and coho salmon (upstream of currently designated EFH) by providing access to habitats upstream of Iron Gate Dam. EFH quality would be affected by improved water quality, and decreased prevalence of disease, as described above for coho salmon critical habitat. Improved access to habitats (upstream of currently designated EFH), improved water quality, increased sediment transport, and decreased prevalence of disease, would provide a benefit to EFH for Chinook and coho salmon. Based on a substantial reduction in EFH quality during reservoir drawdown, the Proposed Action would have a significant effect on EFH for Chinook and coho salmon in the short term. Based on improvements to habitat quality, the Proposed Action would have a beneficial effect on EFH for Chinook and coho salmon in the long term.

Groundfish and Pelagic Fish EFH

Under the Proposed Action, impacts to the nearshore environment are not anticipated to be distinguishable from existing conditions, based on a relatively small magnitude of SSCs released to the nearshore environment, an anticipated rapid dilution of the sediment plume as it expands in the ocean, and a relatively low rate of deposition of sediments to the marine nearshore bottom substrates (subsection of Section 3.3.4.3.2). EFH in the Klamath River Estuary could be affected by elevated suspended sediment from sediment releases during dam removal for about 3 months. After this time, SSCs would return to levels similar to existing conditions.

In the long term, SSCs would be similar to that under existing conditions. Natural bedload transport processes would resume, as the dams would no longer trap sediments upstream of Iron Gate Dam. Bedload in the estuary and ocean would not be appreciably affected, because of the relatively small contribution of bedload from above Iron Gate Dam compared to the total bedload carried by the Klamath River. With the exception of algal toxins, water quality benefits resulting from dam removal would largely have dissipated upstream of the estuary, and therefore, water quality in the estuary would be expected to remain similar to existing conditions. Based on the small proportion of groundfish EFH and Pelagic Fish EFH affected, and short duration of poor water quality during reservoir drawdown in the near-shore environment and estuary, the Proposed Action would have a less-than-significant effect on EFH for groundfish and Pelagic fish in the short and long term.

Species Specific Impacts

Fall-Run Chinook Salmon

Fall-run Chinook salmon use the mainstem Klamath River for spawning, rearing, and as a migratory corridor downstream from the four dams proposed for removal. Direct mortality is predicted for fall-run Chinook salmon incubating eggs in redds and for some smolts. However, the effect of SSC from the Proposed Action on the fall-run Chinook salmon population, under both most-likely and worst-case scenarios, is expected to be relatively minor because of variable

life histories, the age 0 juveniles that remain in tributaries until later in the spring and summer, and because many of the fry that outmigrate to the mainstem come from tributaries in the mid-or Lower Klamath River, where SSCs resulting from the Proposed Action are expected to attenuate due to dilution from tributaries. Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for fall-run Chinook salmon in the short term.

Mitigation Measures AR-1 through AR-4 (see Klamath Facilities Removal EIS/EIR, Section 3.3.4.4) could be implemented to reduce the short-term effects of SSCs on fall-run Chinook salmon incubating eggs and smolts. There would still be short-term effects for fall-run Chinook salmon, including some direct mortality, but no one-year class would suffer a substantial decrease in abundance. Based on minimal reduction in the abundance of a year class in the short term, the Proposed Action would be a less-than-significant effect on fall-run Chinook salmon after mitigation.

As stated above, dam removal would also restore connectivity to hundreds of miles of potentially usable habitat in the Upper Klamath Basin and would create additional spawning and rearing habitat within the Hydroelectric Reach. By providing an unimpeded migration corridor, the Proposed Action would provide the greatest possible benefit related to fish passage, hence, the highest survival and reproductive success. It is anticipated that the Proposed Action would increase the abundance, productivity, population spatial structure, and genetic diversity of fall-run Chinook salmon in the Klamath River watershed. In general, free flowing conditions as per the Proposed Action, would likely provide optimal efficiency, decrease outmigrant delay, and increase concomitant adult escapement (Buchanan et al. 2011b). As discussed in detail in the Klamath Facilities Removal EIS/EIR Section 3.2 Water Quality, dam removal would also cause water temperatures to become warmer earlier in the spring and early summer and cooler earlier in the late summer and fall, and have diurnal variations more in sync with historical migration and spawning periods (Hamilton et al. 2011). These changes would result in water temperature more favorable for salmonids in the mainstem. In addition, under the Proposed Action diminished disease conditions and improved water quality in the mainstem Klamath River will likely improve the survival of smolts outmigrating from tributaries downstream from Iron Gate Dam (e.g., Scott and Shasta rivers), thus increasing the likelihood of successful restoration actions in those watersheds. Based on increased habitat availability and improved habitat quality, the effect of the Proposed Action would be beneficial for fall-run Chinook salmon in the long term.

Spring-Run Chinook Salmon

The overall short term effect of suspended sediment from the Proposed Action on the spring-run Chinook salmon population is not anticipated to differ much from existing conditions and the No Action/No Project Alternative. There is very little difference from existing conditions and the No Action/No Project Alternative for adult migrants, all of which is predicted to be sublethal, and no effects are anticipated for the spawning, incubation, and fry stages because they do not spawn in the mainstem. Type I and II outmigrants are expected to experience very similar conditions

under the Proposed Action as under existing conditions and the No Action/No Project Alternative. However, direct mortality is predicted for some Type III smolts (< 1 percent of production). Based on minimal reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be less-than-significant for spring-run Chinook salmon in the short term.

Implementation of Mitigation Measures AR-2 (see Klamath Facilities Removal EIS/EIR, Section 3.3.4.4) could reduce the short-term effects of SSCs on spring-run Chinook salmon Type III smolts. With implementation of mitigation measures, there would still be short-term effects for spring-run Chinook salmon including some potential direct mortality, but there would not be a substantial reduction in the abundance of a year class. Based on minimal reduction in the abundance of a year class in the short term, the Proposed Action would be a less-than-significant effect on spring-run Chinook salmon after mitigation.

Dam removal would restore connectivity to hundreds of miles of potentially usable habitat in the Upper Klamath Basin, including additional habitat within the Hydroelectric Reach. Access to additional habitat would provide a long-term benefit to spring-run Chinook salmon populations. The expansion of habitat opportunities would allow maximum expression of life-history variation and the restoration of an additional population of spring-run Chinook salmon population to strengthen resiliency in the Klamath Basin, particularly because passage upstream of Iron Gate Dam would provide access to groundwater thermal refugia during summer and fall, as well as providing slightly warmer winter water temperatures conducive to the growth of salmonids (Hamilton et al. 2011). By providing an unimpeded migration corridor, the Proposed Action would provide the greatest possible benefit related to fish passage, hence, the highest survival and reproductive success (Buchanan et al. 2011b). As discussed in detail above, dam removal would also cause water temperatures to become warmer earlier in the spring and early summer and cooler earlier in the late summer and fall, and have diurnal variations more in sync with historical migration and spawning periods (Hamilton et al. 2011). These changes would result in water temperature more favorable for salmonids in the mainstem. In addition, with large scale hydraulic mining operations now outlawed, spring-run Chinook salmon would no longer be subject to one of their most significant threats in the Klamath River (as discussed in Klamath Facilities Removal EIS/EIR, Section 3.3.3.1.1.).

Current fisheries management also minimizes overharvest. It is anticipated that as a result of the Proposed Action the spring-run Chinook salmon population within the Klamath River watershed would have an increase in abundance, productivity, population spatial structure, and genetic diversity. Based on increased habitat availability and improved habitat quality, the effect of the Proposed Action would be beneficial for spring-run Chinook salmon in the long term.

Coho Salmon

In general, the wide distribution and use of tributaries by both juvenile and adult coho salmon will likely protect the population from the worst effects of the Proposed Action. However, direct mortality is anticipated for redds and smolts from the upper Klamath River, mid-Klamath River,

Shasta River, and Scott River population units. No mortality is anticipated for the Salmon River, Trinity River, and Lower Klamath River populations under the most likely or worst-case scenarios. All population units would be expected to recover from these losses within one or two generations. Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for the coho salmon from the Upper Klamath River, Mid-Klamath River, Shasta River, and Scott River population units in the short term. Based on no reduction in the abundance of a year class, the effect of the Proposed Action would be less-than-significant for the coho salmon from the three Trinity River population units, Salmon River and the Lower Klamath River Population Unit in the short term.

Steelhead

In general, the effects of suspended sediment resulting from the Proposed Action on steelhead are likely to be much higher than under existing conditions and the No Action/No Project Alternative, particularly for the portion of the population that spawns in tributaries upstream of the Trinity River. For that portion of the population, effects are anticipated on adults, run-backs, half-pounders, any juveniles rearing in the mainstem, and outmigrating smolts. However, the broad spatial distribution of steelhead in the Klamath Basin and their flexible life history suggests that some will avoid the most serious effects of the Proposed Action by (1) remaining in tributaries for extended rearing, (2) rearing farther downstream where SSC should be lower due to dilution (e.g., the progeny of the adults that spawn in the Trinity River Basin or tributaries downstream from the Trinity River), and/or (3) moving out of the mainstem into tributaries and off-channel habitats during winter. In addition, the life-history variability observed in steelhead means that, although numerous year classes will be affected, not all individuals in any given year class will be exposed to the effects of the Proposed Action. In addition, some portion of the progeny of those adults that spawn successfully would rear in tributaries long enough to not only avoid the most serious impacts of the Proposed Action in 2020, but may also not return to spawn for up to two years, when any suspended sediment resulting from the Proposed Action should be greatly reduced. The high incidence of repeat spawning among summer-run steelhead (ranging from 40 to 64 percent, Hopelain 1998) should also increase that population's resilience (including all year classes) to effects of the Proposed Action. Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for summer and winter steelhead in the short term.

Implementation of Mitigation Measures AR-2 and AR-3 (see Klamath Facilities Removal EIS/EIR,Section 3.3.4.4.2 and 3.3.4.4.3) could be implemented to reduce the short-term effects of SSCs on steelhead adults and outmigrating juveniles. With implementation of mitigation measures there would still be short-term effects on summer and winter steelhead, including sublethal and lethal effects. Based on substantial reduction in the abundance of a year class in the short term, the Proposed Action would be a significant effect on summer and winter steelhead in the short term after mitigation.

Dam removal would restore connectivity to hundreds of miles of historical habitat in the Upper Klamath Basin and would create additional habitat within the Hydroelectric Reach. FERC

(FERC 2007) concluded that implementing fish passage would help to reduce adverse effects to steelhead associated with lost access to upstream spawning habitats. Hamilton et al. (2011) also concluded that access to additional habitat in the upper Klamath River watershed would benefit steelhead runs. In general, dam removal would likely result in the restoration of more reproducing populations, increased abundance, higher genetic diversity, and the opportunity for variable life histories and use of new habitats (Hamilton et al. 2011). In general, free flowing conditions as per the Proposed Action, would likely provide optimal efficiency, decrease outmigrant delay, and increase concomitant adult escapement (Buchanan et al. 2011b). By providing an unimpeded migration corridor, the Proposed Action would provide the greatest possible benefit related to fish passage, hence, the highest survival and reproductive success (Buchanan et al. 2011b). As discussed in detail above, dam removal would also cause water temperatures to become warmer earlier in the spring and early summer and cooler earlier in the late summer and fall, and have diurnal variations more in sync with historical migration and spawning periods (Hamilton et al. 2011). These changes would result in water temperature more favorable for salmonids in the mainstem. Based on increased habitat availability and improved habitat quality, the effect of the Proposed Action would be beneficial for summer and winter steelhead in the long term.

Pacific Lamprey

The Proposed Action would have short-term effects related to SSCs, bedload sediment transport and deposition, and water quality (particularly DO). Overall, because multiple year classes of lamprey rear in the mainstem Klamath River at any given time, and since adults will migrate upstream over the entire year, including January 2020 when effects from the Proposed Action will be most pronounced, effects on Pacific lamprey adults and ammocoetes could be much higher in the mainstem Klamath River than under existing conditions and the No Action/No Project Alternative. However, because of their wide spatial distribution and varied life history, most of the population would likely avoid the most severe suspended sediment pulses resulting from the Proposed Action. In addition, Pacific lamprey are considered to have low fidelity to their natal streams (FERC 2006), and may not enter the mainstem Klamath River if environmental conditions are unfavorable in 2020. Migration into the Trinity River and other Lower Klamath River tributaries may also increase during 2020 because of poor water quality. Low fidelity also increases the potential that lamprey can recolonize mainstem habitat if ammocoetes rearing there suffer high mortality. Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for Pacific lamprey in the short term.

Implementation of Mitigation Measures AR-2 and AR-5 (see Klamath Facilities Removal EIS/EIR, Sections 3.3.4.4.2 and 3.3.4.4.5) could reduce the short-term effects of DO and SSCs on lamprey ammocoetes. With implementation of mitigation measures there could still be short-term effects for lamprey including sublethal and lethal effects. Based on substantial reduction in the abundance of a year class in the short term, the Proposed Action would be a significant effect on Pacific lamprey in the short term after mitigation.

The Proposed Action would provide access to habitat upstream of Iron Gate Dam. It is anticipated that as a result of the Proposed Action the Pacific lamprey population within the Klamath River watershed would have an increase in abundance, productivity, population spatial structure, and genetic diversity. Based on increased habitat availability and improved habitat quality, the effect of the Proposed Action would be beneficial for Pacific lamprey in the long term.

Green Sturgeon

Overall the effects of the Proposed Action are most likely to include physiological stress, inhibited growth, and high mortality for some portion of the age-0 2020 cohort and age 1 2019 cohort. To summarize, green sturgeon in the Klamath Basin have the following traits likely to enhance the species' resilience to impacts of the Proposed Action:

- Most of the population (subadult and adult) would be in the ocean during the year of the Proposed Action (2020) and would be unaffected (Appendix E).
- The approximately 30 percent of the population that spawn and rear in the Trinity River would be unaffected.
- Much of the spawning and rearing of green sturgeon occurs downstream from the Trinity River, where sediment concentrations would be similar to existing conditions and the No Action/No Project Alternative.

Green sturgeon are long-lived (>40 years) and are able to spawn multiple times (~8 times) (Klimley et al. 2007), so effects on two year classes may have little influence on the population as a whole.

Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for green sturgeon in the short term.

Implementation of Mitigation Measure AR-3 (see Klamath Facilities Removal EIS/EIR, Section 3.3.4.4.3) could be implemented to reduce the short-term effects of SSCs on green sturgeon adults post-spawning. With implementation of mitigation measures there would still be short-term effects for green sturgeon including sublethal and sublethal effects. Based on substantial reduction in the abundance of a year class in the short term, the Proposed Action would be a significant effect on green sturgeon in the short term after mitigation.

It is anticipated that as a result of the Proposed Action, the green sturgeon population within the Klamath River watershed would have increased long term productivity. Based on improvements in habitat quality within part of their range, the effect of the Proposed Action would be less-than-significant for green sturgeon in the long term.

Lost River and Shortnose Suckers
Based on reduction in abundance of suckers within the Hydroelectric Reach reservoirs, the effect of the Proposed Action would be significant for Lost River and shortnose sucker populations in the short term. Implementation of Mitigation Measure AR-6 (see Klamath Facilities Removal EIS/EIR, Section 3.3.4.4.6) could be implemented to reduce the impact to individuals within reservoirs by rescuing fish prior to reservoir drawdown. Based on small numbers of individuals affected after mitigation, the effect of the Proposed Action would be beneficial for Lost River and shortnose sucker populations in the short term after mitigation.

The Klamath Facilities Removal EIS/EIR concluded that the effect of the Proposed Action with implementation of the connected KBRA would be beneficial for Lost River and shortnose sucker populations in the long term. The long-term benefits ascribed to the Proposed Action resulted from Upper Basin water quality improvements and restoration. The removals of facilities downstream of the known viable populations of lost river and shortnose suckers have no effect on suckers or their habitat.

Redband Trout
Based on a small proportion of the population with a potential to be exposed to short-term effects, the effect of the Proposed Action would be less-than-significant for redband trout in the short term. With long term increased habitat availability and improved habitat quality, the effect of the Proposed Action would be beneficial for redband trout.

Bull Trout
Based on the co-evolution of bull trout with anadromous salmonids, the potential change in the food web that supports the bull trout was found to have a less-than-significant impact in the short and long term.

Eulachon
The Proposed Action would have short-term effects related to SSCs and bedload movement. Based on no substantial reduction in the abundance of a year class, the Proposed Action would have a less-than-significant effect on eulachon in the short term. Due to the short duration of poor water quality in the estuary due to dam removal, the Proposed Action would have a less-than-significant effect on eulachon in the long term.

Longfin smelt
The Proposed Action would have short-term effects related to SSCs and bedload movement. Based on no substantial reduction in the abundance of a year class, the Proposed Action would have a less-than-significant effect on longfin smelt in the short term. Due to the short duration of poor water quality in the estuary due to dam removal, the Proposed Action would have a less-than-significant effect on eulachon in the long term.

Introduced Resident Species
The Proposed Action would eliminate habitat for introduced resident species in the Hydroelectric Reach. Because these species were introduced and they occur in other nearby water bodies, their loss would not be considered significant from a biological perspective, and their elimination would benefit native species. Their loss would, however, decrease opportunities for recreational fishing for these species, as discussed in Section 3.20 of the EIS/EIR.

Interactions Among Species
There are many examples from nearby river systems in the Pacific Northwest that show how wild anadromous steelhead trout and resident rainbow/redband trout can co-exist successfully and maintain abundant populations without adverse consequences. The Deschutes River in Oregon, the Yakima River in Washington, and the river systems in Idaho are examples (Administrative Law Judge 2006). As noted by Buchanan et al. (2011a), existing trout and colonizing anadromous steelhead are expected to co-exist, as they do in other watersheds, although there may be shifts in abundance related to competition for space and food.

Freshwater Mussels
Based on substantial reduction in the abundance of multiple year classes in the short term and the slow recovery time of freshwater mussels, the effect of the Proposed Action would be significant for mussels in the short term. Implementation of Mitigation Measure AR-7 (see Klamath Facilities Removal EIS/EIR, Section 3.3.4.4.7) could be implemented to reduce the short- and long-term impacts of the Proposed Action on freshwater mussels. With implementation of mitigation measures there would still be impacts to a portion of the freshwater mussel population, and there could still be a substantial reduction in the abundance of at least one year class. Based on substantial reduction in year classes, the Proposed Action would have a significant effect on freshwater mussels after mitigation in the short term.

Based on increased habitat availability and habitat quality in the long term, the effect of the Proposed Action would be beneficial for mussels in the long term.

Benthic Macroinvertebrates
The Proposed Action would have short-term effects related to SSCs and bedload movement. Based on substantial reduction in the abundance of a year class in the short term, the effect of the Proposed Action would be significant for macroinvertebrates downstream from Iron Gate Dam in the short term.

While a large proportion of macroinvertebrate populations in the Hydroelectric Reach and in the mainstem Klamath River downstream from Iron Gate Dam would be affected in the short term by the Proposed Action, their populations would be expected to recover quickly because of the many sources for recolonization and their rapid dispersion through drift or aerial movement of adults. Habitat quality would also be improved in the Hydroelectric Reach by the ending of deleterious Klamath Hydroelectric Project peaking operations (Administrative Law Judge 2006).

Dam removal would restore riverine connectivity among the Lower Klamath Basin, the Hydroelectric Reach and its tributaries, and the Upper Klamath Basin, and would rehabilitate and increase availability of riverine habitat within the Hydroelectric Reach. Based on increased habitat availability, increased riverine habitat connectivity, and improved habitat quality, the effect of the Proposed Action on macroinvertebrates would be beneficial in the long term.

New Information

Hydrology

Hydrology Changes without KBRA as a Connected Action:
The EIS/EIR evaluated and analyzed the potential environmental impacts of the Proposed Action (removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams) on multiple Klamath Basin resources. To evaluate impacts to some resources (e.g. aquatic biota, water quality, flood plains, among others), assumptions were made about likely flow conditions before, during, and after dam removal in the EIS/EIR and other technical studies. These studies were completed using flow assumptions based on proposed operations under the Klamath Basin Restoration Agreement (KBRA) (Reclamation 2012) because implementation of this agreement was connected to the Klamath Hydroelectric Settlement Agreement (KHSA), the Proposed Action.

Reclamation's Proposed Action for the 2013 Joint Biological Opinion was developed collaboratively by biologists and hydrologists with NOAA, USFWS, Klamath Basin Tribes, and Reclamation, and it is currently the standard to which the project operates. The flows under this 2013 Joint Biological Opinion are different from the KBRA Flows. This section of the SIR describes the relatively small flow differences between KBRA and 2013 Joint Biological Opinion flows, and how these flow differences do not alter major conclusions drawn in the EIS/EIR regarding environmental impacts of the Proposed Action on several resources that are closely tied to hydrology, such as fish health, sediment transport and effects on fish, water quality, and flood impacts.

KBRA and 2013 Joint Biological Opinion flows are nearly identical when examined on an average annual basis, with flows below Iron Gate Dam averaging about 1,920 and 1,932 cubic feet per second (cfs), respectively. Similarly, KBRA and 2013 Joint Biological Opinion average annual flows are nearly identical below Keno Dam, averaging about 1,413 and 1,434 cfs, respectively. While on an average basis the flows above and below the Hydroelectric Reach are within two percent of each other, average monthly flows do differ between KBRA and 2013 Joint Biological Opinion, as seen in Tables 1 and 2. The most prominent difference is that the 2013 Joint Biological Opinion requires greater flows in the fall months (October through December) and allows lesser flows in the summer months (June through August) in many years when compared to KBRA Flows, but particularly during wetter-than-average years. Below Iron Gate Dam, 2013 Joint Biological Opinion fall flows average about 216 cfs more than KBRA

Flows; 2013 Joint Biological Opinion summer flows average about 114 cfs less than KBRA Flows (Table 1). These seasonal differences in 2013 Joint Biological Opinion versus KBRA Flows reflect the joint goal of NMFS and USFWS to collectively protect ESA fish that rely on a shared and finite aquatic resource (most notably two endangered sucker species in Upper Klamath Lake and threatened Coho Salmon in the Klamath River below Iron Gate Dam).

Figures 1 and 2 show the monthly flow exceedances for the 2013 Joint Biological Opinion and KBRA Flows below Iron Gate Dam and Keno Dam, respectively. Monthly flow exceedance plots are particularly useful for comparing differences between 2013 Joint Biological Opinion and KBRA monthly flows for different year types (e.g. wet, median, and dry years). For example, the first panel in Figure 1 shows that October 2013 Joint Biological Opinion flows are always 150 to 400 cfs greater than KBRA Flows below Iron Gate Dam, regardless of whether it is a wet year (e.g. flow 10 percent exceedance), a median year (50 percent exceedance), or a dry year (e.g. 90 percent exceedance). These figures allow one to analyze whether the assumption of KBRA Flows versus 2013 Joint Biological Opinion flows would affect conclusions in the EIS/EIR regarding the environmental effects of the Proposed Action.

Suspended Sediment Concentrations and Effects on Fish:
The Detailed Plan for dam removal (Reclamation 2011a) assumes that the release of sediment to the Klamath River from the three larger reservoirs (J.C. Boyle, Copco, and Iron Gate) would be initiated on or soon after January 1, 2020 by regulated releases from available gated spillways, powerhouse bypass facilities, and modified low-level outlets, in order to draw down the reservoirs in a controlled manner. Facilities Removal as defined by the KHSA to produce a free-flowing river at all four facilities would be completed prior to December 31, 2020. Drawdown of the three largest reservoirs would be completed in March 2020 (Reclamation 2011a).

Based on a sediment transport model (Reclamation 2012), which assumes KBRA Flows, the largest loads and concentrations of suspended sediment will erode downstream from January through March 2020, but significant loads and high concentrations of suspended sediment would continue through May (Figure 8). Suspended sediment concentrations would peak at about 7,000 to 14,000 mg/L during drawdown, depending on water year type (Table 6). By late spring 2020, however, the sediment transport model predicts that suspended sediment concentrations would be approaching 100 mg/L below Iron Gate Dam (Figure 5) regardless of whether drawdown occurred in a wet, median, or dry year (Reclamation 2012). Because KBRA and 2013 Joint Biological Opinion flows for January through May are nearly identical for all water year types below Keno and Iron Gate dams (generally within a few percent for the 5-month period -- see monthly exceedance Figures 6 and 7), it is reasonable to conclude that the sediment transport model would produce nearly identical suspended sediment concentrations for this January through May time period if it were run with 2013 Joint Biological Opinion flows. Small differences in flows would have negligible impacts on suspended sediment concentrations. It is also reasonable to conclude that the predicted mortality of fish due to the release of high concentrations of suspended sediment (Stillwater 2011), regardless of whether 2013 Joint

Biological Opinion or KBRA Flows were assumed in the sediment transport modeling, would be the same and would remain a significant adverse impact of the Proposed Action.

An Opinion of Probable Construction Cost (OPCC) (CDM 2011b) for a reservoir dredging operation to reduce impacts of released sediment on fish from the Proposed Action would result in an estimated cost of $165 million (in 2020 dollars), after including estimated costs for engineering design, construction oversight, site restoration, among other costs. Reductions in basin-wide fish mortality associated with dredging would be relatively small, remaining unchanged at 8 percent for fall-run adult Chinook, decreasing from 3 percent to negligible for juvenile coho salmon, remaining unchanged for adult steelhead at 14 percent, and decreasing from 14 percent to 9 percent for juvenile steelhead. Mortality of the other life stages of Chinook and coho salmon are less than one percent and would not be influenced by sediment dredging. Based on a number of factors, including the relatively small reductions in mortality of fish, the land disturbance that would occur for sediment containment structures, the potential disturbance of cultural resources, and the high cost of the dredging operation, dredging reservoir bottom sediments prior to dam removal was deemed infeasible for protection of fish (Lynch 2011).

In lieu of dredging, mitigation measures were identified in the EIS/EIR to minimize effects to fish from sediment release associated with the Proposed Action that would be more cost effective. EIS/EIR mitigation measures AR-1 (protection of mainstem spawning), AR-2 (protection of outmigrating juveniles), AR-3 (fall flow pulses), and AR-4 (hatchery management) would minimize adverse impacts of the Proposed Action to fish species. These mitigation measures, however, would not make these adverse impacts less than significant in the short term for coho salmon, steelhead, Pacific lamprey, and green sturgeon.

Disease

Since the publication of the Klamath Facilities Removal EIS/EIR, the USFWS has completed additional monitoring and analyses to evaluate late-summer/early-fall augmentation flows and their efficacy in minimizing risk of an adult fish die-off such as the one that occurred in 2002. The September 2002 adult fish die-off is the most widely known fish health event in the Klamath Basin. Minimum estimates of lower river fish mortalities include 32,533 fall Chinook Salmon, 629 steelhead, and 344 Coho Salmon (Guillen 2003a). Flows leading up to the 2002 fish kill event were historically low, ranging from about 1,900 to 2,020 cfs in the lower Klamath River, including about 760 cfs being released from Iron Gate Dam (Guillen 2003b; Belchik et al. 2004). The USFWS (Guillen 2003b) concluded:

> *Low river discharges apparently did not provide suitable attraction flows for migrating adult salmon, resulting in large numbers of fish congregating in the warm waters of the lower River. The high density of fish, low discharges, warm water temperatures, and possible extended residence time of salmon created optimal conditions for parasite proliferation and precipitated an epizootic of Ich and columnaris.*

Turek et al. (2004) reported that "At least 33,000 adult salmon died during mid to late September 2002 in the lower 36 miles of river" and further stated that "*The total fish-kill estimate of 34,056 fish was conservative and DFG analyses indicate actual losses may have been double that number*" and that estimates from the USFWS mortality report "*should be viewed as a minimum number of fish killed*", as described by Guillen (2003a). While mortality of adult salmon was significant in 2002, the population level effects from a relatively rare epizootic Ich (*Ichthyophthirius multifiliis)* and columnaris (*Flavobacterium columnare)* event such as the 2002 Klamath fish kill are much less than the disease losses of juvenile fish from myxozoan parasites like *C. shasta* that occur annually in the Klamath River (Klamath Facilities Removal Final EIS/EIR 2012).

Following the 2002 epizootic, Reclamation has augmented late-summer/early-fall flows in the Trinity and lower Klamath River with cold-water flow releases from Lewiston Dam on the Trinity River (USFWS and YTFP 2015) to reduce the risk of another major fish kill. Supplemental fall flow releases from Lewiston Dam were implemented in 2003, 2004, 2012, 2013, 2014, and 2015 and from Iron Gate Dam on the Klamath River in 2014 (Magneson and Chamberlain 2015). There are several intended benefits of these augmented flow releases, including decreasing water temperatures in the lower Klamath River, flushing non-encysted and free-swimming forms of the parasite from the hosts and the system, diluting parasite concentrations, eliminating thermal barriers to upstream fish migration, and decreasing densities and residence time of adult salmon by dispersing fish (USFWS and NMFS 2013; USFWS and YTFP 2015).

While a major adult fish kill has not occurred since 2002, a large-scale outbreak of Ich in Chinook occurred in 2014 (Belchik 2015), and to a much lesser degree in 2015 (YTFP 2015). In September and early October 2014, high prevalence and severity of adult fall-run Chinook Ich infections prompted supplemental fall flow releases reported to have improved fish habitat conditions and aid in preventing an adult salmon fish die-off (Belchik 2015). In late summer/fall 2015, a low prevalence and severity of Ich infection was documented in adult upstream migrant salmon and steelhead (YTFP 2015), and in resident speckled dace (*Rhinichthys osculus*) in the Lower Klamath River (Foott et al. 2015). Foott et al. (2015) hypothesized that high densities of resident fish exhibiting a low prevalence of Ich infection could be the source of Ich parasites infecting adult salmon and steelhead returns to the Klamath River. While endemic to the Klamath Basin, epizootic outbreaks of Ich can occur when presented with conditions such as those previously described and that were documented leading up to and during the 2002 Klamath fish die off.

While it is not possible to define the extent that the past preventative and emergency flow augmentation releases from Lewiston Dam have prevented fish kills, they have resulted in significant reductions in water temperatures in the lower Klamath River, albeit delayed due to travel time (Figure 11; Zedonis 2004; Zedonis 2005; Magneson 2013; Magneson 2014; Magneson 2015; Magneson and Chamberlain 2015). Augmented flow releases from Lewiston Dam on the Trinity and Klamath Rivers in 2014 and 2015 were also documented to disperse

large congregations of adult salmonids that had been holding for extended periods of time in thermal refugia of the lower Klamath River (USFWS 2015; Belchik 2015). A key benefit of flow augmentation from Lewiston Dam is a reduction of water temperatures in the lower Klamath River, which functions to minimize or eliminate thermal migration barriers and reinitiate upstream migration behaviors of adult fish. This, in turn, lessens the already extended residence time of adult fish holding in thermal refugia and positively disrupts conditions conducive to fish-to-fish and fish-to-substrate-to-fish disease transmission and associated fish kills (e.g., Ich transmissions).

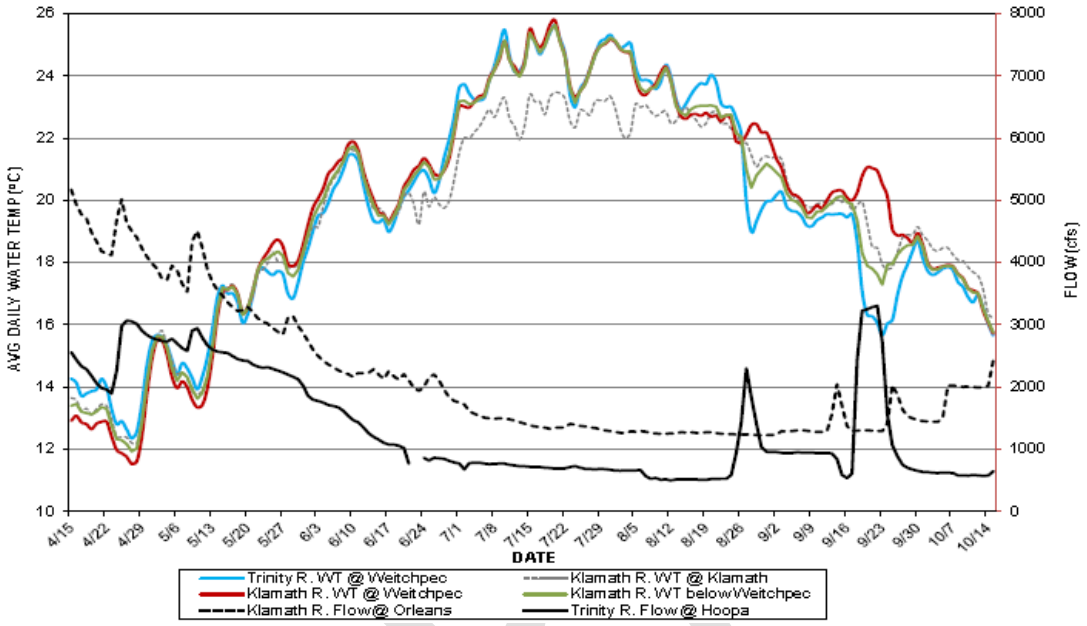

Figure 11. Comparison of water temperatures of the Trinity River at Weitchpec (rkm 0.1) and the Klamath River above (rkm 70.2) and below (rkm 62.0 and rkm 13.0) the confluence of the Trinity River relative to stream flow in 2014. Augmented flow releases from Lewiston Dam occurred from August 23 to September 14 (Reclamation 2014a) and from September 16 to 23, 2014 (Reclamation 2014b) and from Iron Gate Dam October 4 to 15, 2014 (Reclamation 2014c) (taken from Magneson and Chamberlain 2015).

Since planning for the initial fall flow augmentation release from Lewiston Dam in 2003, Reclamation has continued to seek input from fish health experts and basin science partners to refine measures for protecting salmonids in the lower Klamath River (Reclamation 2015). Reclamation is currently developing a long-term plan for protecting late summer adult salmon in the lower Klamath River. This plan will include triggers to guide implementation of preventative and emergency flow augmentation releases from Lewiston Dam in future years, with a goal of reducing the risk of an adult fish kill in the Trinity and lower Klamath rivers. As such, the positive results of past late-summer early fall flow augmentations and the development of a long-term plan to guide future supplemental flow augmentations provide additional support

for a reduction in the risk of an adult salmonid fish kill. The anticipated benefits of augmented flow releases, when conditions indicate a need for them, leads to better conditions in the lower Klamath River than originally considered in the EIS/EIR.

Comparisons of river flows at Iron Gate Dam with modelled values anticipated under KBRA and the 2013 Biological Opinion show them to be similar. California Department of Fish and Wildlife (Turek et al. 2004) concurred with the findings of the USFWS's and Yurok Tribe's reports on the causative factors of the 2002 Klamath fish kill, adding that, "*flow is the only controllable factor and tool available in the Klamath Basin… to manage risks against future epizootics and major adult fish kills.*" With regard to flows in the Klamath River, the 2013 Joint Biological Opinion (NMFS and USFWS 2013a) established minimum flow release requirements from Iron Gate Dam of 900, and 1000 cfs for August and September. These minimum flow values are similar to the ecological base flow values as defined by Hardy (880 cfs August and 970 cfs September) and to the Alt X Yurok (WRIMS R-32 Refuge) Iron Gate flow targets established for a 90% exceedance (895 cfs August and 1010 cfs September) that were incorporated into the hydrology model that was foundational to the flow simulations presented in the KBRA (Hetrick et al. 2009). Note, however, that the Alt-X flow targets reported in the hydrology section of the KBRA are recommendations only, and that modelled flow outputs for August and September in extreme drought years under the KBRA were lower than the targets and the 2013 Biological Opinion minimum values.

We do not anticipate any increased risk of adult fish die-off events given similarities in the anticipated flows below Iron Gate Dam between those presented in the KBRA and those identified in the 2013 Joint Biological Opinion. Improvements in water quality that would result from removal of the Four Facilities as previously described, are predicted to reduce the stress experienced by staging and upstream migrant pre-spawn adults. In addition, flow management described in the 2013 Joint Biological Opinion incorporates real time daily flow variability that is based on natural hydrologic conditions present in the upper basin. The resulting daily fluctuations in flow that respond to seasonal climatic changes and weather events are anticipated to positively influence the pattern of upstream migration of fish holding and moving in response to the ascending and descending limbs of the hydrograph under which the species evolved.

Species Specific Effects

Fall Run Chinook Salmon

Since the 2012 Klamath Facilities Removal EIS/EIR, there are now published recommendations for salmon restoration given the reality of a changing climate. The authors' conclusions are that restoring connectivity between cold-water tributaries and main stem habitats via fishways or barrier removals should be one of the highest restoration priorities (Beechie, Imaki et al. 2013).

In 2014, an assessment method was published to examine the relationship between proposed dam removals and salmonid conservation benefits. About half the dams evaluated had scores

indicating at least moderate benefits. For the Klamath River, scores indicated that removal of the four dams is warranted for salmonid conservation (Quinones, Grantham et al. 2014).

There have been a number of recently published (Anderson, Pess et al. 2013; Burton, Lowe et al. 2013; Engle, Skalicky et al. 2013; Weigel et al. 2013; Pess, T. P. Quinn et al. 2014; Anderson, Faulds et al. 2015; Hatten, Batt et al. 2015; Allen, Engle et al. 2016) and unpublished reports (McHenry, Pess et al. 2015; Moses, McMillan et al. 2015) of anadromous fish response to dam or barrier removals in the Pacific Northwest. All of these have reported a positive response of salmon populations following dam or barrier removals. In one case, redds upstream from the former dam site initially made up ~10 percent of the Chinook salmon observations but they declined to zero percent. At the same time spawning habitat below the former dam site increased 46 percent (Hatten et al. 2015). In particular, the response of populations to the removal of two dams on the Elwha River, in Washington State, has been monitored closely. In all years following the removal of Elwha Dam in 2012, surveyors found the majority of Chinook salmon redds in the river upstream from the former dam site (McHenry, Pess et al. 2015).

On the Elwha River, despite the exposure of 21 ± 3 million m^3 (~30 million tonnes) of stored reservoir sediment due to the removal of Elwha dams between 2011 and 2014 (Warrick, Bountry et al. 2015), by 2014 and 2015 smolt outmigration of Chinook salmon for the river recovered quickly and was estimated to be within the range of the pre-dam removal period (2006-2011) (McHenry, Elofson et al. 2015) (George Pess, personal communication March 2016). In addition to the erosion of sediment particles, dam removal added woody debris, ranging from millimeter-size particles to old-growth trees and stumps, to fluvial and coastal landforms during the dam removals. The volume of sediment stored behind the Elwha Dams was significantly greater than the approximately 11.5 million m^3 that is expected to be stored by the dams in the hydroelectric reach of the Klamath River if they are removed in 2020 (Reclamation 2012). Comparisons with other Pacific Northwest dam removals suggest that these steep, high-energy rivers have enough stream power to export the vast majority of the reservoir sediment out of the river system in only months to a few years (Warrick, Bountry et al. 2015).

In 2014 a comprehensive summary of anadromous fish recolonization following dam or barrier removals was published. The authors concluded that salmon and other anadromous fishes have the capacity to rapidly re-colonize newly available habitats, though the life history patterns of each species, the proximity to source populations in the same or nearby river systems, and the diversity of habitats available may control the patterns and rates of colonization. The authors found that salmon populations generally increased to self-replacing levels (usually without active reintroduction) within 5 and 30 years with most populations responding between 10 and 20 years once fish passage was restored (Figure 12). Colonizing salmon populations often showed an exponential growth phase of ~ 18 to 100 percent per generation (Pess, T. P. Quinn et al. 2014). During this exponential growth phase the estimated annual rate of increase after barrier removal for Chinook salmon was ~1.6 or 60 percent/year (Pess, T. P. Quinn et al. 2014).

For the Klamath River, an update of the historical record of salmon upstream from the current location Iron Gate Dam confirms the conclusions of the EIS/EIR that Chinook salmon runs were abundant, as well as seasonally diverse, and likely consisted of various life histories (Hamilton, Rondorf et al. In Press).

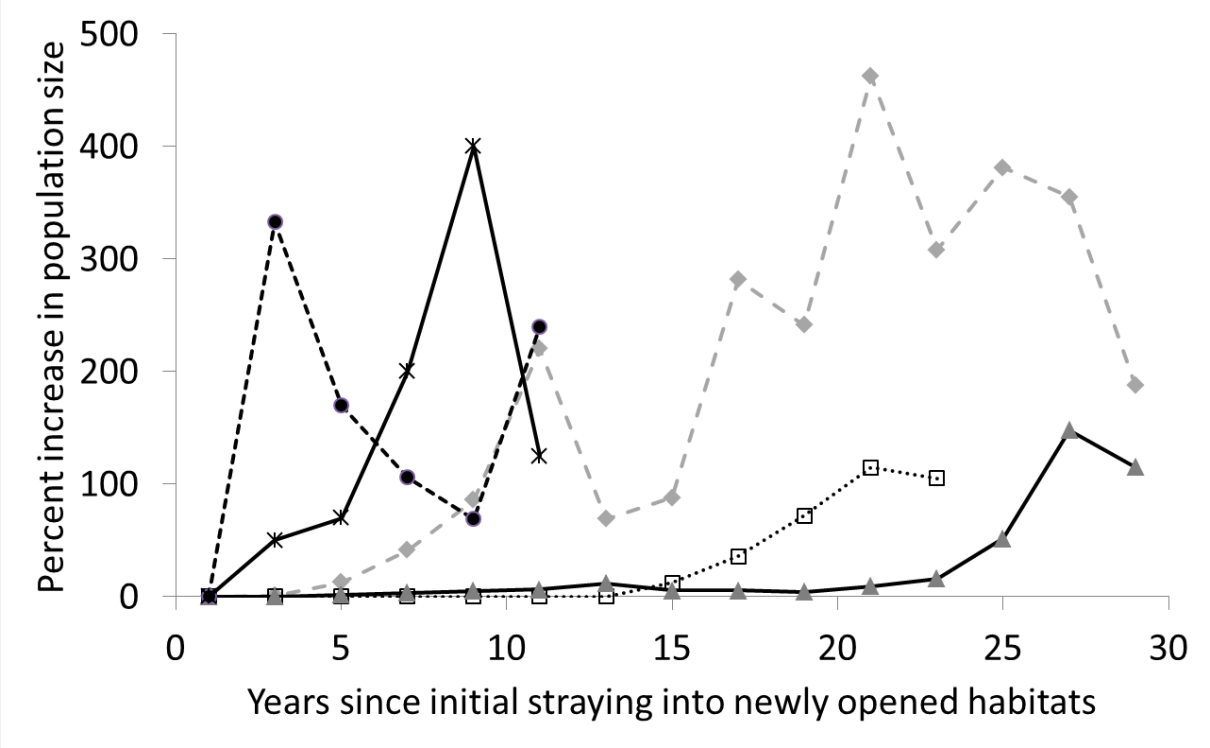

Figure 12. Percent increase in population size of several salmon populations over time along the Eastern Pacific Rim. Sold black dots with hashed black line represent Cedar River, Washington State Coho Salmon (Kiffney, Pess et al. 2008). Solid black line with stars represent Cedar River, Washington State Chinook salmon (Kiffney, Pess et al. 2008). Solid grey diamonds with grey hashed line represent Fraser River, British Columbia pink salmon (Pess, Hilborn et al. 2012). Open dark squares dark hashed line represent Glacier Bay, AK pink salmon (Milner, Fastie CL et al. 2007). Solid grey triangles with solid black line represent percent increase in South Fork Skykomish pink salmon above Sunset falls, Washington State. Population size of the Cedar Coho and Chinook salmon is 100s; 100,000s for Fraser River pink salmon; 10,000s for South Fork Skykomish pink salmon, and 1,000s for Glacier Bay, AK pink salmon (Figure from Pess, T. P. Quinn et al. (2014)).

For the Klamath River Klamath Facilities Removal, the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) model projected impacts for Chinook salmon associated with dam removal for the 2012 EIS/EIR. There were no EDRRA model runs for Chinook

salmon productivity and harvest that compare the effects of dam removal with KBRA to the effects of dam removal without any elements of KBRA (e.g. habitat restoration and an active salmon reintroduction plan). However the modeler was asked to quantify the effects of dam removal without the KBRA improvements in productivity for Alternative 2, but with the effects of KBRA hydrology remaining (Hendrix 2012, see Appendix B). The results of this projection were that dam removal alone, after the direct effects of an active reintroduction program ended in 2032, still showed significant increases in Chinook productivity (71 percent), tribal harvest (46 percent), and ocean commercial/recreational harvests (39 percent) for the modeled years of 2033 to 2061. The Hendrix analysis was completed after the Chinook Expert Panel completed their review and was therefore unavailable to the panel.

Active reintroduction and Mitigation Measure AR-1 (Protection of Mainstem Spawning), would accelerate occupation of habitat opened by dam removal. However, while the Oregon Department of Fish and Wildlife indicates that Oregon would implement the reintroduction actions that would have been included in the KBRA Phase I Restoration and Reintroduction plan, as resources become available for these activities (T. Wise, pers. comm. February 4, 2016), given some uncertainties, active reintroduction upstream from Upper Klamath Lake may be more limited than projected in the EDRRA model runs.

Following dam removal seasonal trap and haul operations, primarily for fall-run Chinook salmon may occur around Keno Dam and Keno Impoundment/Lake Ewauna until water quality conditions are sufficiently improved to allow for year round passage. A variety of release and rearing strategies could be utilized to optimize success. However, if salmon reintroduction efforts occur at a lower intensity than envisioned under KBRA, it would likely take longer to achieve the increases in Chinook productivity and harvest projected by the EDRRA model runs and the 2012 Klamath Facilities Removal EIS/EIR.

For the Klamath River, the 2013 BO would mean that effects downstream from Iron Gate Dam would likely increase production of Chinook salmon due to more favorable flows and improved habitat condition. In particular, these alternatives would also improve survival of smolts emigrating from downstream tributaries, such as the Scott and Shasta rivers, due to improved Klamath River flows and disease conditions. Restoration of runs in these two tributaries is the goal of extensive restoration programs and investment.

The new published information on Fall run Chinook Salmon remains consistent with the long term impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would be beneficial.

Spring Run Chinook Salmon
Since the publication of the Klamath Facilities Removal EIS/EIR, much of the new information on Fall run Chinook salmon would also apply to spring run Chinook. One account has been published that is specific to the response of Spring run Chinook to dam removal. After dam removal on the White Salmon River in Washington State, Spring run Chinook Salmon spawning surveys indicated a positive trend for the river, with more than two times as many spawning in 2014 as in 2013 (the first year of surveys) (Allen, Engle et al 2016).

Another recent publication found that the timing of Klamath–Trinity spring-run Chinook salmon tended to prevent fish exposure to adversely high river temperatures and demonstrated the unexpected ability of adult Chinook salmon to migrate successfully through surprisingly warm temperatures and endure acute thermal stress if sufficiently large volumes of cold water await them at their destination (Strange 2012).

Since the publication of the Klamath Facilities Removal EIS/EIR, the update of the historical record of salmon upstream from the current location Iron Gate Dam confirms the conclusions of the EIS/EIR that runs were abundant, as well as seasonally diverse, and likely consisted of various salmon life histories, including Spring run Chinook salmon (Hamilton, Rondorf et al. In Press).

The new published information on Spring run Chinook Salmon remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would be beneficial in the long term.

Steelhead
Since the publication of the Klamath Facilities Removal EIS/EIR, there has been one published study of barrier removal devoted only to effects to steelhead. In this study on Beaver Creek, in Washington State, steelhead migrated into the study area during the first spawning season after passage was established. Parr that were tagged in the stream returned as adults, indicating establishment of the anadromous life history. Colonization and expansion of steelhead occurred more slowly than expected due to the low number of wild adults migrating into the study area (Weigel, Connolly et al 2013). On the White Salmon River, also in Washington State, after the removal of Condit Dam steelhead have recolonized into expected tributaries and mainstem reaches, but the extent and source of the recolonizing fish remains unknown until biologists are able to conduct additional surveys

In an unpublished report for the Elwha River, in 2014-2015 naturally colonizing winter run steelhead were documented in the mainstem and tributaries upstream from the former of Elwha and Glines Canyon Dam sites (McMillan et al 2015). In 2015, surveyors observed summer run steelhead for the first time since the 2012 dam removal, indicating the beginning of this life history strategy (George Pess, personal communication March 2016).

The information on steelhead remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicate that dam removal would be beneficial in the long term.

Lamprey

Since the publication of the Klamath Facilities Removal EIS/EIR, the USFWS has completed a Regional Implementation Plan for Measures to Conserve Pacific Lamprey (*Entosphenus tridentatus*) in California and the Klamath River Watershed (Plan)(Goodman and Reid 2015). While there remains some uncertainty about the historical extent of Pacific lamprey in the upper Klamath Watershed, the Plan concludes that removal of the dams and restoration of natural hydrologic flow regimes to the Klamath River would have a great positive influence on Pacific Lamprey in the upper Klamath River drainage (Goodman and Reid 2015). The analysis in the Klamath Facilities Removal EIS/EIR indicated that the effect of opening significant portions of the Klamath River to anadromous fish species such as Pacific Lamprey would be beneficial. The new information is consistent with the analysis in the Klamath Facilities Removal EIS/EIR that increasing the range of the Pacific Lamprey would be positive and long term impacts would be beneficial.

Green Sturgeon (Northern DPS)

In 2014 the NMFS completed an informal status review (Doukakis 2014) for the Northern DPS of green sturgeon (*Acipenser medirostris*) to assess whether its current status on the NMFS Species of Concern List is still appropriate. The information presented in the review indicated that Northern DPS green sturgeon should remain a Species of Concern based on data about their abundance and productivity, distribution, and threats. Current potential threats to Northern DPS green sturgeon include water and land-use management practices, chemical applications, and climate change. Understanding of the species status and biology has increased substantially and threats to the population, such as fisheries harvest have been reduced. However, the limited geographic occupancy during some life stages, remaining uncertainty about abundance, and persistent threats indicate that a Species of Concern classification is still warranted. The information provided in the status review is consistent with the information contained in the Klamath Facilities Removal EIS/EIR and does not provide any new information that would change the outcome of the analysis of impacts to this species described in the Klamath Facilities Removal EIS/EIR.

Redband Trout

Since the publication of the Klamath Facilities Removal EIS/EIR**,** we have found little new information on Redband trout. Riparian corridor improvements and protections would remain under the dams out proposed action, impacts would be consistent with the EIS/EIR and would be beneficial in the long term for redband trout.

Introduced Resident Species
The information on Introduced Resident Species remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would decrease opportunities for recreational fishing for these species.

Interactions Among Species
Since the publication of the Klamath Facilities Removal EIS/EIR, researchers investigated competitive interactions in laboratory streams to determine the potential for competition in reaches of the Elwha River after dam removal between coho salmon and non-native brook trout. Coho salmon were competitively dominant over brook trout regardless of size difference or group size, and will likely outcompete brook trout in the wild if resources become limited (Thornton 2015).

Our review herein remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would be beneficial in the long term.

Freshwater Mussels
The information on Freshwater Mussels remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would have beneficial effects in the long term.

Benthic Macroinvertebrates
The information on benthic macroinvertebrates remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would have beneficial effects in the long term.

Listed Species

Coho salmon
The NMFS published the Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (*Oncorhynchus kisutch*) in 2014. The Recovery plan identifies reasonable actions that may be necessary for the conservation and survival of SONCC (Southern Oregon Northern California Coast) coho salmon based upon the best scientific and commercial data available at the time. For the Upper Klamath River population unit the key limiting stresses to the recovery of SONCC coho salmon include barriers, altered hydrologic function and impaired water quality associated with the hydroelectric facilities on the main stem Klamath River. The loss of approximately 76 miles of habitat upstream of Iron Gate Dam, much of which is high quality spawning and rearing habitat, severely limits the spatial structure and natural productivity of the population. The operation of the Klamath Project and hydroelectric project has led to additional limiting stresses related to the loss of flow variability and impaired water quality. The findings and recommendations in the Recovery Plan are consistent with the findings in the Final EIS/EIR.

On October 21, 2014, NMFS issued a Scientific Research and Enhancement Permit under Section 10(a)(1)(A) of the Endangered Species Act to the California Department of Fish and Wildlife for implementation of a Hatchery and Genetic Management Plan (HGMP) for the SONCC coho salmon program at Iron Gate Hatchery (IGH). The HGMP covers activities related to the artificial production of coho salmon at IGH for the period 2014-2024. This includes the interim period until mainstem Klamath River dams of the Klamath Hydroelectric Project (Federal Energy Regulatory Commission Project No. 2082) are anticipated to be removed (2020) pursuant to the Klamath Hydroelectric Settlement Agreement (KHSA) and a new HGMP would be developed for any new or revised programs at IGH or other hatchery facilities in the area. The potential removal of Iron Gate Dam would eliminate the current cold-water source for IGH and will likely create a situation in which salmon and steelhead can no longer be produced at this facility. Continuation of artificial production of coho salmon following removal of IGH will depend on whether future studies identified in the KHSA identify a viable alternative source of water. After 2020, it may be necessary to maintain hatchery production elsewhere in the basin. The measures and facilities necessary for ongoing coho salmon production following potential removal of Iron Gate dam are uncertain and the subject of ongoing study the details of which are described under Interim Measure 19 in Appendix D of the KHSA. Therefore, based upon the results of studies under Interim Measure 19 and the development of reintroduction plans by the State of Oregon, the HGMP may be amended in the future to ensure hatchery operations during the term of the HGMP are consistent with the most current plans for species conservation and reintroduction efforts that will benefit SONCC coho salmon under the KHSA.

In an evaluation of the 2012 removal of Elwha Dam, the release of coho salmon upstream from the former dam site was effective in increasing adult coho salmon. Coho salmon were also noted to naturally recolonize upstream tributaries (Moses, McMillan et al. 2015).

Our review herein remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would be beneficial in the long-term.

Eulachon

In June of 2013 NMFS released a federal recovery plan outline (outline) for southern DPS of Pacific eulachon. The outline is not a regulatory document and is intended primarily for internal use by NMFS as a pre-planning document. The outline is meant to serve as interim guidance for recovery efforts and recovery planning for the southern DPS of Pacific eulachon until a full recovery plan is developed. The major threats to eulachon recovery that are described in the outline are climate change related impacts to ocean and freshwater habitats, vulnerability to by-catch, dams and water diversions, and predation. In July of 2013 NMFS posted a Federal Register Notice of Intent to prepare a recovery plan for the southern DPS of Pacific eulachon and requested additional information to help inform development of the recovery plan (Federal Register Vol. 78, No. 1128, 40104). A public draft of the recovery plan is anticipated to be released by NMFS for review in the spring of 2016.

In October of 2015 the Northwest Power and Conservation Council hosted a science/policy forum focused on the current state of scientific knowledge on the biology and biological requirements of Pacific eulachon including abundance and productivity, spatial distribution, genetic characteristics, and life history diversity (Anchor QEA, LLC 2015). The findings would help identify key information gaps necessary to help develop research and monitoring actions that may be incorporated into the draft recovery plan currently being written by NMFS. Although most of the information presented was focused on populations in Oregon and Washington, some new information was presented for the Klamath River by Mr. Robert Anderson of the Yurok Tribal Fisheries Department. The Yurok Tribe began sampling for adult and juvenile eulachon through a Protected Species Conservation and Recovery Grant Program to Tribes and observed seven adult eulachon in 2011. Adult eulachon numbers have increased since, with a collection of 40 adults in 2012, 112 in 2013, and approximately 1,000 in 2014.

The state of knowledge for the Southern DPS of Pacific eulachon has not changed appreciably from the description and analysis of environmental effects findings presented in the Klamath Facilities Removal EIS/EIR.

Green Sturgeon (Southern DPS)

The Southern DPS of North American green sturgeon is listed as a threatened species, and includes all green sturgeon spawning populations south of the Eel River, with the only known spawning population being in the Sacramento River (71 FR 17757; April 7, 2006). Sub-adult and adult southern DPS of North American green sturgeon enter coastal bays and estuaries north of San Francisco Bay, California, during the summer months to forage (Lindley et al. 2008). As described in the Klamath Facilities Removal EIS/EIR, the southern DPS of North American green sturgeon's potential occurrence in the lower Klamath River is limited to only the sub-adult and adult life stages, only during the summer and fall, and only in the Klamath River estuary.

The new published information on green sturgeon remains consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, which indicates that dam removal would be less-than-significant in the long term.

Bull Trout

Since the publication of the Klamath Facilities Removal EIS/EIR, the Klamath Recovery Unit Implementation Plan for Bull Trout has been finalized (USFWS 2015). A Conservation Recommendation in this plan is: "*Support actions to reintroduce anadromous species. Anadromous species, such as Chinook salmon and steelhead, were historically present in the upper Klamath River basin and their reintroduction would support bull trout recovery by increasing prey base and providing marine derived nutrients. Feasibility of restoration of spawning Chinook salmon and steelhead populations should be evaluated and implemented where feasible and biologically supportable.*"

Based on this analysis and information, we conclude that the effects to bull trout would be revised to beneficial, rather than less-than-significant, in both the short term and long term.

Lost River and Shortnose Suckers
Since the publication of the Klamath Facilities Removal EIS/EIR, the USFWS has designated Critical Habitat (CH) for Lost River and shortnose suckers (USFWS 2012). Because Sucker CH had been proposed again by the USFWS, but not yet finalized when the Klamath Facilities Removal EIS/EIR was published, CH was not formally addressed in the Klamath Facilities Removal EIS/EIR. However, the Klamath Facilities Removal EIS/EIR disclosure was consistent with habitat already established for suckers and habitat now in the finalized designation.

Critical Habitat designation did not affect populations in Project Reservoirs proposed for removal. While dam removal would result in the loss of limited habitat for suckers in the Project reservoirs, these populations do not contribute to recovery of the species (USFWS 2006).

Given the reduction in abundance within the reservoirs, dam removal would have significant effects in the short term. However, Mitigation Measure AR-6 could be implemented to reduce the impact to individuals within reservoirs by rescuing fish prior to reservoir drawdown. Based on small numbers of individuals affected after mitigation the effect of dam removal would be consistent with the impact disclosures of the Klamath Facilities Removal EIS/EIR, and remain less-than-significant after mitigation for shortnose and Lost River suckers in the short term.

In the long term, with our analysis of effects of dam removal now limited to the Hydroelectric Reach, our conclusion regarding dam removal effects for suckers would be revised to no-effect.

Conclusions
Our conclusions on the dam removal proposed action (Alternative 2: Full Facilities Removal of Four Dams) are based upon new information and analyses since the publication of the Klamath Facilities Removal EIS/EIR.

For bull trout, new information in the USFWS Klamath Recovery Unit Implementation Plan indicates that effects of dam removal for bull trout would be beneficial, rather than less-than-significant, for bull trout in both the short term and long term.

For Lost River and shortnose suckers, the effects in the short term are consistent with those analyzed in the EIS/EIR, and would remain significant, but mitigatable (Mitigation Measure AR-6, Sucker Rescue and Relocation). In the long term, based on new information, including the USFWS' recent designation of CH for Lost River and shortnose suckers, and with our analysis of effects of dam removal now limited to the Hydroelectric Reach, our conclusion regarding dam removal would have no effect on suckers.

Our conclusions for Alternative 2: Full Facilities Removal of Four Dams would be consistent with the Klamath Facilities Removal EIS/EIR and there is no change relevant to environmental concerns.

3.3.3 Algae

Environmental Setting

This section of the EIS/EIR analyzed potential effects of the Proposed Action on algal communities (phytoplankton and periphyton) in the Klamath Basin, excluding the Lost River watershed, Tule Lake watershed, and most of the Trinity River. In the EIS/EIR some areas upstream of the influence of J.C. Boyle Reservoir (e.g. Upper Klamath Lake and its tributaries, and the Klamath River from Link River Dam to J.C. Boyle Reservoir, including the Keno Impoundment/Lake Ewauna), were included because implementation of the connected KBRA Programs could have affected algal communities in these areas. These areas are now excluded in the analysis of the Proposed Action without KBRA because dam removal alone would not affect their periphyton or phytoplankton communities.

The area of analysis includes the Hydroelectric Reach, which extends from the upstream end of J.C. Boyle Reservoir to Iron Gate Dam, including all sections categorized as mainstem, bypass, and peaking reaches. It includes the Lower Klamath River downstream from Iron Gate Dam, through the Klamath Estuary, and including the Pacific Ocean marine nearshore environment. Tributaries to the Klamath River in the Hydroelectric Reach and below Iron Gate Dam are not included in the analysis of the Proposed Action (without KBRA as a connected action) because dam removal alone would not affect these algal communities.

Impacts

Two types of algal communities, phytoplankton and periphyton, are predominant in the Klamath Basin, with peak biomass occurring primarily during summer and fall months. Copco 1 and Iron Gate reservoirs are dominated by phytoplankton, small algae that float in the water column. Particular phytoplankton species (i.e., blue-green algae or cyanobacteria) frequently reach nuisance levels within these reservoirs in the summer and fall, often producing toxins at levels potentially harmful to both humans and animals (Watercourse Engineering, Inc. 2011; Kann 2008; Kann and others 2010). Peak levels of microcystin in Copco 1 and Iron Gate Reservoirs exceeded the California State Water Resources Control Board (SWRCB)/Office of Environmental Health and Hazard Assessment (OEHHA) public health threshold of 8 µg/L (SWRCB et al 2010) by over 1000 times in Copco 1 Reservoir during 2006–2009 and extremely high concentrations (1,000–73,000 µg/L) were measured during summer algal blooms in both Copco 1 and Iron Gate Reservoirs during 2009 (Watercourse Engineering, Inc. 2011).

In addition, there are portions of the Klamath River below Iron Gate Dam (e.g., backwater eddies and near shore shallows) that regularly accumulate and can become inoculated with phytoplankton from the hydroelectric reservoirs, which can also support nuisance levels of blue-green algae under certain conditions. The riverine portions of the Klamath River are dominated by periphyton (i.e., attached algae), primarily including diatoms, cyanobacteria, and green algae (Asarian et al., 2014; Gillett et al., 2016).

The stable lacustrine environment created by impounding water in the Copco 1 and Iron Gate reservoirs, coupled with warm, high nutrient water from the upper basin in the summer and fall months, provides conditions for phytoplankton growth, including the growth of blue-green algal species, most notably the toxin producing *M. aeruginosa*. While blue-green algae can be found in a variety of environments, these species tend to thrive under warm water temperature, high nutrient, and stable water column conditions where they can out-compete other algal species. Under the Proposed Action, the elimination of these two reservoirs would result in the immediate and long-term reduction in the growth of nuisance, toxin producing phytoplankton blooms, which would be beneficial to the environment and would substantially reduce the risk to human health of those currently exposed to water in the reservoirs. In addition, elimination of these two reservoirs would reduce or eliminate the transport of nuisance phytoplankton blooms and their associated toxins (e.g. microcystin) into the Klamath River below Iron Gate Dam and into the Klamath Estuary, which would also be beneficial.

Under the Proposed Action, conversion of the reservoir areas to a free-flowing river, and the elimination of hydropower peaking operations, could cause long-term slight increases in nutrients and increases in low-gradient channel margin habitat available for nuisance periphyton growth in the Hydroelectric Reach downstream from the upper extend of the J.C. Boyle Reservoir, which would be a significant impact. Removing the reservoirs and creating a free-flowing river that is no longer conducive to the growth of phytoplankton would likely return these river reaches to periphyton-dominated algal communities similar to what likely existed prior to the construction of dams in the Hydroelectric Reach. No mitigation measures were proposed for this impact under the Proposed Action. However, long term reductions in nutrient concentrations in the Klamath River upstream of Keno Dam are anticipated over a period of years as a result of multiple regulatory and restoration processes independent from the Proposed Action. Most notably, continued implementation of the TMDLs in the Lost River and Upper Klamath basins will ultimately reduce periphytic algal accumulations in the free flowing reaches of the Klamath River downstream of Keno Dam following dam removal under the Proposed Action,

Under the Proposed Action, dam removal and conversion of the reservoir areas to a free-flowing river could also cause long-term increases in river nutrient concentrations (primarily nitrogen) and biomass of nuisance periphyton in the Klamath River downstream of Iron Gate Dam, on a seasonal basis. This impact, however, would likely be less than significant because the concentrations of nutrients (nitrogen and phosphorus) are already high enough in the river from Iron Gate Dam (RM 190.1) to approximately Seiad Valley (RM 129.4) (and potentially further downstream) that they do not limit periphyton. Periphyton communities further downstream, and into the Klamath Estuary, are dominated by nitrogen-fixing species because inorganic nitrogen concentrations are relatively low in these reaches due to nutrient uptake by upstream periphyton (including the Hydroelectric Reach) during the summer-fall growing season, and from tributary dilution. Because certain species in these reaches can fix their own nitrogen from the atmosphere, seasonal increases in total nitrogen due to dam removal may alter the assemblage of the periphyton community but they may not significantly increase periphyton

biomass in these lower reaches and the estuary. Only minor seasonal increases in total phosphorus would occur due to dam removal in the lower river and therefore would have little impact on periphyton community biomass.

New Information

Algae and algal toxins in Copco 1 and Iron Gate Reservoirs, and in the Klamath River below Iron Gate Dam, continue to be topics of extensive monitoring and research by the lower basin tribes (Yurok, Karuk, and Hoopa Valley), PacifiCorp, academia, and government agencies, among others. The goal of the majority of this monitoring and research is focused on documenting the current conditions (the algal dynamics with the dams in place); however, this new information offers some insights and reinforces the conclusions in the EIS/EIR regarding how the system would likely change under the Proposed Action of dam removal.

Areas of new (continued) monitoring and research include periphyton growth patterns (temporal and spatial) below Iron Gate Dam (Asarian and others, 2014 and 2015; Gillett and others 2016); ecosystem metabolism of various Klamath River reaches below Iron Gate Dam (Genzoli and others 2015); monitoring the levels of toxic algae and toxins (most notably *M. aeruginosa* and microcystin) within and downstream of Copco 1 and Iron Gate reservoirs (Kann 2014; Kann and Bowman 2012); tracking the source of toxic algae found in the Klamath River below Iron Gate Dam (Otten and others 2015); exploring engineering solutions to reduce the release of algae and associated toxins from Iron Gate dam (Miao and Deas, 2014); and testing the efficacy and feasibility of using algaecides to control toxic algae in isolated areas of Iron Gate and Copco 1 reservoirs (Watercourse Engineering, 2013, 2014, and 2015). Overall, this new information does not change any of the conclusions in the EIS/EIR about the existing ecosystem or environmental impacts under the Proposed Action. It does, however, strengthen conclusions in the EIS/EIR by lengthening the record of similar observations that serious algal problems continue to develop in these two reservoirs (e.g. nuisance blooms of phytoplankton and production of high concentrations of algal toxins in the summer and fall) under current conditions, and that some of the algal biomass and toxins are transported downstream into the Lower Klamath River and its estuary. For example, the reservoirs have now been listed every year since 2008, including 2013-2015, for *M. aeruginosa* and microcystin levels that exceeded California health advisory levels, often by a factor of 100 or more. As a result of this sampling, health advisories for the reservoirs and the Klamath River below Iron Gate Dam were posted in the summer of 2014 and the advisories were not lifted from the two reservoirs until December. During the period of analysis for the original EIS/EIR (2000 to 2012), health advisory postings were common place, and this more recent data shows this trend is continuing.

One new study (Otten and others 2015) used a variety of genetic approaches to assess the connectivity of *Microcystis* populations found throughout the Klamath River. In 2012, samples were collected bi-weekly from 16 sites spanning the entire system, including all five reservoirs and Upper Klamath Lake. The authors concluded: "Overall, *Microcystis* was a minor constituent of the phytoplankton community above Copco and Iron Gate Reservoirs, although it was highly

prolific within these reservoirs and our data indicate that most of these populations originate internally. Spatiotemporal variations in the proportional abundances of a single nucleotide polymorphism was used to fingerprint Iron Gate Reservoir as the source of downriver *Microcystis* assemblages. Throughout the study period, the *Microcystis* populations remained highly toxic, with total microcystin concentrations ranging from 165 mg/L in Copco Reservoir to 3.6 mg/L within the lower estuary (0.8 km from the Pacific Ocean)." These results support the EIS/EIR conclusion that *Microcystis* blooms largely develop internally in Copco 1 and Iron Gate reservoirs and are not primarily imported from upstream sources. These results also support the EIS/EIR conclusion that sources of *Microcystis* in the lower river and estuary primarily originate from the Hydroelectric Reach reservoirs. In short, this 2015 study confirms that dam removal under the Proposed Action would eliminate the two reservoirs in the Hydroelectric Reach that promote the growth of toxic algae, which would greatly reduce the transport of algal toxins in the Klamath River below Iron Gate Dam, reaching at times to the Klamath Estuary.

New studies are also providing insights into the feasibility of controlling algae problems if the dams are left in place. For example, studies have been completed to test the efficacy of using algaecides to reduce algal blooms and toxins in small areas of a reservoir (e.g. a recreational cove) that has been isolated from the main reservoir with a curtain (Watercourse Engineering, 2013, 2014, and 2015). Results show some promise, but further testing is needed to determine its season-long efficacy in these isolated areas. No studies have been done at a reservoir-wide scale for either reservoir. Similarly, there are ongoing studies to assess if an intake barrier on Iron Gate dam can be configured to entrain water from greater depths and thereby reduce the release of algae and algal toxins to the Klamath River below the dam (Miao and Deas 2014). Tests done in 2012 showed some promise, but for less than 24 hours, after which the downstream benefits diminished as changing hydraulics in the vicinity of the intake began to entrain more water near the surface of the reservoir. The results to date suggest more development and testing are needed before a conclusion can be reached about the efficacy of this technology to reduce algae and algal toxin issues downstream of Iron Gate Dam.

Conclusion

An analysis of new information since the publication of the EIS/EIR does not change any of the conclusions regarding the environmental effects of the Proposed Action on algae and algal toxins in the Klamath Basin.

3.3.4 Terrestrial Resources

Environmental Setting

The area of analysis includes vegetation communities and habitats of the Klamath River watershed currently influenced by the presence of the Four Facilities. Both the riparian vegetation communities downstream from these dams and the associated reservoirs upstream are influenced by the presence of the dams and have the potential to be affected by their removal. Thus, the project area extends along the Klamath River from Keno Dam to the Pacific Ocean and includes the river channel and riparian zone. Upland habitats occurring in construction areas are

also included in the area of analysis. This would include areas potentially affected by changes in land use and water supply patterns associated with dam removal.

Impacts

Significant impacts on terrestrial resources would occur if the project resulted in substantial adverse effects, either directly or through habitat modifications, on any special-status terrestrial species, any riparian habitat, federally protected wetlands, on species considered significant to Indian Tribes, caused substantial interference with the movement of any native resident or migratory wildlife species, or caused a substantial adverse effect on natural communities through the introduction or spread of invasive plants.

Dam deconstruction and restoration activities would result in changes to the amount and distribution of habitat types and consequently to the species that depend on them. In addition, removal of the dams would enable salmon and other fish species to migrate upstream to reaches of the Klamath River that are currently inaccessible to them. These salmon would provide nutrient-rich food for terrestrial species, including bald eagles, osprey, and many other species of birds and mammals. These consumers would subsequently deposit these marine-derived nutrients into terrestrial habitats, increasing productivity of riparian vegetation and benefiting terrestrial ecosystems as a whole (Hilderbrand et al 2004, Merz and Moyle 2006, Moore et al 2011).

Following drawdown of the reservoirs to facilitate dam removal, existing upland vegetation is expected to remain unchanged and contribute to successional processes on newly exposed reservoir areas. Wetland-dependent vegetation currently along the margins of the reservoirs is expected to die out and transition to upland communities. Wetland species that occur near confluences would remain unchanged if the hydrology is unaltered, and could expand down to the river channel at reconnected tributaries. Passive restoration of wetland vegetation in areas along the restored river channel is considered feasible, given the densities of viable wetland vegetation seeds that are present in reservoir sediments based on seedbank analysis (Reclamation 2011b). Disturbances associated with construction areas and haul roads where clearing, grading, and staging of equipment would occur would have less than significant impacts on wetlands along reservoirs and river reaches. Long-term impacts to wetlands in the form of the permanent loss of existing wetland habitat along the reservoir fringes is a potentially significant impact that would be mitigated to a less than significant level through the development and implementation of a Compensatory Wetland Mitigation Plan and Clean Water Act Section 404 Permit that would require the development of compensation wetlands that meet or exceed the functions and quality of the wetland habitat lost at the reservoirs.

Active restoration would however be needed for riparian areas. The newly exposed reservoir areas will be re-seeded with various herbaceous species (primarily grasses) following drawdown in the spring. Seeding is expected to occur via aerial application of hydromulch, as access to newly drawn down reservoir areas would be limited. Hydroseeding would occur prior to full drawdown, likely in stages as reservoir sediments are newly exposed, and ultimately covering

the entire area of exposed sediment following drawdown. It would be necessary to hydroseed before the reservoir sediment desiccates so that there is residual soil moisture for seed germination. Following hydroseeding, grasses would quickly germinate and grow on the exposed reservoir surfaces to stabilize the surface of the sediment, minimizing erosion. Riparian restoration activities would include planting of various woody species along the channel margins to stabilize the river banks and provide habitat for fish and other species. Incorporation of impact avoidance measures into project design along with the implementation of mitigation measures including Protocol-level vegetation surveys, sensitive habitat exclusion fencing, construction equipment maintenance, and construction scheduling to avoid sensitive periods, and habitat restoration and substitution would reduce potential impacts from disturbances associated with construction areas and haul roads where clearing, grading, and staging of equipment to a less than significant level. In this document, protocol-level surveys are considered standardized methods approved by the USFWS or other resource agencyfor establishing the presence or absence of special status species. Long-term effects to riparian habitat would be less than significant and would include the generation of approximately 272 acres of riparian wetland habitat in the restored reservoir areas.

Construction would require heavy machinery to move through construction areas, staging areas, and haul roads where special-status invertebrate, amphibian, and reptile species could occur. Contact with construction vehicles could result in direct mortality or injury to special-status invertebrate, amphibian, and reptile species including tailed frog, southern torrent salamander, northern red-legged frog, foothill yellow-legged frog, Siskiyou (Chace) sideband, western toad, western pond turtle, California mountain kingsnake, and common kingsnake. In addition, increased suspended sediment concentrations in the river during reservoir drawdown has the potential to adversely affect or cause mortality to sensitive life stages of amphibians and reptiles occurring in the Lower Klamath River mainstem. Dam demolition, clearing of access and haul roads, upload staging and disposal sites, and restoration activities could also generate impacts on migratory birds, and other special-status species including northern spotted owl, bald eagle, golden eagle, osprey, willow flycatcher, peregrine falcon, and greater sandhill crane, through nest abandonment due to noise and human activity during construction periods. Incorporation of impact avoidance measures into project design along with the implementation of mitigation measures including protocol-level wildlife surveys, sensitive habitat exclusion fencing, construction equipment maintenance, and construction scheduling to avoid sensitive periods, and habitat restoration and substitution would reduce potential impacts to a less than significant level. Long-term effects on special-status invertebrate, amphibian, and reptile species, migratory birds, and other special-status avian species, and other mammals would all be less than significant following the restoration of riparian, grassland and wetland habitat at the former reservoir sites.

New Information

Since the publication of the Klamath Facilities Removal EIS/EIR, a lone male grey wolf and later two adults and five pups (now known as the Shasta Pack) were observed in northern California prompting a petition for and approval of listing of the grey wolf as endangered under the California ESA. Evaluations of potential grey wolf habitat in California identified the

Klamath Mountains as a potential area where wolves might disperse (California Department of Fish and Game 2012). The Shasta Pack is not, however, currently including the Hydroelectric Reach of the Klamath River in its range.

In addition to the listing of the grey wolf as endangered under the California ESA, the Oregon spotted frog was listed as threatened under the federal ESA. The Oregon spotted frog's historical habitat range includes sections of Klamath and Jackson counties in Oregon and Siskiyou County in California (USFWS 2016). The Oregon spotted frog typically inhabits large, warm perennial marshes and is not currently known to exist in Siskiyou County (USFWS 2016). The Klamath Facilities Removal EIS/EIR noted that no Oregon spotted frogs were detected during 2003 surveys, or during surveys conducted in 1994 at locations of historic occurrence based on the Oregon Natural Heritage Program database (PacifiCorp 2004a). The presence of non-native bullfrog throughout the study area may indicate that predation has led to the extirpation of Oregon spotted frogs from the study area (PacifiCorp 2004a). Habitat degradation and poor water quality are other likely reasons why the Oregon spotted frog does not occur in the study area (PacifiCorp 2004a).

Conclusion

The grey wolf was not specifically considered in the Klamath Facilities Removal EIS/EIR. Long-term improvements to wildlife corridor function for large mammals was described, but analysis of potential impacts specific to grey wolf habitat was not included. Since the listing of the grey wolf as endangered under the California ESA and the establishment of the Shasta Pack near Mt. Shasta, no grey wolves have been observed in the Hydroelectric Reach of the Klamath River. The Protocol-level Wildlife Surveys that would be completed prior to any dam removal activity would include surveys for grey wolves and any warranted avoidance measures incorporated into project design. Mitigation measures identified in the Klamath Facilities Removal EIS/EIR for wildlife in the study area would reduce any potential impact on grey wolves to a less than significant level.

The listing of the Oregon spotted frog as threatened under the Federal ESA would not change the effects determinations in the Klamath Facilities Removal EIS/EIR. The Oregon spotted frog has not been observed in the Hydroelectric Reach of the Klamath River and as noted above, the presence of non-native bullfrog throughout the study area is likely to prevent their reestablishment.

3.3.5 Flood Hydrology

Environmental Setting

The area of analysis for flood hydrology includes the Klamath River and tributaries that define the Klamath Basin. Upper Klamath Lake is in Oregon. The downstream outlet of Upper Klamath Lake is Link River Dam which releases water into the Link River. About one mile below the Link River Dam, the Link River flows into Keno Impoundment/Lake Ewauna. The Keno Impoundment/Lake Ewauna water level is controlled by the Keno Dam near Keno, Oregon. The Klamath River flows

approximately 250 miles from the outflow of Lake Ewauna, through Keno Dam, through the Klamath Hydroelectric Project, and into the Pacific Ocean near Klamath, California.

The Upper Klamath Basin is upstream of Iron Gate Dam and includes Upper Klamath Lake and its tributaries, Link River, the Keno Impoundment/Lake Ewauna, and the Hydroelectric Reach (from J.C. Boyle Dam to Iron Gate Dam). Several facilities control water management in the Upper Klamath Basin, including the Klamath Hydroelectric Project and Reclamation's Klamath Project via several diversions from the Klamath River (FERC 2007).

The Lower Klamath Basin includes the areas of the Klamath Basin downstream from Iron Gate Dam to the Klamath Estuary. Major tributaries to the Lower Klamath Basin include the Shasta, Scott, Salmon, and Trinity Rivers. The Klamath Estuary, on the northern California coast, completes the system and discharges to the Pacific Ocean (FERC 2007).

Historical Hydrologic Conditions

Major hydrologic changes to the Klamath Basin were triggered construction of Reclamation's Klamath Project, following its authorization in 1905, including Link River Dam, several hundreds of miles of irrigation ditches, large diversion and conveyance canals, and pumping plants to divert water from the Klamath River watershed for agricultural use (FERC 2007) and to return excess water to the Klamath River. This infrastructure supported the agricultural community, which was already established to some extent in the Upper Klamath Basin, and allowed for reclamation of additional wetlands for homesteading purposes (FERC 2007).

Development of hydroelectric plants in the Klamath Basin began as early as 1891 in the Shasta River Canyon to provide electricity for the City of Yreka. Klamath Hydroelectric Project facilities were constructed by Copco beginning with Copco 1 (1918), followed by Copco 2 (1925), and reconstruction of the old Eastside facility in 1924. After World War II, regional population growth prompted a new round of hydroelectric power expansion highlighted by Copco's Big Bend project (J.C. Boyle Dam and powerhouse) in 1958 and the construction of the Iron Gate facilities in 1962.

General Basin Hydrology

Precipitation, Runoff and Springs

The headwaters of the Klamath River, unlike most other watersheds in the Pacific Northwest, originate in relatively flat open valleys before descending into a steep river canyon that intercepts inputs from multiple groundwater inflows in the upper basin and the Shasta, Scott, Salmon, and Trinity Rivers, among others, in the lower basin, prior to emptying into the Pacific Ocean. The upper basin contains large, porous aquifers that store precipitation falling throughout the year and steadily release cool water into stream channels. Consequently, seasonal stream flow fluctuations in upper basin streams are relatively small. In contrast, the lower basin does not contain large, porous aquifers that temporarily store precipitation. As a result, precipitation tends to runoff more quickly in the lower basin, creating relatively "flashy" streams (U.S. Department of the Interior and U.S. Department of Commerce 2012).

Precipitation in the watershed varies widely, ranging from an annual average of 15 to 25 inches in the open valleys in the headwaters, which are in the rain shadow of mountains to the west, to approximately 80 inches of rainfall near the river's mouth. Consequently, the amount of water running off from the upper basin, even though it is nearly equal in size to the lower basin, is relatively small, averaging less than 20 percent of the total runoff on an annual basis. The steadier groundwater discharge from the upper basin, however, does provide an important source of water for the lower basin and for fish during the dry summer and early fall months when flows in the lower basin tributaries are low (U.S. Department of the Interior and U.S. Department of Commerce 2012). One large spring complex below J.C. Boyle Dam discharges 220 to 250 cubic feet of regional groundwater year round (FERC 2007).

At its higher elevations (above 5,000 feet), the Upper Klamath Basin receives rain and snow during the late fall, winter, and spring. Peak stream flows in the upper basin (above Upper Klamath Lake) generally occur during snowmelt runoff in winter and spring. Peak runoff events in the lower basin tend to occur from November through March, when rainfall is highest, or when rain-on-snow events occur.

Reclamation's Klamath Project

Operation of Reclamation's Klamath Project affects Klamath River flows and Upper Klamath Lake water surface elevations. Link River Dam, which is owned by Reclamation but operated by PacifiCorp under the direction of Reclamation, is the primary structure controlling the level of Upper Klamath Lake and releases of water to the Klamath River. Upper Klamath Lake water levels typically range about 4 to 5 feet annually, reaching a maximum (about 4143 feet above sea level, Reclamation datum) near the beginning of the irrigation season in April, and often dropping below 4139 feet above sea level, Reclamation datum, at the end of the irrigation season in October. The range of water levels in Upper Klamath Lake depends on many factors, including hydrologic conditions, flood risk management, agricultural demands for irrigation deliveries, and ESA requirements for lake-level management for endangered suckers and downstream flows for threatened Coho salmon.

Klamath Facility Removal EIS/EIR, Section 3.8, Water Supply/Water Rights, describes the scope of Reclamation's Klamath Project in more detail, including the water supply diversions and amount of water diverted. As a Federal agency, Reclamation is required to comply with the ESA. To meet ESA requirements, Reclamation operates the Klamath Project in compliance with the most recent biological opinion. To comply with ESA, Reclamation operation of the Klamath Projects targets Klamath River flows measured below Iron Gate Dam and water surface elevations in UKL. Flow requirements changed with implementation of the 2013 Joint Biological Opinion. Please refer to the Flood Hydrology, New Information section below, for additional information.

The Four Facilities and the Hydroelectric Reach

J.C. Boyle Reservoir is approximately 5 miles downstream from Keno Dam. PacifiCorp operates J.C. Boyle Reservoir to produce hydroelectric power. Current operations of the reservoir follow Interim Measures from the Interim Conservation Plan effective as of February 2010. Water is spilled from

the dam during high flow months of January through May and when inflow "exceeds the capacity of the J.C. Boyle powerhouse and low flow requirements" (FERC 2007).

The J.C. Boyle Bypass Reach is a 4.3-mile section of the Klamath River between the Boyle Dam and its Powerhouse; it flows at a steep grade. At 0.5 miles downstream from the dam, flows are increased by groundwater entering the bypass reach. There is currently a 100 cfs minimum required release from J.C. Boyle Reservoir into the Boyle Bypass Reach (NOAA Fisheries Service 2010). The average accretion due to groundwater inflow/spring inflow is an additional 220 to 250 cfs and varies seasonally and from year to year (FERC 2007).

The J.C. Boyle Peaking Reach is downstream from the J.C. Boyle Powerplant, so flows vary based on releases from the powerplant. Typically, the reach has high flows during the day as a result of powerhouse flows used to provide peak energy demand. The powerhouse flows may be reduced to zero at night when J.C. Boyle Reservoir is refilled for the following days peaking operations.

PacifiCorp operates Copco 1 Reservoir for hydroelectric power generation through Copco 1 Dam. With the most active storage volume behind the Four Facilities of 6,235 acre feet for power production, Copco 1 Reservoir has a total storage capacity of 46,867 acre feet (Reclamation 2012). This reservoir is deeper than both Keno Impoundment/Lake Ewauna and J.C. Boyle Reservoir (FERC 2007).

Copco 2 Reservoir, a small impoundment, receives discharge from Copco 1 Reservoir through Copco 1 Dam. Copco 2 dam diverts water to Copco 2 Powerhouse through a combination of two tunnels and pipeline. Spillage from the dam is rare and typically only happens from November through April in wet years. PacifiCorp releases between 5 and 10 cfs into the bypass reach under normal conditions. Copco 2 Powerhouse discharges and water from the bypass reach discharges into Iron Gate Reservoir (FERC 2007).

Iron Gate Reservoir is downstream from the Copco 2 Dam and also receives water from Jenny and Fall Creeks, which are tributaries to the Klamath River downstream from Copco 2 Dam and upstream of Iron Gate Reservoir. PacifiCorp operates Iron Gate Dam and Reservoir as a re-regulating facility for peaking operations at the other three hydroelectric power dams. Iron Gate Reservoir is the deepest of the four reservoirs in the Hydroelectric Reach. The total storage at this reservoir is approximately 58,794 acre feet of which 3,790 acre feet is available for power production (Reclamation 2012). Iron Gate Powerhouse, at the base of the dam, has a maximum hydraulic capacity of 1,735 cfs. Cool water is diverted from the reservoir to the Iron Gate Fish Hatchery, downstream from the dam (FERC 2007).

Lower River Basin

The Lower Klamath Basin includes the river area downstream from Iron Gate Dam, which includes 190 miles of river flowing to the Klamath Estuary and then to the Pacific Ocean. The major tributaries entering the river include the Shasta, Scott, Salmon and Trinity Rivers. The hydrology of

the Lower Klamath Basin is heavily influenced by these four rivers because they provide 44 percent of the Klamath River's flow (FERC 2007).

Flood Hydrology and River Flood Plain

The active storage capacity in UKL is approximately 560,000 acre-feet and includes areas newly reconnected to UKL by levee and dike breaches at Agency Lake, Barnes Ranch, Tulana Farms, and Goose Bay (Reclamation, 2011). UKL alone provides about 98 percent of the active storage for the Upper Klamath Basin (upstream of Iron Gate Dam); this active storage is managed for seasonal storage of irrigation and flood control. In contrast, active storage in Keno, J.C. Boyle, Copco 1, Copco 2 and Iron Gate reservoirs totals about 12,200 acre-feet of water (FERC 2007), or about 2 percent of the total active storage above Iron Gate Dam. The five dams below Link River Dam were not constructed to be flood control structures, nor are the operated by PacifiCorp as flood-control structures. These dams are operated continuously at or near full pool to optimize hydropower generation and revenue. As a result, other than UKL, these reservoirs do not seasonally store water for downstream irrigation purposes.

During extremely wet years, UKL's flood-storage capacity can be exceeded while downstream tributaries between Link River Dam and Iron Gate Dam are also flooding. Because there is little surplus active storage in the Four Facilities and Keno Dam, flooding downstream from Iron Gate Dam periodically occurs. During peak floods, the Klamath River overtops its banks and inundates the floodplain downstream of Iron Gate Dam. Federal Emergency Management Agency (FEMA) has prepared flood risk mapping for portions of the Klamath River in Siskiyou, Del Norte and Humboldt Counties.

Impacts

There are two major potential impacts related to the removal of the Four Facilities. The first is during the drawdown of the reservoirs there will be a short term increase in the downstream surface water flows. The second potential impact will be that the removal of the dams causes permanent changes to the downstream floodplain elevations (e.g. changes to the 100-year floodplain).

Regarding the first impact, reservoir drawdown activities would begin on November 1, 2019 at Copco 1 Dam, and on January 1, 2020 at J.C. Boyle and Iron Gate Dams, at which times hydroelectric power generation would cease. The timing of drawdown of the three larger reservoirs in the winter of a single year was optimized to protect downstream species and to facilitate the movement of erodible sediment during winter high flows. At Copco 2 Dam, because of its small impoundment, drawdown would not begin until June 1, 2020, to allow for continued hydroelectric power generation at this site until dam removal began. Reservoir drawdown periods would be in accordance with Dam Removal Plans developed by the DRE and with applicable biological opinions and operation plans. The DRE would control the releases that would vary by reservoir depending on the type of dam, discharge capacity, safe drawdown rates to avoid slumping, water year type, and the volume of water and sediment within a reservoir.

The reservoir drawdown plans were made with consideration for minimizing flood risks downstream. The DRE would carefully control drawdown to maintain flows that would not cause flood risks.

Drawing down the reservoirs would increase storage availability in J.C. Boyle, Copco 1, and Iron Gate Reservoirs. If a flood event occurred during drawdown, the DRE would retain flood flows using the newly available storage capacity and continue drawdown after flood risks have ended. Existing conditions do not allow these reservoirs to assist in flood prevention in this manner. For specific details on the sequence and timing of drawdown at each reservoir, see Klamath Facilities Removal EIS/EIR Section 3.6.4.

The reservoir drawdown release rates at Iron Gate Dam were the focus of this analysis because Iron Gate Dam has the largest reservoir for storage of floodwater during drawdown and because it is the most downstream dam. The release rates that would occur during drawdown of the reservoir would be in significantly less than the historical flow during an extremely wet year (1- percent exceedance capacity). Klamath Facilities Removal EIS/EIR Figure 3.6-5 shows historical and maximum flows at Iron Gate Dam under wet year, average year and dry year types. While the release rates that would occur during reservoir drawdown would be greater than would have occurred with the dams in place, these releases would be considerably lower than the historical peak flows below Iron Gate Dam. Because the flows would stay below historical peak flows, they would not create a flood risk to downstream structures or communities.

The second potential impact is related to the reduction of flood attenuation due to the removal of the reservoirs. This impact was quantified and Appendix J of the Klamath Facilities Removal EIS/EIR includes model results that show flood maps for the river reaches below Iron Gate Dam to Happy Camp. The series of figures show the 100-year floodplain under the current condition and the Proposed Action; the differences between the two floodplains are very minor. The mapping includes the effects of the increase in the 100-year flood peak flow rate and the small amounts of sediment deposition in the channel following removal of the Four Facilities.

Hydrologic modeling of changes shows that removal of the Four Facilities could alter the 100-year floodplain inundation area downstream of Iron Gate Dam between RM 190 and 172 (from Iron Gate Dam to Humbug Creek) (Reclamation 2012). Modeling of flood flows downstream of Iron Gate Dam shows that the Four Facilities provide a slight attenuation of peak flood flows. Current estimates are that the discharge rate of the 100-year peak flood immediately downstream of Iron Gate would increase by up to 7 percent following dam removal (Reclamation 2012) and flood peaks would occur about 10 hours earlier. This increased discharge rate would result in approximately 1.5 feet higher flood elevations on average from Iron Gate Dam (RM 190) to Willow Creek (RM 185). The impact of dam removal on flood peak elevations would decrease with distance downstream of Iron Gate Dam, and Reclamation (2012) estimated that there would be no significant effect on flood elevations downstream of RM 172 because of attenuation effects in the channel and tributary peak flows would not coincide with the peak flow below Iron Gate Dam.

Decommissioning of the Eastside and Westside canals and hydropower facilities by PacifiCorp as a part of the KHSA would eliminate the need for diversions at Link River Dam into the two canals. Following decommissioning of the facilities there would be no change in outflow from Upper Klamath Lake or inflow into Lake Ewauna. It was assumed in the hydrologic modeling that

decommissioning of the Eastside and Westside facilities would not change conditions related to the existing conditions as operation of those facilities would not change flood hydrology. Similarly, transferring the ownership and operation of Keno Dam from PacifiCorp to Reclamation under the amended KHSA would also not change flood hydrology.

Changes in flood peak elevations and changes to the floodplain could affect properties and structures along the river downstream of Iron Gate Dam during a flood event. The Klamath Basin is subject to flooding and the FEMA has developed flood insurance risk maps that Siskiyou County has recognized in regulations concerning development along the river.

An estimate of the number of residences and structures potentially affected from Iron Gate Dam downstream to Humbug Creek was provided by Reclamation (2012). This estimate was based on photo interpretation and field visits. Structures in the Klamath Basin were categorized according to whether they are within the existing 100-year floodplain or would be in the 100-year floodplain after dam removal. The structures were further classified as either residences or garages (including buildings such as equipment sheds and horse barns). With the Four Facilities in place, approximately two dozen residences and two dozen garages are located in the existing 100-year floodplain between RM 190 and RM 172. Given the current plans for removal of the Four Facilities, less than six additional structures (including residences and garages) are projected to be within the modeled 100-year flood plain. Any new information developed to assess likely impacts to the flood plain and nearby habitable structures would be shared with the appropriate authorities and the public. The DRE would work with willing landowners to develop and implement a plan to address any increased flood threat caused by dam removal for permanent, legally established, permitted, habitable structures prior to dam removal. Such a plan could include measures to move, modify, or elevate structures where feasible.

All the bridges over the Klamath River from Iron Gate Dam to Humbug Creek were evaluated to determine the effects of the increase in the 100-year flood (Reclamation, 2012). All the bridges intended for vehicle traffic (cars and trains) have more than 3 ft of freeboard for the 100-year flood under the Proposed Action. CalTrans requires that there is 2 ft of clearance below the low cord for the 50-year flood and that the 100-year flood passes under the low cord. The potential for increasing scour at the bridge piers was also evaluated. In all cases, except the Rail Bridge (RM 183.3), the scoured bed elevation will not decrease more than 0.2 ft if the Four Facilities are removed. This is not considered a significant change in scour elevation considering the uncertainty associated with scour computations and the conservatism used in scour computations. The largest change to the scour elevation is at the Rail Bridge where it is expected to decrease approximately 1.2 ft. The change in scour elevation is not considered to affect significantly the structural integrity of the piers considering likely presence of bedrock near the riverbed that will limit scour at this location. Therefore, no improvements to the existing bridges should be necessary to convey slightly higher peak flows under the Proposed Action.

When a large flood event is predicted, the National Weather Service provides river stage forecasts for the Klamath River for the USGS gages at Seiad Valley, Orleans and Klamath. They currently do not publish a forecast for river stage at Iron Gate gage. However, they work with PacifiCorp to issue

flood warnings to Siskiyou County. After removal of the Four Facilities, it is likely that National Weather Service will publish a forecast at the Iron Gate gage location (Reclamation 2012) to help alleviate issues with peak flows arriving downstream earlier than if the Four Facilities remained in place.

The change to the 100-year floodplain inundation area downstream from Iron Gate Dam would increase the risks of flooding structures; therefore, the impact on flood hydrology would be significant. Mitigation Measures H-1 and H-2 would reduce the impact to flood hydrology to less than significant. Mitigation Measure H-1 describes how, after the removal of the Four Facilities, the DRE will work with NWS to allow it to forecast floods at Iron Gate gage as well, located just downstream from Iron Gate Dam. Shifting the analysis point upstream will help increase the warning time available to respond to flood conditions. Mitigation Measure H-2 describes how the DRE will work with willing landowners to develop and implement a plan to address any increased flood threat generated by changes to the 100-year flood inundation area as a result of the removal of the Four Facilities; such a plan could include measures to move, modify, or elevate structures where feasible.

New Information

The 2013 Joint Biological Opinion changed the flow regime in the Klamath River and under which dam removal would likely occur. The 2013 Joint Biological Opinion includes operation of the Klamath Project, for the delivery of water for irrigation purposes consistent with historic operations, subject to water availability, while maintaining lake and river hydrologic conditions that avoid jeopardizing the continued existence of ESA listed species and adversely modifying designated critical habitat. The 2013 Joint Biological Opinion was designed to optimize limited water supplies to provide greater certainty for Project Supply, and to provide UKL elevations and Klamath River flows representative of real-time hydrologic conditions. The 2013 Joint Biological Opinion includes two distinct operational approaches for water management for the fall/winter (October through February) and spring/summer (March through September) time periods.

Fall/winter water management implements a formulaic management approach based on current hydrologic indicators (UKL storage, UKL inflows, Klamath River accretions, snowpack conditions) to ensure adequate water storage and sucker habitat in UKL in the fall/winter, while meeting the needs of coho salmon downstream and providing fall/winter water deliveries to the Irrigation Project and Lower Klamath NWR. The fall/winter approach prioritizes refill of UKL to provide adequate Project supply, sucker habitat and enhanced river flows in the spring/summer period, while providing variable river flows that mimic natural hydrology, based on real-time hydrologic conditions in the upper Klamath Basin.

Spring/summer water management implements a water supply account approach to determine a volume of water reserved in UKL for ESA-listed suckers (UKL Reserve), the amount of water available for the Klamath River EWA, and the available water supply for Project irrigation (Project Supply). The division of the total available UKL water supply between UKL Reserve, EWA, and Project Supply was based on an analysis of the ecologic needs of ESA-listed species.

The formulaic distribution of EWA in spring/summer is based on real-time hydrologic indicators in the upper Klamath Basin, primarily the Williamson River and local inflows (accretions) from Link River through Iron Gate Dam, and was designed to consider and account for key ecological objectives for UKL and the Klamath River. The spring/summer operational approach remains consistent with historic operations by maintaining full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. To ensure Klamath Irrigation Project Operations do not jeopardize listed coho salmon, the 2013 Joint Biological Opinion included minimum flows below Iron Gate Dam described in Table 3.

The 2013 Joint Biological Opinion incorporates a real-time management concept into current Project operations to lessen the impacts on ESA-listed species. A key driver and benefit of this concept is greater water supply certainty for the Klamath Irrigation Project and the flexibility to meet real-time species needs. This real-time management approach for UKL and the Klamath River attempts to optimize the ecologic benefit of the available water supply, resulting in the ability to maximize the amount of the remaining water available for the Klamath Irrigation Project. In some instances, dry hydrologic conditions characterized by limited precipitation, runoff, and inflows to UKL may create shortages in the total available UKL water supply, which can result in a Project Supply that is less than the full irrigation demand.

This new hydrological regime influences flows in the Klamath River however the difference in flow during reservoir drawdown is very minimal. The simulated drawdown under KBRA for each of the three reservoirs is shown in Figure 10 for three example year types. A dry year is represented by water year 2001, an average water year is represented by 1976 and a wet water year is represented by water year 1984. Drawdown of the three significant reservoirs will begin Jan 1 and will be complete by mid-February, except for a wet year in which there may be some refilling of the reservoirs because of the limited outlet capacity at the dams low elevation outlets. The refilling during wet years is most pronounced at Iron Gate because it is the most downstream reservoir and because its low level outlet capacity is slightly smaller than Copco 1.

Because of the similarities in flow between the 2013 Joint Biological Opinion and KBRA for the months of January through March, there is expected to be no significant difference between the impacts of dam removal for the dry and average water year types. During the wetter water year types in May and June, there may be a slight increase in the amount of refilling of Iron Gate Reservoir under the 2013 Joint Biological Opinion, but by July the flows for the 2013 are below the low level outlet capacity of Iron Gate Dam. Additionally the flood capacity within the reservoirs increases as drawdown proceeds. If in May or June the very remote possibility of a major hydrologic event occurred, the flood water would be retained within the Four Facilities and drawdown would only resume once the risk of flood had ended. The possibility and impacts of refilling Iron Gate Reservoir is adequately analyzed in the previous work documented in Reclamation (2012) and in the Klamath Facilities Removal EIS/EIR. The drawdown associated with dam removal would not change the floodplain or flood risk.

The differences between the KBRA and 2013 Joint Biological Opinion will also not affect the flood operations in Upper Klamath Lake or Keno Reservoir. The KBRA flow simulation only computes monthly average flows downstream of Keno so it is not possible to directly compare the predicted flood peaks between the KBRA and 2013 Joint Biological Opinion. However, there are two factors that indicate that there will be no significant difference in flood conditions between the two operations. First, downstream of Iron Gate Dam, the peak flows are largely determined by the rainfall that occurs in the watershed between Keno Dam and Iron Gate Dam (Reclamation, 2012a), which is unaffected by the project. There is no evidence that suggest the frequency of large storms has changed significantly since the analysis in 2012. The second reason is that the maximum monthly average flows for 2013 Joint Biological Opinion are less than those under KBRA for the months when flooding has historically occurred (December through May).

Therefore, it is reasonable to conclude that because the flood operations under the 2013 Joint Biological Opinion flows versus the KBRA Flows have not changed, and because the frequency and magnitude of large storms has not changed, the likely adverse impacts to structures in the 100-year flood plain downstream of Iron Gate, and the timing of downstream flood peaks, would be similar for both flow scenarios, with the adverse impacts being significant but reduced to less than significant with implementation of Mitigation Measure H-1 and H-2.

No new information relevant to dam failure, Keno Transfer or Eastside/Westside decommissioning for flood hydrology has been identified since the Final Klamath Facilities EIS/EIR was issued.

Conclusion

Hydrologic differences between the KBRA Flows and those implemented under the 2013 Joint FWS and NMFS Biological Opinion for the Klamath Project would have negligible differences relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning on flood hydrology. The expected hydrology in the Klamath River remains similar in magnitude and timing of flood peaks to that used in the Klamath Facilities Removal EIS/EIR analysis. New information on flood hydrology does not result in a change relevant to environmental concerns.

3.3.6 Ground Water

Environmental Setting

The EIS/EIR's area of analysis, or "project area," for groundwater as related to the KHSA included the area within 2.5 miles of J.C. Boyle, Copco 1, Copco 2, and Iron Gate reservoirs. The project area lies within Klamath County, Oregon, and Siskiyou County, California. This continues to be the area of analysis for the Proposed Action of facilities removal but without KBRA as a connected action.

The EIS/EIR also included the project area for the KBRA with respect to groundwater in the Klamath basin upstream of Copco 1 Dam. This is the area covered by a USGS-Oregon Water Resources Department (WRD) groundwater model designed to determine effects on groundwater from pumping water for irrigation purposes. Because implementation of KBRA is no longer a connected action, the area of analysis more than 2.5 miles upstream of J.C. Boyle Reservoir is now outside the area of analysis for groundwater impacts associated with the Proposed Action.

Impacts

The Proposed Action is not expected to reduce the amount of groundwater recharge to aquifers by removing the reservoirs. The Proposed Action would result in the same relative volume of water flowing through the project area in the Klamath River irrespective of changes in groundwater levels near existing reservoirs.

Under the Proposed Action, groundwater levels in existing wells adjacent to the reservoirs could decline in response to the drop in surface water elevation when the reservoirs are removed. The water-bearing units from which most of the existing domestic or irrigation wells obtain water are either below the elevation of the original river channel, are exposed along reservoir walls, or are above the reservoir stage. A number of existing domestic or irrigation wells lie close to the reservoir shorelines (wells within 2.5 miles). These wells may be influenced by the dropping reservoir water levels following facilities removal when they are hydraulically connected to a reservoir (directly or indirectly). However, all but three of the locatable shoreline wells tap water-bearing units with elevations below the bottom of a reservoir.

There are existing domestic and irrigation groundwater wells that could not be located reliably based on the information in the Oregon Water Resources Department or California Department of Water Resources databases. In addition to the non-locatable wells in the databases, there are likely other existing wells in the vicinity of the reservoirs. Among those could be wells associated with the 176 improved parcels near Copco 1 and Iron Gate Reservoirs. The extent of improvements on these parcels is not known, but it could have included the installation of domestic wells.

The degree of impact on wells near the reservoirs will be controlled by the degree of hydraulic connectivity between the reservoirs and the water bearing units below and adjacent to the reservoirs. Some of the water-bearing units tapped by existing domestic or irrigation wells lie above the reservoir water surface elevation and are at elevations similar to those of mapped springs. These springs are likely fed by the same water-bearing units supplying the wells and neither are expected to be significantly impacted by the removal of the reservoirs. Wells that pump from water-bearing units that are directly connected to the reservoirs will likely be affected by reservoir removal and the impacts could be significant. Wells which tap water-bearing units below the bottom of a reservoir are assumed to be maintained by regional groundwater flow systems and would not be effected by localized changes in groundwater associated with draining the reservoirs under the Proposed Action. Ultimately however, the potential impacts at specific

wells will partly depend upon local hydrogeologic conditions at a well site and the well construction characteristics.

A decline in groundwater levels in some existing nearby wells adjacent to the reservoirs in response to the drop in surface water elevation when the reservoirs are removed would be a significant impact, but implementation of mitigation measure GW-1 would reduce this impact to less than significant. Mitigation measure GW-1 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 implementation of the Proposed Action

New Information

No new information has been identified related to the effects of dam removal on groundwater levels near J.C. Boyle, Copco 1, Copco 2, and Iron Gate Reservoirs. Additional groundwater studies have been completed in the upper basin, but these are not relevant to an analysis of the Proposed Action without KBRA as a connected action.

In 2014, UKBCA was signed. This agreement includes a Water Use Program designed to permanently increase stream flows into Upper Klamath Lake by at least 30,000 acre feet through reductions in water use (surface water and groundwater) while providing a stable, sustainable basis for the continuation of irrigated agriculture in the Upper Klamath Basin. It also provides the means for meeting specified instream flows on various streams above Upper Klamath Lake and establishing permanent riparian restoration actions along many of these streams. The potential impacts of the UKBCA on groundwater are not within the area of analysis for the Proposed Action (i.e. facilities removal without KBRA as a connected action) and thus are not relevant irrespective of its uncertain future.

Conclusion

No additional information has been identified on groundwater relevant to the effects of dam removal, Keno Transfer, and Eastside/Westside Decommissioning that was not already included in the groundwater analysis published in the Klamath Facilities Removal Final EIS/EIR.

3.3.7 Water Supply/Water Rights

Environmental Setting

The area of analysis for water supply/water rights includes the Klamath River and tributaries that define the Klamath Basin. The downstream outlet of Upper Klamath Lake is Link River Dam, which releases water into Link River. About one mile below the Link River Dam, Link River flows into Keno Impoundment/Lake Ewauna. The Keno Impoundment/Lake Ewauna water level is controlled by the Keno Dam near Keno, Oregon. The Klamath River flows approximately 250 miles from the old outfall of Lake Ewauna, through Keno Dam, through the Klamath Hydroelectric Project into the Pacific Ocean near Klamath, California.

The Upper Klamath Basin is upstream of Iron Gate Dam and includes Upper Klamath Lake and its tributaries, Link River, the Keno Impoundment/Lake Ewauna, Klamath River between Keno Dam J.C. Boyle Dam, and the Hydroelectric Reach (from J.C. Boyle Dam to Iron Gate Dam). Several facilities control water management in the Upper Klamath Basin, the Klamath Hydroelectric Project, and Reclamation's Klamath Project via several diversions from the Upper Klamath River Basin (FERC 2007).

The Lower Klamath River Basin includes the areas of the Klamath Basin downstream from Iron Gate Dam to the Pacific Ocean. Major tributaries to the Lower Klamath River include the Shasta, Scott, Salmon, and Trinity Rivers. The Klamath Estuary, on the northern California coast, completes the system and discharges to the Pacific Ocean (FERC 2007).

The EIS/EIR also included the project area for the KBRA with respect to water supply/water rights in the Klamath basin upstream of Link River Dam. Because implementation of KBRA is no longer a connected action, the area of analysis upstream of Link River Dam is now outside the area of analysis for water supply/water rights associated with the Proposed Action.

Klamath Hydroelectric Project

Multiple dams are associated with the Klamath Hydroelectric Project, which is in both Klamath County, Oregon and Siskiyou County, California. The Klamath Hydroelectric Project includes eight facilities, all owned and operated by PacifiCorp. The Eastside and Westside powerhouses, which are downstream from Link River Dam, represent the upstream boundary of the Klamath Hydroelectric Project; the Iron Gate Development represents the downstream boundary. Link River Dam, which controls the water level in Upper Klamath Lake, is not part of the Klamath Hydroelectric Project; this dam is owned by Reclamation and is currently operated by PacifiCorp. Keno Dam, about 20 miles downstream from Link River Dam, is part of the Klamath Hydroelectric Project (FERC License 2082), but it has never been outfitted or operated as a hydroelectric facility. Further downstream, the J.C. Boyle, Copco No.1, Copco No. 2, and Iron Gate facilities (Four Facilities, see Table 1) generate the majority of the power produced by the Klamath Hydroelectric Project. The Fall Creek facility, located on a tributary to Iron Gate Reservoir, is the eighth facility in this Project.

Flows through the Hydroelectric Reach (J.C. Boyle Dam to Iron Gate Dam) are related to flow releases from Upper Klamath Lake, tributary inputs between Upper Klamath Lake and Iron Gate Dam, flows diverted to and returned from Reclamation's Klamath Project, relatively small storage capacities of the Klamath Hydroelectric Project facilities, and the releases out of Iron Gate Dam (FERC 2007). Upper Klamath Lake holds 83 percent of the total storage capacity of the reservoirs on the Klamath River (FERC 2007) and approximately 98 percent of active storage (Greimann 2011). Associated reservoirs for J.C. Boyle, Copco 1, Copco 2, and Iron Gate Dams contain 14 percent of the total storage capacity and only 2 percent of the active storage on the river. However, these dams were not designed for, nor are the operated for, downstream irrigation purposes or drinking water supplies, maintenance of instream flows for fish, or providing flood control. The primary purpose of the Four Facilities is to generate

hydroelectricity. As such, the Four Facilities are primarily operated as run-of-the river facilities, with some daily reservoir fluctuations for peaking operations. In contrast, Upper Klamath Lake (and Link River Dam) provides the majority (98 percent) of active storage in the Upper Klamath Basin, with the ability to capture flood peaks in the winter and spring months when lake levels are relatively low from the previous irrigation season, and the ability to provide irrigation water and augment instream flows for fish in the summer and fall with water stored from the previous year's runoff.

Klamath River Water Rights

Downstream from the California State line, the mainstem of the Klamath River flows through Siskiyou, Del Norte, and Humboldt Counties to the Pacific Ocean. A query on California's Electronic Water Rights Information Management System provided 38 water right listings with the Klamath River as the water source. Six of these water rights listings are upstream of Iron Gate Dam and 32 of these listings are on the mainstream of the Klamath River downstream from Iron Gate Dam. Appendix L of the EIS/EIR contains the query results and has a map that displays the documented locations.

The City of Yreka receives its water supply from Fall Creek, a tributary to the Klamath River in the Upper Klamath Basin that is approximately 23 miles northeast of the city. California State Water Rights Permit 15379 allocates the City of Yreka up to 15 cubic feet per second (cfs) or 9.7 million gallons per day (mgd) from this source. The city's current demand, however, is less than the permitted amount (City of Yreka 2010). The City of Yreka's diversion was completed in 1969 and the public water systems facilities at Fall Creek include two impoundments; an intake structure with fish screens, a pump, and pre-treatment facility; a cathodic protection field at the Fall Creek Campground and Day Use Boat Ramp; and a 24-inch pipeline that crosses on the eastern (upstream) end of Iron Gate Reservoir. Water diverted from Fall Creek for the City of Yreka is mainly returned through subsurface drains, infiltration, and irrigation runoff to a tributary of the Shasta River (City of Yreka 2010). The DFW possesses a 10 cfs non-consumptive water right (SWRCB License 11681) for fish propagation at Fall Creek Hatchery between March 15 and December 15 each year, not to exceed 5,465 acre-feet per year.

Impacts

With a major change in the water that is impounded in the hydroelectric reach, dam removal had the potential to change surface water flows available for diversion downstream of Iron Gate Dam. The Klamath Facilities Removal EIS/EIR compared the modeled flow rate at Iron Gate Dam under a scenario with dam removal, assuming KBRA Flows, to that of the No Action/No Project Alternative. The results showed either a slightly higher or slightly lower flow rate on the Klamath River downstream from Iron Gate Dam when compared to the No Action/No Project Alternative. This was an expected result because the Four Facilities were not designed as, nor are the operated as, seasonal storage reservoirs for maintaining downstream flows for irrigation or drinking water withdrawals. These Facilities are primarily operated as run-of-the-river reservoirs and thus have only a small effect on daily, monthly, seasonal, or annual flow

conditions. The modeling results showed that at Seiad Valley, approximately 62 miles downstream from the Iron Gate Dam, the flow rates would be nearly identical after removal of the Four Facilities. Because the flow rates at Seiad Valley would be nearly identical between the Proposed Action and the No Action/No Project Alternative, the dam removal activities and KBRA are not likely to affect water supply downstream from Seiad Valley.

The monthly diversion flow rate associated with all of the active and inactive water rights, aside from the four reserved State filings and the PacifiCorp power diversion water right,[4] is approximately 64 cfs (based on water right information in Appendix L of the EIS/EIR). During peak summer months (e.g. July and August), usage typically doubles. Assuming usage doubles between Iron Gate Dam and Seiad Valley during July and August, the peak short term diversion flow rate that would be diverted is 128 cfs if all users doubled their water diversion rate during the same period. This represents the maximum diversion rate, which would likely be lower during wetter water years and other months. The Proposed Action would slightly change the flows in the river, but the flows would still be substantially greater than the maximum diversion rate. The most conservative comparison is just downstream from Iron Gate Dam, where the flows would be the lowest in the potentially affected reach. Comparing the maximum potential diversion with low flow conditions, the diversions would be approximately 16 percent of the Klamath River flows during a dry year[5]. A 90 percent exceedance flow of 824 cfs was used to represent a dry year. The flow rate of 824 cfs was once the seasonal low during the month of July, when irrigation and livestock demands are the greatest. (These low flows were used to develop a conservative impact evaluation, but they are less than what was acceptable under the 2010 NMFS Biological Opinion.)

Because the amount of flow diverted for water right users between Iron Gate Dam and Seiad Valley would be less than 20 percent of the flow in the Klamath River in the upstream portions of this reach during a dry year, water right users are not likely to experience decreased supplies at any time of the year because of the slight changes in flows associated with removal of the Four Facilities.

Release of stored sediment during drawdown of the reservoirs could change Klamath River geomorphology and affect water intake pumps downstream from Iron Gate Dam. Reservoir drawdown activities would begin on November 1, 2019 at Copco 1, on January 1, 2020 at J.C. Boyle and Iron Gate Dams, and on June 1, 2020 at Copco 2 Dam. During this period, individual downstream water intake facilities could be impacted by suspended sediment or sediment deposits, causing operational problems. Reclamation conducted modeling of the reservoir drawdown and erosion of reservoir sediment. The released sediment would likely exceed the

[4] The four State filings with the SWRCB were not included because the water right is associated with a storage amount to preserve water for future use with no indication of the period of time during which the flow volume will be drawn. The PacifiCorp water right is associated with power generation at Iron Gate Dam and does not result in reduction of flows. For the diversion amount given in cubic feet per year (ID: WR-6), a diversion period of six months was assumed.

[5] The increase during July and August is an average based on reported values on Statement Diversion and Use forms available on California Electronic Water Rights Information Management System for the Klamath River.

carrying capacity of the river during some water year types, and would result in sedimentation and particle settling in slow-moving downstream areas. The fine fraction of the released sediment (silts, clays, and organics) would not be expected to deposit in substantial amounts in the river channel. The majority of this material would be transported to the ocean and would not interact substantially with the river bed. The amount of fine deposition would also decrease with distance downstream. If drawdown occurred in a dry year, a substantial deposition of sands would be expected in the reach from Iron Gate Dam to as much as eight miles downstream from the dam, around Cottonwood Creek. There are 14 water rights registered on this reach; five are listed as inactive, two are State filings with the SWRCB, and two are associated with PacifiCorp's Iron Gate Dam facility and fish hatchery. The remaining water rights are associated with domestic, irrigation, and/or fire protection use. Sediment deposition in the eight miles downstream from Iron Gate Dam could affect diversion facilities that deliver water to users. Under the Proposed Action, impacts to water intake pumps downstream from Iron Gate Dam would be significant. Implementation of mitigation measure WRWS-1, would reduce this impact to a less than significant level. WRWS-1 calls for the DRE to assess each pump location at legitimate points of diversion. Following dam removal, the DRE would investigate intake and pump sites at the request of the water user. If effects on water supply intakes occur as a result of dam removal, the DRE will complete modifications to intake points as necessary to reduce effects such that the water right holder can divert water on the same pattern (including amounts and timing) as before the project.

Implementation of the interim trap and haul could require water rights to divert water for the fish handling facilities. Fish handling facilities to collect fish downstream from Keno Dam and at Link River Dam would require water sources. The facilities would not consumptively use the water; the water would pass through the facilities for release back into the system. Trap and haul is likely to be an exempt use under Oregon Revised Statutes 537.141(d) and Oregon Administrative Rules 3400010(2)(c)(B) if it causes no injury to existing water rights and if it is found to be not harmful to fish or wildlife after consultation with Oregon Department of Fish and Wildlife (ODFW). Changes in water diversions near Keno and Link River Dams would not contribute to any changes in water supply or water rights associated with removal of the Four Facilities because the actions are in different parts of the watershed. Because the fish handling facility would not increase consumptive use on the Klamath River system, the impacts of the trap and haul operations on water supply/water rights would be less than significant.

New Information

The 2013 Joint Biological Opinion changed the likely flow regime in the Klamath River under which dam removal would occur in 2020. In the 2013 Joint Biological Opinion for 2013 to 2023 includes, delivery of water for irrigation purposes consistent with historical operations, subject to water availability, while maintaining lake and river hydrologic conditions that avoid jeopardizing the continued existence of listed species and adverse modification of designated critical habitat. The 2013 Joint Biological Opinion was designed to optimize limited water supplies to provide greater certainty for Project Supply and to provide UKL elevations and Klamath River flows that are more protective of three ESA listed species. The 2013 Joint Biological Opinion includes two

distinct operational approaches for water management for the fall/winter (October through February) and spring/summer (March through September) time periods.

Fall/winter water management implements a formulaic management approach based on current hydrologic indicators (UKL storage, UKL inflows, Klamath River accretions, snowpack conditions) to ensure adequate water storage and sucker habitat in UKL in the fall/winter, while meeting the needs of coho salmon downstream and providing fall/winter water deliveries to the Irrigation Project and Lower Klamath NWR. The fall/winter approach prioritizes refill of UKL to provide adequate Project supply, sucker habitat and enhanced river flows in the spring/summer period, while providing variable river flows that mimic natural hydrology, based on real-time hydrologic conditions in the upper Klamath Basin.

Spring/summer water management implements a water supply accounting approach to determine a volume of water reserved in UKL for ESA-listed suckers (UKL Reserve), the amount of water available for the Klamath River (EWA), and the available water supply for Project irrigation (Project Supply). The division of the total available UKL water supply among UKL Reserve, EWA, and Project Supply was based on an analysis of the ecological needs of ESA-listed species. The formulaic distribution of EWA in spring/summer is based on real-time hydrologic indicators in the upper Klamath Basin, primarily flows in the Williamson River, and was designed to consider and account for key ecological objectives for UKL and the Klamath River. The spring/summer operational approach remains consistent with historical operations by maintaining full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. To ensure Klamath Irrigation Project Operations do not jeopardize listed coho salmon, the 2013 Joint Biological Opinion included minimum flows below Iron Gate Dam described in Table 3.

The 2013 Joint Biological Opinion incorporates a real-time management concept into current Project operations to lessen the impacts on ESA-listed species. A key driver and benefit of this concept is greater water supply certainty for the Klamath Irrigation Project and the flexibility to meet real-time species needs. This real-time management approach for UKL and the Klamath River attempts to optimize the ecologic benefit of the available water supply, resulting in the ability to maximize the amount of the remaining water available for the Klamath Irrigation Project. In some instances, dry hydrologic conditions characterized by limited precipitation, runoff, and inflows to UKL may create shortages in the total available UKL water supply, which may result in a Project Supply that is less than the full irrigation demand.

The very minor changes to the hydrology between KBRA Flows and 2013 Joint Biological Opinion flows can be seen when evaluating the average monthly flows and monthly flow exceedances below Iron Gate Dam (Table 4 and Figure 6). The 2013 Joint Biological Opinion slightly increases the annual average water supply by about 9 thousand acre feet when compared with the KBRA Flows. Moreover, when compared to the KBRA Flows, the 2013 Joint Biological Opinion maintains higher minimum summer months (July and August) during very dry years, when water demands by downstream users are greatest and tributary inputs and

groundwater discharges to the river are lowest. In the Klamath Facilities Removal EIS/EIR, a 90 percent exceedance flow of 824 cfs was used to represent a dry year at Iron Gate Dam under KBRA Flows. The flow rate of 824 cfs was once the seasonal low flow during the month of July, when irrigation and livestock demands were very high. Because the 2013 Joint Biological Opinion requires the higher minimum flows of 900 cfs in July and August (Table 3), the 2013 Joint Biological Opinion increases the downstream supply of water to satisfy water rights, and for biological purposes, during the most critical months of dry years.

Conclusion

The expected hydrology in the Klamath River under the Proposed Action remains similar in magnitude to that used in the Klamath Facilities Removal EIS/EIR analysis. Hydrologic differences between the KBRA Flows and those implemented under the 2013 Joint Biological Opinion for the Klamath Project are small. The Proposed Action with either set of assumed flow conditions would have similar, less than significant effects, on water supply and water rights. The Keno Dam transfer and Eastside and Westside decommissioning would have no impact on water supply and water rights. New information on water supply and water rights does not result in a change relevant to environmental concerns.

3.3.8 Air Quality

Environmental Setting

The area of analysis includes multiple counties in northern California and southern Oregon. Air quality impacts from the dam demolition and restoration actions would be limited to Siskiyou County, California and Klamath County, Oregon for dam removal activities, while additional impacts could occur in Jackson County, Oregon and Shasta County, California from haul truck or construction worker travel.

Impacts

Significant impacts on air quality would be generated if the dam demolition and restoration actions cause a cumulatively considerable net increase in ozone (O_3) or inhalable particulate matter (PM_{10}); release emissions that exceed 250 pounds per day for nitrogen dioxide (NOx), volatile organic compounds (VOC), PM_{10}, fine particulate matter ($PM_{2.5}$), or sulfur oxides (SOx); or 2,500 pounds per day for carbon monoxide (CO); expose sensitive receptors to substantial pollutant concentrations; or generate emissions inconsistent with the California and Oregon Regional Haze plans.

Dam demolition would generate a significant impact on air quality from NOx and PM_{10} emissions, but with the implementation of mitigation measures requiring the use of on road construction equipment model year 2000 or newer, off road construction equipment model year 2015 or newer, off site transport trucks model year 2010 or newer, and implementation of a dust control plan, the NOx emissions would be reduced to a less than significant level. However, the PM_{10} emissions would remain significant and unavoidable. Impacts from the implementation of restoration actions in the dewatered reservoir, the relocation of recreation facilities and the

Eastside/Westside decommissioning on air quality, and potential dust emission effects on visibility in the study area would all be less than significant. The transfer of Keno Dam from PacifiCorp to the federal government would result in no change from existing conditions.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on air quality.

Conclusion

No additional information has been identified regarding air quality relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on air quality does not result in a change relevant to environmental concerns.

3.3.9 Greenhouse Gases/Global Climate Change

Environmental Setting

The area of analysis is the Klamath Basin, which includes multiple counties in northern California and southern Oregon. The area of analysis was further subdivided to support the quantitative analysis of KHSA generated greenhouse gases (GHG) emissions from dam removal activities and construction-related vehicle trips (e.g., trucks and construction worker commuting). This focused area of analysis included Siskiyou and Shasta Counties in California and Klamath and Jackson Counties in Oregon. A qualitative analysis of how global climate change could affect the Proposed Action was completed for the aforementioned counties, as well as Del Norte, Humboldt, Modoc, and Trinity Counties in California and Curry County in Oregon.

Impacts

Significant impacts on GHGs and global climate change would occur if the project resulted in substantial increases in GHG emissions as compared to the existing environmental setting, generate emissions that exceed a threshold of significance that the lead agency determines applies to the project, or substantially obstruct compliance with the GHG emission reduction regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Increases in GHG emissions when compared to the existing environmental setting were measured as an indirect effect from the replacement of power produced at the PacifiCorp hydroelectric facilities under existing conditions with power produced in the PacifiCorp Power Control Area. This indirect effect, along with the direct effect of construction emissions during dam deconstruction and restoration, were evaluated in comparison to numeric thresholds of significance developed by the South Coast Air Quality Management District and the Bay Area Air Quality Management District that were adopted by the lead agencies. A threshold of 10,000 million metric tons carbon dioxide equivalent ($MMTCO_2e$) per year is applied by both districts to evaluate the significance for industrial stationary source emissions, and by the South Coast Air

Quality Management District to evaluate construction emissions. Evaluation of the Proposed Action's compliance with GHG emission reduction regulations or requirements compared emissions from dam deconstruction and restoration actions against the GHG emission reduction goals in California Assembly Bill (AB 32) and California Executive Order S-3-05. A substantial obstruction of these goals would result from project emissions that would prevent the State's achievement of the AB 32 required reductions in GHG emissions to 1990 levels when compared to the business-as-usual emissions projections calculated by the California Air Resources Board for the year 2020 (a 29 percent reduction) or California Executive Order S-3-05 requirement for the reduction of emissions to 80 percent below 1990 levels by 2050.

The indirect effect of removing the dams that provide a renewable source of power that would be replaced in part by non-renewable sources would increase GHG emissions and would result in a significant and unavoidable impact on the State's efforts to reduce GHG emissions as required by AB 32. Impacts from dam demolition, the implementation of restoration actions in the dewatered reservoir, the relocation of recreation facilities, and the Eastside/Westside decommissioning on GHG emissions would all be less than significant. The transfer of Keno Dam from PacifiCorp to the federal government would result in no change from existing conditions.

New Information

The qualitative analysis of how global climate change could affect the Proposed Action completed in the Klamath Facilities Removal EIS/EIR relied on the results from climate studies and reports completed across a range of geographic scales from regional to state to basin levels. Since the publication of the Klamath Facilities Removal EIS/EIR, Reclamation has been evaluating potential changes in water supply and demand in the Klamath River Basin under future climate change scenarios as a part of the ongoing Klamath River Basin Study (Basin Study). The analysis underway in the Basin Study includes evaluation of potential changes in precipitation volumes, river flows and temperature, runoff timing and changes in the ratio of Upper Basin snowfall to rainfall. Coordination within Reclamation to determine how the results from the ongoing Klamath Basin Study might be different than the studies considered in the Klamath Facilities Removal EIS/EIR determined that while the projections of changes in water supply/demand and river conditions had been refined, they still fell within the range of potential conditions evaluated in the Klamath Facilities Removal EIS/EIR.

Since the publication of the Klamath Facilities Removal EIS/EIR, the California Air Resources Board has completed its first update to the Scoping Plan required under AB 32 to describe California's approach to reducing GHGs to 1990 levels by 2020. In this updated Scoping Plan, CARB adjusted the estimated 1990 emissions levels slightly higher based on new understanding of the global warming potentials of greenhouse gases (CARB 2014). In addition, adjustments were made to the business-as-usual emissions estimates for 2020 as a result of the economic downturn along with two reduction measures adopted by the legislature since the publication of the first Scoping Report in 2008 (CARB 2015). These adjustments combine to reduce the total percent reduction in emissions required to meet the AB 32 goal of cutting GHG emissions to

1990 levels. In addition to the modifications to AB 32, Executive Order B-30-15 established in 2015 further extends the GHG emissions targets to meet a 40% reduction below 1990 levels by 2030 (Office of Governor Edmund G. Brown 2015).

In 2015, the California State Supreme Court determined in its decision on the *Center for Biological Diversity v. California Department of Fish and Wildlife (Newhall Ranch Project)* has resulted to a change in the analysis of compliance with AB 32. The Court held in its opinion that use of compliance with AB 32 as a significance threshold was appropriate but determined that the use of a comparison of a project's reduction in GHG emissions to the AB 32 percent reductions required to lower GHG emissions to 1990 levels to measure compliance with this threshold was inappropriate (Center for Biological Diversity v. CDFW 2015).

Conclusion

The climate change analysis under development by Reclamation in the Klamath Basin Study and the recent changes to the AB 32 significance threshold used in the Klamath Facilities Removal EIS/EIR are not likely to change the magnitude or severity of effects identified for the Proposed Action. As noted above, the refined climate change projections under development by Reclamation for the Klamath River Basin are not inconsistent with the analysis completed in the Klamath Facilities Removal EIS/EIR. The changes to AB 32 and how compliance with AB 32 can be analyzed in an EIS/EIR would not change the determination made in the Klamath Facilities Removal EIS/EIR that emissions generated by the dam deconstruction and restoration activities under Proposed Action would result in a significant and unavoidable impact on the State's efforts to reduce GHG emissions as required by AB 32.

3.3.10 Geology, Soils, and Geologic Hazards

Environmental Setting

The analysis of Geology, Soils, and Geologic Hazards assesses the changes to geomorphology and the potential for shoreline landslides and erosion due to sediment transport processes within the Klamath River watershed. This analysis also assesses the potential for local sedimentation in eddies and other "dead" zones in the Klamath River channel, as well as the effects on the estuary both during and following dam removal activities. Finally, this section discusses the potential for impacts from geologic hazards such as seismology and volcanology in the project area.

The area of analysis includes the riverbed and reservoir banks at the sites of the Four Facilities as well as the riverbed and adjacent banks along the Klamath River downstream from Iron Gate Dam to its mouth at the Pacific Ocean.

The Klamath Basin lies at or near the convergence of three tectonic plates that influence the geologic setting of the region: the Pacific, Juan de Fuca, and North American Plates. Consequently, the Klamath River flows through four distinct geologic provinces, each of which changes the character of the river's channel morphology and its tributary watersheds, varying the supply of inputs such as water, sediment, nutrients, and wood (FERC 2007). The Upper Klamath Basin lies in the transition zone between the Modoc Plateau and Cascade Range physiographic

provinces, with the Klamath River cutting west through the Klamath Mountain province and then the Coast Range province where it reaches the Pacific Ocean near Requa, California (California Department of Conservation 2002).

In many ways the Klamath River is the reverse of most river systems. The headwaters flow through relatively flat, open country, and then flow through mountainous areas with input of water from the major tributaries. Accordingly, the river and major tributaries have less gradient and less velocity and energy upstream of Keno Dam, while downstream river reaches and major tributaries tend to have a steeper gradient and higher velocities and energy. The Klamath River from the Oregon-California State line to downstream from Iron Gate Dam is a predominantly non-alluvial, sediment supply-limited river flowing through mountainous terrain. Downstream from the dam and for most of the river's length to the Pacific Ocean, the river maintains a relatively steep, high-energy, coarse-grained channel frequently confined by bedrock. Much of the course of the river in the Klamath Hydroelectric Reach is bedrock controlled, interspersed with relatively short alluvial reaches; thus, the influence of the Four Facilities on river geomorphology within the project area and downstream is limited. Floodplain development is minimal, and wider valleys allowing alluvial channel migration processes are rare.

Impacts

The analysis looked at the erosion effects of construction activities on erosion. These effects were all found to be minor sources of erosion with the implementation of Best Management Practices (BMPs) that minimize construction erosion. Similarly the removal of recreational facilities would not affect sediment supplies, contribute substantially to erosion, or expose people or populations to geologic hazards.

Another impact of dam removal, the effects of drawdown on reservoir erosion and landslides, was found to be a temporary minor adverse impact due to the hardening of sediments left in the drained reservoirs and the revegetation of the reservoir area. Both hardening and revegetation would in the long-term stabilize the former reservoir sites and minimize future erosion.

The drawdown during dam removal could also increase erosion downstream of the Four Facilities. This erosion is expected to be minor and temporary because the proposed drawdown rates are consistent with the historical discharge rates from the reservoirs and would be adjusted depending on the water year; therefore, flow rates downstream from the dams are not anticipated to increase substantially above median historical rates, if at all. Discharges from the reservoirs would be similar to seasonal 10-year flood flows within the Hydroelectric Reach and below Iron Gate Dam.

Following dam removal, the reservoir sediment remaining would dry and could affect restoration activities and/or future road construction activities. Following dam removal an estimated 44 to 62 percent of the sediment in the reservoirs would remain and is expected to settle on the terraces of the new river channel. Initial sampling conducted on the sediment indicates that once dry, it has a tendency to crack and substantially decrease in porosity. With implementation of GEO-1,

dam removal would require geotechnical analysis of any proposed operation site or staging area within the old reservoir area by a qualified geologist to determine capability of the sediment. The sediment would be removed if necessary to produce acceptable sites. With implementation of this mitigation measure, this effect would be minor and less than significant.

New Information

Hydrology Changes without KBRA as a Connected Action:
The EIS/EIR evaluated and analyzed the potential environmental impacts of the Proposed Action (removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams) on multiple Klamath Basin resources. To evaluate impacts to some resources (e.g. aquatic biota, water quality, flood plains, among others), assumptions were made about likely flow conditions before, during, and after dam removal in the EIS/EIR and other technical studies. These studies were completed using flow assumptions based on proposed operations under the KBRA (Reclamation 2012) because implementation of this agreement was connected to the KHSA, the Proposed Action.

Reclamation's Proposed Action for the 2013 Joint Biological Opinion was developed collaboratively by biologists and hydrologists with NMFS, USFWS, Klamath Basin Tribes, and Reclamation, and it is currently the standard to which the project operates. These relatively small flow differences are discussed in detail in *Changes to the Proposed Action* found in Section 3.2.1 of this document. The flows under this 2013 Joint Biological Opinion are slightly different from the KBRA Flows (Tables 4 and 5). Peak flows under the 2013 Joint Biological Opinion are similar to or less than peak flows under KBRA (Figure 9) during the winter and spring months when high-flow events are most likely and sediment/bedload transport is most active.

The Detailed Plan for dam removal assumes that the natural release of sediment to the Klamath River from the three larger reservoirs (J.C. Boyle, Copco, and Iron Gate) would be initiated on or soon after January 1, 2020. Based on a sediment transport model (Reclamation 2012) which assumes KBRA Flows, the largest loads and concentrations of suspended sediment will erode downstream from January through March 2020, but significant loads and high concentrations of suspended sediment would continue through May (Figure 8). Concentration of suspended sediment would peak at about 7,000 to 14,000 mg/L during drawdown, depending on water year type (Table 6). Because KBRA and 2013 Joint Biological Opinion flows for January through May are nearly identical for all water year types below Keno and Iron Gate dams (see monthly exceedance Figures 6 and 7), it is reasonable to conclude that the sediment transport model would produce nearly identical suspended sediment concentrations for this January through May time period if it were run with 2013 Joint Biological Opinion flows. Small differences in flows would have negligible impacts on suspended sediment concentrations.

Under wet, median and dry simulations, sand within the bed below Iron Gate Dam would increase to 30 to 35 percent by March to June following drawdown, gradually decreasing to

10 to 20 percent by September of the following year, while median substrate size (D50) would fluctuate slightly before finally stabilizing to approximately the initial condition with a D50 of 100 mm (Klamath Facilities Removal EIS/EIR, Appendix F). Longer-term (5, 10, 25, and 50 years) simulations show increases in the proportion of sand to 5 to 22 percent below the location of Iron Gate Dam and decreases in D50 to approximately 50 to 55 mm (Klamath Facilities Removal EIS/EIR, Appendix F) after 5 years and continuing through to year 50. In general, the effect of the Proposed Action will be a more dynamic and mobile bed downstream from Iron Gate Dam, with increased transport of sediment, and increased sediment supply, including an increased supply of spawning gravel. Because KBRA and 2013 Joint Biological Opinion flows for January through May are nearly identical for all water year types below Keno and Iron Gate dams, it is reasonable to conclude that the sediment transport model would produce nearly identical bedload sediment transport for this January through May time period if it were run with 2013 Joint Biological Opinion flows. Small differences in flows would have negligible impacts on bedload transport.

Conclusion

New hydrology remains similar in magnitude to that used in the Klamath Facilities Removal EIS/EIR. New information on Geology, Soils, and Geologic Hazards does not result in a change relevant to environmental concerns.

3.3.11 Tribal Trust

Environmental Setting

The federally recognized tribes in the study area include The Klamath Tribes, Quartz Valley Community, Karuk Tribe, Hoopa Valley Tribe, Yurok Tribe, and Resighini Rancheria. These tribes live along different reaches of the Klamath River and in different areas of the Klamath Basin. Each tribe has a unique history of its long-term occupation and use of the study area and establishment of its tribal government, reservations, rancherias, or other tribal lands. Each tribe has specific water supply, aquatic resources, and terrestrial resources considered Indian trust resources and/or traditionally used resources.

The Klamath Tribes

Among the anadromous fish The Klamath Tribes used as staple foods are fall and spring Chinook salmon, steelhead, Pacific lamprey, and possibly coho and sockeye salmon. These fish entered the Klamath Reservation along the drainages of the Sprague, Williamson, and Wood Rivers and were also found in the open waters of Upper Klamath Lake. Historically, The Klamath Tribes also depended on a variety of other resident fish species, primarily the adfluvial and resident rainbow trout, *c'waam* or Lost River sucker, and *koptu* or shortnose sucker, cutthroat trout, Klamath smallscale sucker, Klamath largescale sucker, Pit-Klamath brook lamprey, blue chub, tui chub, and speckled dace. Although the exact quantity of fish historically consumed by The Klamath Tribes is difficult to establish, anadromous salmonids were staple foods. Anadromous salmonids were the focus of extended multifamily fishing operations often lasting weeks or months, and were an important source of wealth and stability to The Klamath Tribes prior to the construction of Copco 1 Dam in 1918.

The construction of Copco 1 Dam blocked anadromous fish runs into the Upper Klamath Basin and abruptly ended The Klamath Tribes' access to all anadromous fish. Two other major fisheries, adfluvial and resident salmonids (trout) and Catostomids (suckers), could still be used by The Klamath Tribes after the demise of the anadromous fisheries. The catostomid fishery consisted primarily of *c'waam* (Lost River sucker) and *koptu* (shortnose sucker) until the Tribes closed their fishery in 1986 to protect it in the face of severe population declines.

Water quality and flows in the Klamath River and its tributaries associated with current dam operations are an important issue to The Klamath Tribes. Water conditions affect the ability of anadromous fish species to survive. The Klamath Tribes retain a right to instream water quantities at levels that are sufficient to support fishing and other harvest rights on former reservation lands, as affirmed in 1984 with the 9th Circuit Court of Appeals' decision in United States v. Adair, 723 F.2d 1394. A number of ritual traditions of The Klamath Tribes depend on access to clean water from natural sources, which is used in ritual purification of people, places, and objects, as well as in rituals associated with drought abatement and other environmentally restorative activities. However, the water of the Klamath River is widely viewed as inappropriate for these ritual uses because of the effects of the dams on water temperature, algae development, and other variables of water quality.

The current operations of the Klamath River dams have had a range of secondary effects on The Klamath Tribes. Among these effects are the decline of fish and wildlife in addition to the loss of cultural and social practices, diminished economic opportunity, and negative health effects resulting from dietary changes that became necessary with the loss of traditional food sources.

The Quartz Valley Community

The Quartz Valley Community does not have a reserved right to the Klamath River fishery. The tribe is not reliant on Klamath River water, nor does it retain Klamath River reserved water rights. The tribe's land base is not along the Klamath River but on a tributary to the Scott River, which is a tributary to the Klamath. Therefore, there are no primary effects on Quartz Valley trust resources although there are effects on Quartz Valley resources traditionally used by the tribe, health, and cultural values and wellbeing.

Traditionally used fish resources of the Scott River include Chinook salmon, coho salmon, steelhead and Pacific lamprey. The Quartz Valley Indian Reservation relies on these fish for sustenance and their spiritual well-being. These fish need to survive their migration through the Klamath River to and from the ocean. Therefore, the tribe has an interest in Klamath River health.

Karuk Tribe

Most of the Karuk Tribe's aboriginal lands lie along the Klamath River, upstream of the confluence with the Trinity River. Any fishing and concomitant water rights to which the Karuk Tribe may be entitled have not yet been determined. Regardless, the Karuk assert that an inability to use traditional resources affects their general health and well-being and cultural values.

Hoopa Valley Tribe
Current operations of the four Klamath dams likely affect resources traditionally used by the Hoopa Valley Indian Tribe. The Tribe's fishing rights are adversely affected to the extent that migrating fish must pass through approximately 42 miles of the Klamath River before turning up the Trinity River on their way to Hoopa Valley, where Hoopa tribal members participate in a subsistence fishery.

Yurok Tribe
A government-to-government consultation meeting concerning Yurok trust resources affected by current dam operations held on September 28, 2010, the Yurok Tribe asserted the following as Yurok trust resources: water, fish, land, wildlife, minerals, and timber. The Yurok Tribe asserted that the United States has a trust responsibility to protect such resources and ensure that such resources are managed for the beneficial use of the Tribe and its membership. The Yurok further assert that the Federal Government has other trust responsibilities to the Yurok in the areas of social welfare, education, and health. For example, Yurok believe that limited access to water, aquatic, and terrestrial resources has restricted the ability of Yurok to practice of some of their most important traditions. This includes freely fishing the once-prolific semi-annual salmon runs and participating in the cycle of ceremonies initiated concurrently. In the past, the Yurok were not inclined to leave their territory; currently, several factors, including an inability to meet subsistence needs from the fishery and a perception that the rivers are dirty, prompt younger tribal members to leave the area to find work (DOI 2011; DOI 2012).

The Yurok tribal chairperson, when asked if such trust resources were affected by the current dam operations, responded "Yes" and went on to relate that the Yurok understand that their resources are intricately interconnected to multiple ecosystems. The Yurok World Renewal Ceremonies, recently completed at the time of the meeting, were provided as an example of how Yurok understand and pray for the integrity of such ecosystems. The United States does not necessarily agree that all of the above resources are in trust (and therefore form the basis of a trust relationship), but the resources are important to the Yurok (and thus to the United States) for their traditional and ceremonial use.

Resighini Rancheria
In a government-to-government consultation meeting concerning Resighini Rancheria trust resources affected by current dam operations held on September 29, 2010, the Resighini Rancheria asserted the following as Rancheria trust resources: gravel (minerals); water as it relates to ground water for domestic, agricultural, and recreational (campground) uses; riparian plants; wetlands; fish; land; and wildlife. The Resighini Rancheria asserted that the United States has a trust responsibility to protect such resources and ensure that such resources are managed for the beneficial use of the Rancheria and its membership. The Rancheria further asserted that the Federal Government has trust responsibilities to the Rancheria in the areas of social welfare, education, and health. The United States does not necessarily agree that all of the above resources are trust resources but the resources are important to the Rancheria (and thus to the United States) for their traditional ceremonial use.

Any Klamath River salmonid fishing rights and concomitant water rights to which the Resighini Rancheria may be entitled have not yet been determined [Solicitor's Opinion M-36979 October 4, 1993]. Regardless, the general health and well-being and cultural values of the members of the Rancheria are affected by a lack of fish in the local economy and overall water quality. The lack of fish in the local economy also has secondary effects on general tribal health and cultural well-being. The Rancheria tribal council person, when asked during consultation if such resources were affected by the current dam operations, responded, "Yes" and went on to relate that water quality has declined, erosion of lands occurs at a higher rate, replenishment of gravel extraction beds has diminished, and fish returns are low. In addition, as a tribe that lives alongside the river, their aesthetic quality of life has diminished. The Rancheria people are at risk when they bathe in the river, tourists are less interested in visiting the Klamath River and staying in the campground, and in an area with fewer available fish, tribal members are likely to consume fewer traditional food resources. This has led to related impacts on tribal health such as higher rates of obesity, diabetes, heart disease, and stroke (DOI 2011; DOI 2012).

Impacts
Water, aquatic resources, and terrestrial resources which were and are used by The Klamath Tribes, Quartz Valley Community, Karuk Tribe, Hoopa Valley Indian Tribe, Resighini Rancheria, and Yurok Tribe occur in the Klamath River watershed. These resources are considered tribal trust assets. Implementation of the dam removal would, in the long term, benefit the trust resources and rights identified by the federally recognized tribes in the Klamath Basin.

New Information
The salmonid population modeling and water quality analysis completed for the Klamath Facilities Removal EIS/EIR included simulation of some of the effects of KBRA related to habitat restoration and water quality improvements. The benefits described in the tribal trust analysis included identification of the benefits of increased access to more abundant fish and cleaner water for tribal communities. The benefits to tribal communities would remain even if

the water quality improvements and fish populations increase more slowly due to a more limited fish reintroduction and stream restoration program.

Conclusion

Expiration of the KBRA reduces some benefits to tribal trust resources identified in the Klamath Facilities Removal EIS/EIR, as compared to the implementation of the KBRA and KHSA together. However implementation of KHSA and dam removal continues to provide benefits, albeit at a lesser degree, to water quality and fisheries. These benefits will improve the condition of water, aquatic, and terrestrial trust resources and rights identified by the federally recognized tribes. New information on tribal trust does not result in a change relevant to environmental concerns.

3.3.12 Cultural and Historic Resources

Regulatory Framework

For the Secretarial Determination, DOI elected to integrate compliance with Section 106 of the National Historic Preservation Act (NHPA) through the NEPA process, pursuant to 36 CFR Section 800.8(c)(1)-(4). Consequently, the preparation of the Klamath Facilities Removal EIS/EIR was used to evaluate and resolve the potential adverse effects of the Secretarial Determination possibly resulting in the removal of the four PacifiCorp dams. The mitigation measures presented in the EIS were developed for potential future use in a Programmatic Agreement to fulfill Section 106 compliance requirements for removal of the four PacifiCorp dams.

Area of Analysis

The area of analysis for cultural and historic resources was defined broadly as DOI elected to utilize the NEPA process to meet the requirements of Section 106 of the National Historic Preservation Act (NHPA) as allowed under 36 CFR Section 800.8(c). An area of potential effects (APE) was defined pursuant to Section 106 to represent the largest potential impact areas of all alternatives. The APE for the Secretarial Determination was defined as the Klamath River from the outlet at Keno Dam to the river's outlet at the Pacific Ocean (approximately 250 miles long), and extending outward for 0.5 miles from each bank of the river, plus a 0.5-mile-wide corridor from the high water mark surrounding each of the four reservoirs, and all four dams and associated facilities.

Prehistoric Resources

The history of human occupation along the Klamath River extends as far back as 12,000 years ago, based on archaeological evidence and Indian tribes' beliefs, traditions, and ceremonies (Cardno Entrix 2012). Relationships, interactions, and use of resources along the Klamath River, with salmon of high importance, are reflected in the documentation of cultural sites (approximately 650 sites), as well as in traditional and current use of the river and the area immediately surrounding it. Prehistoric cultural resources sites show evidence of short-term and long-term use in artifact scatters, camping and fishing sites, ceremonial sites, and village sites,

some with human burials. One large and several other Traditional Cultural Properties (a property with traditional cultural significance derived from the role it plays in a community's historically rooted beliefs) customs, and practices (Parker and King 1998), are identified as associated with the Klamath River (Cardno Entrix 2012). A "riverscape" is identified along the entire length of the Klamath River as a potential Traditional Cultural Property composed of cultural and natural (salmon) resources of historical importance to the Indian tribal communities who live along the river (Gates 2003, King 2004). Through consultations for this study, continued ceremonial and traditional use of places along the Klamath River were identified as of great importance to all Indian tribes who use the river.

Historic Resources

Euroamerican exploration of the Klamath Basin began in the early 19th century with a dramatic influx of Euroamericans in the 1850s due to the discovery of gold in California (Cardno Entrix 2012). Trails and roads were developed as travelers passed through or settled in the area. Communities sprang up, requiring supporting services such as farming, ranching, and logging. As mining proved less lucrative, logging and agriculture grew in importance. The Bureau of Reclamation's Klamath Project was authorized in 1905, and was developed to provide irrigation for farmlands in the Klamath Basin. With Upper Klamath Lake and storage created by Link River Dam as the principle water source, Reclamation's Klamath Project provides water to the Upper Klamath Basin, up river of the Four Facilities.

Initial hydroelectric development began in the Klamath Basin in 1891 to provide electricity to Yreka (Klamath Hydroelectric Project 2004). Four years later, the Klamath Falls Light & Water Company built a generating facility on the east bank of the Link River, known as Eastside Powerhouse, to supply power to Klamath Falls. These ventures soon attracted competitors. By 1912, the California-Oregon Power Company (Copco) consolidated hydroelectric development in the region. Subsequently, Copco built hydroelectric facilities Copco 1 and Copco 2 in 1918 and 1925, respectively. After World War II, regional population growth prompted new hydroelectric power expansion such as Copco's Big Bend (now J.C. Boyle) (1958) and Iron Gate (1962) developments. While Iron Gate was under construction, Copco was merged with Pacific Power & Light to become PacifiCorp, the current owners and managers of the Four Facilities. The Klamath Hydroelectric Project was identified as a historic district due to its association with the industrial and economic development of southern Oregon and northern California (Kramer 2003a and 2003b).

Known Cultural and Historic Resources in the APE

Record searches and archival research were conducted for the vicinity of the APE. Previously, 191 cultural resources surveys were conducted covering 30,746 acres (approximately 36 percent of the APE) and more than 680 sites were identified (Cardno Entrix 2012). Most of the surveys were conducted around Upper and Lower Klamath Lakes and on Yurok lands with very little survey coverage along the river itself. The majority of the sites within the APE are prehistoric sites associated with Indian occupation and use of the area. These sites include small lithic scatters, traditional fishing sites, ceremonial sites, and large village sites. The

historic sites within the APE are mostly related to the development of agriculture and hydroelectric power.

Impacts

The Proposed Action would result in direct effects/impacts to J.C. Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam, their associated hydroelectric facilities, and on the Klamath Hydroelectric Historic District (KHHD), which is considered eligible for inclusion on the National Register and California Register. The Proposed Action would include removal of J.C. Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam and their associated hydroelectric facilities on the Klamath River (refer to Klamath Facilities Removal Final EIS/EIR, Chapter 2 Proposed Action and Description of Alternatives for additional details). These four dams and a majority of their associated facilities are assumed to contribute to the KHHD, which is considered eligible for inclusion on the National Register and the California Register due to its role in early development of electricity and economy of the southern Oregon and northern California regions. All associated and related structures have yet to be evaluated but are likely to include such properties as miscellaneous structures that are associated with construction of the dams and transmission lines that may be eligible for listing on the National Register individually or as contributing to the KHHD. Under the Proposed Action all of the dams and associated facilities would be removed.

For the purpose of NEPA and CEQA, mitigation measures that include Historic Architectural Building Survey/Historic Architectural Engineering Report/Historic American Landscape Survey (HABS/HAER/HALS) documentation could be implemented for the removal of dams under the Proposed Action. However the intent of Proposed Action is to fully remove the dams, the KHHD, and much of the context for these historic resources. Therefore documentation such as HABS/HAER/HALS is the only feasible form of mitigation because avoidance and minimization measures would not be possible. As part of a conservative analysis, it has been determined that implementation of mitigation measures would not reduce impacts to historical resources to a less than significant level.

Under NEPA and CEQA, the Full Facilities Removal of Four Dams would cause a significant impact to J.C. Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam, their associated hydroelectric facilities, and on the KHHD. After implementation of Mitigation Measure CHR-1, CHR-2, CHR-3, and CHR-4 impacts to the four dams and hydroelectric facilities and to the KHHD would remain significant and unavoidable. Mitigation Measures CHR-1broadly described would outline an approach for identifying, evaluating, and, where possible, minimize adverse effects to the KHHD. Mitigation Measure CHR-2 broadly described would outline an approach for identifying, evaluating, and, where possible, minimize adverse effects to other historic properties. Mitigation Measure CHR-3 calls for an approach for identifying, evaluating, and, where possible, minimize adverse effects to Traditional Cultural Properties (TCPs) and cultural landscapes for eligibility for listing on the National Register and/or California Register and Mitigation Measure CHR-4 requires development of stipulations and appendices in the PA to cover exposure, management, disposition, and treatment of human remains. Refer to Klamath

Facilities Removal Final EIS/EIR Section 3.13 Cultural and Historic Resources for additional mitigation measure information.)

The DRE or the designated lead Federal agency if the DRE is a non-Federal entity with authority over particular aspects of the detailed plans for the action alternatives, would continue consultation with Advisory Council on Historic Preservation (ACHP), SHPOs, THPOs, Indian Tribes and other consulting parties. In the event that the designated DRE is a non-Federal entity, the designated lead Federal agency will assume all responsibility to carry out the measures articulated herein. Up to and immediately following a decision on the proposed undertaking analyzed in this EIS, consultation will continue and in the short-term focus primarily on the development and preparation of a Programmatic Agreement (PA). The DRE will seek to execute the PA within one year from the issuance of a decision or as soon thereafter as is practicable. The purpose of the PA is to establish a process for the continued compliance with Section 106 of the NHPA wherein the DRE or lead Federal agency will carry out consultation for the definite plan on how to implement the action alternative. Such consultation, which will be established by the PA, prior to the approval of any activities that may directly or indirectly adversely affect historic and cultural resources, shall undertake planning and actions as may be necessary to avoid, minimize or mitigate adverse effects.

Reservoir drawdown associated with the Proposed Action could affect/impact archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly prehistoric and historic human remains. The Proposed Action includes a drawdown of the reservoirs behind the dams. The deconstruction process would begin by gradually drawing down the reservoirs through a controlled process using existing spillway gates, conveyance pipelines and canals, and diversion conduit (refer to additional details in Klamath Facilities Removal EIS/EIR, Chapter 2 Proposed Action and Description of Alternatives). Modeling studies indicate that drawdown would erode and flush stored sediment downstream during the three-month drawdown period. Afterwards, the river bed in the reservoir reaches is expected to stabilize. Once eroded from the reservoir, the fine sediment would continue to be suspended in the river water during the short term following dam removal, flowing downstream to the ocean. Large quantities of sediment would remain in place in the reservoirs after dam removal, primarily on areas above the active river channel. The remaining sediments would consolidate by drying out, resulting in a decrease in thickness. Following drawdown of the reservoirs, revegetation efforts would be initiated to support establishment of native wetland and riparian species on newly exposed reservoir sediment. Impacts from the drawdown potentially affecting cultural resources include erosion, changes in sediment, and changes in river flows. Cultural resource surveys to identify cultural resources were not conducted prior to inundation so, very little is known regarding the extent of cultural resources that would have been along the river and that would now be under water.

Few cultural resource surveys have been conducted along the Klamath River below Iron Gate Dam to Yurok lands at the mouth of the river. Sites identified along the river between Iron Gate Dam to its confluence with Shasta River include: one prehistoric artifact scatter; one prehistoric

camp site; one prehistoric fishing locale; one prehistoric burial; one historic habitation debris site; one historic structural and landscaping remains site; and one historic bridge. Traditional use locations for ceremonies, fishing, and other purposes were identified along the river during consultations. Due to the controlled release of water flows during reservoir drawdowns, impacts to these sites are not expected, particularly below the confluence with the Shasta River, as increased river elevations will be minimal and these sites have been exposed to historic flows since their original use. Indirect impacts may result afterwards from changes in the water flows.

The riverscape, a potentially eligible or significant cultural landscape, includes villages, hunting, gathering, fishing, and spiritual locations on terraces and benches along the river, as well as the river itself and its natural resources. The overall riverscape/cultural landscape would likely benefit from dam removal by restoring the river more closely to its original setting and facilitating the practice of important Indian traditional customs, ceremonies, and economic activities. However, sites associated with it could be adversely affected through erosion, sediment changes, artifact displacement, exposure, and vandalism. Relationships between the elements of the riverscape would change as the environmental and cultural setting changes from one of dams and reservoirs back to one of a free-flowing river. The impacts of these changes are not easily assessed and will likely require surveys, research and consultations with Federal agencies, Indian tribes, Native Americans, and other interested parties to determine the effects. The same can be said of other TCPs and cultural landscapes, prehistoric or historic, which have been identified in general terms but not yet specifically identified or recorded.

Under NEPA and CEQA, reservoir drawdown would cause a significant impact to archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly Native American and non-native human remains. After implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 impacts to archaeological and historic sites, TCPs, and cultural landscapes would be mitigated to a less than significant impact.

Construction activities including use of haul roads and disposal sites for demolition debris, removal and relocation of recreational facilities, relocation of the City of Yreka water supply line, under the Proposed Action could affect/impact archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register or California Register. Ground disturbing activities associated with construction activities will likely have both direct and indirect effects/impacts on historic properties/historical resources. The debris from the demolition of the dams and facilities would be hauled to disposal sites. Modifications of the proposed haul roads and use of disposal sites could affect/impact sites that are located along the haul roads and/or at the disposal sites.

Under NEPA, construction activities would cause a significant impact to archaeological and historic sites, TCPs, and cultural landscapes that are eligible for inclusion on the National Register and/or California Register and possibly prehistoric and historic human remains. After implementation of Mitigation Measures CHR-1, CHR-2, CHR-3, and CHR-4 impacts to

archaeological and historic sites, TCPs, and cultural landscapes would be mitigated to a less than significant impact.

The Transfer of Keno Dam to the DOI would likely be a beneficial effect because the facilities would be subject to Federal regulation**.**

The decommissioning of the East and Westside Facilities could have adverse effects on historic resources or historic properties. Decommissioning of the Eastside and Westside canals and hydropower facilities by PacifiCorp as a part of the KHSA would eliminate the need for diversions at Link River Dam into the two canals. Following decommissioning of the facilities there would be no change in outflow from Upper Klamath Lake or inflow into Keno Impoundment/Lake Ewauna. Decommissioning does not typically involve deconstruction of the facilities. Instead, buildings and equipment that are too large to easily remove or fixed in place are usually fenced to prevent entry. Any deconstruction and removal of facilities would be analyzed in future environmental analyses. For this reason there would be a de minimus adverse effect on cultural resources.

New Information

Cultural and historic resources were identified through archival research and record searches and Native American consultations for the entirety of the APE. In addition, through archival and background research, consultations, and knowledge of known resources, the types of historic properties likely present in unsurveyed and inaccessible areas (primarily areas currently inundated by the reservoirs) were characterized. No new information is known that would add to or change the types of historic properties known or expected to be present in the APE. No new information regarding cultural resources has been identified related to the effect of dam removal, Keno Transfer, Eastside/Westside Decommissioning, and City of Yreka's Water Supply Pipeline Relocation and Cultural and Historic Resources.

Conclusion

No additional information has been identified cultural and historic resources relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on cultural and historic resources does not result in a change relevant to environmental concerns.

3.3.13 Land Use, Agricultural and Forest Resources

Environmental Setting

The land use area was defined as lands encompassed by the FERC boundary identified in the FERC EIS (2007), surrounding lands that could be affected by implementation of the Amended KHSA and private lands adjacent to the reservoirs and the Klamath River downstream from the reservoirs to the estuary that would be affected by the removal of the dams and loss of the reservoirs.

The Four Facilities that would be removed are in two counties, Siskiyou in California and Klamath in Oregon, and are not within any incorporated cities. The area of analysis includes the areas adjacent to the Four Facilities. The City of Yreka is included because its water supply facilities would be affected by the Proposed Action. In addition, lands downstream from the Iron Gate Dam that may be subject to flooding with or without the dams were identified (see Klamath Facilities Removal Final EIS/EIR Appendix J, "Modeled Changes to the 100 Year Flood Plain" for maps).

PacifiCorp also owns approximately 8,000 acres in Klamath County and Siskiyou County that are associated with the Klamath Hydroelectric Project and/or included within the FERC project boundary. The Amended KHSA describes this property as Parcel B lands. Of these lands, approximately 2,000 acres are currently inundated by the reservoirs.

According to the Amended KHSA, Parcel B lands would be transferred to the respective States (Oregon or California) or a designated third party, before facility removal. Lands owned by the State and Federal Government would not be subject to local zoning laws and regulations. The transferred lands would be managed for public interest purposes such as fish and wildlife habitat restoration and enhancement, public education, and public recreational access. The Amended KHSA provides an option that would invoke the "meet and confer" provisions to allow for other uses. The States have no detailed plans but indicate that the approximately 2,000 acres of inundated lands would be restored to natural conditions consistent with the intent of improving fisheries in the Klamath Basin.

In addition to the above categories of lands, the Amended KHSA identifies three parcels (Eastside/Westside generating facilities lands) that may be transferred to DOI, near Klamath Falls, Oregon upon decommissioning.

Impacts

Activities defined in the Proposed Action would change current uses of the Parcel B lands in the vicinity of J.C. Boyle Dam from rural industrial to non-resource. Land use designations around the other reservoirs would not be changed as existing designations would be consistent with potential future land uses. Activities defined in the Proposed Action would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

Applicable plans and policies would not be affected by the Proposed Action, because the inundated lands in Siskiyou County already have zoning and land use designations that would not change once they are no longer inundated (Plucker 2011). In Klamath County, formerly inundated lands would require new land use designations and zoning, the designation of which would likely not conflict with any adopted plans or policies (Gallagher 2011). Private lands adjacent to the reservoirs would not have a land use change; however, those lands would no longer be adjacent to inundated land with reservoir views and that is currently used for water-based recreational purposes. In the future other land-based recreational uses could occur on the

publicly owned property. Although the land use designations and zoning would not change *per se*, the functional use of the area would change and would be noticeable to the private property owners.

Implementation of the Proposed Action would not involve directly converting farmland to non-agricultural uses, would not conflict with existing zoning or Williamson Act contracts, or convert forest land or forest uses surrounding the reservoir.

Dam decommissioning and removal would require the creation of temporary roads, staging areas and construction sites. Although existing roads provide access to the Klamath Hydroelectric Project facilities, new roads would be needed during deconstruction activities. Temporary construction roads and staging sites would also be required during dam removal activity (see Chapter 2). Permanent disposal sites would be needed near the dams on lands currently designated open space and/or conservation. Site access for restoration activities would require construction of temporary gravel access roads and storage pads. Because these temporary roads would be built on lands designated for industrial (dam) or open space use or on currently inundated lands, and could be returned to their original or alternate use following deconstruction, construction of the roads would not conflict with applicable plans and policies or otherwise cause a significant land use impact.

Permanent roads associated with achieving public access to the river would be addressed as part of the recreation plan (mitigation measure REC-1). REC-1 describes the development of new comparable recreational facilities and supporting infrastructure near the banks of the Klamath River after dam removal. However, those roads would not constitute a significant land use impact because they would not take agricultural or forest lands out of production.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on land use, agricultural, and forest resources.

Conclusion

No additional information has been identified relevant to land uses and the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on land use, agricultural, and forest resources does not result in a change relevant to environmental concerns.

3.3.14 Socioeconomics

Environmental Setting

The modeling package used to assess the regional economic impacts from the expenditures associated with each alternative was IMPLAN (IMpact analysis for PLANning). IMPLAN is a commonly used, industry accepted economic input-output modeling system that estimates the effects of economic changes in a defined analysis area. MIG, Inc. developed the

IMPLAN modeling system. This analysis in the Klamath Facilities Removal EIS/EIR used the Version 3.0 system, which was released in November 2009.

The Klamath Facilities Removal EIS/EIR reports regional economic total effects in terms of employment, labor income, and output. IMPLAN defines these parameters as follows:

- Employment – Number of jobs, a job can be full-time, part-time, or temporary.
- Labor Income -All forms of employment income, including employee compensation (wages and benefits) and proprietor income.
- Output -Value of industry production. In IMPLAN these are annual production estimates for the year of the data set.

Using IMPLAN, the evaluation of the proposed action in the Klamath Facilities Removal EIS/EIR presented quantified results for regional economic effects from changes in expenditures or revenues associated with:

- Dam decommissioning, operation and maintenance (O&M), mitigation
- Commercial fishing
- Reservoir recreation
- Ocean sport fishing
- In-river sport fishing
- Whitewater recreation

Dam Decommissioning, Operation and Maintenance (O&M), Mitigation

Deconstruction of the dams would result in economic effects in Siskiyou and Klamath Counties. Deconstruction or construction activities would create jobs and generate additional economic activity within the region during the period of construction. Direct effects represent equipment rentals, purchase of materials, and payment for labor.

An important consideration in evaluating regional economic effects is how much money is spent within the region for construction supplies and equipment, and how many workers are employed that originate from the region. Costs for dam decommissioning were divided into expenditures that would be made inside and outside of Siskiyou and Klamath counties. The expenditures assumed to be spent within the counties were used in IMPLAN to estimate employment, labor income, and output from dam decommissioning. Dam decommissioning expenditures made outside the analysis area would have no impact on the local economy.

Reclamation estimated total dam decommissioning costs and allocated the costs associated to within-region expenditures. Dam decommissioning costs assumed to be spent within the region are described in more detail in the Benefit Cost and Regional Economic Development (RED)

Technical Report (Reclamation 2012a).The analysis assumed that the onsite construction workforce would be hired from within the region. Some workers would be brought into the region from outside areas. Money from out-of-region workers spent on goods and services within Siskiyou and Klamath Counties contributes to regional economy, while money that originates from in-region workers is much less likely to generate regional economic effects because spending from sources within the region represents a redistribution of income and output.

Commercial Fishing

The estimates of gross revenue used in this analysis are based on relative projections of Klamath River Chinook salmon harvest provided by the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) model (Hendrix 2011). The EDRRA model is a simulation model that provides 50-year projections of Klamath River Chinook salmon escapement and harvest under the alternatives. The EDRRA harvest projections pertain to Klamath River Chinook salmon and do not distinguish between spring and fall runs. Harvest is estimated for each simulated year on the basis of a new Klamath River fall Chinook salmon harvest control rule recommended by the PFMC to the NOAA Fisheries Service in June 2011. The model allocates total Klamath River Chinook salmon harvest among fisheries as follows: 50 percent to tribal fisheries, 7.5 percent to the in-river recreational fishery (up to a maximum of 25,000 fish – with any surplus above 25,000 allocated to escapement), 34 percent to the ocean commercial fishery, and 8.5 percent to the ocean recreational fishery. The 50/50 tribal/non-tribal split is a "hard" allocation specified by the United States Department of the Interior (DOI) (1993). The remaining allocations are "soft" allocations as they represent customary practice rather than mandatory conditions.

Recreation

Depending on the recreation activity, visitors typically spend money on guide fees, food, hotels, restaurants, gasoline, equipment rentals, and/or other supplies required for outdoor activities. Any change to recreation opportunities that would result from implementation of the Proposed Action or alternatives would affect visitor spending and the region's economy. Increases in recreation spending would be considered a positive effect and decreases would be an adverse effect. This recreation economic impact analysis evaluates potential changes in direct visitor spending for recreation activities and subsequent, secondary economic effects. Estimates for changes in number of visitors and daily visitor spending are needed to calculate total reduction in recreation expenditures. IMPLAN is used to evaluate secondary effects in the regional economy. The recreation activities considered included reservoir recreation, ocean sport fishing, in-river sport fishing, and whitewater recreation.

Reservoir Recreation

Within region reservoir recreation expenditures per visit were obtained from the recreation survey presented in the PacifiCorp (2004) report. The expenditure information was gathered by expenditure category such as accommodations, food, gas, supplies and guide fees. This analysis assumes an average of $15.35 per visit. Changes to average annual within region, nonlocal

visitor expenditures were run through IMPLAN to estimate regional economic effects associated with the Full and Partial Facilities Removal Alternatives.

Ocean Sport Fishing

The ocean sport fishing information is taken directly from analyses contained in Reclamation (2012b) and NOAA Fisheries Service (2012h). This analysis focuses on economic effects of expenditures for ocean sport fishing in the KMZ-CA and KMZ-OR (where the effects of Klamath River fall Chinook salmon abundance are largely felt). Expenditures within the region by resident and nonresident anglers generate economic activity measured in terms of industry output, labor income, and employment. A basic assumption underlying this analysis is that any increase in expenditures by resident anglers associated with expanded fishing opportunities would be accommodated by reducing expenditures on other locally purchased goods and services, with no net change in local economic activity. For nonresident anglers, however, increases in local expenditures associated with increases in local fishing opportunities would be accomplished by diverting money that they would otherwise spend in their area of residence. Thus the economic analysis focuses on nonresident angler expenditures, which represent 'new money' whose injection serves to stimulate the local economy.

In-river Sport Fishing

The in-river sport fishing information is taken directly from analyses contained in Reclamation (2012b) and NOAA Fisheries Service (2012g). For the in-river salmon fishery, the affected area includes Klamath, Siskiyou, Humboldt, and Del Norte Counties. The three California counties cover the current location of the in-river salmon and steelhead fisheries; Klamath County covers the area above the dams where salmon and steelhead could potentially recolonize under the action alternatives. Details regarding the methods, assumptions, and conclusions underlying this analysis are in the In-River Sport Fishing Economics Technical Report (NOAA Fisheries Service 2012g).

Whitewater Recreation

The affected area for whitewater boating is defined as Jackson, Klamath, Siskiyou, and Humboldt Counties. Klamath River users that engage in whitewater boating recreation spend money in the region purchasing gas, food and drink, lodging, guide services, and other items. The expenditures associated with these trips generate economic activity measured in terms of total industry output, labor income, and employment within the four county economic region.

Expenditures per user day are differentiated by private and commercial users, where commercial use is associated with the use of a whitewater boating outfitter. Whitewater boating outfitter fees vary among upper Klamath River and lower Klamath River trips and private and commercial trips. Expenditures other than outfitter fees (e.g., accommodations, food, gas, supplies, and shuttle services) were based on Johnson and Moore (1993) and inflated to 2012 dollars.

Property Values
All else equal, the removal of the Four Facilities including loss of the reservoirs could impact real estate values of parcels surrounding Copco 1 and Iron Gate Reservoirs in Siskiyou County. Dam removal could also potentially affect the value of parcels near and adjacent to the Klamath River downstream from Iron Gate Dam due to improved water quality and more robust runs of anadromous fish. The discussion in this EIS/EIR considers potential effects on reservoir and riverine property values qualitatively. Studies have shown that amenities provided by proximity to a lake have a positive correlation with land values (See Klamath Facilities Removal EIS/EIR Section 3.15.3.6). Thus, the loss of reservoirs could result in declines in private land values. The net value of these changes, and the time over which such changes might be observed in market prices, is uncertain.

In concept, to evaluate impacts on real estate values, one would collect market sales data for different properties with different characteristics, which would include "view amenities." This data would include market values for land that had reservoir views, river views, and no views. All else equal, the difference in the land values for properties with different amenities would represent the impacts of such amenities on real estate values. This is a challenging exercise in thin markets, where limited data inhibit revelation of market preferences, and where other external factors affecting real estate markets may mask or overwhelm the effects of dam removal.

PacifiCorp Property Taxes
This analysis discusses effects to county property tax revenues qualitatively. PacifiCorp pays property taxes to Siskiyou and Klamath counties. After dam removal, the States of California and Oregon would assume payment of property tax assessments in the form of in-lieu fees for the lands underneath and adjacent to the reservoirs that will come under State management. In-lieu fees would be equivalent to the current assessment paid by PacifiCorp for hydroelectric properties, as defined by California Fish and Game Code Section 1504 and Oregon Revised Statutes Section 496.340.

Impacts

Dam Removal
Construction activities associated with dam removal would increase economic output, employment, and labor income during the construction period in Klamath and Siskiyou counties. Effects from dam decommissioning expenditures would occur for one year in 2020. The costs for full facility removal would be approximately $178.4 million[6] in 2012 dollars. Not all dollars

[6] Dam removal as described in this EIS/EIR would occur from May 2019 through December 2020. For this socioeconomic analysis, all effects have been described in 2012 dollars to compare economic effects of alternatives. These costs for facilities removal should not be considered a most probable cost estimate for dam removal in 2020. For a more detailed analysis of the cost of dam removal please see Detailed Plan for Dam Removal – Klamath River Dams, July 2012.

would be spent within the region. Approximately $114.3 million of $178.4 million would be spent in Klamath and Siskiyou Counties. Dam decommissioning would support approximately 1,400 jobs and generate approximately $60 million in labor income and $163 million in output. Most economic effects would be in the sector where the direct impact occurs. For dam deconstruction expenditures, this analysis assumes direct effects would mostly occur in the construction sector.

Employment created in this sector would be full and part time jobs and include contractors and subcontractors directly engaged in construction operations (such as equipment operators, drillers, carpenters, electricians, mechanics, apprentices, skilled and unskilled laborers, truck drivers, on-site record keepers and security guards), and any of their related office or administrative staff (in executive, purchasing, accounting, personnel, professional, technical activities and routine office functions, and supervisory employees). The Proposed Action would result in short term positive effects to output, employment, and labor income in the region relative to the No Action/No Project Alternative. Effects would only occur during the construction period.

Operations and Maintenance of Hydroelectric Facilities

The Proposed Action would not require any long term annual O&M expenditures for operation of hydroelectric facilities. As a result, there would be a decrease in expenditures in the region under the Proposed Action relative to the No Action/No Project Alternative. The regional economy would lose 49 jobs, $2.05 million in labor income and $5.19 million in output relative to the No Action/No Project Alternative. For reduced O&M expenditures, this analysis assumes direct effects would occur in the construction sector. Employment created in this sector could be full time or part time and include various types of jobs, such as engineer, management, and administrative jobs. Reduction of O&M associated with the Four Facilities under the Proposed Action would result in adverse, long-term economic effect on employment, labor income, and output in the regional economy relative to the No Action/No Project Alternative.

Dam Removal Mitigation

Mitigation spending after the deconstruction period could increase economic output, employment, and labor income in the regional economy. Spending on mitigation would occur within the region after construction is complete. Mitigation would generally include repaving roads, replanting vegetation, restoring river banks, and monitoring. Not all mitigation dollars would be spent within the region. Klamath County has highway, street, and bridge construction companies that provide asphalt and asphalt products for road construction. Siskiyou and Klamath counties also have county road crews. Much of the roadwork could be done by local workers and businesses. Local workers could also provide much of the replanting and habitat restoration required for mitigation.

Mitigation spending would be temporary and would vary year by year from 2018-2025. Spending would increase employment, labor income and output in the region. Approximately 220 jobs, $10 million in labor income, and $31 million in output between the years 2018-2025 would be generated by mitigation expenditures for the Proposed Action. For mitigation

expenditures, this analysis assumes direct effects would occur in the construction sector. Employment created in this sector could be full time or part time and include construction, management, administrative and other types of jobs. The Proposed Action would result in positive, temporary effects to employment, labor income, and output during the mitigation period (2018-2025) relative to the No Action/No Project Alternative.

After construction and mitigation activities are complete, there would no longer be increased spending or employment in the region as a result of the Proposed Action. Some longer term monitoring activities would continue, but it would be substantially less than spending during the construction period. Output, employment, and labor incomes within the region would largely return to levels prior to construction. Some wholesale suppliers, retail businesses, hotels, motels, and restaurants that served the influx of construction workers would have increased profits for potential investments, but sales would return to pre-construction levels. Mitigation activities would return most resources, such as roads and public utilities, to at least pre-construction conditions.

Commercial Fishing

Increases in commercial fishing harvests would increase fishing revenues and associated jobs, labor income, and output in the regional economy. The Proposed Action would restore a more natural Klamath River flow regime and improve and expand spawning and rearing habitat for salmon on the Klamath River, which would benefit salmon populations. Commercial fishing landings would increase because of increased salmon abundance, which would increase fishing revenues. The differences range from about $114,000 in KMZ-OR to $3.9 million in San Francisco (Reclamation 2012b, NOAA Fisheries Service 2012a).

Additional employment would range from 11 to 218 jobs, labor income would increase between $0.06 million to $2.56 million, and output would increase from $0.13 million to $6.6 million compared to the No Action/No Project Alternative. Most employment, labor income, and output effects would occur in the agricultural sector of the regional economy. Employment created in this sector could be full time or part time and include various types of services, such as fishing, provision of fuel, bait, and ice, and other supporting jobs. Increases in fish landings and revenues under the Proposed Action would have a long term, positive impact on employment, labor income and output in the regional economy relative to the No Action/No Project Alternative. It is also important to note that the Proposed Action would reduce the incidence of low abundances and associated adverse economic impacts on the troll fishery.

Reservoir Recreation

Dam removal would eliminate in-reservoir recreation activities, which could reduce recreational expenditures and affect employment, labor income, and output in the regional economy. Under the Proposed Action, dam removal would eliminate reservoir recreation activities in the short and long term. This analysis assumes the loss of recreation at Copco 1, Iron Gate, and J.C. Boyle Reservoirs under the Proposed Action relative to the No Action/No Project Alternative.

This analysis assumes an average annual reduction of 40,901 visits under the Proposed Action relative to the No Action/No Project Alternative. The change in average annual expenditures would be a reduction of $627,838. Most employment, labor income, and output effects would occur in the services sector. Employment affected in this sector could be full time or part time. Lost reservoir recreation would be a long term adverse effect to the regional economy under the Proposed Action relative to the No Action/No Project Alternative.

Ocean Sport Fishing

Changes to ocean sport fishing recreation opportunities could affect recreational expenditures in the regional economy. Increased salmon populations would attract more ocean recreational fishing effort, which would increase spending in the regional economy. Klamath Facilities Removal EIS/EIR summarizes annual salmon fishing effort (in total and by nonresident anglers) and nonresident angler expenditures for the Proposed Action (Reclamation 2012b, NOAA Fisheries Service 2012h).

The Proposed Action would support and increase in regional activity because of increased angler expenditures. Most employment, labor income, and output effects associated with ocean sport fishing would occur in the services sector. Employment created in this sector could be full time or part time. Recreational expenditures for ocean sport fishing would increase under the Proposed Action relative to the No Action/No Project Alternative, which would increase employment, labor income and output in the region. Effects would be long term.

In-River Sport Fishing

Changes to in-river sport fishing opportunities associated with dam removal could affect recreational expenditures in the local economy. Annual salmon fishing effort on the Klamath River is estimated at 26,578 angler days under the Proposed Action. The portion of this effort attributable to nonresident anglers is 17,036 angler days. Expenditures in the region by nonresident anglers are estimated at $1.789 million (2012 dollars). The annual increase in nonresident expenditures under the Proposed Action relative to Alternative would be $127,000.

The Proposed Action would result in increased numbers of steelhead spawners and provide conditions conducive to establishment of a steelhead fishery above Iron Gate Dam (Hamilton et al. 2010). However, because these changes were not quantified, it is not possible to quantify the effects of the Proposed Action on the steelhead fishery. However, expansion of that fishery would likely generate additional expenditures, jobs, labor income, and output in the regional economy.

The Proposed Action would result in increased abundance and distribution of redband trout in Upper Klamath Lake and its tributaries and a potential seven-fold expansion of the fishery below Keno Dam (Buchanan et al. 2011). The effects of this increase could not be quantified with available data but would likely yield a notable increase in economic impacts, given the size of the potential increase in the fishery noted.

Whitewater Boating

On the upper Klamath River, the average number of days with acceptable flow conditions for whitewater boating in the Hell's Corner Reach would decrease under the Proposed Action. The Hell's Corner Reach is somewhat unique in the project area in that it provides Class V rapids during the late summer months. Analysis of predicted hydrology modeling shows that the average number days with acceptable flows for primarily commercial whitewater boating on the Hell's Corner Reach are estimated to decline significantly. The combination of the decline in the number of days with acceptable flows, particularly during the three months when most of the use is observed (June, July, and August), and the lack of consistency and predictability of days with acceptable flows could make it more challenging for outfitters to continue offering trips for this reach of the Upper Klamath River in the future, and to a lesser extent also make it more challenging for private users to engage in whitewater boating activities. Therefore, it is assumed whitewater boating activity on the upper Klamath River would be negatively affected under the Proposed Action for the long term.

The economic analysis for the lower Klamath River assumes that there would not be a measurable change in visitation levels for whitewater boating on the lower Klamath River after dam removal. Whitewater boaters would continue to spend money in the local economy. Expenditures would be similar to existing levels described for the No Action/No Project Alternative.

The loss of whitewater boating activity on the upper Klamath River (primarily the Hell's Corner Reach) would result in losses in expenditures and regional economic activity in the local region as compared to the No Action/No Project Alternative. Annual losses would begin in 2020. The difference in total average annual user days between the Proposed Action and the No Action/No Project Alternative was estimated at 2,706 user days. The difference in average annual lost expenditures between the Proposed Action and the No Action/No Project Alternative was estimated as $701,170. Most employment, labor income, and output effects associated with whitewater boating would occur in the services sector. Employment created in this sector could be full time or part time. Reduced whitewater boating expenditures would result in long term adverse effects to the regional economy under the Proposed Action relative to the No Action/No Project Alternative.

Indian Tribes

Dam removal would increase the harvest of fish for subsistence purposes, cultural practices, and commercial uses by Indian Tribes residing on the Klamath River (and perhaps by the Hoopa Valley Tribe, which resides on the Trinity River). Tribal harvest opportunities for Chinook, Pacific lamprey and steelhead are expected to increase in varying degrees under the Proposed Action relative to the No Action/No Project Alternative. Removal of the reservoirs behind the dams would reduce or eliminate the incidence of late-summer, toxigenic phytoplankton blooms that have prompted postings of public health advisories in the Hydroelectric Reach and further

downstream on the Klamath River. These water quality improvements would have beneficial effects on tribal cultural practices in the affected areas.

PacifiCorp Hydroelectric Service

Removal of the Four Facilities could result in increased energy rates for PacifiCorp customers. PacifiCorp has added an approximately 2 percent surcharge to customer rates in Oregon and California to cover costs of dam removal. Under the Klamath Hydroelectric Settlement Agreement (KHSA), ratepayer liability is capped at $200 million, prorated between PacifiCorp's customers in Oregon (up to $184 million) and California (up to $16 million). The Oregon Public Utility Commission and California Public Utility Commission issued rulings that approved dam removal surcharges for PacifiCorp customers in Oregon and California (OPUC 2010, CPUC 2011). Under the Proposed Action, customer rates would not likely increase above the existing surcharges as a direct result of dam removal costs.

Property Values and Local Government Revenues

Removal of the Four Facilities could affect property values of parcels near Copco 1 and Iron Gate Reservoirs. Private parcels with partial reservoir views, frontage/access or with river views subsequent to the action could be affected by the Proposed Action.

To address issues specific to the Proposed Action, the two valuation impact studies for private parcels at Copco 1 and Iron Gate reservoirs were completed, one in March 2011 (Bender Rosenthal Inc. 2011) and a second in June 2012 (Bender Rosenthal Inc. 2012). The studies looked at three baseline dates of property values; the June 2012 study reported on December 2004 and December 2006 dates of value and the March 2011 study reported on an April 2008 date of value.

The studies included private parcels with reservoir views of Iron Gate Reservoir and private parcels with reservoir views and frontage on Copco 1 Reservoir. These two groups of properties could be affected by dam removal due to a change in either reservoir view or frontage after the dams are removed. Parcels were excluded from the initial list of potentially impacted properties if they were (1) publicly owned; (2) PacifiCorp owned; (3) had no assessed value; (4) in an area influenced by river (i.e., had river views prior to dam removal, and would therefore not be impacted by losing a reservoir view); and/or, (5) above the reservoir ridge (i.e., too far from the reservoirs to be affected by dam removal). Based on these criteria, the study identified 1,467 parcels that potentially could be affected by the removal of Iron Gate and Copco 1 reservoirs (Bender Rosenthal Inc. 2011). Of the 1,467 parcels, about 46 percent (668) were determined to have a measurable effect from dam removal. Parcels determined not to have a measurable impact from dam removal included those that were larger than 50 acres, located east of Copco Bridge (i.e., parcels with river frontage under existing conditions), determined unbuildable, or had no view of the reservoirs. Table 3.15-52 shows potentially affected private parcels by land use category. A majority of the applicable private parcels are vacant residential land and single-family residential. The assessed land value of the potentially affected parcels was about $9.0 million (Bender Rosenthal Inc. 2011).

While the Bender Rosenthal Inc. reports (2011, 2012) used data from individual parcels, the appraisal was completed for groups of parcels based on common attributes and/or physical characteristics. Parcels were grouped according to water-frontage, access (property access by paved road as well as to utilities), and location. To evaluate the impact of dam removal on private properties around Iron Gate and Copco 1 reservoirs, this study used a before dam removal condition and a hypothetical after dam removal condition. The after dam removal condition assumed that the dams were removed and the river had returned to its original channel with the land under the reservoirs restored to its native condition. It is anticipated that land values would reach a low point soon after the reservoirs were drained and that they would progressively increase in value over time until the terraces above the river are revegetated and the river channel is fully recovered. The differences in land value through time in this interim period could not be quantified, and the amount of time it would take for a fully recovered river channel to develop is unknown, but would likely take years.

The valuation assessment considered reservoir frontage in the before dam removal condition to change to river view in the after dam removal condition. Similarly, reservoir view in the before dam removal condition was assumed to change to no reservoir view or river view in the after dam removal condition. Each of these comparisons was completed for 2004, 2006, and 2008. The study identified a discount in land value based on reservoir view to no view and reservoir frontage to river view. However there was only a very limited amount of data for the three years examined.

Riverine water quality improvements are likely to have little effect on the value of reservoir parcels, which are not generally expected to become riverfront properties after dam removal. Available data are insufficient to quantify such short-and long-term effects. Riverine parcels in areas downstream from Iron Gate Dam that experience detectable improvements in water quality and/or fish availability may experience positive changes in value. However, available data are insufficient to quantify such effects (DOI 2012a).

Reservoir real estate values are expected to decline in the short term due to adverse landscape changes associated with dam removal. This loss in value may be partially offset over the long term as barren landscape becomes revegetated open space. However, some of this loss would be permanent as a shift from reservoir view to no view or from reservoir frontage to river view would make a parcel less desirable.

Changes in real estate values around Copco 1 and Iron Gate Reservoirs and downstream from Iron Gate Dam could affect property tax revenues to Siskiyou County. In the short term, if reservoir property values decline, there could be adverse effects on property tax revenues to Siskiyou County. In the long term, if some reservoir land values permanently decline, Siskiyou County property tax revenues might decline relative to the No Action/No Project Alternative, assuming nothing else changes that might impact property tax revenues (e.g., tax rates). If riverine property values downstream from Iron Gate Dam increase in the long term, tax revenues

to Siskiyou County could increase and at least partially offset the loss of tax revenues associated with the decline in reservoir property values. Effects on property values are uncertain in the long term; therefore, it is unknown how property tax revenues would be affected.

Removal of the Four Facilities could affect property tax revenues to Siskiyou and Klamath Counties from PacifiCorp. PacifiCorp owns property around the reservoirs and pays property taxes annually to Siskiyou and Klamath Counties. PacifiCorp pays in the range of $290,000 to $305,000 in property taxes on land attributable to hydroelectric facilities at Copco and Iron Gate Dams and about $132,000 in property taxes for land attributable to hydroelectric facilities at J.C. Boyle Dam. Under the Proposed Action, the States would assume ownership of these lands and PacifiCorp would not pay property taxes on the relinquished land to the counties.

The States of California and Oregon would pay in-lieu payments on the transferred land. In California, in-lieu fees would be equivalent to the current assessment paid by PacifiCorp for hydroelectric properties, as required by California Fish and Game Code Section 1504. To make in-lieu payments to counties, the California legislature has to authorize payments. It is unknown if the California legislature would authorize payments in future years. Lost tax revenues to Siskiyou County would be an adverse economic effect. Similar to California, Oregon law (State Wildlife Fund Section 496.340) requires the State to pay the current assessed value on transferred lands. The State Department of Revenue can review and revise assessed values if it is determined substantially incorrect.

The loss in tax revenue from PacifiCorp owned lands would impact the regional economy. However, if Siskiyou and Klamath Counties receive in-lieu payments of equal value to PacifiCorp property tax payment, there would be no net effect to county revenues under the Proposed Action relative to the No Action/No Project Alternative.

Construction worker spending could increase sales and use tax receipts in Siskiyou and Klamath Counties. Construction crews for dam removal in Siskiyou County would purchase goods and services from local restaurants and stores, which would increase sales tax revenues for the county. Sales and use tax revenues are an important receipt for Siskiyou County to fund general government, health, and social programs. In 2010, sales tax in Siskiyou County was 8.25 percent (BOE 2010a). Some workers that are brought to the area would stay in hotels, motels, or campgrounds, which could also produce additional sales tax for the county. For workers staying in hotels or motels, the county could receive additional hotel-motel tax. From 2000 through 2010, hotel-motel tax made up an average of 2.7 percent of Siskiyou County tax receipts. As a result of construction worker spending, county tax revenues would increase during the construction period. Oregon has a hotel-motel tax but does not have a general sales tax, so effects on tax receipts would be more limited in Klamath County. Construction worker spending would be a temporary and positive effect to Siskiyou County and to a lesser extent Klamath County under the Proposed Action relative to the No Action/No Project Alternative.

Changes in visitation for recreation activities could affect sales tax revenues. Similar to construction worker spending, increased visitation to the counties offering recreation activities would increase sale tax revenues within the counties. Any adverse effects on visitation expenditures would decrease sales tax revenues. Changes in sales tax revenues would affect funding for county programs, such as health, education, social services and other programs funded through sales taxes. For increases in in-river recreation activities and ocean fishing, increases in sales tax revenues would be a long-term and positive effect. Decreases in reservoir recreation in Siskiyou County could reduce sales tax revenues, which would be a long-term and adverse effect of the Proposed Action relative to the No Action/No Project Alternative. Reductions in whitewater boating expenditures would also be a long term, adverse effect to county sales tax. The net effect to sales tax revenues from changes in recreation expenditures is unknown.

Eastside and Westside Facilities – Programmatic Measures
Minor construction would be required to decommission the facilities; therefore, there would not likely be any regional economic effects. PacifiCorp would no longer need to operate the facilities, which would reduce some employee hours required for operations and maintenance. This would not be a substantial effect.

City of Yreka Water Supply Pipeline Relocation – Programmatic Measures
Construction activities associated with the City of Yreka Water Supply Pipeline could increase economic output, employment, and labor income during the construction period in Siskiyou County. Construction of the City of Yreka Water Supply Pipeline would temporarily increase employment, labor income and output in Siskiyou County. Local construction firms would likely have the skills available for this construction effort; therefore, the majority of the regional economic effects would occur in the county. Increased employment and spending would have secondary impacts as inputs are purchased locally and construction workers spend a portion of their income in the region. This would be a temporary effect.

New Information

The economies of Siskiyou and Klamath counties have improved somewhat since the Klamath Facilities Removal EIS/EIR analysis. For the most part, the analysis in the EIS/EIR was based on economic data from 2009. According to the National Bureau of Economic Research, the Great Recession ended in June of 2009 (NBER 2010). Since the end of the Great Recession, indicators such as unemployment and total personal income by county have improved.

Unemployment rates in 2009 and 2010 were the highest that Siskiyou County has experienced in the past 20 years (California Employment Development Department [EDD] 2010). Klamath County has also had consistently higher unemployment rates than the State. The 2009 unemployment rate was the highest of the 12-year period (Oregon Employment Department 2010). Since that time, the unemployment rate in Siskiyou County improved from a high of 16.8% in December of 2009 to approximately 11.4% in March of 2016 (Bureau of Labor Statistics 2016). The unemployment rate for Siskiyou County still trends higher than California

overall; the California unemployment rate was 5.4% in March of 2016 (Bureau of Labor Statistics 2016). Similarly, the Klamath County unemployment rate decreased from a high of 13.9% in December of 2009 to 8.1% in December of 2015 (Bureau of Labor Statistics 2016). Similarly in Klamath County the unemployment rate still trends higher than Oregon overall; the Oregon unemployment rate was 4.5% in March of 2016 (Bureau of Labor Statistics 2016).

Table 7. Unemployment Rates

Location	Unemployment[7]	
	December 2009	March 2016
Oregon	11.0%	4.5%
Jackson County, OR	11.9%	6.0%
Klamath County, OR	13.9%	7.6%
California	12.4%	5.4%
Siskiyou County, CA	16.8%	11.4%
Humboldt County, CA	11.1%	5.3%

Another broad measure of economic strength for a county is total personal income (TPI). TPI for a county consists of the income that persons in that county from labor, land, and capital used in current production and personal current transfer receipts[8]. In 2004, the TPI of Siskiyou was $1,219,635,000[9] and ranked 45th in the state (BEA 2015b). In 2014, Siskiyou had a total personal income of $1,614,315,000 (Bureau of Economic Analysis (BEA) 2015b). This TPI ranked 45th in the state and accounted for 0.1 percent of the state total. In 2004, Klamath County had a TPI of $1,667,336,000 (BEA 2015a). This TPI ranked 16th in the state and accounted for 1.3 percent of the state total. In 2014, the TPI of Klamath was $2,183,329,000 and ranked 16th in the state (BEA 2015a). Both Siskiyou County and Klamath County have improved TPIs since 2004 and have maintained the relative TPI ranking to the other counties in their respective state. This suggests that the economies maybe improving similarly to the other counties in their region and state.

[7] Unemployment rate from March 2015 as reported at Bureau of Labor Statistics (BLS 2016).
[8] According to Bureau of Economic Analysis, personal current transfer receipts are benefits received by persons for which no **current** services are performed. They are payments by governments and businesses to individuals and nonprofit institutions serving individuals (Bureau of Economic Analysis 2016) .
[9] TPI have not been adjusted for inflation.

The economic indicators in the primary areas of analysis for dam removal, Siskiyou County, California and Klamath County, Oregon suggest improvement or similar conditions exist in the regional economy when compared with the 2009 economic data used for the Klamath Facilities Removal EIS/EIR analysis. This suggests that the Klamath Facilities Removal analysis related to loss of jobs and loss of tax revenue is still applicable and that the impacts enumerated in the economic analysis for loss of dam operation and maintenance activities at the hydrologic facilities, reservoir recreation, decrease in property values near the reservoirs, and loss of local government revenues can now be more readily absorbed by the regional economy. The economic gains from construction jobs related to dam removal and mitigation remain beneficial to the same extent as described in the Klamath Facilities Removal EIS/EIR.

Commercial fishing and in-river fishing remain beneficial however the expiration of KBRA the fish focused restoration and reintroduction actions planned for the upper basins may be reduce somewhat. The fish population modeling done without KBRA restoration actions indicates that the increase of Chinook salmon with dam removal will likely be 10 to 12% less. Similarly the economic benefit expected in the commercial and in-river fishery will be more modest.

In addition to Siskiyou County and Klamath County some white water recreation occurs in Jackson County, Oregon and Humboldt County, California. These counties have also experienced improving employment. (Table 3). The region as a whole has experienced some recovery from the recession that ended in 2009.

Conclusion

New economic data for the four counties most likely to experience some economic effects remains similar in magnitude or improved compared to the baseline economic data used in the Klamath Facilities Removal EIS/EIR. New information on economics does not result in a change relevant to environmental concerns.

3.3.15 Environmental Justice

Environmental Setting

Four factors were used to determine if there were a disproportionate number of low-income individuals in the area of analysis: income, poverty, substandard housing, and unemployment. It was found that the area of analysis does not have disproportionately more substandard housing than Oregon or California; therefore no low income individuals were identified on this basis. Data does show that there are disproportionately more individuals with low incomes, living in poverty, or unemployed at a county level relative to the State(s). The counties in the area of analysis all have greater percentages of American Indians than California and Oregon as a whole. Data indicate that any impacts from the Proposed Action could disproportionately affect Indian Tribes and low income and minority residents of Siskiyou County, California and Klamath County, Oregon in the area of analysis.

Impacts

The construction activities related to dam removal for the area of analysis could impact environmental justice communities. Residents of Siskiyou and Klamath counties and tribal people could experience increased traffic, noise and air emissions. As such, county residents and tribal people would be disproportionately affected by construction activities.

The sediment release and short-term water quality impacts could have human health implication for those practicing subsidence fishing and traditionally practices such as religious ceremonies and basket making in the Klamath River. Due to the limited time and the constituents likely to be mobilized during drawdown, the analysis concluded that the sediment release would not cause increases in concentrations of inorganic and organic contaminants that would adversely affect beneficial uses, be toxic to humans, or result in bioaccumulation in the Lower Basin. As such, county residents and tribal people would not be disproportionately affected by the release of sediment in the short term.

Also related to environmental justice, the removal of facilities could eliminate certain jobs related to operation and maintenance of the PacifiCorp facilities (49 jobs), reservoir recreation (4 jobs) and whitewater boating operation (14 jobs). Dam removal would also create jobs within the in-river fishing industry (3 jobs) and construction related jobs (1,400 jobs). On balance, the loss of jobs associated with the Proposed Action would not be a disproportionately high and adverse impact on low income populations.

The Facilities Removal analysis also looked at the impact to social programs caused by the potential reduction in tax revenue from real estate adjacent to the reservoirs and the taxes collected for PacifiCorp operations. It is speculative to quantify short-and long-term impacts on county social programs because many of these programs receive funding from the State and Federal Governments in addition to county funds. If funding to social programs is reduced, effects would disproportionately affect low income county residents.

The Klamath Facilities Removal EIS/EIR also looked at the long-term effect to environmental justice communities from improved water quality and increased numbers and access to salmon. These benefits provided local environmental justice communities improved access to subsistence fishing as well as provided tribal communities better quality water in which to practice traditional activities.

New Information

The small changes in the hydrology related to the flow regime expected under the Joint 2013 Biological Opinion may change the drawdown expected during dam removal. However these slight changes in the sediment release downstream would not alter the likely chemical composition of the sediment as characterized through sediment testing. Even given this new information, the release of sediment in the short term from dam removal would not disproportionately affect tribal or county residents.

The 2014 American Communities Data for Siskiyou County and Klamath Counties has come available and is provided below:

Table 8. 2014 Demographic Information for Siskiyou and Klamath Counties

Geographic Area	Total Population	White (percent)	Black or African American (percent)	American Indian and Alaska Native (percent)	Asian (percent)	Native Hawaiian and Other Pacific Islander (percent)	Some Other Race (percent)	Two or More Races (percent)	Hispanic or Latino (of any race) (percent)
California	**37,253,956**	**57.6**	**6.2**	**1.0**	**13.0**	**0.4**	**17.0**	**4.9**	**37.6**
Siskiyou County	44,900	84.7	1.3	4.0	1.2	0.2	3.3	5.3	10.3
Oregon	**3,831,074**	**83.6**	**1.8**	**1.4**	**3.7**	**0.3**	**5.3**	**3.8**	**11.7**
Klamath County	66,380	85.9	0.7	4.1	0.9	0.1	4.1	4.1	10.4

Source: U.S. Census Bureau 2010, U.S. Census Bureau 2014.

For the most part, the demographic composition of these counties remains very similar to the characteristics used in the Klamath Facilities EIS/EIR. The American Indian and Alaska Native population increased slightly in 2014 in Siskiyou and Klamath Counties and remains higher than the percentage represented in the states of California and Oregon.

The economy of Siskiyou and Klamath counties has improved somewhat since the Klamath Facilities Removal EIS/EIR analysis. Please see Section 3.3.14 Socioeconomics for a robust discussion on New Information relevant to economics.

The economic indicators in the primary areas of analysis for dam removal, Siskiyou County, CA and Klamath County, OR suggest improvement or similar conditions exist in the regional economy when compared with the 2009 economic data used for the Klamath Facilities Removal EIS/EIR analysis. This suggests that the Klamath Facilities Removal analysis related to loss of jobs and loss of tax revenue is still applicable and that the impacts enumerated in the environmental justice analysis can now be more readily absorbed by the regional economy. The economic gains from construction jobs and in-river recreation remain beneficial and may to some extent offset some of the adverse effects.

The salmonid population modeling that was completed for the Klamath Facilities Removal EIS/EIR incorporated some of the effects of habitat restoration related to the KBRA. The benefits described in the environmental justice analysis included the benefits that increased access to more abundant fish populations would have for tribal communities. These benefits to tribal communities would still occur if the fish populations increase more slowly due to a more limited fish reintroduction and stream restoration program.

Conclusion

New hydrologic data, demographic data, economic data, and fisheries data for the area of analysis most likely to experience effects from dam removal and which also contains environmental justice communities remain similar in magnitude to that used in the Klamath Facilities Removal EIS/EIR. New information on environmental justice does not result in a change relevant to environmental concerns.

3.3.16 Population and Housing

Environmental Setting

The area of analysis includes a combination of urban and rural communities. The area of analysis also includes the residential rural areas immediately near the Copco 1 and 2 Dams and just upstream of the J.C. Boyle Dam. Effects considered for this resource area would be related to availability of housing for non-local construction workers and whether the use of housing by construction workers would impact the local housing market.

Impacts

Significant impacts on population and housing would result if the project resulted in substantial population growth in the area of analysis. Population growth in a community is "substantial" if it would result in housing needs exceeding the number of housing units projected to be available and affordable. The housing in the area analyzed, Hornbrook and the City of Yreka in California and Klamath Falls and Medford in Oregon and the unincorporated near Copco 1 and 2 Dams and just upstream of the J.C. Boyle Dam, was shown to have adequate available rental housing.

New Information

Since the publication of the Klamath Facilities Removal EIS/EIR, 2010 to 2014 American Community Survey 5-Year Estimates has been made available. Table 4 contains the key demographic data for the population centers most likely to house construction workers for 2014 and the original 2010 data. The housing inventory slightly increased in Klamath Falls, Oregon and Yreka, California and slightly decreased in Medford, Oregon. Overall the vacancy rate for rental properties slightly increased since the analysis presented in the Klamath Facilities Removal EIS/EIR. The inventory and the occupancy rates are very similar to that found in the 2010 census data.

Table 9. Housing Inventory and Vacancy Rate

Location	Housing	Housing	Percent	Vacancy	Vacancy	Change

	Units 2014	Units 2010	Change	Rates 2014	Rates 2010	
Klamath Falls, OR	10,248	9,595	+6.8%	11.1%	11%	+.1%
Medford, OR	32,279	32,430	-0.5%	8%	7.2%	+.8%
Yreka, CA	3,589	3,394	+5.7%	9.6%	7.6%	+2.0%

Conclusion

New demographic data for the three communities most likely to house construction workers remains similar in magnitude to that used in the Klamath Facilities Removal EIS/EIR. New information on population and housing does not result in a change relevant to environmental concerns.

3.3.17 Public Health and Safety, Utilities and Public Services, Solid Waste, Power

Environmental Setting

The analysis of public health and safety, utilities and public services, solid waste, and power focuses on public services in region of the hydroelectric reach included Klamath County, Oregon and Siskiyou County, California.

Impacts

The analysis of the alternatives on public health and safety included evaluation of the impact to police, fire, and other emergency response times and effectiveness; whether the alternatives and construction activity would restrict access to emergency centers or evacuation routes, and whether the project or its construction would directly create or increase the risk posed by an existing hazard.

The analysis of utilities and public services include potential impacts on electricity, natural gas, water supplies, stormwater management, wastewater, solid waste, telecommunications, public roads, police, and fire services. The power analysis examines the potential impacts on existing power facilities and the resulting loss of power production.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on recreation.

Conclusion

No additional information has been identified on public health and safety, utilities and public services, solid waste, and power relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on public health and safety, utilities and public services, solid waste, and power does not result in a change relevant to environmental concerns.

3.3.18 Scenic Quality

Environmental Setting

In terms of scenic quality, BLM's VRM methodology classifies public land as either Class A, B, or C scenic quality (inherent scenic attractiveness), with A being the most distinctive and Class C being the most common, in terms of variety of key factors such as; color, water, vegetation, landform, influence of adjacent scenery, scarcity, and cultural modifications (BLM 2007). Analysis by the Lead Agencies concluded that all of the project area would be contained within Class A landscapes or a highly distinctive scenic landscape. The VRM analysis also classified the action area as an area of high visual sensitivity because recreational sightseers are highly sensitive to changes in visual quality, public interest and controversy created in response to proposed activities, portions of the area of analysis are within the viewshed of residential areas, and most of the Klamath River has been designated under the National WSRA.

Impacts

The analysis primarily entails the identification and description of changes to scenic resources in the landscape. Scenic quality is the essential resource that supports the recreational activity of "sightseeing" recreation. Other potential aesthetic impacts associated with odor, noise and physical contact.

The impact analysis looked at the short-term and long-term effect of dam removal. In the short-term prior to revegetation of the reservoir sites adverse effects were expected to view-sheds and recreational vantage points. In the long-term return of the area to a free-flowing river and removal of facilities that do not blend with the surrounding natural environment could have beneficial effects however the loss of some historical structures could have adverse effects to the visual landscape.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on recreation.

Conclusion

No additional information has been identified on scenic quality relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on

public health and safety, utilities and public services, solid waste, and power does not result in a change relevant to environmental concerns.

3.3.19 Recreation

Environmental Setting

Rivers, streams, and lakes are common throughout the mountainous landscape, and grasslands exist in the high plateau areas of the region. A large number of public lands are in the region, including five national forests, five National Wildlife Refuges, one national park, one joint national and State park, and two national monuments. These areas provide sightseeing, camping, hiking, fishing, wildlife viewing, and other recreational opportunities. In addition, a number of the lands have rivers or river segments designated as Wild and Scenic Rivers (WSRs).

A number of rivers cross the region, including four rivers designated as WSRs, Sycan River, Smith River, and Trinity River. Portions of the Klamath River, are designated as Wild and Scenic under Section 2(a)ii of the Wild and Scenic Rivers Act. Other rivers in the Klamath Basin include the Salmon River, Scott River, and Clear Creek. These rivers provide a variety of recreational opportunities, including sightseeing, fishing, and whitewater boating.

Impacts

This discussion of environmental effects considers the implications of the Proposed Action on the potential changes to river-and reservoir-based recreation opportunities, activities, and settings within the area of analysis. The analysis assessed both short-term and long-term effects on access, flow-dependent recreational activities, recreational fishing, and other recreational activities associated with the existing Klamath River corridor and reservoir recreational facilities within the study area.

The impacts analyzed temporary construction impacts related to dam removal from restricted access and increased noise and dust. General construction activities would temporarily impact recreation use in the action area.

The analysis also looked at permanent effects to reservoir recreation facilities, reservoir and lake-based recreation, white water rafting, and water-contact-based recreation. With the loss of the reservoirs, recreation associated with these waterbodies was negatively impacted. White water rafting in the action area especially in the Hell's Corner reach would also be permanently impacted as the flow regime would permanently impact that reach such that Class IV+ rapid in late summer would not occur. Another permanent change to the nature of recreation would be that water-contact-based recreation would likely benefit from the reduce instances of certain algae that produce microcystin toxin which has been associated with public health risks for recreational water use.

Additionally, this section included a Wild and Scenic River that provided an assessment of the effects of full facilities removal on each of the four resources specified in the WSR Act Section 7(a) (fish, wildlife, scenery, and recreation river values).

New Information

The implementation of the 2013 Joint Biological Opinion would have a similar effect on the number of recreation days for white water boating and fishing in the Klamath River as would KBRA Flows. Major trends such as significant losses of flat water fishing opportunities on the hydroelectric reservoirs and the loss of the Hell's Corner peaking flows would be similar in magnitude. However the 2013 Joint Biological Opinion does have slightly increased flows in dry water year types in July and August (Table 3). This would lead to slightly more recreational days for white water boating in the Klamath River under the 2013 Joint Biological Opinion.

Conclusion

The implementation of the 2013 Joint Biological Opinion would have similar effects on recreational days as KBRA Flows. No additional information has been identified on recreation relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on recreation does not result in a change relevant to environmental concerns.

3.3.20 Toxic/Hazardous Materials

Environmental Setting

This section describes impacts related to the presence and/or use of hazardous, toxic, and radiological waste (HTRW) within the area of analysis for the Proposed Action and alternatives. A database search and research of any information related to the PacifiCorp facilities were conducted by consultant Environmental Data Resources (EDR) of sites within a 1-mile radius of the area of analysis where there is potential concern for the presence of HTRW (EDR 2010a and 2010b). Potential HTRW sites included spill sites, sites with leaking underground storage tanks, emergency response to releases sites, brownfields (urban development sites previously built upon), hazardous material incidents, and voluntary cleanup sites, among others.

Impacts

The analysis considered whether dam removal activities created a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials. The analysis of significant hazards also considered reasonably foreseeable accidents and existing known sites of contamination.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on toxic/hazardous materials.

Conclusion

No additional information has been identified on toxic/hazardous materials relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on toxic/hazardous materials does not result in a change relevant to environmental concerns.

3.3.21 Traffic and Transportation

Environmental Setting

The area of analysis for the KHSA includes roadways in Siskiyou and Shasta Counties in California and Klamath and Jackson Counties in Oregon. The area of analysis for the KHSA is rural with very low-density development. Most of the private property is undeveloped and/or used as grazing land for cattle with the exception of several small communities in the vicinity of Copco 1 and Iron Gate Reservoirs.

Impacts

Construction related traffic could cause temporary traffic flow effects which would delay other motorists, safety effects by increasing the possibility for a vehicular or pedestrian accident, and impacts to regional transit by delaying transit vehicles.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on traffic and transportation.

Conclusion

No additional information has been identified on traffic and transportation relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on traffic and transportation does not result in a change relevant to environmental concerns.

3.3.22 Noise and Vibration

Environmental Setting

The area of analysis for noise and vibration effects associated with the KHSA includes areas near the Four Facilities and the haul routes in Klamath and Jackson counties, Oregon, and Siskiyou and Shasta counties, California. These are predominately rural residential areas. Siskiyou County presents in the average noise levels for various land use categories in the Noise Element of their General Plan (Siskiyou County 1978). Because noise and vibration impacts would not occur without a receptor, the Affected Environment includes the rural residential areas closest to the proposed construction sites. Existing outdoor ambient noise levels at affected sensitive

receptor locations were estimated using published average ambient noise levels for various land uses.

Impacts

Potential sources of noise from implementation of the Amended KHSA include construction equipment and construction-related traffic noise.

New Information

No new information has been identified related to the effect of dam removal, Keno Transfer and Eastside/Westside Decommissioning on noise and vibration.

Conclusion

No additional information has been identified on noise and vibration relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. New information on noise and vibration does not result in a change relevant to environmental concerns.

3.4 Chapter 4: Cumulative Effects

3.4.1 Changes to Cumulative Effects

Information in the Klamath Facilities Removal Final EIS/EIR

This cumulative analysis considers adverse effects of the project identified in the Klamath Facilities Removal EIS/EIR that are less than significant or significant. The adverse impacts described remain the same since publication of the Klamath Facilities Removal EIS/EIR. As there are no additional adverse effects that have been identified during this reevaluation the only potential new information that would lead to changes relevant to environmental concerns would result from new projects or actions in the area of interest that are reasonably certain to occur.

New Information

To identify whether new projects or actions may have been initiated since completion of the Klamath Facilities Removal EIS/EIR analysis, the key agencies were contacted again in February and March of 2016. These included federal, state, county, and local agency offices to establish if any new projects or actions had been approved that were not included in the Klamath Facilities Removal EIS/EIR. The following information was generated during that effort:

Table 10. Additional Projects

Author	Document Title	Coverage Area	Resource Topic(s) Addressed	Date Published	Timeframe Covered
City of Klamath Falls, and Klamath County, Oregon	Urban Area Transportation System Plan Update	Klamath Falls, OR	Transportation	August 2012	2037
City of Klamath Falls, and Klamath County, Oregon	Klamath Falls Urban Trail Master Plan (Update to the Current Comprehensive Plan)	Klamath Falls, OR	Transportation	April 2016	2037

No additional information has been identified on traffic and transportation relevant to the effects of dam removal, Keno Transfer and Eastside/Westside Decommissioning that was not already included in the analysis published in the Klamath Facilities Removal Final EIS/EIR. For the most part the update to the Transportation Comprehensive Plan targets a plan area upstream of the deconstruction haul routes and activities. The exception to this would be the haul trucks required to relocate anadromous fish species around Keno Impoundment/Lake Ewauna and Link River. Haul trucks may travel on OR66, US97, access roads, and on-site roads. Seasonal trap and haul operations would occur during periods of poor water quality. Hauling activities would occur after the peak traffic-generating period of facility removal because fish cannot access Keno Dam until after removal of the Four Facilities; however, some construction traffic associated with completing removal activities and reservoir restoration may occur at the same time as hauling operations. The Trail Master Plan and the TSP update to the transportation system in the Klamath Falls area such that the traffic flow and access to multiple modes of transportation is improved. The impacts from traffic and transportation remain an **i**ncremental contribution to the significant cumulative effects associated with traffic the Trail Master Plan and TSP update would not change this evaluation.

Also, the Klamath Power and Facilities Agreement was signed in April 2016. This agreement settled several outstanding issues for the Klamath Project water users. In particular the agreement dealt with three topics: whether the operation of Keno was to be paid by the Reclamation Klamath Project water users; screening of Reclamation's Klamath Project intakes in Keno Reservoir for fish; and the cost of power to be borne by Klamath water users. The effects of screening Klamath Project intakes for fish could potentially be relevant to the cumulative analysis in the Klamath Facilities EIS/EIR however the details of how this project would be executed have not yet been developed or disclosed. Therefore this project is not ripe for analysis at this time and the impacts too speculative to be effectively addressed in this reexamination.

Conclusion

New information on traffic and transportation does not result in a change relevant to environmental concerns. Additional information related to traffic and transportation projects that are reasonably certain to occur would not be cumulatively considerable. The KPFA is too

speculative to be effectively addressed at this time. New information on cumulative effects does not result in a change relevant to environmental concerns.

3.5 Chapter 5: Other Required Disclosures

3.5.1 Changes to Other Required Disclosures

Information in the Klamath Facilities Removal Final EIS/EIR

This chapter of the Final EIS/EIR includes discussion of Irreversible and Irretrievable Commitment of Resources, Relationship between Short-term Uses and Long-term Uses, Growth Inducing Impacts, Summary of Impacts, Listing of Significant and Unavoidable Impacts, Adverse Environmental Effects After Mitigation, NEPA Environmentally Preferable Alternative, and CEQA Environmentally Superior Alternative, and Controversies and Issues Raised by Stakeholders.

New Information

As a milestone in all three settlement agreements the KHSA, KBRA, and the UKBCA, the Secretarial Determination on dam removal would have influenced timing and implementation in the KBRA and UKBCA. With expiration of the KBRA, limited implementation of UKBCA, and amendment of the KHSA the three settlement agreements has been decoupled. However as KBRA and UKBCA, did not dictate the process to remove dams nor mitigate the effects of dam removal, expiration of KBRA and the less than full implementation of the UKBCA does not change the proposed action considered in the Klamath Facilities Removal EIS/EIR or the impacts of that removal. However the synergistic effects of implementation of the three agreements in concert have been lost and some benefits in this reexamination have been tempered due to the expiration of KBRA. In particular the expiration of KBRA influences the benefit of dam removal to aquatic resources, water quality, water supply/water rights, tribal trust, and socioeconomics.

The other required disclosures in Chapter 5 of the EIS/EIR include information for the complete range of alternatives including dam removal and KBRA. No new information has been identified that would change the analysis provided in sections Irreversible and Irretrievable Commitment of Resources, Relationship between Short-term Uses and Long-term Uses, Growth Inducing Impacts, NEPA Environmentally Preferable Alternative, CEQA Environmentally Superior Alternative, and Controversies and Issues Raised by Stakeholders. Within Chapter 5 several long lists of impacts and benefits are reported in sections Summary of Impacts, Listing of Significant and Unavoidable Impacts, Adverse Environmental Effects After Mitigation. The lists of impacts remain unchanged. As described in this SIR, some benefits have been tempered.

Conclusion
The expiration of the KBRA decouples the KBRA from KHSA. Though to some degree the overall benefits expected have been moderated by the loss of KBRA, no discernible adverse environmental consequence has been identified.

3.6 Chapter 6: Compliance with Applicable Laws, Policies, and Plans

3.6.1 Changes to Compliance with Applicable Laws, Policies, and Plans

Information in the Klamath Facilities Removal Final EIS/EIR
This section describes the applicable Federal, State, and local laws, policies, and regulations.

New Information
No new information related to applicable laws, policies, and plans and dam removal has been identified.

Conclusion
As there is no change to the applicable laws, policies, or plans since publication of the Klamath Facilities Removal EIS/EIR, there is no change relevant to environmental concerns.

3.7 Chapter 7: Consultation and Coordination

3.7.1 Consultation and Coordination

Information in the Klamath Facilities Removal Final EIS/EIR
This section of the Klamath Facilities Removal EIS/EIR described Government-to-Government coordination, public outreach, and communication on specific permits and regulation.

New Information
Regarding the Endangered Species Act, FERC has statutory responsibility to consult with the FWS and NMFS.

Regarding Section 106 of the National Historic Preservation Act, FERC will assume the responsibility to fulfill its requirements of the NHPA.

The document distribution for this SIR will include electronic notification via e-mail and post card mailing to the Klamath Facilities Removal mailing list.

Conclusion

No additional consultation or coordination has occurred regarding dam removal and NEPA, ESA, or NHPA since publication of the Klamath Facilities Removal Final EIS/EIR. New information on consultation and coordination does not result in a change relevant to environmental concerns.

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ATTACHMENT B

California State Water Resources Control Board Scoping Report for Lower Klamath Project License Surrender Environmental Impact Report (April 28, 2017)

Scoping Report

for

Lower Klamath Project License Surrender

Environmental Impact Report

California State Water Resources Control Board

April 2017

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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Abbreviations and Acronyms

BiOp	Biological Opinion
CalEPA	California Environmental Protection Agency
CCC	California Coastal Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
IFR	Institute for Fisheries Resources
KBRA	Klamath Basin Restoration Agreement
KHP	Klamath Hydroelectric Project
KHSA	Klamath Hydropower Settlement Agreement
KRRC	Klamath River Renewal Corporation
LKP	Lower Klamath Project
North Coast Regional Board	North Coast Regional Water Quality Control Board
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
PCFFA	Pacific Coast Federation of Fisherman's Associations
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USFWS	United States Fish and Wildlife Service

1 INTRODUCTION

Pursuant to the California Environmental Quality Act (CEQA), the State Water Resources Control Board (State Water Board) will prepare an Environmental Impact Report (EIR) for removal of the Lower Klamath Project (LKP) dam developments. The EIR is being prepared to support consideration of the Klamath River Renewal Corporation's (KRRC) LKP application for water quality certification. The KRRC is proposing to remove sufficient portions of the LKP to create a free-flowing Klamath River and provide for volitional fish passage through the Federal Energy Regulatory Commission (FERC) license surrender process. The EIR will evaluate potential impacts of the LKP to water quality and other resources within California as compared to the environmental baseline, and will also evaluate a range of alternatives.

As part of the environmental review process, the State Water Board issued the *Notice of Preparation and Scoping Meetings for an Environmental Impact Report for the Lower Klamath Project License Surrender (NOP)* (Appendix A) for a 42-day public comment period and held three public scoping meetings to solicit public and stakeholder input. This Scoping Report documents the scoping process that occurred for the NOP, including the public scoping meetings and all comments received.

1.1 Scoping Purpose and Process

Scoping is generally defined as "early public consultation," and is one of the first steps of the CEQA environmental review process. The purpose of scoping is to involve the public, stakeholders, Native American Tribes, and other interested agencies early in the CEQA process to help determine the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and to eliminate from detailed study, issues found not to be important (CEQA Guidelines Section 15083). Scoping has also been found to be "an effective way to bring together and resolve the concerns of affected federal, state, and local agencies, the proponent of the action, and other interested persons including those who might not be in accord with the action on environmental grounds" (CEQA Guidelines Section 15083).

As part of the scoping process, agencies often conduct public meetings. Public meetings allow interested persons to listen to information about a proposed project or action and express their concerns and viewpoints to the implementing agencies. During scoping meetings, the lead agency generally outlines the proposed project, identifies issues to be addressed in the environmental compliance document, and solicits public comments. Agencies also establish a scoping comment period to accept scoping comments submitted in writing. Scoping comments are considered by the agencies during the formulation of alternatives and are used to determine the scope of the environmental issues to be addressed in the environmental document. The State Water Board's NOP public scoping period began on December 22, 2016 and ended at 5:00 p.m. on February 1, 2017.

1.2 CEQA Scoping Requirements

After the lead agency determines an EIR is required for a project, the lead agency shall send a Notice of Preparation of an EIR to the Office of Planning and Research and each

responsible and trustee agency. This notice is also sent to every federal agency involved in approving or funding the project (CEQA Guidelines Section 15082 (a)).

For a project of statewide, regional, or area-wide significance, the lead agency must conduct at least one scoping meeting, and provide notice of the scoping meeting to all of the following[1]:

a) Any county or city that borders on a county or city within which the project is located, unless agreed otherwise;
b) Any responsible agency;
c) Any public agency that has jurisdiction by law with respect to the project; and
d) Any organization or individual who has filed a written request for the notice.

2 PROJECT OVERVIEW

This section describes the project location and background, and the alternatives introduced during scoping.

2.1 Project Location and Background

The LKP (FERC Project No. 14803) is located along the Klamath River, in Siskiyou County, California, and in Klamath County, Oregon (Figure 2-1). The LKP is currently part of the Klamath Hydroelectric Project (FERC Project No. 2082), which is owned and operated by PacifiCorp. The Klamath Hydroelectric Project (KHP) presently consists of seven dam developments: East Side, West Side, Keno, J.C. Boyle, Fall Creek (located on Fall Creek, a Klamath River tributary), Copco No. 1, Copco No. 2, and Iron Gate. On September 23, 2016, PacifiCorp and the KRRC filed a joint license transfer application with FERC, which seeks to transfer the J.C. Boyle, Copco No. 2, Copco No. 1, and Iron Gate dam developments to the KRRC. If FERC approves the license transfer application, the California portion of the LKP would include the Copco No. 2, Copco No. 1, and Iron Gate dam developments and the Oregon portion of the LKP would include the J.C. Boyle dam development. Concurrent with the license transfer application, the KRRC filed a license surrender application with FERC to decommission the LKP.

The State Water Board is the California State agency responsible for Clean Water Act (CWA) Section 401 water quality certifications that involve or are associated with a hydroelectric facility, and for which the proposed activity requires a FERC license or amendment to a FERC license (Wat. Code section 13160; Cal Code Regs., tit. 23, section 3855, subd. (b)(1)(B)(2)). On September 23, 2016, the KRRC submitted a water quality certification application to the State Water Board to decommission the LKP. Prior to the State Water Board taking a final action on the KRRC's water quality certification application, it must first comply with CEQA. The State Water Board has determined it is the CEQA lead agency for the KRRC's LKP, and an EIR will be prepared.

[1] CEQA Guidelines Section 15082.

This EIR will focus primarily on impacts related to the actions proposed for the LKP's dam developments in California. Actions at J.C. Boyle will be described, but impacts will only be addressed to the extent that such actions will adversely impact the California environment. The Oregon Department of Environmental Quality (ODEQ) is responsible for acting on a separate water quality certification application for the LKP License Surrender that addresses the J.C. Boyle dam development.

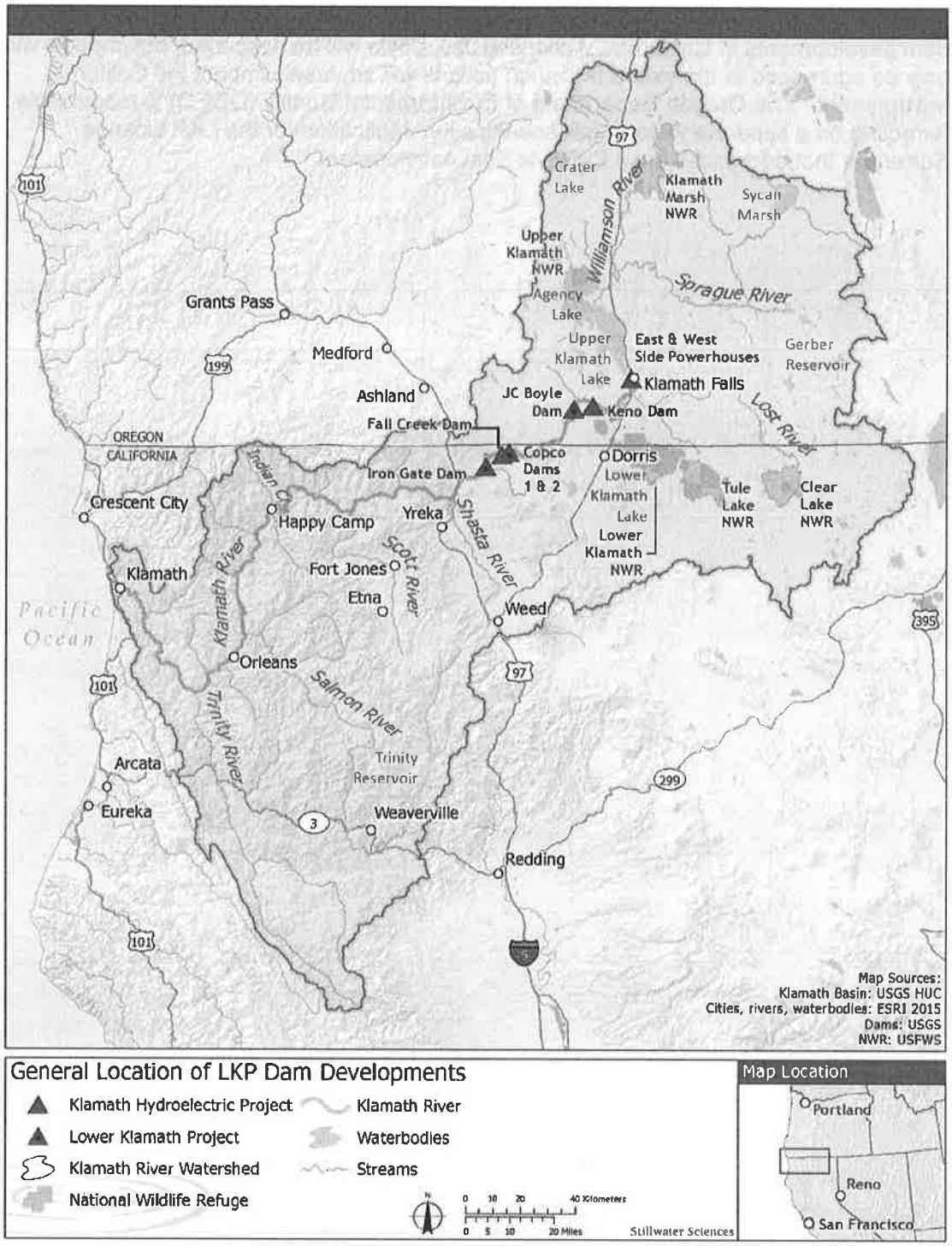

Figure 2-1. General Location of LKP Dam Development.

2.2 Alternatives Introduced During Scoping

As included in the NOP (Appendix A) and discussed at the public scoping meetings, the State Water Board will evaluate a range of alternatives from the No Project Alternative to

removal of the four LKP dam developments (KRRC's Proposed Project). The State Water Board requested input from the public on the range of alternatives and any suggestions for specific alternatives to the KRRC's Proposed Project (see also Appendix B).

Per CEQA Guidelines 15126.6(f), "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the Lead Agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making."

The NOP indicated that the EIR will evaluate environmental impacts associated with the KRRC's Proposed Project and alternatives to the KRRC's Proposed Project. The NOP included a summary of potentially significant impacts anticipated with the KRRC's Proposed Project in NOP Attachment 1: Summary of Potential Impacts Associated with the Lower Klamath Project License Surrender. (Appendix A).

3 NOTICE OF PREPARATON AND SCOPING MEETINGS

3.1 Scoping Meetings

This section provides summary information regarding the scoping meetings. The dates and locations of the scoping meetings are presented in Table 3-1.

The State Water Board recognizes the complex and controversial nature of the proposed LKP removal, that different communities along the Klamath River have different input to provide, and that travel for community members might be difficult. In this context, valuable community input may have been lost under CEQA's minimum requirement of one scoping meeting. To facilitate community input, the State Water Board conducted three scoping meetings during the NOP comment period.

Table 3-1. Public Scoping Meetings - Dates and Locations.

Arcata, CA
January 12, 2017 (5:00 pm–7:00 pm) D Street Neighborhood Center 1301 D Street Arcata, CA 95521
Sacramento, CA
January 20, 2017 (10:00 am–12:00 pm) CalEPA Building – Byron Sheet Auditorium 1001 I Street, 2nd Floor Sacramento, CA 95814
Yreka, CA
January 26, 2017 (5:00 pm–7:00 pm) Best Western Miner's Inn – Convention Center, Auditorium 122 E. Miner Street Yreka, CA 96097

The Sacramento public scoping meeting was recorded and webcast live on the California Environmental Protection Agency (CalEPA) website (www.calepa.ca.gov/broadcast/). During the webcast, participants were invited to submit comments via electronic mail to: wr401program@waterboards.ca.gov. One comment was submitted via email as part of the webcast meeting (Appendix C). A video recording of the CalEPA scoping meeting is available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/scoping_meeting_2017.shtml.

The Yreka public scoping meeting was originally scheduled for January 10, 2017. On January 9, 2017, the State Water Board canceled the Yreka scoping meeting due to inclement weather and a strong advisory against travel from the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service.
On January 10, 2017, the State Water Board rescheduled the Yreka scoping meeting for January 26, 2017, providing an additional two weeks' notice for interested parties to make arrangements to attend.

3.1.1 Notice of Preparation

The State Water Board exceeded the CEQA notification requirements (CEQA Guidelines 15082 and 15083). On December 22, 2016, the State Water Board sent the NOP to the following entities:

- Governor's Office of Planning and Research (hand delivered)
- Forty-four letters to responsible, trustee, and federal agencies (certified mail)
- Siskiyou, Del Notre, Humboldt, Modoc, Shasta, Trinity, and Sacramento County Clerk offices (certified mail)

In addition, on December 22, 2016, State Water Board staff posted the NOP on its Lower Klamath Project webpage, and sent notification to all interested parties on the State Water Board's "Lower Klamath Project License Surrender" and "Water Rights Water Quality Certification" email subscription lists. Certified mail records indicate that County Clerk NOP notices were delivered between December 23, 2016 and

December 29, 2016, as follows: Sacramento (December 23, 2016); Siskiyou, Del Norte, Humboldt, Modoc, and Shasta (December 27, 2016); Trinity (December 29, 2016). Certified mail records indicate the responsible, trustee, and federal agencies were delivered between December 23, 2016 and December 28, 2016, with the exception of the Sierra Nevada Conservancy which was delivered on January 28, 2017[2].

In late December 2016, State Water Board staff was contacted by three individuals who had heard about the scoping meetings, but were requesting additional information regarding the scoping meetings or copies of the Notice of Preparation, as they had not received them directly. Based on those requests, State Water Board staff determined it would be beneficial to notify parties on PacifiCorp's KHP email and hard copy mailing lists[3].

On January 3, 2017, the State Water Board provided electronic notice to the KHP's email list, in addition to providing links to the NOP. This email provided information to interested parties about the water quality certification process and included directions on how to sign up for the "Lower Klamath Project License Surrender" email list, so that interested parties could continue to receive updates related to the LKP as it relates to the State Water Board's water quality certification process. On January 6, 2017, the State Water Board also sent the NOP to individuals on the KHP hard copy mailing list. The January 6, 2017, letter also directed interested parties to sign up for the Lower Klamath Project License Surrender email list or contact State Water Board staff to be added to the hard copy mailing list for the LKP.

Due to adverse weather conditions, the State Water Board canceled and rescheduled the Yreka public scoping meeting (see Scoping Report Section 3.1 – Scoping Meetings).

Shortly after rescheduling the Yreka public scoping meeting, on January 11, 2017, the State Water Board provided updated information to:

- Responsible, trustee, and federal agencies (certified mail)
- Siskiyou, Del Notre, Humboldt, Modoc, Shasta, Trinity, and Sacramento County Clerk offices (certified mail)
- FERC's eLibrary (electronic submission)
- Interested parties on the Lower Klamath Project email subscription list
- Interested parties on the Water Rights Water Quality Certification email subscription list
- Interested parties on the KHP email subscription list
- Interested parties on the Klamath Hydroelectric Project hardcopy mailing list
- State Water Board's Lower Klamath Project webpage

[2] Delivery attempted on December 24, 2016, but office was closed.
[3] PacifiCorp's Klamath Hydroelectric Project email and hard copy mailing lists were prepared for PacifiCorp's Klamath Hydroelectric Project, which is a separate FERC project than the KRRC's LKP.

3.1.2 Newspaper Advertisements

To facilitate public input during the NOP public comment period, the State Water Board posted information regarding the scoping meetings in the following newspapers:

- Eureka Times-Standard (January 6, 8, and 10, 2017)
- Sacramento Bee (January 6, 8, and 9, 2017)
- Siskiyou Daily News (January 6, 8, and 9, 2017)

Following the cancelation and rescheduling of the Yreka public scoping meeting, the State Water Board made the following additional newspaper postings to reflect the updated Yreka public scoping meeting:

- Eureka Times-Standard (January 22 and 24, 2017)
- Sacramento Bee (January 22 and 23, 2017)
- Siskiyou Daily News (January 23, 24, 25, and 26, 2017)

3.1.3 Website

As stated in the NOP, information related to the water quality certification for the LKP has been made available to the public since December 20, 2016, on the State Water Board's LKP webpage http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.shtml

3.2 Scoping Meeting Format and Content

This section describes the overall public scoping meeting format and content.

3.2.1 Agenda

The scoping meetings began with registration at the door, where attendees were asked to sign in and were provided a Scoping Meeting Information Sheet (see Appendix B). Sign-in sheets were provided to record the list of attendees. The State Water Board then gave a formal presentation (see Appendix B). After the presentation, attendees were given an opportunity to ask procedural questions, followed by a public oral comment period. Each scoping meeting continued until all public participants who wanted to provide oral comments had the opportunity to speak.

3.2.2 Meeting Materials

Meeting materials were made available to the public at each of the scoping meetings. These meeting materials included:

- Scoping Meeting Information Sheet (including online links to the NOP, the project website, email subscription instructions to receive project updates, a project location map, and other pertinent project-related information);
- Upon request copies of the visual (i.e., PowerPoint) presentation and NOP were available; and
- A speaker/comment card for individuals who wanted to provide written or oral comments during the scoping meetings.

A copy of all scoping meeting materials provided can be found in Appendix B of this Scoping Report.

3.3 Staff

A list of agency and consultant staff that attended the public scoping meetings is provided in Table 3-2.

Table 3-2. State Water Board and Consultant Staff that Attended Public Scoping Meetings.

Arcata, CA	
Erin Ragazzi	State Water Board
Parker Thaler	State Water Board
Marianna Aue	State Water Board
Kristen Gangl	State Water Board
Maia Singer	Stillwater Sciences
Lauren McClure	Stillwater Sciences
William Rich	William Rich & Associates
Jennifer Yang	KCW Court Reporters & Video Services
Sacramento, CA	
Erin Ragazzi	State Water Board
Parker Thaler	State Water Board
Marianna Aue	State Water Board
Alan Laca	State Water Board
Jeff Wetzel	State Water Board
Maia Singer	Stillwater Sciences
Lauren McClure	Stillwater Sciences
Kathryn Swank	Golden State Reporting & Video
Yreka, CA	
Erin Ragazzi	State Water Board
Parker Thaler	State Water Board
Marianna Aue	State Water Board
Kristen Gangl	State Water Board
Maia Singer	Stillwater Sciences
Lauren McClure	Stillwater Sciences
William Rich	William Rich & Associates
Carol Chase	Coleman Reporters

4 SCOPING COMMENT SUMMARY

This section presents a summary of all comments received by the State Water Board. As described in Section 1, the scoping comments are considered by the lead agency in determining the scope of the EIR analyses.

4.1 Scoping Comment Overview

The State Water Board received 83 oral and eight written comments during the public scoping meetings (Table 4-1), as well as 1,327 written comments submitted via email or letter, for a total of 1,418 comments. There were 1,321 written comments submitted via email or letter and received by February 1, 2017; seven comments were received after the close of the comment period. All comments referenced in this report will be considered in development of the EIR. Entities from the federal, state, local, and Native American Tribal governments, organizations, and individuals who provided written comments are listed in Table 4-2 through Table 4-4. Individuals that provided oral and/or written comments during the scoping meetings are listed in Table 4-5 along with their affiliation, as appropriate. Oral and/or written comments received at the scoping meetings are presented in Appendix C in the order that they were received. Written comments are provided in Appendix D, organized alphabetically within each comment group (i.e., Federal Agencies, State Agencies, Native American Indian Tribes, Local Agencies, Organizations, Individuals, Klamath Riverkeepers).

Table 4-1. Number of Participants and Comments Received During Scoping Meetings.

	Number of Participants*	Number of Oral Comments	Number of Written Comments
Arcata—January 12, 2017	135	35	4**
Sacramento—January 20, 2017	6	5	0
Yreka—January 26, 2017	129	43	4**
Total	**270**	**83**	**8****

* The number of participants reflected in this table is based on the number of individuals that signed in for the meeting. Additional individuals who attended the meeting but did not sign-in are not reflected in the participant count.

** These meeting participants submitted written comments only and did not speak. Oral commenters who also submitted comments in written form are counted under Oral Comments with both the oral and written comments included in Appendix C.

Table 4-2. Written Comments Received from Governmental Entities.

Name	Affiliation
Federal	
John Hamilton	United States Fish and Wildlife Services (USFWS)
State	
Larry Simon	California Coastal Commission
Neil Manji	California Department of Fish and Wildlife (CDFW)
John Laird	California Natural Resources Agency
Clayton Creager	North Coast Regional Water Quality Control Board (North Coast Regional Board)
John Driscoll	Representative Jared Huffman
Native American Tribes	
Tahj Gomes	Etna Band of Indians
Robert Franklin	Hoopa Valley Tribe (Fisheries Department)
Leaf Hillman (and Craig Tucker)	Karuk Tribe
Crystal Robinson	Quartz Valley Indian Reservation
Janice Crowe	Shasta Indian Nation
Roy Hall and Betty Hall	Shasta Nation

Name	Affiliation
Betty Hall	Shasta Nation
Thomas O'Rourke	Yurok Tribe
Local	
James Adams	Bogus Elementary School Board
Tom Mallams	Klamath County Commissioner
Mike Mallory	Siskiyou County Assessor-Recorder
Brandon Criss	Siskiyou County Board of Supervisors
Ray Haupt	Siskiyou County Board of Supervisors
Michael Kobseff	Siskiyou County Board of Supervisors

Table 4-3. Written Comments Received from Organizations.

Name	Organization
Richard Roos-Collins, Steve Rothert, Curtis Knight, Mike Gerel, Brian Johnson	American Rivers, CalTrout, Sustainable Northwest, Trout Unlimited
Richard Gierak	Interactive Citizens United
Aaron Voit	Karuk-Berkeley Collaborative
Jaime Stephens, Sarah Rockwell	Klamath Bird Observatory
Konrad Fisher	Klamath Riverkeeper
Shari Tarantino	Orca Conservancy
Glen Spain	Pacific Coast Federation of Fishermen's Associations (PCFFA) and Institute for Fisheries Resources (IFR)
Marc Robbi & Corina Cohen	Rolling Rivers Farm
Kristen Sellmer	Salmon River Restoration Council
Regina Chichizola	Save the Klamath Trinity Salmon
John Livingston	Sierra Club
Rex Cozzalio	Siskiyou County Water Users Association
Richard Marshall	Siskiyou County Water Users Association
Joshua Strange	Sweet River Sciences
Jay Ziegler and Catherine Macdonald	The Nature Conservancy
Cindy Noble, Peter Mangarella, Eric Young, Derek Campbell, Bill Burden, Bill Templin, Christy Fischer, and Bob Blankenship	Trout Unlimited
Nell Scott	Trout Unlimited
Colleen Weiler	Whales and Dolphins Conservation

Table 4-4. Written Comments Received from Individuals.
(Affiliation information included in parentheses when provided as part of comment.)

Name	
Jim and Yvette Adams	Walt Levitus
Bo Adams	David Lipscomb
Alan Andersen	Trevor Lodence
Alan Andersen and Becky Davis	Pat Lunde
Jason Anderson	Eric Lwafuchi
Kurt Arens	Don Mackintosh
Kevin Ashbran	Mary Ann Madej

Name	
Jerry Bacigalupi	Peter Mangarella
Patrick Backer	Tressa Mannion
Jesse Bahm	Terry Mar
John Bair	Ken Martinez
Edward Barich	Vince Martino
K.L. Barton	Erik Mason
John and Loy Beardsmore	William Matchett
John Beardsmore	Kevin Mather
Cathy Beardsmore	Raymond Mattz
Ed Beardsmore	Nathan Mayl
Shaun Beardsmore	Stephen McCaffrey
Jeff Beardsmore	Mattheau McCreary
Chris Beath	Thomas McGee Sr.
Hal Beaver	Tom Menne
Trevor Beer	Wayne Merhoff
Craig Belden	Jay Mohahan
Jerry Bender	Mike Monroe
Ursula Bendix	Dave Moore
Grace Bennett (Former Supervisor for Siskiyou County)*	Warren Moorehead
Lisa Beranek	Tom Morehouse
John Bermel	Maxwell Morgan
Mark Bevans	Michael Morgan
Brian Bic	Jerry Mosier
Michael Bland	Mark Moskowitz
Paul and Margaret Boos	John Motlow
William Boosman	Nate Moylan
James Bowen	John Murphy
Steve Boyle	Dennis Murphy
Craig Bradshaw	James Naughton
John Bretl	Michael Nelson
Glen Briggs	Robert Nelson
Glen Briggs	Steve Netti
Gerald Brooks	Jerry and Linda Newton
Mark Brown	Thomas Nickelson
Brandon Bugge	Gail Nicola
Matt Burns	Nathan Niebergall
Adrian Cardenas	Craig Nielsen
WM Case	Susan Nolan
Tim Cate (University of Oregon)*	Kari Norgaard
Anthony Chacon Sr.	Cheryl and John Noutary

Name	
Paul Chua	Tom Obermeier
Rennie Cleland	Hugh O'Donnell
Jonathan Clifton	Rodney Oien
Brian Cochran	Niall O'Kane
Robert Cockcroft	Devin Olsen
Jim Cody	Vernon Olsen
Alex Corum	Buck and Judith Olson
Rex Cozzalio	Albert Olson
Earle Cummings	Jason Olson
Lisa Cutter	James Orosz
Brian Daniels (Penn Cultural Heritage Center/Museum)*	Jay Owen
Brett David	Patrick Owen
Brittany Davis	Dennis Pagones
Lori Day	Allen Parker
Timothy Devine	Mark Pastorius
Peter Douglas	George Paul
Michael Drais	Suzanne Perlick
Ann Duchi	Jeff Pierce
Anderson Dunn	Morgan Pierce
Elizabeth Earthman	Randal Pope
Linda Ebert	Ed Prather
Gordon Ehrman	Maymi Preston-Donahue
Paul Elkins	Errol Previde
David Enelow	Sam Rametta
Celio Enriquez	Michael Ream
Joshua Feltenberger	Joanna Reichhold
Miles Fidler	Chrissie Reynolds
Bruce Finney	Phil Reynolds
Richard Flynn	Matt Richardson
Linda-Marie Franks	Tom/Lee Rickard
Dan Frazier	Kevin Riddle
Christy Frenzen	Bob Rosenberg
Vince Fugina	Ed Rossi
Robert Fuller	Jim Rowland Jr.
Thomas Galindo	Tim Ryan
Joe Garoutte	Charles Salomon
Lawrence Gatt	Jim Sangster
Vanessa Gayton	Michael Sapunor
Robert Gearheart	Suzie Savoie
Miranda Geller	John Schaefer
Richard Gierak	Eric Schmidt

Name	
Brandon Gomez	Andrew Schneider
Michael Gonnella	Evan Sedlock
Juliet Grable	Mary Seeger
Jason Grant	Paul Sereno
Nora Grant	Vincent Sereno
Ben Halay	Bryan Shadden
Charles Hammerstad	Bill Sharp
Kris Hamrick	Daniel Shaw
Tim Harden	Jennifer Shrum
Ben Harris	Kay and Paul Shulz
Adam Hart	Judith Simmons
Jon Hazlett	Rich Slusser
Doug Heald	Chad Smith
Wilma Heiney	Mark Speer
Heather Hendrixson	Mike Spurlock
Danielle Hereford	Darek Staab
Steven Heron	Richard Stein
John Hewitt	Nita Still
Diane Higgins	Ivaylo Stoilov
John Hogan	Brian Stompe
Junko Hoshi	Jeff Stone
Jeff Howard	BJ Stone
Werner Hoyt	Arnold Strand
Danny Hull	Chris Stromsness
Timothy Hunt	Kenneth Stucki Sr.
Kyle Huntley	John Sullivan
Nancy Ihara	Steve Swadley
Mary Ingram	Stanley Swensen
Yadao Inong	Susan Terence
Aura Johnson	Erica Terence
Will Johnson	Brian Theriot
Dan Johnson	Jody Thompson
Matt Johnson	Licia Todhunter
Bobby and Michelle Jones	Tom Toretta
Chris Juanes	Robert Torre
Tim Kallas	Joshua Tracy
Patrick Kallerman	Daniel Trent
Austin Kamp	Steve Tubbs
Randy Kane	Mark Utter
Matt Kane	Ray Valencia
Alan Keller	Ron Van Fleet
Kevin Kennedy	Jim Vasquez

Name	
Lawrence Kenney	Todd Vick
Bart Kent and Mary Cunningham	Gary Vonderohe
Al Khartchenko	Yee Vue
Mary Ann King	Ken Wallace
Lydia King-Clegg	Susan Wallace
Kenneth Knight	Linda Wallace
Ryan Knoblock	Thomas Wargo
Joe Kopczynski	Wayne Watanabe
Daniel Kowalski	David Waterbury
Roger Krause	Dan Watson
Jacqui Krizo	Bernie Weisgerber
Donald Krueger	Ryan Willis
Matt Kurth	Tim Wilson
Steven Kwok	Michael Wilson
Michael Laing	Eric Wiseman
Chris Lang	Jami Witherspoon
Gavin Lantry	Edward Wolf
Maurice Ledoyen	Chris Yarnes
Michael Legrande	Randall Yates
Jack Lemein	Mark Zemke
Brian LeNeve	Robert Zimmerman
Maxine Levinson	

* Indicates people who wrote as an individual, but who identified themselves as having a current or past affiliation with the entity noted in parentheses.

Table 4-5. Written Comments Received from Klamath Riverkeeper Supports and Individuals.

Klamath Riverkeeper Supporters and Individuals			
Mary Abbott	Linda Evans	Seabrook Leaf	Mickelle Riley
Delia Aceves	Julie Evens	John Leary	Fred Rinne
Chris Ackerson	Michael Evenson	Jon Lee	Sharon Ritsch
Wanda Adams	Maggie Everett	Trisha Lee	Alex Robbi
Alicia Adrian	Douglas Eversole	Roslyn Lehman	Pauli Robinson
Gisele Albertine	Rayna Eyster	Anita Lemke	Michael Robinson
Susan Alexander	Elizabeth Eytchison	Adina Leone	Rod Rochambeau
Paul Alexander	Yassy Faal	Susan Leskiw	Maureen Roche
Tamara Alexander	Julia Farnum	Amber Lewis	Derrick Roffman
Carol Ampel	Dan Farquhar	Jason Lewis	Reina Rogers
Alison Anabal-Walker	Alexander Farrell	Zak Lieby	Doug Rohn
Carrie Anderson	Joanne Feinberg	Judith Lienhard	Tanya Roland
Gordon Anderson	Kai Ferrara	Rachel Lileet-Foley	David Rose
Donna Anderson	Sarah Fields	Ann Lindsay	Doug Rose
Paul Andrade	Ann Fiester	Elliott Linn	Patti Rose
Susan Andrews	Sarah Filer	Judith Little	Cee Roth

Klamath Riverkeeper Supporters and Individuals			
Cathy Anello	Beverly Filip	John Livingston	Mary Lynn Rounds
John Angus	Alice Finen	George Lloyd	Erin Rowe
Michele Antico	Oleg Finodeyev	Jim Lockhart	Annalisa Rush
Thea Appleton	Francine Fischl	Jamie Lockwood	Karen Rusiniak
Peter Aronson	Kimberly Fiscus	Wisteria Loeffler	Robert Rust
Michael Asher	Dylan Fitzwater	Hailee Lollar	Mark Rutherford
Tana Atchley	Janet Flanagan	Christine Long	Jeanette Rutherford
Debra Atlas	Robert Flasher	James Long	Lynn Ryan
Robert Attebery	Teanna Flippo	Dwight Long	Tim Ryan
April Atwood	Richard Flittie	Genevieve Long	JoEllen Ryan
Stephanie Aufdermaur	Sara Fogan	Paula Long	Lucy Ryan
Charlotte August	Jennifer Fogg	Pastor Lopez	Lucy Ryan
Kristine Avila	Ida Foo	Austen lorenz	Amber Ryno
K B	Jimmy Foot	Nicole Lorsong	Rick S
Chuck Bailey	Susie Foot	John Lovelace	Steph S
Deanna Bailey	Jennifer Forbes	Carol Lowe	Richard Salzman
Nancy Bailey	Joanne Fornes	Leslie Lowe	Marco Sanchez
Barbara Bailey	Cynthia Forsyth	Jim Lozano	Marco Sanchez
Sidney Bailey	Suzanne Forsyth	Sara Lucarelli	Aurora Sancoy
Ranie Baker	Michelle Foster	John Ludington	Shantara Sandberg
Kellie Barcelon	Diana Fox	Margaret Ludlow	Jason Sanger
Ginny Barker	Susan Fox	Nancy Lyles	Carrie Sanneman
Sheila Barnes	Irene Francis	Kitty Lynch	Dawne Santopietro
Melanie Barnett	Mitzi Frank	Michelle MacKenzie	Kim Savage
Ted Barone	Alessandro Freddi	Ericka Macy-Gustafson	Polly Savoie
Doug Barrett	Magali Frederic	Laura Madeline	John Schaefer
Stephanie Barron	Gary Freedman	Barry Madison	Cassandra Schafer
Deborah Baskette	Kristin Freeman	Ashton Maggetti	Kay Schaser
Nicolas Bauer	Luke Frey	Maya Makino	Noah Schillo
Madeline Bauman	Steve Frie	Liza Maltsberger	Nancy Schimmel
William Baumgartner	Kara Friedhaber	Lydia Mancilla	Claudia Schimmer
Sonia Baur	Adam Frohwein	Sacha Marini	Buffie Schmidt
Erin Bayer	Michael Frost	Jennifer Markman	Steve Schramm
Andrew Bear	Corinne Frugoni	Luan Marks	Judy Schriebman
Donald Beck	Thomas Frye	Tony Marks-Block	Rose Schwabe
Stacy Becker	Brian Fugler	Bill Marlett	Greg Schwaller
Candice Bell	Michelle Fuller	Brooke Marmolejo	Laurie Schwaller
Leslie Bellas	Andrew Fuller	Chris Martell	Meredith Seawell
Elisha Belmont	Ray Galbavy	Melissa Martin	Azra Sehic
Manuel Belmonte	Marie Garabedian	Tracy Martin	Raquel Selcer
Darcy Belshaw	Jennifer Garcia	Art Martin	Patrice Sena
Destiny Beltran	Betina Garsen	Bec Massell	Carolyn Serebreny
Greg Bennett	Lydia Garvey	Pamela Mattz	Linda Serrato
Joan Bennett	Marco Garza	Karen Mayer	George Sexton
Carol Bennett	Cynthia Gerard	Larry Mayfield	Margaret Shaffer
Victoria Bennington	Sue Ghilotti	Michael Mayne	Linda Shapeero

Klamath Riverkeeper Supporters and Individuals			
Rae Benson Jr.	Richard Gienger	Anne Mcavoy	Leslie Shapiro
John Bermel	Mariane Gilbert	Susan McCarthy	Katherine Sharp
Michael Beyer	Jax Gill	Kim McCary	Chip Sharpe
Lydia Biggs	Lauren Gill	Kate McClain	Corinne Shea
Petra Bingham	Richard Gillaspie	Nancy McClain	Elaine Shelley
Ray Binner	Nancy Gingrich.	Karen McClaskey	Therese Shere
Dustin Bispo	P. Givins	Melanie McCloskey	J. Sherfey
Marianne Bithell	Kathryn Glaessner	Sandra McColley	Deva Sherman
Jessica Black	Larry Glass	Robert McCombs	Beth Shipley
Carolyn Blackmon	Lin Glen	Bob McConachie	Cecile Shohet
Elissa Blair	Regina Glock	Claire McCoy	Emily Siegel
Rebecca Blanco	Janice Gloe	Maureen McCready	Dana Silvernale
Amanda Bloom	Anne Golden	Lou McDonald	RoxAnne Simon
Megan Bloom	David Gonzalez	Don McEnhill	Suzanne Simpson
Wendy Bloom	Laura Goodwin	C McFarland	Denise Sims
Harry Blumenthal	Bailey Gordon	Richard McFarland	Terry Slack
Sharon Bodman	Juliet Grable	Mashaw McGuinnis	Imants Slegelis
Pat Bognar	Margaret Green	Juanita McKinnon	Harold Sloane
Juliette Bohn	Keri Green	Angela McLaughlin	Charles Smith
Allen Bohnert	Iris Greenberg-Smith	Kelly McNeil	Sara Smith
Elizabeth Bonner	Elizabeth Greene	Paul McPhee	Stacy Smith
Miklos Bosarge	Solo Greene	Alicia McQuillen	Josine Smits
Heidi Bourne	Lacie Greenig	Charles McSweeney	Barbara Snell
Joseph Bower	Christine Griffin	Jackson Meadows	Donald Snow
Susan Bower	Suzanna Griffin	Melissa Medina	Ed Somers Jr.
Ashley Bowers	Laurel Grinnell	Loi Medvin	Monique Sonoquie
Donna Boyd	Suzanne Guerra	Joyce Meier	Madeleine Sosin-Rocha
Randall Boyd	Amy Gustin	Janine Melzer	Dennis Specht
Tod Boyer	Amber H.	Pam Mendelsohn	Richard Spicer
Sharon Bradbury	Christi Hadley	Lindsay Merryman	Pat Spray
Sarah Brandt	Deborah Hadley	Paul Merz	Katie Stalker
Leslee Bray	Barbara Haley	Dax Messett	Melissa Stansberry
Susan Breloff	Sue Hall-Goossen	Dax Messett	Ken Stanton
John Brennan	Randy Hamann	Colette Metz	Linda Stanton
Jorge Briceno	Patricia Hamilton	Sa Meyers	Donna Starnes
C Briggs	Kevin Hamilton	David Mierkey	Arlo Starr
John Brinkley	Mike Hanna	Kathleen Miller	Kemberlee Starritt
Carman Broderick	Joshua Hanna	Ken Miller	Melinda Stearns
Tiffany Brogdon	Kathryn Hannay	Doug Mishler	Barrie Stebbings
Allison Bronson	Carla Hara	Jackie Mix	Earl Steen
Carol Brooks	Wendy Harden	Gregory Monahan	Joella Steffenson
Deborah Brooks	Joy Hardin	Gregory Monahan	Kurt Stegen
Pamela Brown	Teresa Hardy	Shannon Mondor	Nicole Stephens
Jerome Brown	Celia Haro	Carol Mone	Nancy Stevens
Paul Brown	Forest Harpham	Marie Monrad	Fred Stevens
William Browning	Jennifer Harris	Christopher Monreal	Atta Stevenson
Jermaine Brubaker	Ronald Hart	Martin Monroe	Erin Stevenson

Klamath Riverkeeper Supporters and Individuals			
Allegra Brucker	Catlin Harvey	Greta Montagne	John Stewart
Donna Brucker	Tim Haskett	Melissa Moore	Jeff Stone
Ellen Bryant	Phillip Hayes	Matt Moreland	Richard Stout
Erin Buchan	Jenifer Hayes	Matt Moreland	Connie Stringer
Elizabeth Buitron	Michelle Hayward	Patricia Morey	Jasmine Stuverud
Keoki Burbank	Margaret Heberlin	Linda Morgan	Ilysea Sunderman
Patricia Burke	Charles Heberlin	Nicole Morgan	Sara Sunstein
Kristiana Burrow	Allene Hebert	Mariel Morison	Tami Swartz
Camille Bush	Karen Hefner	Julaine Morley	Anne Szostek
Lisa Butterfield	Ellyn Henderson	Emily Morris	Judith Talaugon
Charlotte Byrams	Cheryl Henley	Linda Mortenson	Bari Talley
Kimberly Cabot	Laura Hennings	Greg Movsesyan	Kristopher Tamburello
Christina Cafferata	Mark Hereford	Megan Mucioki	Pam Tate
Pamela Cahill	Rachel Hess	Casey Muhs	Diane Taudvin
Paul Cameron	Jessica Hewlett	James Mulcare	Jennifer Taylor
Heather Campbell	Phillip Hext	Robert Mulready	Monica Taylor
Paula Campbell	Elizabeth Hickman	Barbara Mumby	Norma Jean Taylor
Alex Cano	Cheryl Higgins	Robert Mumby	Allie Tennant
M Caputo	Brad Higgs	Jean Munsee	Susan Terence
Henry Carlile	Todd Hildebrandt	Janean Murdock	Ken Terrill
Tim Carlson	Connie Hill	Brennon Murdock	Tiffany Theden
JoAnne Carlson	Marla Hillman	Kenneth Nakazawa	Franklin Thom
Elissa Carlson	Sue Hilton	Mike Napolitano	Sandra Thomas
Brooke Carothers	Patricia Hine	Suzanne Neefus	Charles Thomas
Sydney Carothers	Tom Hinz	Daniel Nelson	Ann Thompson
Shelly Carpenter	Shane Ho	John Nettleton	Ronald Thompson
Marsha Carrino	Jessica Hobba	Rachel Neumann	James Thompson
Bianca Carroll	Susan Hobbs	Mark Newberger	Johannes Thrul
Dillon Castleton	Ray Hockaday	Gabriel Newton	Arthur Ticknor
Patt Causey	Matthew Hoffman	Dena Nickell	Stephanie Tidwell
Kim Chamberlain	Patricia Holcomb	Donald Nielsen	Sarah Tiller-Holman
Teri Chanturai	Nicole Holland	Val Nordeman	Kathleen Tillinghast
Veronica Chapman	Charles Horn	Kari Nordgaard	Julie Timmons
Anita Chapple	Terri Horn	Carolyn Norr	Holly Tomatis
Tanya Chapple	Susie Hoskie	Sherri Norris	Monica Tonty
Ronnie Chausse	Cheri Howard	Rosa Novak	Maxine Torres
Sheri Chenoweth	Peter Howland	Ciry Null	Mike Tout
Nat Childs	Sarah Hugdahl	Hugh Null	Nancy Tout
Michael Christian	Laura Hughes	Ed Nute	Lisa Townsend-Schmitt
Paul Cienfuegos	Ann Hunt	Helen Nutt	Gene Trapp
Amethyst Cilley	Matthew Hunter	Bridget O'Connor	Connie Turgon
Elizabeth Claman	Steve Huntley	Jean Okamura	Zachary Turner
Jennifer Clatty	Susan Hutchinson	Chris O'Keefe	Brendan Twieg
Mike Cleary	David Hyde	Dove Oldham	Samuel TwoBears
Aldonna Cloud	Pattie Hyde	Laureen Oliveira	Joe Tyburczy
Julie Coar	Nancy Ihara	Adel Olvera	Jacqueline Van Der Hout
Paulaanne Coburn	Leroy Ikerd	Heidi Oregon	Michael Van Devender

Klamath Riverkeeper Supporters and Individuals			
Ben Cochran	Marianne Itkin	Julie O'Rielly	Cyn Van Fleet
Thomas Cockle	Louisa J	Elaina ORourke	Robert Van Fleet
Mary Cody	Rita Jacinto	Jody Otolski	Melissa Van Scoyoc
Deborah Cogswell	Robert Jackson	Noemi Pacheco	Julie VandenBerg
Corrina Cohen	Verla Jackson-Robbins	Marilyn Page	Hilary Vander Veer
Joanne Cohn	Rebecca Jacobsen	Will Palmer	Lee Vandeveer
Lesa Coleman	Kathy Jacobson	Walter Paniak	Julie VanTilburg
Kathleen Commins	Kelly Jacobson	Ron Park	Irene Vasquez
Anessa Connor	Robert Jamgochian	Keith Parker	Mary Vedovi
Lynda Constable	Scott Jarvis	Mara Parker	Jean Vengua
Suzanne Cook	Leigh Anne Jasheway	Megan Parker	Maury Vezzolini
Fernando Cook-Morales	Lois Jean	Pamela Parsons	Megan Vierra
Morgan Corviday	Jessica Jiang	Christina Pasillas	Myra Villella
Todd Cory	Ophoff Joel	Jason Patton	Dale Visinaiz
Lindsay Corzine	Alissa Johnson	MaryAnne Paul	Sara Vitagliano
Sunny Cosce	Michael Johnson	Jean Paulson	Kristin Vogel
Jonnel Covault	Martha Johnson	Cynthia Peachey	Janet Voorhies
Ella Craig	Montanna Jones	Ted Pease	Kevin Vue
Johanna Creson	Mark Kacmarcik	Cris Pemberton	Jennifer W
Jason Crews	Eugene Kaczmarek	Ralph Penfield	Susan Waggoner
Earl Crosby	Donald Kalleck	Peg Pennington	Scott Wagner
Mack Cross	Patricia Kanzler	Bella Peralta	Micah Wait
Scott Crutcher	Kelly Karaba	Benjamin Perone	Wandalea Walker
Robert Cushman	Lyla Karolczuk	Claire Perricelli	Terri Walsh
L D	Jonathan Kastin	Joan Peter	Severin Walston
Jennifer Dadigan	Tracy Katelman	Tom Peters	Melvin Walter
Benjamin Dakota	Joel Kawahara	Davin Peterson	Rachelle Walters
Rose Dana	Lincoln Kaye	Vanessa Peterson	Pam Ward
Galaxy Dancer	Marria Kee	Eric Peterson	Jeff Wasielewski
Rachael Daniel	Laura Keenados	Leaanne Peterson	Susan waterman
Patricia Daniels	Robert Kehrig	Elaine Phillips	Rebecca Waters
Kimble Darlington	Heidi Keller	Adam Pickett	Virginia Waters
Julia Dashe	Jennifer Kellogg	Susan Piercy	Harriet Watson
Ellen Davidson	Mark Kennedy	William Piercy	Elizabeth Watts
Annette Davis	Kaetlin Kennedy	Paul Pitino	Jonathan Weber
Jim Davis	Lawrence Kenney	Angela Pittaluga	Sandy Webster
Shira Dawson	Bernadette Kero	Nicole Planchon	Kayte Wehinger
C Day	Mandi Kindred	Laura Porter	Debbi Weiler
Kim Day	Nancy King	Quinlan Porter	Courtney Weiler
Mark Day	Laura King	Barbara Poulsen	Michael Welch
Cesar De La Rosa	Nicole Kittersong	Jacob Pounds	Donald Wharton
Sylvia De Rooy	Linda Kjesbu	Charles Powell	Daniel White
Lacey Decker	Kim Klein	Mandy Powell	Edward White
Larry Dennis	Gregg Kleiner	Lauren Preston	Laura White
Erin Derden-Little	Brenda Kluhsman	Mark Pringle	Mani White
Tom Derry	Gail Knight	Kyle Pritchard	Carlotta Whitecrane

Klamath Riverkeeper Supporters and Individuals			
Patricia Deuter	Kenneth Knight	Kate Proctor	Carol Wiebe
Lee DeVeau	Carolyn Knoll	Peggy Pryor	Lynn Wilbur
Timothy Devine	Ande Kobek	Karuna Purcell	Chris Willis
Wilma Dibelka	Caroline Koch	April Quigley	Dave Willis
Margaret Dickinson	Jill Koch	Dana Quillman	Karen Wilson
Amy Diekmeyer	Elizabeth Kocher	Shelinda Quinland	John Wilson
Winchell Dillenbeck	Karl Koessel	Holly Quinn	Jan Windz
Caitlin Divine	Jessica Komaromy	Leslie Quinn	Sally Wise
Crystal Dobbs	Susan Kraft	Mary Raine	Lynn Wolf
Daniel Doble	Daniel Krall	Rudy Ramp	Kathleen Wolfberg
Yvonne Doble	Rachel Krasner	Joshua Ramsey	Paul Wolfberg
Sandra Dojcinovic	Linda Kutil	Rosa Rashall	Marcia Wolhandler
Michael Dotson	Cynthia Kuttner	Debie Rasmussen	Roberta Wong
Dennis Dougherty	Nancy Kuykendall	Amber Rau	Cheryl Wood
Patricia Dougherty	Rebecca Lacasse	Charles Ray	Leslie Wood
Joseph Dougherty	Zoe Lacoco	Terry Raymer	John Wood
Carla Douglas	Donna LaGraffe	Catherine Recinos	Cheryl Woodford
Emily Driskill	Denice LaGrassa	Lois Redelk	Linda Woodward
Iva Dubyak	Jennifer Lance	Kelsey Reedy	Lupine Wread
Norman Dyche	Kate Lancour	Lise Rehbock	Alfreda Wright
Tayla Ealom	Marilyn Lang	Jane Reid	Ashley Wright
Jeffery Eaton	Monalisa Langner	James Reid	Becca Wynne
Amy Eberwein	Ruth Lanton	Chris Rempel	Daphne Wysham
Douglas Edwards	J Lasahn	Angela Rex	R Y
Eve Marie Eells	Dona LaSchiava	Rebeka Reyes	Tammy Yazzie
Deborah Einbender	Cynthia Laughery	Brian Reynolds	Heidi Young
Kathy Eldredge	Logan LaVail	Rachel Rhinehart	Rebecca Younger
Love Electric	Brian Lavelle	Kristina Ribeiro	Sage Zanth
Jim Elferdink	Stephen Laviletta	Paul Richards	Lucas Zeeberg
Linda Elkins	Nicole Lawless	Laurie Richardson	Ron Zemel
Joe Ellrott	Laura Lawver	Miles Richardson	Gretchen Ziegler
Tyler Emerson	Casey Lay	Hilda Richey	Joel Ziegler
Livier Enciso	Bruce Lazar	Trisha Ridenour	George Zimninsky
Charles Erdman	Michael Le	Justin Riede	Leslie Zondervan-Droz

Table 4-6. Individuals Providing Oral and/or Written Comments at Public Scoping Meetings.

Name	Affiliation
David Aaron	Individual
James Adams	Individual
Dara Alexander	Individual
Jerry Bacigalupi	Individual
Jenna Bader	Individual
Mark Baird	Individual
Larry Bell	Individual
Grace Bennet	Siskiyou County Supervisor (retired)
Leo Bergeron	Individual

Name	Affiliation
John Bermel	Klamath Riverkeeper
David Bitts	PCFFA/IFR
Glen Briggs	Individual
Regina Chichizola	PCFFA/IFR
Mark Coats	Individual
Amy Cordalis	Yurok Tribe
Rex Cozzalio	Individual
Clayton Creager	North Coast Regional Water Quality Control Board
Brandon Criss	Siskiyou County Supervisor District 1
Robert Davis	Tea Party
Sami Jo Difuntorum	Shasta Indian Nation
John Driscoll	Representative Jared Huffman
James Dunlap	Individual
Linda Ebert	Individual
Mark Fischer	Individual
Konrad Fisher	Klamath Riverkeeper
Mahlija Florendo	Yurok, Selek, Hoopa, Wasco Tribes
John Foster	Individual
Jon-Luke Gensaw	Individual
Lena Belle Gensaw	Individual
Sammy Gensaw III	Individual
Richard Gierak	Interactive Citizens United
Larry Glass	Northcoast Environmental Center
William Glover	Individual
Betty Hall	Shasta Indian Nation
Roy Hall	Shasta Indian Nation
Ray Haupt	Siskiyou County Supervisor
Dave Hillemeier	Yurok Tribe
Annelia Hillman	Yurok Tribe
Allie Hostler	Individual
Joe James	Yurok Tribe
Joe James	Yurok Tribe
Brian Johnson	Trout Unlimited
Thomas Joseph	Hoopa Tribe
Thomas Joseph	Individual
Tracy Katelman	Individual
Colin Kerosky	Individual
Alexander Khartchenko	Individual
Javier Kinney1	Yurok Tribe
Paul Kinsey	Individual
Michael Kobseff	Siskiyou County Board of Supervisors
Greg Kuck	Individual
John Livingston	Sierra Club
Mark Lovelace	Individual
Don Mackintosh	Individual
Mike Mallory	Siskiyou County Assessor-Recorder
Cena Marin	Individual

Name	Affiliation
Richard Marshall	Siskiyou County Water Users Association
Jack Mattz	Yurok Tribe
Raymond Matz	Individual
Jonathan McClelland	Klamath River Keeper, Mid Klamath Watershed Council (volunteer for both)
Lana McCovey	Yurok Tribe
John Menke	Individual
Edward Nute	Individual
Linda Oliver	Copco Lake Fire Protection District
Andrew Orehoske	Individual
Ian Osipowitsch	Individual
Nathaniel Pennington	Salmon River Restoration Council
Steve Radford	Individual
Chrissie Reynolds	Individual
Cutcha Risling Baldy	Humboldt State University
Lindamood Robert	Individual
Erin Ryan	Congressman Doug LaMalfa
Zane Schoettgen	Individual
Greacen Scott	Friends of the Eel River
Kristen Sellmer	Salmon River Restoration Council
Daniel Simon	Individual
Nita Still	Individual
Joshua Strange	Individual
Lisa Sundberg	Trinidad Rancheria
Craig Tucker[1]	Karuk Tribe
Susan Wallace	Individual

[1] Attended and spoke at both Arcata and Yreka public scoping meetings.

4.2 Comment Summary

This section summarizes comments received in response to the LKP NOP. Comments are generally organized by subject area. Some comments are relevant to more than one subject area, and placing them in one area does not reflect a lack of recognition of a comment's relevance to other areas. If the comment was made by a governmental entity, a Native American Tribe, or an organization, the entity, Native American Tribe, or organization is often identified along with the comment, particularly for the broad categories of overall EIR scope (Section 4.2.1), environmental baseline (Section 4.2.2), the No Project alternative (Section 4.2.4), and other Project alternatives suggested during scoping (Section 4.2.5). All original comments are presented in *Appendix C Oral and/or Written Comments Received at the Scoping Meetings* (in the order that they were received) and *Appendix D Written Comments* (organized alphabetically within each comment group, i.e., Federal Agencies, State Agencies, Native American Tribes, Local Agencies, Organizations, Individuals, Klamath Riverkeepers).

4.2.1 Overall EIR Scope

Several comments were submitted on the overall scope of the EIR.

- The PCFFA/IFR made the following comments on the scope of the EIR:
  - The Project Area, for purposes of cumulative impacts analysis, should be the entire area from Upper Klamath Lake's Link River Dam (containing the first structures within the KHP), downstream to the estuary, and also including all impacts from salmon population and fisheries losses and declines that can be causally linked to the KHP and which occur within the coastal areas of the Klamath Management Zone, which is consistent with the Project Area used in PacifiCorp's original Application for Relicensing.
  - Cumulative and other impacts should be analyzed using the same time scale as the Final Environmental Impact Statement for Hydropower License for the Klamath Hydroelectric Project, FERC Project No. 2082-027 (2007 FERC EIS) and the U.S. Bureau of Reclamation's Klamath Facilities Removal Final Environmental Impact Statement/Environmental Impact Report (2012 KHSA EIS/EIR) (i.e., 30 to 50 years).
  - The analysis should use the "Natural Baseline Conditions" that existed prior to the KHP dams.
- The Salmon River Restoration Council stated that the project area must include all impacts on salmon-dependent communities in the Klamath Management Zone. This area extends at least from Shelter Cove, CA to Humbug Mountain, OR and offshore out to 200 miles.
- The Siskiyou County Board of Supervisors commented that the area of analysis in the EIR must consider the entire Klamath River system, its tributaries (including the Trinity River), surrounding areas, and local communities, including Siskiyou County.
- The Siskiyou County Board of Supervisors stated that the LKP EIR should make clear that under the No Project alternative, and any other alternative, existing Klamath River total maximum daily loads (TMDLs) require that water quality standards must be attained. This comment is also listed in *Section 4.2.4 No Project* and *Section 4.2.8 Water Quality*.
- The Siskiyou County Assessor-Recorder stated that the valuation studies conducted by the Federal agencies to date have been inadequate. The commenter requested that the State Water Board conduct an objective analysis regarding the loss of property values and tax revenues for all impacted parcels due to dam removal, real or perceived loss of flood control, and removal of the hydroelectric facilities from the Assessment Roll. This comment is also listed in *Section 4.2.13 Economics.*
- Many commenters stated that there is uncertainty in past dam removal impact analyses because only five miles of river were analyzed. The commenters further stated that the LKP EIR should analyze the impacts of dam removal along the entire river.
- Many commenters requested that the State Water Board analyze the anticipated long-term benefits of dam removal for fisheries, water quality, public health and regional economy against the short-term impacts.
- Several commenters stated that consideration of Trinity River water management, including water transfers to the State Water Project, should be analyzed in the LKP EIR.

- One commenter stated that the Board should also analyze whether the removal, or changes to the operation of, the Keno Dam and reservoir is also necessary to achieve Basin Plan compliance.
- With respect to the potential for re-certification and relicensing of the KHP (i.e., dams remain in place), one commenter stated that the EIR should analyze issues of pollution that originates in Oregon, TMDL compliance, mandatory fish ladders, cumulative impacts, protective flows, Iron Gate hatchery pollution, economic impacts from dams, and ramping and bypass flows.

4.2.2 Environmental Baseline

The following comments were received regarding the environmental baseline for the LKP EIR analysis.

- One commenter asked for clarification regarding whether the current condition would be the environmental baseline for the EIR analysis.
- The Klamath Riverkeepers, PCFFA/IFR, and Salmon River Restoration Council stated that the "baseline" for EIR comparisons should be natural baseline conditions that existed before the Klamath Hydroelectric Project dams were constructed, and which would presumably exist without the dams in place today.

4.2.3 KRRC's Proposed Project

Numerous comments were made regarding KRRC's Proposed Project. These are presented by subject area in subsequent sections.

4.2.4 No Project

The following comments were made regarding consideration of the No Project alternative:

- The Klamath Riverkeepers and the Salmon River Restoration Council requested that the State Water Board consider a No Project alternative to be hypothetical since PacifiCorp has withdrawn its request to certify a new dam operation license.
- The Siskiyou County Board of Supervisors stated that the LKP EIR should make clear that under the No Project alternative, and any other alternative, existing Klamath River total maximum daily loads (TMDLs) require that water quality standards must be attained. This comment is also listed in *Section 4.2.1 Overall EIR Scope* and *Section 4.2.8 Water Quality*.
- One commenter stated that the LKP EIR should be clear in defining the meaning of No Project and that the only feasible No Project alternative is denial of CWA Section 401 certification.

4.2.5 Other Project Alternatives Suggested During Scoping

The following comments were made regarding consideration of alternatives to the KRRC's Proposed Project:

- CDFW stated that the State Water Board should analyze the effects of reservoir stratification on dissolved oxygen and water temperature for alternatives that

maintain reservoirs, and any mitigation options. They referenced the Klamath River total maximum daily load (TMDL) analysis (North Coast Regional Board 2010) and noted that there are no depths at which salmonids could be supported and that no mitigations were identified in the 2007 FERC EIS to address this issue.

- CDFW recommended that the State Water Board include analysis of alternatives similar to Alternative 2 (Full Facilities Removal of Four Dams) and Alternative 3 (Partial Facilities Removal of Four Dams) presented in the 2012 KHSA EIS/EIR.
- The Klamath Riverkeepers and the Salmon River Restoration Council requested that the EIR analyze an alternative that includes removal of J.C. Boyle and Keno dams due to adverse impacts on water quality and beneficial uses of water.
- The PCFFA/IFR expressed concern that Oregon and California would not be analyzing the same range of alternatives for their respective permitting processes and they proposed the addition of "two additional alternatives":
  - *Additional Option A:* Removal of Iron Gate, Copco No. 1, Copco No. 2, and J.C. Boyle Dams: This would be a four-dam removal option that would leave Keno Dam (and Keno Reservoir) in place with appropriate fish passage prescriptions and water quality mitigation measures, but take out the four hydropower-producing components of the KHP below Keno.
  - *Additional Option B:* Removal of Iron Gate, Copco No. 1, Copco No. 2, J.C. Boyle and Keno Dams: In other words, this would be the removal of all KHP structures in the mainstem Klamath River, resulting in a free-flowing river from Link River all the way downstream to the estuary.
- The Save the Klamath-Trinity Salmon organization stated that the State Water Board should analyze an alternative which allows the continued operation of the Fall Creek Development while requiring removal of Iron Gate, Copco No. 1, Copco No. 2 and J.C. Boyle dams and reservoirs.
- The Siskiyou County Board of Supervisors and the Siskiyou County Water Users Association and several individual commenters stated that the CEQA document should consider a "dams-in" fish passage alternative that includes a variety of options including fish cannons, trap and haul, a Shasta Nation fish tunnel, and a Bogus Creek bypass.
- The Siskiyou County Board of Supervisors and the Siskiyou County Water Users Association proposed alternatives to dam removal including the construction of a Klamath River/Shasta Valley transfer canal and storage facility and/or the establishment of additional storage facilities in the Scott and Quartz Valleys as ways to address environmental issues in the Klamath watershed while keeping the Klamath dams in place.
- The Siskiyou County Board of Supervisors stated that the LKP EIR should make clear that under the No Project alternative, and any other alternative, existing Klamath River total maximum daily loads (TMDLs) require that water quality standards must be attained. This comment is also listed in *Section 4.2.4 No Project* and *Section 4.2.8 Water Quality*.
- The Klamath County Commissioner attached to his comment letter FERC's 2007 conclusion that the best alternative for the KHP would be to issue a new license consistent with the environmental measures specified in the Staff Alternative.

4.2.6 Incorporation of Findings from Past Studies

Many comments were received referencing past studies that were prepared to assess the potential impacts of Klamath River dam removal, including the following:

- Many commenters requested that the State Water Board incorporate the findings of the 2012 KHSA EIS/EIR and the U.S. Department of the Interior Secretarial Determination Report (2012 SDOR) into the LKP EIR, noting that these prior analyses adequately addressed environmental impacts related to facilities removal.
- One commenter indicated that the LKP EIR should incorporate the findings of the 2012 KHSA EIS/EIR but should remove Klamath Basin Restoration Agreement (KBRA) components of the prior analysis.
- Many commenters requested that the State Water Board *not* incorporate the findings of the 2012 KHSA EIS/EIR and the 2012 SDOR) into the LKP EIR, noting that these prior analyses were not exhaustive and reached incorrect conclusions.
- The North Coast Regional Board referred to a letter from Interior Secretary Jewell to Secretary Bose supporting the dam removal project.
- Several commenters recommended that the State Water Board incorporate the findings of the 2007 FERC EIS into the LKP EIR.

4.2.7 Fish/Fisheries

Many comments were related to fisheries issues.

EIR analysis related to fisheries

- One commenter stated that the (salmonid) "Recovery Strategy for California" should be referenced to guide future restoration and mitigation efforts. The commenter did not provide a reference to a specific document.
- Two commenters stated that the LKP assessment area should include the entire Klamath Management Zone in the ocean.
- One commenter stated that the EIR should evaluate the effects of the LKP on fish passage, salmonid populations, commercial and recreational fisheries in the river and the open ocean.
- One commenter stated the EIR should include hatchery operation requirements developed for the KHSA in the evaluation of any EIR alternative that includes dam removal.
- One commenter stated that the EIR should analyze how dam operations, including hatchery operations, have impacted spring-run Chinook salmon and salmon composition in the Klamath River, and how effective dam removal and other alternatives would be in reducing or eliminating these impacts.
- Two commenters suggested that the EIR look at the effects of sea lions and foreign and domestic fisheries on salmon populations.
- Two commenters stated that Southern Resident killer whales rely heavily on Chinook salmon as a food resource and this should be analyzed in the EIR.

General fisheries comments

- Many commenters stated that natural fish blockages downstream of Copco and/or J.C. Boyle preclude anadromous passage upstream to Upper Klamath Lake and its tributary rivers.
- One commenter indicated that the 1,191-foot elevation change in the 26 miles between Copco No. 1 and J.C. Boyle dams is too steep for salmon to pass and for gravel to deposit and create habitat features.
- One commenter noted that only eight miles of habitat would be opened up if the dams were to be removed.
- Several commenters stated that between 300 and 600 miles of historic habitat for salmon and steelhead would be accessible if the dams are removed.
- Several commenters stated and/or provided documentation that historically, anadromous salmonids did successfully migrate as far upstream as Upper Klamath Lake.
- One commenter supplied historical information indicating that some salmon did successfully move past the Keno barrier, but they were bruised and worthless for eating.
- One commenter has never seen a salmon in irrigation water.
- Several commenters indicated that coho salmon are not native to the Klamath River basin.
- Several commenters stated that coho salmon never occurred in the mid- to upper-Klamath basin.
- Several commenters stated that the dams provide in-river water storage for fish habitat and flow releases, and they are used to avoid major fish die-offs.
- One commenter stated that low water (due to dam removal) would kill smolts.
- Several commenters stated that salmon runs have been good and record runs have occurred with the dams in place.
- Several commenters indicated that the dams should be kept in place and have fish ladders installed, which should improve salmonid runs.
- One commenter indicated that trap and haul would not work because fish would be moved from one toxic part of the river to another.
- One commenter stated that 100 years of evidence shows that there has been no significant alteration in salmon returns due to dams.
- Another commenter stated that prior to European settlement, an estimated 660,000 to 1.1 million adult salmon returned to the Klamath River each year to spawn, of which 880,000 individuals were spring-run Chinook. Salmon returns are now only about 12% of what they once were, averaging only about 105,000 adults over the time frame of 1978–2007, but the majority of these are of hatchery origin.
- One commenter stated that dams change nutrient dynamics, which is negative for salmon.
- One commenter noted that salmon would not be able to navigate the shallow lake to arrive at Link River.
- Several commenters stated that fisheries and essential fish habitat will be decimated by the release of sediment associated with dam removal.
- Several commenters indicated that sediment release would have an immediate negative impact on fisheries and habitat, but would be beneficial in the long-term.

- Two commenters stated that removal of the lower Klamath dams had nothing to do with fish.
- Several commenters indicated that dams reduce habitat for disease organisms.
- Many commenters stated that dams exacerbate disease in downstream salmonids.
- Several commenters provided recent scientific studies linking the Klamath River dam operations and salmonid disease.
- Several commenters stated that perch (i.e., yellow perch) were in the lakes and releasing them would have adverse consequences on salmonids because of egg predation.
- Several commenters indicated that gill-netting occurs on the lower river and it affects salmon populations.
- One commenter noted that the Iron Gate Hatchery is essential for salmon runs.
- One commenter stated that the upper river tributaries would not produce the six million fingerlings produced by the Iron Gate Hatchery.
- Two commenters indicated that the Iron Gate Hatchery produces one million fingerlings.
- Over 200 commenters stated that anadromous fish populations are expected to rebound with dam removal.
- Two commenters noted that the EIR should include an analysis of water temperature impacts on salmonid migration.
- One commenter stated that releases from Trinity Lake artificially trigger upstream migration of salmon into the Klamath River during August and September.
- Two commenters indicated that existing cold water springs are currently inundated by the reservoirs, but if the dams were removed the springs would discharge to the river. These comments are also listed in *Section 4.2.9 Water Quality*.
- Two commenters stated that the dams changed the species composition of salmonids in the Klamath River (i.e., pink and chum salmon have been extirpated and spring Chinook populations have been severely depressed).
- One commenter stated that there have been no candlefish (i.e., eulachon) since the dams were built.
- Two commenters stated that the reservoirs have trapped gravel, which has reduced spawning and edge-water rearing habitat downstream of the dams.
- One commenter noted that the KHP has changed thermal processes in the river (i.e., cooling water in the spring and warming water in the fall).
- One commenter stated that the dams have vastly improved downstream cold and warm water fisheries.
- One commenter indicated that there should be more fish counting stations.
- One commenter stated that the CEQA analysis should consider the effect of J.C. Boyle Dam peaking flows on downstream fisheries if it were to remain in place after the lower three dams are removed.
- Several commenters stated that the dams have decimated native salmonid populations and that dam removal is the key to their recovery.

- A few commenters stated that the increase in sea lion populations since the passage of the Marine Mammal Protection Act is a major factor in the decline of salmon in the Klamath River.
- A few commenters stated that the Asian/foreign fishing fleets off the coast are a significant factor in the decline of salmon in the Klamath River.

4.2.8 Water Quality

Many comments were focused on the potential effects of dam removal on water quality in the Klamath River and the LKP reservoirs.

- The North Coast Regional Board stated the following:
  - Ongoing restoration actions and Total Maximum Daily Load (TDML) implementation efforts to restore the Klamath River cannot reach their full potential without also addressing the water quality limiting factors created by the four dams associated with the LKP.
  - Procedures for evaluating and authorizing temporary impacts due to restoration activities are detailed in the Regional Water Board's *Policy in Support of Restoration in the North Coast Region.*
- The Siskiyou County Board of Supervisors stated that the LKP EIR impacts analysis must consider the existing TMDLs and attainment of water quality standards under a range of conditions, for all alternatives (including the No Project alternative). This comment is also listed in *Section 4.2.1 Overall EIR Scope* and *Section 4.2.4 No Project.*
- The Hoopa Valley Tribe Fisheries Department noted that analyses in the EIR need to consider Hoopa Valley Tribe's water quality standards as well as those developed by the State of California.
- Several commenters stated that dam removal will result in temporary downstream water quality impacts that may be unavoidable. These impacts may cause temporary exceedances of water quality objectives.
- Several commenters stated that dam removal will alleviate the adverse temperature effects of the reservoirs (e.g., increased summer/low flow temperatures) on the downstream river.
- Several commenters stated that the dams and reservoirs and their operations exacerbate already significantly impaired water quality conditions in the Klamath River, and that dam removal would significantly improve water temperature, dissolved oxygen, and reduce algal toxins in the river.
- The Klamath County Commissioner indicated that the existing reservoirs improve water quality by serving as a sink for phosphorus laden sediment and cool the water in the river by providing a deep pool behind each dam.
- Two commenters indicated that existing cold water streams and springs are currently inundated by the reservoirs but if the dams were removed would discharge to the river. These comments are also listed in *Section 4.2.7 Fish/Fisheries: General fisheries comments.*
- Several commenters indicated that dam removal will minimize still and quiescent water that currently supports filamentous attached algae in the river and planktonic blue green algae (and the associated toxins) in the reservoirs.
- Several commenters stated that blue green algae growth will continue to occur in the Klamath River in the absence of the reservoirs.
- Two commenters noted poor water quality in Keno Reservoir and indicated that this should be considered in the EIR analyses.
- Two commenters noted that needed improvements to water quality in Lake Ewauna/Keno Reservoir should be considered in the EIR, including the potential

for mitigations for the East and West Side such as infiltration galleries and treatment wetlands.

- One commenter states that global warming impacts to water quality in the Klamath River will be extreme and impossible to mitigate without dam removal.
- One commenter noted that blue-green algal growth in the Klamath River is due to natural conditions and pollution in the Upper Klamath Basin.
- Several commenters noted that while other recent dam removal projects have resulted in short-term water quality impacts, the latter are outweighed by the long-term benefits of habitat restoration.
- Several commenters cited results indicating that the reservoirs improve water quality because water leaving Copco Reservoir is cleaner than when it entered.
- One commenter expressed concern that excess phosphorus, pesticides and fertilizers pollute the water in Oregon, which then flows into California.
- Several commenters noted that agricultural runoff is cleaner and contains lower phosphorous than natural water.
- One commenter noted that water from J.C. Boyle and Iron Gate reservoirs equilibrates to ambient conditions within a few miles or less of the dams.
- Several commenters expressed concern that release of toxic substances (i.e., metals, pesticides, chlorinated acid herbicides, polychlorinated biphenyls [PCBs], volatile organic compounds, cyanide, and dioxins) contained within reservoir sediment deposits could negatively impact aquatic life in downstream reaches when the dams are removed. Several of these commenters expressed concern that the 2012 KHSA EIS/EIR did not adequately address these effects. One of these commenters expressed concern that release of toxic substances contained within reservoir sediment deposits could result in human disease, citing poisoning of wells following dam removal in Oregon. These comments are also listed in *Section 4.2.11 Sediment*.
- One commenter noted that prior to the dams, local tribes moved away from the river in the summertime due to an offensive smell from low water.

4.2.9 Water Supply

Several comments were received regarding the potential for dam removal effects on water supply.

- Many commenters stated that the reservoirs provide water supply for fighting regional wildland fires, and therefore fire suppression would be negatively impacted by dam removal.
- Many commenters stated that the reservoirs provide water for additional summer instream flows to improve downstream water quality and prevent fish kills.
- Many commenters stated that the reservoirs provide agricultural irrigation supply to farmers in upper basin areas of both California and Oregon.
- One commenter expressed concern that Klamath dam removal will influence future water allocations from the Trinity River to water users in the California Central Valley.

- One commenter stated that the State of California will need to better manage water in the Trinity River so that the Klamath River water supply is not negatively impacted.
- Several commenters suggested analyzing the option of removing J.C. Boyle and Keno dams due to their adverse impacts on beneficial water uses, including irrigation and instream flow augmentation uses.
- Several commenters expressed concern about the threat to Yreka's municipal water supply and the need to realign the water line as part of dam removal.
- One commenter expressed concern about the loss of water storage that could be used in drought years.
- One commenter stated that dam removal would be a violation of the Reclamation Act of 1902 which authorizes "*the Secretary of the Interior to locate, construct, operate, and maintain works for the storage, diversion, and development of water for the reclamation of arid and semiarid lands in the western States.*"
- One commenter stated that dam removal will provide more water for agricultural use (from Upper Klamath Lake), considering that less reservoir water will be needed to augment instream flows in support of improving downstream water quality.
- One commenter stated that dam removal will eliminate water supply for lake recreation.
- Several commenters expressed concern regarding the loss of well water as a result of draining the reservoirs.

4.2.10 Hydrology

Many comments were focused on the potential effects of dam removal on hydrology in the Klamath River and the LKP reservoirs.

- Several commenters cited benefits to fisheries and other resources due to a free-flowing river with increased flow should the dams be removed.
- Many commenters expressed concern that dam removal would take away the ability to regulate flow and would reduce flood control capability, resulting in increased downstream flooding. One of these commenters suggested that flood risk could be increased by the sediments from behind the dams. One of these commenters expressed concern regarding accidental catastrophic flooding during the dam removal process.
- One commenter stated that the Klamath's four major dams operate as a "run of the river" system that only slightly reduces peak flooding events.
- One commenter stated that the dams provide a 25% reduction in peak flows based on the 1964 flood hydrograph located near the Iron Gate hatchery. The commenter suggested conducting a major flood study.
- Several commenters questioned the validity of existing hydrologic studies, indicating that previous studies failed to consider hydrologic inputs from the entire Klamath watershed (i.e., tributaries such as the Trinity River), that the existing flood hydrology analysis is in error, and/or that the hydrologic outcomes of dam removal have not been modeled.

- One commenter stated that after dam removal, water for pulse flow releases will need to come from Upper Klamath Lake, which will negatively impact agriculture and wildlife refuge deliveries in the Klamath Basin.
- Several commenters stated that dam removal will cause groundwater wells around the reservoirs to go dry.
- One commenter noted that recent USFWS guidance memos "*recommend that dam removal is the key action to alleviate disease impacts but that increased* (instream) *flows are needed in the interim.*"

4.2.11 Sediment

Many comments were focused on the Project's potential sediment-related effects.

- Many commenters cited the benefits of increased gravel supply and a natural flow regime for adult and juvenile salmonid habitats and other aquatic resources in downstream reaches of the Klamath River. Many commenters note that J.C. Boyle and Keno reservoirs trap sediment that would otherwise create and maintain spawning and rearing habitats in downstream reaches. Several of these commenters stated that the impacts of fine sediment release on fisheries habitat will be short-term.
- Two commenters stated that the EIR should include analysis of bedload and spawning gravel transport under each alternative. One of these commenters stated that the EIR should thoroughly evaluate the effects of dam removal on sediment transport downstream to the ocean. The evaluation should address how river flows and volumes may affect erosion of the river channel and adjacent areas, including areas of known and potential archaeological resources.
- One commenter stated that project facilities should be operated in a manner that provides flow releases sufficient to establish a geomorphically functional stream channel above and below project diversions.
- One commenter stated that KHP structures and operations that impact California waters should be considered under CEQA, including trapping of gravel in J.C. Boyle and Keno that would otherwise contribute to spawning and rearing substrates in downstream reaches. The commenter also stated that analysis of the "Retirement of Copco No. 1 and Iron Gate Developments" alternative in the 2007 FERC EIS failed to address sedimentation in the Copco No. 2 resulting from removal of the Copco No. 1 dam. The commenter regarded any alternative that included removal of Copco No. 1 but retention of Copco No. 2 dam as impractical, and recommends that the Copco Dams 1 and 2 be considered for removal together as part of every scenario. The commenter indicates that simultaneous dam removal and sediment discharges should be preferred over sequential releases in order to minimize the total number and duration of fish exposure times to high levels of sediment. The commenter requested that the State Water Board conduct a thorough analysis of both the short-term impacts and long-term benefits of dam removal, noting successful outcomes from recent dam removal projects and strategies for managing and mitigating risks associated with sediment release.
- Several commenters expressed concern about potential long-lasting negative impacts of sediment release on channel conditions (e.g., spawning gravels) in downstream reaches of the Klamath River. Several expressed concern that the

2012 KHSA EIS/EIR understated the amount of sediment that will be released into the environment, that the potential effects of sediment release from dam removal to salmon populations and other aquatic species were not studied in the entire downstream river and estuary, and/or that impacts from sediment release were incorrectly or inadequately addressed. Several of these commenters stated concern regarding the potential liabilities (i.e., costs) associated with sediment release. Several of these commenters recommend that a new and complete analysis of the effects of reservoir sediment release be performed for the entire river and estuary.

- Two commenters expressed concern that sediment release and/or altered hydrology from dam removal will negatively impact sediment deposits at the mouth of the Klamath River, and would reduce fish passage into the river as a concern.
- Several commenters expressed concern that release of toxic substances (i.e., metals, pesticides, chlorinated acid herbicides, polychlorinated biphenyls [PCBs], volatile organic compounds, cyanide, and dioxins) contained within reservoir sediment deposits could negatively impact aquatic life in downstream reaches when the dams are removed. Several of these commenters expressed concern that the 2012 KHSA EIS/EIR did not adequately address these effects. One of these commenters expressed concern that release of toxic substances contained within reservoir sediment deposits could result in human disease, citing poisoning of wells following dam removal in Oregon. These comments are also listed in *Section 4.2.8 Water Quality*.
- One commenter recommended addressing how much silt is trapped behind the dams and what the impact of increased fine sediment deposition in the reservoirs would be if dam removal is delayed.
- One commenter asked if dredging reservoir sediment could be addressed.
- One commenter expressed concern about what will happen to the Native American Indian grave sites currently buried under reservoir sediment deposits if the dams are removed.

4.2.12 Recreation

Several comments were received regarding the potential for recreation issues should the dams be removed.

- Several commenters noted that recreational activities, including fishing, and/or quality of life would be reduced due to dam removal, particularly at Copco Lake. General concerns regarding aesthetics were mentioned as part of recreational uses.
- Many comments were received regarding an anticipated increase in fishing-related recreation on the river following dam removal. .
- Several commenters stated that the Iron Gate Fish Hatchery was an important feature to keep because it enhances recreational fishing opportunities.
- One commenter questioned the future disposition of PacifiCorp properties within and adjacent to the former reservoirs.

4.2.13 Economics

Several comments were focused on the potential economic effects of dam removal in the Klamath Basin.

- Several commenters expressed concern that economic impacts would occur due to dam removal, including that ratepayers would have to pay for dam removal.
- Another concern expressed by several commenters included the potential that Klamath and Siskiyou counties would not be able to continue to provide services and would lose school district funding due to reduced tax base.
- Several commenters requested a thorough analysis of the economic impacts resulting from dam removal.
- The Siskiyou County Assessor-Recorder stated that the valuation studies conducted by the Federal agencies to date have been inadequate. The commenter requested that the State Water Board conduct an objective analysis regarding the loss of property values and tax revenues for all impacted parcels due to dam removal, real or perceived loss of flood control, and removal of the hydroelectric facilities from the Assessment Roll. This comment is also listed in *Section 4.2.1 Overall EIR Scope.*
- Many commenters noted the potential economic benefits of dam removal for recreational and commercial fishing.
- One commenter requested that only local contractors/suppliers be used in dam removal contracts.
- One commenter detailed the economic impacts on commercial fisheries in northern California and southern Oregon following completion of Iron Gate Dam.

4.2.14 Property Value

Several comments were focused on the potential for property value impacts related to dam removal.

- Many commenters expressed a concern that properties near the reservoirs have already experienced, and would continue to suffer a decrease in property value if the dams are removed, primarily due to the loss of the reservoirs. Many of these commenters indicated that they own property adjacent to Copco Lake.
- Several commenters expressed concern that the lack of a plan for restoration in reservoir areas following dam removal will lower property values in the vicinity of the reservoirs.
- Several commenters stated that property owners affected by dam removal should be compensated for their loss of property value.

4.2.15 Tribal Cultural and Historical Resources

Many comments provided a range of viewpoints regarding the effects of the dams and their proposed removal on cultural resources.

- Several commenters expressed profound personal and tribal connection to the Klamath River and its water quality. Specifically, members of the Yurok and Karuk

tribes indicated that the dams have threatened the health of the river and compromised their traditional subsistence, ceremonial, spiritual, recreational, and economic lifeways. One commenter indicated that dam restoration will allow for future generations to carry out their cultural practices and responsibilities. The Yurok Tribe specifically referred to its 2016 comments, with regard to the cultural significance of the Klamath River and the devastating impacts the dams have had on these cultural resources (see also *Section 4.2.7 Fish/Fisheries*).

- Several commenters expressed concern regarding dam removal and the potential for impacts to cultural resources associated with ancient Shasta tribal occupation of the landscape, a historical Shasta Indian community, as well as specific rock cairns marking civil war veteran burials and the internments at the Beaver Creek historical cemetery.
- Several commenters stated that the 2012 KHSA EIS/EIR does not properly address the concerns of the Shasta Tribes, which are recognized by the State of California, and that all affected tribes should be given equal weight. One commenter requests that certification not take place until consultation with the tribes is completed and potential impacts and mitigations are addressed.
- Several commenters indicated that the journal of George Gibbs (1851), early miners' notes, contemporary [California Department of Fish and Game] files, and family accounts provide a historical context for pre-dam river conditions that would support benefits of the dams today.
- The California Coastal Commission referenced Section 30244 of the Coastal Act and the responsibility of the applicant to evaluate how river flows and volumes may affect erosion of the river channel and adjacent areas, including areas of known and potential archaeological resources, and should provide reasonable mitigation measures where necessary.
- One commenter indicated that the decommissioning of the four dams will provide a rare opportunity for river restoration, which would be important for tribes, upper basin irrigators, and other communities.
- One commenter specifically notes that dam removal will result in low river flows that will preclude the Karuk Tribe from performing the canoe dance ceremony.
- One commenter requested that the Klamath River Basin be restored and that a traditional fishery be returned to the up-river Klamath Tribes.
- One commenter indicated that the construction of the Klamath River dams may have compromised the very identity of the Shasta tribes, and is likely associated with Shasta Tribe's lack of federal recognition today.
- One commenter indicated that quicksilver mining sites from the 19th century are in the general vicinity of the LKP.
- One commenter indicated that dam removal will benefit recreational fishing communities, which existed in the basin in the 1950s and 1960s.

4.2.16 Paleontological Resources

The California Coastal Commission indicated that the EIR is subject to the policies of Chapter 3 of Coastal Act, which requires review of paleontological resources.

4.2.17 Energy Production and Greenhouse Gases

Several comments were received regarding the potential for dam removal effects on energy production and greenhouse gas (GHG) generation.

- Several commenters expressed concern regarding the loss of existing hydroelectric power, noting that it is an environmentally safe and clean energy source. One commenter indicated that the replacement source for hydroelectric power has not been identified and suggested that dam removal would result in a loss of energy security.
- One commenter indicated that hydroelectric power could be replaced with less impactful sources if the dams are removed.
- Two commenters referenced recent studies on reservoir contributions to methane generation and other GHG impacts created by dams.

4.2.18 Wildlife

Several comments were focused on the potential effects of dam removal on wildlife species.

- One commenter encouraged integration of Partners in Flight conservation objectives into dam removal planning and evaluation, as focal bird species can be indicators of restoration for dam removal projects (e.g., Gold Ray Dam).
- Several commenters noted that unless the entire river is studied, all impacts to fish and birds from dam removal cannot be known.
- Several commenters stated that the existing reservoirs provide breeding and resting habitats for many wildlife species, and the impacts to these species should be studied. Species noted include: sucker fish, mallards, egrets, herons (blue and white), northern white pelican, Canada geese, golden eagles, bald eagles (seven nests around Copco Lake), raccoons, deer, cougars, bears, and species groups of frogs, toads, loons, swans, hawks, eagles, and migratory birds.
- One commenter stated: (1) the Southern Resident killer whale is dependent on the fishery in the Klamath watershed; (2) Chinook salmon is their main food source and is supported by the Klamath, Sacramento, Eel, and other rivers; and (3) the whale spends substantial time in coastal areas off Washington, Oregon, and California, which is currently under the consideration as designated critical habitat.
- One commenter stated that prey depletion is recognized as the top threat to the Southern Resident killer whales, and the four dams have contributed to the decline of the Chinook salmon. The commenter urged the State Water Board to consider long-term and ecosystem-wide impacts, including the positive effect of increased salmon abundance on the whale population.
- Two commenters noted that sea lion populations have grown considerably. Commenters also discussed evidence of sea lion pups starving due to inadequate fish stocks. One commenter noted that trends need to be developed and provided estimates of annual sea lion fish consumption.
- One commenter noted that their hunting club property is in the bed of what was once Lower Klamath Lake, and they hope that a dam removal decision will not prevent access to irrigation tailwater that is used downstream by aquatic and avian

species (e.g., bald eagles). They have restored their property to seasonal wetlands, which can reduce the nutrients that cause downstream toxic algae growth that poisons fish and wildlife.

- One commenter noted that humans should be considered only after fish and wildlife, specifically wild steelhead and wild salmon.
- One commenter indicated that the survival and rights of the wildlife (e.g., turtles, birds) currently using the ecosystem must be considered. For example, cattle and wildlife drink from the lake daily and do not die. The commenter questioned why we do not hear about how tribes allegedly net thousands of salmon at the mouth of the river, shoot the sea lions which prey on the salmon, and then waste half of the salmon.

4.2.19 Riparian Habitat

One commenter recommended that the best available science be used to inform dam removal and riparian restoration planning and that robust regional avian science and conservation objectives be integrated into planning and evaluation.

4.2.20 Agriculture

Several comments were received regarding the potential for dam removal effects on agriculture.

- One commenter stated that farms and ranches along the river rely upon flood control and a steady supply of irrigation water provided by the dams. That will not be possible with a post-dam water source that will be wildly fluctuating throughout the year.
- One commenter expressed concern that Scott and Shasta Valley farmers will be told to stop farming because irrigation water may be needed to benefit Klamath River fisheries if the dams are removed.
- One commenter stated that farmers and ranchers are paying a steep price for the presence of the KHP because they receive no benefits in the form of irrigation storage, flood control, or future discounted electrical rates.
- One commenter stated that dam removal will provide more water for agricultural use (from Upper Klamath Lake) considering less reservoir water will be needed to augment instream flows in support of improving downstream water quality (assuming dam removal will improve water quality in the river).

4.2.21 Public Health and Safety

Several comments were focused on the potential effects of dam removal on public health and safety.

- Several commenters expressed concern that water in the reservoirs would no longer be available for use in fire suppression and questioned whether there would be a replacement plan for ensuring public safety. This comment is also listed in *Section 4.2.9 Water Supply*.

- Several commenters expressed concern regarding the loss of well water as a result of draining the reservoirs. This comment is also listed in *Section 4.2.9 Water Supply*.
- Several commenters noted the potential for downstream flooding as a result of dam removal. This comment is also listed in *Section 4.2.9 Water Supply* and *Section 4.2.10 Hydrology*.
- Several commenters were concerned with the potential health effects of 'toxic' sediments behind the dams remaining on-site or being transported into the river system.
- One commenter indicated concern about there being a single access route to the Copco Dam area and the potential impacts of construction activities/traffic on the safety of other road users such as school busses, residents, pedestrians, livestock and dogs. The commenter also noted that the road could be damaged during construction activities.

4.2.22 Aesthetics

Several comments were received regarding the potential for dam removal effects on aesthetics.

- Several commenters noted the potential for negative aesthetic impacts related to loss of the reservoirs and the resulting denuded landscape, debris, sediment and mud.
- Several commenters noted a presumably extended lag time for restoration activities to take effect (see also *Section 4.2.14 Property Value*).
- One commenter stated that dam removal will adversely affect the Copco and Iron Gate community viability.

4.2.23 Environmental Law Compliance

Many comments focused on environmental law compliance related to dam removal.

- Several commenters stated that public notification of the original January 10, 2017 public scoping meeting in Yreka was very limited and notification was not accomplished in a transparent way.
- One commenter stated that in considering impacts to Tribal Cultural Resources it is important to note that the treatment of federally-terminated tribes differs under federal and state laws. CEQA and California Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) provide a procedural pathway for consultation with California Native American Tribes recognized under the applicable California state laws, while NEPA only considers impacts to tribal cultural resources or federally-recognized tribes; others are treated as "interested parties."
- Two commenters stated that the passage of AB 52 requires lead agencies to engage in meaningful consultation with California Native American Tribes regarding proposed projects.
- Once comment noted that under the ESA, only water and substrate can be managed.

- Several commenters expressed concern that the State of California/State Water Board does not have jurisdiction beyond California and questioned the legality of the State Water Board undertaking an impact analysis for dams located in Oregon and waters originating in Oregon. Commenters suggested that federal agencies (e.g., Army Corps of Engineers, U.S. Department of Interior) possess the relevant regulatory authority and cited various sections of CEQA, Supreme Court decisions *Rapanos v. United States* and *Carabell v. the U.S.*, and Civiletti Memorandum (43 Opinion Attorney General 197, 1979).
- Many commenters expressed concern that dam removal is a premature and/or a pre-determined outcome, which would make the environmental document pre-decisional and in violation of existing laws.
- One commenter indicated that in order to approve the water quality certification, the State Water Board must thoroughly and transparently identify, analyze, and determine whether possible mitigation measures are feasible and would render identified impacts less than significant.
- One commenter suggested that the 2012 KHSA EIS/EIR has no legal standing and noted that it should not be used for tiering of an environmental decision.
- Two commenters asserted that the analysis must include the entire river under federal and state statute prior to the State issuing a water quality certification.
- Several commenters questioned the legal authority and/or standing of the KRRC as a private corporation and noted that FERC must recognize that KRRC is capable of fully carrying out all potential imposed requirements, mitigations, and responsibilities involved in dam removal.
- One commenter stated that before FERC can accept a license surrender application, PacifiCorp and the KRRC must obtain water quality certification under the (CWA) Section 401 from the State Water Board. The State Water Board must analyze the existing operations to determine compliance with the CWA.
- Two commenters asserted that the KHP has been operating in violation of the CWA, and potentially other State and Federal laws.
- Several commenters cited the CEQA Guidelines and various public codes, which relate to the following:
  - analysis of all reasonably foreseeable direct and indirect significant effects
  - analysis of short-term and longterm effects
  - balancing of the social and environmental benefits with the unavoidable adverse environmental effects
  - alternatives to the project
  - detailed information about the effect which a proposed project is likely to have on the environment
  - identification of ways in which the significant effect(s) of the project might be minimized
- One commenter stated that according to CEQA Guidelines an EIR may incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public, and cited the 2012 KHSA EIS/EIR.
- The California Coastal Commission stated that the EIR should examine KRRC's Proposed Project for consistency with the policies of Chapter 3 of the Coastal Act,

and noted several key policies including: 1) Section 30231, Biological Productivity and Water Quality; 2) Section 30234.5, Economic, Commercial, and Recreational Importance of Fishing; 3) Section 30233(d), Movement of Sediment and Nutrients; 4) Section 30244, Archaeological or Paleontological Resources; and 5) Section 30253, Hazards.

- One commenter expressed concern that removal of the Klamath River dams would violate the National Wild and Scenic Rivers designation. The commenter expressed concern that any state that imposes a regulatory action on a navigable river would violate the Dormant Commerce Clause. The commenter also stated that removal of the dams would be in violation of Siskiyou County's water rights.
- Many commenters noted that a majority of voters in Siskiyou County voted to retain the dams and asserted that the environmental document must analyze all viable alternatives.
- One commenter stated CEQA requires that all portions of the same project be analyzed for their environmental impacts. In spite of the artificial divisions of a state line, the KHP is one single project, under one single FERC license, and all parts of the project are designed to interact in various ways. Analyzing California pollution and operations without a discussion of J.C. Boyle and Keno would lead to an incomplete analysis. This could possibly also impact Oregon's application or help to create a situation where only the California dams come down because no single analysis of dams' interactions on the receiving reservoirs' existed. See Calif. Farm Bureau Federation v. California Wildlife Conservation Board (App. 3 Dist. 2006, 49 Cal.Rptr.3d 169, 143 Cal.App.4th 173 ("Improper for an agency to divide a project into separate parts to avoid CEQA analysis"), and San Joaquin Raptor Rescue Center vs. County of Merced (App. 5 Dist. 2007), 57 Cal.Rptr.3d 663, 149 Cal.App.4th 654, as modified ("The entirety of a project must be described in an EIR, and not some smaller portion of it.").

4.2.24 Cumulative Impacts Analysis

- Several commenters stated that the EIR should analyze cumulative impacts of the various alternatives in the entire Klamath Management Zone. This is an area extending from the shores of California and Oregon offshore out to 200 miles, and which extends north to at least Humbug Mountain, Oregon and south to at least Horse Mountain (near Shelter Cove), California (see also Section X.x.x).
- One commenter stated
- that the EIR must consider all significant impacts of its proposed project, regardless of whether those impacts occur offsite, and regardless of whether those activities would be attributable solely to the permitted activity or to that activity in combination with other circumstances including, but not necessarily limited to other past, present, and reasonably expect[ed] future activities in the relevant area. The commenter also stated that if the lead agency determines that there are one or more significant potential cumulative effects, then it must carefully consider those effects in determining whether, and on what terms, to condition the proposed project.
- Several commenters stated that the cumulative impacts analysis needs to include analysis of the Oregon dams and Upper Klamath Basin irrigation project.

4.2.25 Source Data and Information

Several commenters submitted new studies or information for consideration during the development of the LKP EIR. All information submitted during the NOP public comment period will be considered during the development of the LKP EIR. Information and studies submitted by commenters for consideration in LKP EIR development included the following:

- Alexander, J. D., J. L. Bartholomew, K. A. Wright, N. A. Som, and N. J. Hetrick. 2016. Integrating models to predict distribution of the invertebrate host of myxosporean parasites. Freshwater Science Online Early. DOI: 10.1086/688342. http://onlinelibrary.wiley.com/doi/10.1002/rra.3067/epdf
- David, A. T., S. A. Gough, and W. D. Pinnix. 2016. Summary of abundance and biological data collected during juvenile salmonid monitoring on the mainstem Klamath River below Iron Gate Dam, California, 2014. Arcata Fisheries Data Series Report Number DS 2016-47. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, California. http://www.fws.gov/arcata/fisheries/reports/dataSeries/KlamathOutmigrantReport2014.pdf
- David, A. T., S. A. Gough, and W. D. Pinnix. 2017. Summary of abundance and biological data collected during juvenile salmonid monitoring on the mainstem Klamath River below Iron Gate Dam, California, 2015. Arcata Fisheries Data Series Report Number DS 2017-48. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, California.

  https://www.fws.gov/arcata/fisheries/reports/dataSeries/KlamathOutmigrantReport2015_final.pdf
- Deemer, B. R., J. A. Harrison, S. Li, J. J. Beaulieu, T. Delsontro, N. Barros, J. F. Bezerra-Neto, S. M. Powers, M. A. Dos Santos, and J. A. Vonk. 2016. Greenhouse gas emissions from reservoir water surfaces: a new global synthesis. BioScience Advance Access.
- Goodman, D. H., and S. B. Reid. 2015. Regional implementation plan for measures to conserve Pacific lamprey (*Entosphenus tridentatus*), California – North Central Coast Regional Management Unit. Arcata Fisheries Technical Report Number TR 2015-27. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, California. https://www.fws.gov/arcata/fisheries/reports/technical/PLCI%20CA%202015_CA%20Implementation_North%20Central%20Coast_Final.pdf
- Goodman, D. H., S. B. Reid, N. A. Som, and W. R. Poytress. (In Press). The punctuated seaward migration of Pacific Lamprey (*Entosphenus tridentatus*): environmental cues and implications for streamflow management. Canadian Journal of Fisheries and Aquatic Sciences 72: 1,817–1,828. http://www.nrcresearchpress.com/doi/abs/10.1139/cjfas-2015-0063#.V6oypU1-ND8
- Gough, S. A., and N. A. Som. 2015. Fall Chinook salmon run characteristics and escapement for the mainstem Klamath River, 2012. Arcata Fisheries Data Series Report Number DS 2015-46. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, California. http://www.fws.gov/arcata/fisheries/reports/dataSeries/2012%20klamath%20carcass%20survey%20report%20FINAL.pdf

- Harrison, J. A., B. R. Deemer, M. K. Birchfield, and M. T. O'Malley. 2016. Reservoir water-level drawdowns accelerate and amplify methane emission. Environmental Science & Technology 51: 1,267–1,277. http://pubs.acs.org/doi/abs/10.1021/acs.est.6b03185
- Hillemeier, D., M. Belchik, T. Soto, S. C. Tucker, and S. Ledwin. 2017. Measures to reduce *Ceratonova Shasta* infection of Klamath River salmonids: a guidance document. Disease Technical Advisory Team.
- Jones, E. C., R. W. Perry, J. C. Risley, N. A. Som, and N. J. Hetrick. 2016. Construction, calibration, and validation of the RBM10 water temperature model for the Trinity River, northern California: U.S. Geological Survey Open-File Report 2016–1056. http://dx.doi.org/10.3133/ofr20161056. http://www.fws.gov/arcata/fisheries/reports/technical/rbm10_trinity.pdf
- Shea, C., N. J. Hetrick, and N. A. Som. 2016. Response to request for technical assistance – sediment mobilization and flow history in Klamath River below Iron Gate Dam. Technical Memorandum. Arcata Fish and Wildlife Office, Arcata, California. https://www.fws.gov/arcata/fisheries/reports/technical/Maintenance%20Flow%20Tech%20Memo%20Final.pdf
- Som, N. A, N. J. Hetrick, and J. Alexander. 2016. Response to request for technical assistance – polychaete distribution and infections. Technical Memorandum. Arcata Fish and Wildlife Office, Arcata, California. https://www.fws.gov/arcata/fisheries/reports/technical/Polychaete%20Tech%20Memo%20Final.pdf
- Som, N. A. and N. J. Hetrick. 2016. Response to request for technical assistance – *Ceratonova shasta* waterborne spore stages. Technical Memorandum. Arcata Fish and Wildlife Office, Arcata, California. https://www.fws.gov/arcata/fisheries/reports/technical/Spores%20Tech%20Memo%20Final.pdf
- Som, N. A., N. J. Hetrick, S. Foott, and K. True. 2016. Response to request for technical assistance – prevalence of *C. shasta* infections in juvenile and adult salmonids. Technical Memorandum. Arcata Fish and Wildlife Office, Arcata, California. https://www.fws.gov/arcata/fisheries/reports/technical/Fish%20Infection%20Tech%20Memo%20AFWO%20Final.pdf
- USDI (U.S. Department of Interior). 2016. Klamath Facilities Removal Environmental Impact Statement/Environmental Impact Report – Supplemental Information Report. State Clearinghouse #2010062060.
- CEQA scope should analyze beneficial uses associated with historical Chinook Salmon migrations upstream from dams. This information is summarized in the SDOR report and the recent Oregon Historical Quarterly article - OHQ. http://ohs.org/research-and-library/oregon-historical-quarterly/browse-ohq-articles.cfm.
- The Siskiyou County Assessor-Recorder submitted a detailed comment letter containing new information regarding the economic analysis in relation to property valuation and taxes.
- A box of materials was submitted by former Siskiyou County Board of Supervisor Grace Bennett for inclusion in the CEQA administrative record. These materials consisted of a variety of items including old newspaper articles, maps, opinion

pieces, and other information (Appendix D). These materials will be considered during development of the LKP EIR.

- Richard Marshall submitted several documents for inclusion in the CEQA administrative record. These materials consisted of a variety of items from the Siskiyou County Water Users Association, including a history of ballot measures, resolutions by the Siskiyou County Board of Supervisors, Shasta Nation Anadromous fish passageway alternatives, scoping comments related to the KBRA/KHSA and dam removal, and other materials. These materials will be considered during development of the LKP EIR.
- Richard Marshall's submittals during the Yreka public scoping meeting included a petition to support a class action lawsuit (dated April 11, 2016). The petition was signed by 466 persons.
- The PCFFA/IFR submitted 17 documents for inclusion into the CEQA administrative record and consideration during development of the EIR. The documents date from 1980 to 2009.
- The County of Siskiyou provided a resolution (16-220) adopted by the Board of Supervisors on September 13, 2016 adopting the map labelled "The Traditional Homelands of the Shasta People." The map was attached to the resolution. The Shasta Nation requested that this map be referenced for all future consultation and cultural resource processes.

4.2.26 Other Comments

- One commenter suggested that the State Water Board prepare an index and update a publicly available searchable database for this project.
- Several commenters stated that the State Water Board should look at other dam removal projects for guidance on assessment of impacts and benefits.
- One commenter stated that dam removal is necessary but not sufficient for full recovery/restoration of the Klamath River.

4.2.27 Comments Not Relating to the Scope or Content of the EIR

Many comments were received that do not relate to the scope or content of the EIR, for example:

- Many comments were statements for or against the project.
- Many commenters urged the State Water Board to expedite the environmental review and Clean Water Act (CWA) Section 401 certification process to allow the dams to be removed by 2020.
- Several commenters objected to PacifiCorp assessing a surcharge on ratepayers to fund dam removal.
- Several commenters objected to the payment of State dollars to the KRRC.
- Two organizations volunteered their expertise in restoration planning and monitoring.
- One commenter would like to see the Klamath Hot Springs restored.

- One commenter indicated that the dams provide a remote and population-safe target, should the United States attack a foreign power and the latter decide to retaliate.
- Several commenters stated that ranchers and residents do not have a voice in this matter.
- One commenter stated that the system is rigged and benefits the one percent.
- One commenter stated that the health threats related to blue green algae blooms in the reservoirs and interest in dam removal are forms of ecoterrorism.
- One commenter stated that society faces a myriad of difficult situations.
- Once commenter stated that the analysis should weigh the good of the many over the good of a few.
- A few commenters stated that the State Water Board's actions are part of an illegal California government, and that these actions would never occur in the State of Jefferson.
- Several commenters expressed concerns about secret meetings by government agencies regarding this project.
- One commenter stated that President Trump is abolishing NEPA.
- One commenter stated that this project is part of a global initiative to control all of the people in the world.

Appendices

Appendix A

Notice of Preparation

Appendix B

Scoping Meeting Materials

Appendix C

Scoping Meeting Transcripts and Oral and/or Written Comments Submitted at Scoping Meetings

Appendix D

Written Comments

WRITTEN COMMENTS FROM FEDERAL AGENCIES

WRITTEN COMMENTS FROM STATE AGENCIES

WRITTEN COMMENTS FROM NATIVE AMERICAN TRIBES

WRITTEN COMMENTS FROM LOCAL AGENCIES

WRITTEN COMMENTS FROM ORGANIZATIONS

WRITTEN COMMENTS FROM INDIVIDUALS

WRITTEN COMMENTS FROM KLAMATH RIVERKEEPERS

ATTACHMENT C

KRRC letter to California State Water Resources Control Board (June 1, 2017)

KLAMATH RIVER RENEWAL CORPORATION

Parker Thaler
Senior Environmental Scientist – Specialist
Water Quality Certification Program
Division of Water Rights
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

June 1, 2017

P.O. Box 100
Sacramento, CA 95812-0100

This letter is to inform the State Water Resource Control Board of the Klamath River Renewal Corporation's (KRRC) decision on a proposed project for the Clean Water Act Section 401 Water Quality Certification and the accompanying California Environmental Quality Act (CEQA) analysis.

The Lower Klamath Project, as defined in KRRC's Surrender Application to the Federal Energy Regulatory Commission, includes facilities removal[1] of Iron Gate Dam, Copco No. 1 Dam, Copco No. 2 Dam, J.C. Boyle Dam, and appurtenant works, including hydropower facilities; together, the facilities.

For the purpose of KRRC's 401 application, the facilities removal is as described in the Detailed Plan Sections 4, 6, 7, and 8 (Reclamation 2012). These sections describe the activities and features that will be removed, altered, or restored as part of the Klamath River Renewal Project. At this time, we have found no significant issues where the proposed project would deviate from the facilities removal description in the Detailed Plan.

In addition, Detailed Plan Section 9.7 discusses several mitigation measures that may be included as part of the project. We are working with resource agencies and other stakeholders to refine the need for and scope of these measures. This will be an on-going process as we work through permitting and consultation with the resource agencies. Some measures may be reduced in scope or eliminated from the project if they are no longer required or necessary, and others may be maintained or refined as part of the project.

The Detailed Plan describes a Full Removal alternative and a Partial Removal alternative. The KRRC's proposed project is the Full Removal alternative as described in the referenced sections of the Detailed Plan. We encourage the State Board to also consider in its CEQA analysis the Partial Removal alternative as described in the Detailed Plan.

[1] Facilities Removal is defined in Section 1.4 of the Amended Klamath Hydroelectric Settlement Agreement.

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The KRRC and its consultants will be conducting field studies, inspections, and additional analyses this summer to refine the design. As new information becomes available, KRRC and its consultants will assess whether it results in any changes to the project described in the Detailed Plan. The State Board will be kept informed of changes to the project, and a technical support document compiling any changes will be submitted to the State Board in September 2017.

Please contact me or Seth Gentzler, P.E. at AECOM at seth.gentzler@aecom.com or 510-874-3018 if you have any questions or concerns.

Yours sincerely,

Michael Carrier
President
Klamath River Renewal Corporation
T: 503-551-6340
E: michael@klamathrenewal.org

ATTACHMENT D
Detailed Plan Cost Estimate

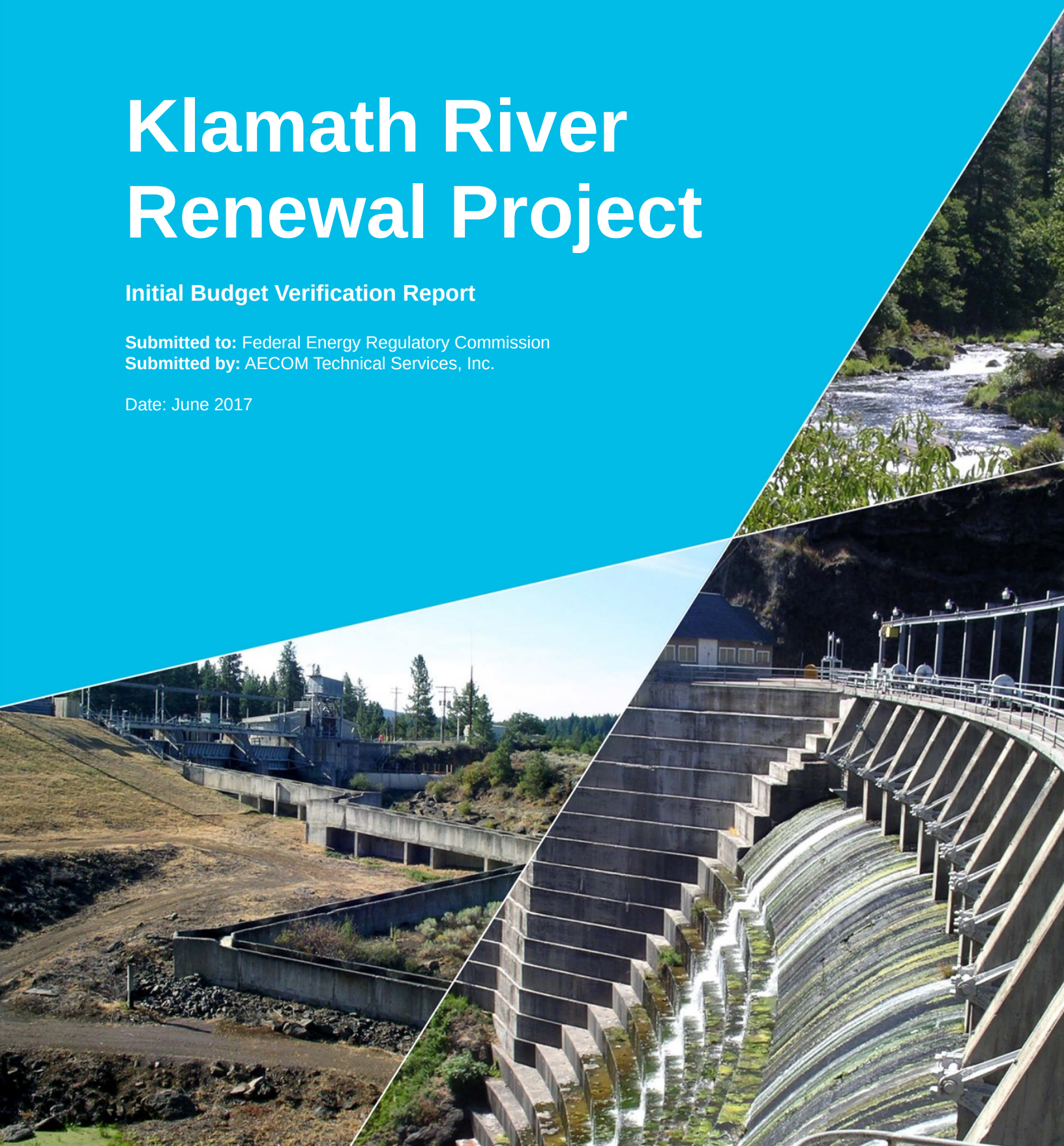
AECOM

Klamath River Renewal Project

Initial Budget Verification Report

Submitted to: Federal Energy Regulatory Commission
Submitted by: AECOM Technical Services, Inc.

Date: June 2017



Prepared for:

Klamath River Renewal Corporation

Prepared by:

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1. Introduction

The proposed project includes the decommissioning and removal of four dams (Iron Gate, Copco 1 and 2, and JC Boyle) on the Klamath River approximately 200 miles from the Pacific Ocean in the states of Oregon and California by the Klamath River Renewal Corporation (KRRC) (see Figure 1-1). The four dams (facilities) are currently owned by PacifiCorp, and a formal Transfer Application was submitted to the Federal Energy Regulatory Commission (FERC) jointly by PacifiCorp and the KRRC that would result in KRRC ownership of the license and facilities if approved by FERC. Up until the time of the Transfer Application, the facilities were part of a FERC Project 2082. As part of the Transfer Application, PacifiCorp and the KRRC requested and FERC approved designation of the facilities as the "Lower Klamath Project" under new Project 14803. The KRRC has submitted a separate Surrender Application to FERC for project 14803 that, if approved, would allow the KRRC to decommission the facilities. AECOM has been requested to verify the budget that had been estimated by the United States Bureau of Reclamation (Reclamation) back in 2010 to perform this work.

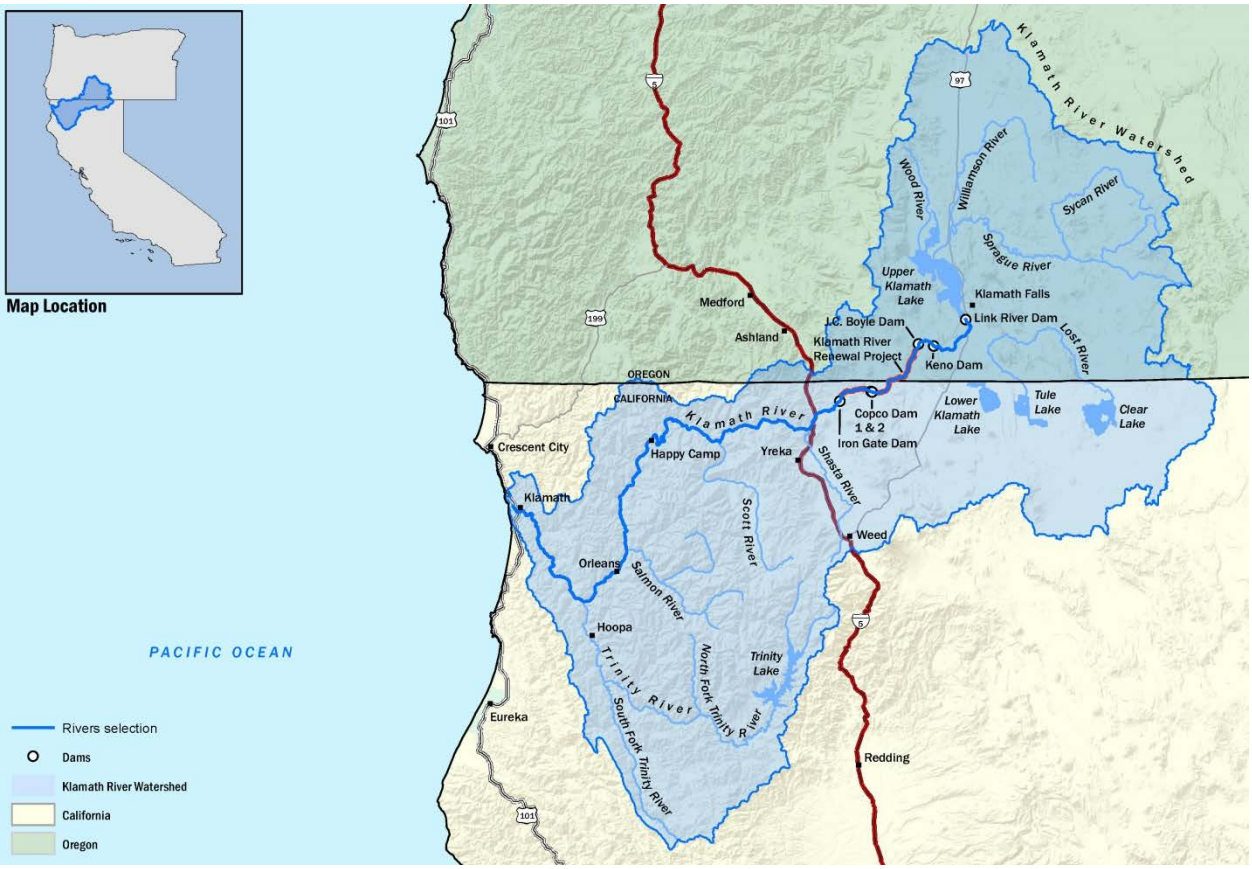


Figure 1-1 Klamath River watershed and facilities locations

The following major items of work were considered in this budget verification:

1. **Access Roads** – Access road improvements are needed in order to facilitate the transport of materials, employees, as well as equipment access.
2. **Temporary Works** – Dewatering, berms, cofferdam, tunnel plug, riprap, etc.
3. **Earthwork** – Rock and soil excavation.
4. **Concrete Work and Removal** – Pour concrete plugs. Removal of spillway, fish ladder, gravity dam, open concrete flume, intake structure, concrete related to penstocks, etc. The concrete removal is taken into consideration by methods of drilling/blasting and by mechanical means using hydraulic hammer/jaw attachments and excavators.
5. **Mechanical and Structural Steel Removal** – Removal and disposal of turbine unit, penstocks and bifurcation, overhead removal system, steel transition manifolds, etc.
6. **Electrical** – Removal and disposal of transformer, transmission lines, substation equipment, and generators.
7. **Land Restoration and Seeding** – Restoration of reservoir and other disturbed areas upon completion of the project throughout different elevations and using different methods for seed placement. Methods assumed are by barge along the reservoir bank, by helicopter along steep slopes, by airplane along uneven large areas, and by trailer mounted blower for areas easily accessible by truck.

2. Methods

2.1 Disclaimer

Quantities used for the cost analysis were from the 2010 cost estimate. No quantities were modified for this analysis. Field and engineering studies are underway that are expected to result in changes to quantities and production rates, which could result in costs going up or down. In addition, we are refining the mitigation measures originally proposed by Reclamation, and associated costs for these measures may also be revised in the future. For example, implementation of the Aquatic Resources Mitigation Measures were estimated to cost approximate $4.5M in the Detailed Plan, but based on recent conversations with the fisheries resource agencies, these requirements, and associated costs, could be significantly reduced moving forward. A new cost estimate with revised quantities and mitigation measures will be prepared for the FERC Decommissioning Plan submittal in December 2017.

The costs included in this report cover construction, engineering, and mitigation. Costs for program management, such as legal support and program staff, are not included.

2.2 Verification Approach

This budget verification includes a review of escalation and unit cost build up for significant cost items. A Pareto Cost Model was generated based on the 2010 Reclamation budget estimate in order to narrow down the critical items. The principle of Pareto's Law of Distribution states that 80% of the project costs are found in 20% of the project elements (pay Items for this project). Rather than focusing at only 80% of the project costs, the verification considered 95% of the cost which comprised of 24% of the project elements, or 110 of the total 465 pay items among all four dams (see Appendix A). This resulted in review of any pay items over $100,000 in total cost. Historical production rates, Davis Bacon Wage Determination, regional equipment rates, local fuel prices, and supplier/vendor inputs were utilized to review the 110 pay items referenced

above. The remaining 355 pay items were escalated from 2010 dollars to present day cost using actual ENR's cost indices (see Section 2.3).

Markups and add-ons below the direct cost subtotal were applied the same as in the 2010 cost estimate to facilitate cost comparison. The only exception is the calculation for escalation, which is separated to bring the 2010 estimate to 2017 dollars.

2.3 Escalation

2.3.1 Escalating 2010 Estimate to Present Day Cost

The escalation used to bring the original estimate of 2010 dollars to 2017 dollars was done using the ENR's Construction Cost Index per the following indices.

Table 2-1 J.C. Boyle Dam Other Project Elements

	Month	Year	Index
From	July	2010	8865
To	January	2017	10532
Escalation Factor			**1.188**

2.3.2 Escalating 2017 Estimate to Notice to Proceed

The escalation used to estimate the 2017 dollars to 2020 dollars was done using 3.00% per year for 3 years resulting in a blended factor of 1.0927.

2.4 Basis of Unit Rates

2.4.1 Markups

The following markups were applied into the direct cost of pay items built up for this budget verification analysis.

- Material Sales Tax – 7.75%
- Equipment Sales Tax – 7.75%
- Labor Fringes/Burden – Varies (see DBWD package attached)
- General Contractor's Overhead – 10.00%
- General Contractor's Profit – 8.00%
- General Contractor's Markup on Subcontractors – 10.00%
- General Contractor's Insurance – 3.00%
- Bond – 1.50%

2.4.2 Labor Rates

The latest Davis Bacon Wage Determination was used for labor rates and fringes in pay items built up for this budget verification analysis. The area used was based on Siskiyou County, California. This site is a remote location, which will require per diem for all employees. This has been included as an additional overhead cost. The attached rate table shows raw rates with fringes (See Appendix B).

2.4.3 Equipment Cost

Equipment costs in pay items built up for this budget verification analysis were based on the equipment list from the 2010 estimate report. AECOM's unit prices include equivalent or similar pieces of equipment with present day rates from Equipment Watch Blue Book. In selecting the rates, Redding, California was used as the nearest available location. Refer to the attached Equipment Watch files for the equipment cost breakdown (see Appendix C). The equipment hourly rate as shown in the table includes fuel. The fuel is a factored rate of $3.00/gallon based on average retail of gas stations in the vicinity.

3. Results

Table 3-1 compares the fully marked up costs by facility location for the original 2010 cost estimate, the new escalation of the 2010 costs (see Section 2.3.1), and the 2017 verification of costs. Table 3-2 compares the original 2010 cost estimate and the 2017 budget verification with markups broken down. The 2017 budget verification estimates a reduction in total project cost of approximately $17.3 million.

Table 3-1 Cost Comparison of costs for full removal alternative by location

	(a)	(b)	(c)	(d)
Location	**2010 Total Direct Cost (Original Estimate)**	**Escalation of 2010 Original Estimate using 2-step process**	**2017 Budget Verification**	**Delta (Cols c-a)**
	(2020 $)	(2020 $)	(2020 $)	(2020 $)
J.C. Boyle	$59,000,000	$57,440,000	$52,230,000	$(6,770,000)
Copco 1	$105,000,000	$99,890,000	$108,910,000	$3,910,000
Copco 2	$24,000,000	$25,200,000	$24,930,000	$930,000
Iron Gate	$98,000,000	$91,910,000	$82,880,000	$(15,120,000)
Yreka Water Supply	$5,600,000	$5,400,000	$5,400,000 [1]	$(200,000)
Total	**$291,600,000**	**$279,840,000**	**$274,350,000**	**$(17,250,000)**

Table 3-2 Cost Comparison showing markups

			(e)	(f)	(g)
			2010 Total Direct Cost (Original Estimate)	**2017 Budget Verification**	**Delta (Cols f-e)** [1]
			($)	($)	($)
1	Subtotal (all pay items)		$100,910,209	$116,277,000	
2	Mobilization, 5%	5%	$5,108,000	$5,815,000.00	
3	Subtotal (w/ mobilization)		$106,018,209	$122,092,000	
4	Escalation to Notice to Proceed, 2010 Original Estimate: 3%/year for 10 years = 34.39% 2017 Estimate: from January 2017 to January 2020, 3.0%/year for 3 years = 9.27%	34.39% 9.27%	$36,461,398	$11,773,000	($24,688,398)
5	Subtotal (cost in 2020 dollars)		$142,479,607	$133,865,000	($8,614,607)
6	Design Contingencies, dams10%, Yreka water 15%	10% 15%	$14,520,393	$13,508,000	($1,012,393)
7	Contract Cost		$157,000,000	$147,373,000	($9,627,000)
8	Construction contingencies, dams 20%, Yreka water 25%	20% 25%	$31,100,000	$29,614,000	($1,486,000)
9	Field Cost		$188,100,000	$176,987,000	($11,113,000)
10	Non-contract Cost, engineering 20%, mitigation 35%	55%	$103,500,000	$97,344,000	($6,156,000)
11	**Construction Cost** [2]		**$291,600,000**	**$274,331,000**	**($17,269,000)**

Notes:

[1] Column (g) deltas not included for rows 1-3 because Column (e) and (f) costs are in different years, 2010 and 2017, respectively, until row 4. Costs from row 4 down are in 2020 dollars.

[2] Total construction cost in row 11 is slightly different than the total costs in Table 3-1 due to rounding differences.

3.1 Major Unit Cost Changes

Out of the 110 pay items that were reviewed closely, the following 26 pay items reflected the largest differences from the original 2010 estimate. The comparison with the original estimate was done by bringing the 2010 costs to 2017 costs using the ENR's Construction Index. The items in red are items that our analysis suggests should cost less than originally estimated, and the items in black our analysis suggests were originally underestimated.

Table 3-3 Pay items greater than $200,000

Dam	WinEst Pay Item No.	Description	Quantity	Unit	Estimated Unit Price (2017 $)	Estimate Cost (2017 $)	Delta from Original Estimate Escalated to 2017 (2017 $)
Copco 1	2.088	County Road Improvements - Asphalt Overlay Repair - Copco Road	19	mile	$330,291.29	$6,275,535	$5,372,655
Copco 1	2.087	County Road Improvements - Asphalt Overlay Repair - Juniper Road	3	mile	$349,300.13	$1,047,900	$905,340
Copco 1	2.077	Riparian Pole Planting	170	AC	$14,126.56	$2,401,515	$684,855
Iron Gate	4.095	Fall Ground Seeding	330	AC	$5,405.27	$1,783,739	$411,599
Copco 1	2.079	Fall Ground Seeding	321	AC	$5,403.91	$1,734,655	$399,937
JC Boyle	1.093	Riparian Pole Planting	54	AC	$15,762.27	$851,163	$305,871
Iron Gate	4.090	Spring Barge Seeding	296	AC	$8,540.82	$2,528,083	$242,371
Copco 2	3.071	Remove & Dispose Penstock after bifurcation to butterfly valve	860,000	LB	$1.28	$1,100,800	$232,372
Iron Gate	4.021	Remove Upstream Riprap	80,000	CY	$18.29	$1,463,200	$227,680
Copco 2	3.068	Remove & Dispose Wood Staves Soaked in Creosote	1,100,000	LB	$1.02	$1,122,000	$207,240
Iron Gate	4.013	Furnish, Install, & Remove 1-16.5'x18' Roller Gate, Stem, and Op	110,000	LB	$19.65	$2,161,500	$201,300
Iron Gate	4.093	Riparian Pole Planting	50	AC	$14,120.47	$706,024	$201,124
Copco 1	2.001	Furnish, Install, & Remove Barge Mounted Crane in Reservoir for	1	EA	$206,292.52	$206,293	$(209,507)
JC Boyle	1.020	Miscellaneous Excavation	132,500	CY	$9.00	$1,192,500	$(224,190)
Iron Gate	4.116	Berm Removal	53,000	CY	$10.75	$569,750	$(248,782)
Iron Gate	4.010	Remove Structural Steel in Aerator Structure	2,500	LB	$1.01	$2,525	$(334,400)
Iron Gate	4.088	Temporary Access Roads	2.6	mile	$174,454.04	$453,581	$(473,059)
Copco 1	2.085	Access/Haul Route Improvements - Soil Excavation	16,000	CY	$19.65	$314,400	$(636,000)
Iron Gate	4.091	Spring Aerial Seeding	159	AC	$4,195.66	$667,110	$(749,580)
Copco 1	2.075	Spring Aerial Seeding	300	AC	$5,932.17	$1,779,651	$(893,349)
JC Boyle	1.065	Remove Open Concrete Flume	26,000	CY	$264.16	$6,868,160	$(1,162,720)
JC Boyle	1.103	Soil Cover over Concrete Rubble	13,000	CY	$59.43	$772,590	$(1,389,570)

Dam	WinEst Pay Item No.	Description	Quantity	Unit	Estimated Unit Price (2017 $)	Estimate Cost (2017 $)	Delta from Original Estimate Escalated to 2017 (2017 $)
Copco 1	2.011	Remove Concrete Intake Structure on Right Abutment	21,000	CY	$344.00	$7,224,000	$(1,507,800)
Copco 1	2.010	Remove Concrete Dam down to Elevation 2476	36,000	CY	$304.95	$10,978,200	$(1,852,200)
Iron Gate	4.023	Miscellaneous Excavation	880,000	CY	$10.42	$9,169,600	$(4,421,120)

Below is an example of a few of these deltas. Note that the “Original Estimate” refers to the 2010 Reclamation estimate escalated to 2017 costs, so it is comparable with our review. The major unit cost changes are as follows:

- Items 2.087, 2.088 – Asphalt Overlay – Asphalt overlay presented the largest delta in the estimate. Per Page 142 of the Klamath Detailed Plan, a 3" thickness of asphalt overlay is defined. The need to overlay/pave 22 miles of access roads to allow two ways of traffic poses significant cost, and it appears the asphalt material or subcontractor was not fully accounted for. This revised estimated cost is approximately $6.3 million for almost 50,000 TN of asphalt at $100/TN.

- Item 2.085 – Soil Excavation for Access/ Haul Road Improvements – The original estimate had rock excavation at $47.52/cy (2017 dollars) and soil excavation at $59.40/cy (2017 dollars). We believe the original estimate for rock excavation is reasonable; however, our position is that soil excavation can be done at a rate of approximately 40% the effort of rock excavation at a rate of approximately $20/cy using 2 loaders, 2 dozers, 1 excavator at a rate of approximately 1,000 cy per shift. This resulted into a delta of approximately $636k less than the original estimate.

- Item 4.116 – Berm Removal – Original estimate at $15.44/cy (2017 dollars) seemed overly conservative. This 53,000 cy of berm removal can be done in just over a month with 2 equipment crews consisting each of a dozer, loader, and excavator at a combined rate of approximately 2,000 cy per shift. This results in a unit rate of $10.75/cy and a delta of approximately $250k less than the original estimate.

- Items 1.093, 2.077, 4.093 – Riparian Pole Planting – The review of the riparian pole planting was done based on 2 crews at a production rate of 350 trees/cutting per crew planted a day. According to RS Means, the crew make up is 1 foreman and 2 laborers and states that the production is 12 trees an hour or 96 trees a day per person. Due to the planting of cuttings not being as labor intensive, 2 crews could plant approximately 1 acre per day. This results in a cost over the original budget of approximately $1.2M (an increase of approximately 43%).

4. Risk Assessment

4.1 "What If" Case Scenario – Fuel Price Hikes

Recent fuel prices are coming off a low and seem to be trending upward with the potential of going above $3.00/gal. To depict a "what if" scenario, the difference in cost of fuel at $3.00/gal. vs. $4.00/gal. was analyzed. This $1.00/gal. increase could impact project direct costs by approximately $3.3M (from $114.5M to $117.8M).

Figure 4-1 Retail gas prices 2008-2017

4.2 "What If" Case Scenario – Delay in Project Start

There are various risks that could result in a delay to the start of the project, including permitting issues, additional environmental/geotechnical reviews, budgeting approvals, public hearings, cultural affairs, etc. A delay for each year would result an assumed escalation of 3.00% to the overall program cost per year delayed.

- If NTP in 2021 – $ 6.1 M
- If NTP in 2022 – $ 12.4 M
- If NTP in 2023 – $ 18.9 M

4.3 "What If" Case Scenario – Delays During Construction

There are various risks that could result in construction delays, including weather, water elevation, environmental/permitting constraints, constructability/design issues, etc. This delay would comprise of overhead, idle equipment at 50% rate, labor at 20% inefficiency, and inflation based on the respective timeframe beyond construction completion. This scenario would only apply to delays that occur after the initial start of construction.

- 3-month delay – $ 9.9 M
- 6-month delay – $ 20.0 M
- 9-month delay – $ 30.2 M

4.4 "What If" Case Scenario – Labor Availability & Premium

Although the project labor rates are based on the current Davis Bacon Wages, labor shortages can result in an even higher labor cost. Total labor cost (excluding per diem) in the revised estimate is approximately $26.0 M.

- 10% Premium Labor Cost in the Program – $ 2.6 M
- 15% Premium Labor Cost in the Program – $ 3.9 M
- 20% Premium Labor Cost in the Program – $ 5.2 M

5. Schedule Considerations

The original schedule from 2010 was taken into consideration in looking at work sequence, crew sizes, and productivity. However, consideration was limited as most activities did not provide enough description to be tied to a specific pay item. In the Decommissioning Plan, a closer look at construction sequencing and duration will be included. The schedule will be generated at a straight relation with each pay item (or broken up further as needed due to sequencing and phasing) where resources can be checked against the schedule and estimate.

Attachment 1

Detailed Cost Tables by Pay Item

JC BOYLE DAM

WBS								ORIGINAL ESTIMATE, July 2010		REVISED ESTIMATE, Jan. 2017		PARTIAL EST. Jan. 2017
								2010 subtotal	$ 20,597,050	2017 subtotal	$ 22,248,333	$ 14,607,422
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total	Unit Price	Total	Total
JCBOYLE	1	1.001	CW	Removal of Diversion Conduit Bulkheads	8130	14	CY	$ 850.00	$ 11,900.00	$ 1,009.84	$ 14,137.71	$ 14,137.71
JCBOYLE	2	1.002	EW	Remove Water from behind Tailrace Cofferdam	8130	500,000	GAL	$ 0.01	$ 5,000.00	$ 0.01	$ 5,940.21	$ -
JCBOYLE	3	1.003	RE	Provide Dewatering behind Tailrace Cofferdam	8130	1	LS	$ 30,000.00	$ 30,000.00	$ 35,641.29	$ 35,641.29	$ -
JCBOYLE	4	1.004	EW	Construct Embankment Cofferdam in Tailrace around Powerhous	8130	2,000	CY	$ 60.00	$ 120,000.00	**$ 54.43**	$ 108,869.83	$ -
JCBOYLE	5	1.005	CW	Remove Spillway Concrete	8130	2,500	CY	$ 260.00	$ 650,000.00	**$ 293.60**	$ 733,992.19	$ 733,992.19
JCBOYLE	6	1.006	ST	Remove Monorail Structural Steel Components	8130	15,000	LB	$ 0.65	$ 9,750.00	$ 0.77	$ 11,583.42	$ 11,583.42
JCBOYLE	7	1.007	CW	Remove Fish Ladder Concrete	8130	1,600	CY	$ 260.00	$ 416,000.00	**$ 225.48**	$ 360,764.97	$ 360,764.97
JCBOYLE	8	1.008	CW	Remove Gravity Dam Section Concrete	8130	600	CY	$ 260.00	$ 156,000.00	**$ 263.89**	$ 158,336.78	$ -
JCBOYLE	9	1.009	ST	Remove Timber Equipment Ramp on left side of Dam	8130	10,500	LB	$ 0.55	$ 5,775.00	$ 0.65	$ 6,860.95	$ 6,860.95
JCBOYLE	10	1.010	RE	Remove Pressure-Treated Lumber from Footbridge around Intake	8130	3,600	SF	$ 0.55	$ 1,980.00	$ 0.65	$ 2,352.32	$ 2,352.32
JCBOYLE	11	1.011	BD	Remove Storage Shed located on access road	8130	1,728	SF	$ 40.00	$ 69,120.00	$ 47.52	$ 82,117.52	$ -
JCBOYLE	12	1.012	BD	Remove Warehouse located on access road	8130	1,920	SF	$ 40.00	$ 76,800.00	$ 47.52	$ 91,241.69	$ -
JCBOYLE	13	1.013	BD	Remove Fire System Control Bldg. on left abutment	8130	385	SF	$ 40.00	$ 15,400.00	$ 47.52	$ 18,295.86	$ 18,295.86
JCBOYLE	14	1.014	BD	Remove Dam Communication Bldg. on left abutment	8130	331	SF	$ 40.00	$ 13,240.00	$ 47.52	$ 15,729.69	$ 15,729.69
JCBOYLE	15	1.015	CW	Remove Concrete Slab on left abutment for former Control House	8130	6	CY	$ 260.00	$ 1,560.00	$ 308.89	$ 1,853.35	$ 1,853.35
JCBOYLE	16	1.016	CW	Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abu	8130	1	CY	$ 260.00	$ 260.00	$ 308.89	$ 308.89	$ 308.89
JCBOYLE	17	1.017	BD	Remove Reservoir Level Gauge House on Dam Crest	8130	24	SF	$ 40.00	$ 960.00	$ 47.52	$ 1,140.52	$ 1,140.52
JCBOYLE	18	1.018	EW	Upstream Riprap	8130	2,220	CY	$ 9.00	$ 19,980.00	$ 10.69	$ 23,737.10	$ 23,737.10
JCBOYLE	19	1.019	EW	Downstream Riprap	8313	1,850	CY	$ 9.00	$ 16,650.00	$ 10.69	$ 19,780.91	$ 19,780.91
JCBOYLE	20	1.020	EW	Miscellaneous Excavation	8313	132,500	CY	$ 9.00	$ 1,192,500.00	**$ 9.00**	$ 1,192,762.25	$ 1,192,762.25
JCBOYLE	21	1.021	CW	Cutoff Wall Concrete Demolition	8313	70	CY	$ 260.00	$ 18,200.00	$ 308.89	$ 21,622.38	$ 21,622.38
JCBOYLE	22	1.022	ST	Cutoff Wall Anchors	8313	285	EA	$ 10.00	$ 2,850.00	$ 11.88	$ 3,385.92	$ 3,385.92
JCBOYLE	23	1.023	ST	Remove & Dispose Hand Rails and Light Poles	8420	5,000	LB	$ 0.65	$ 3,250.00	$ 0.77	$ 3,861.14	$ 3,861.14
JCBOYLE	24	1.024	ST	Remove & Dispose Spillway Radial Gates and Hoists	8420	124,000	LB	$ 0.65	$ 80,600.00	$ 0.77	$ 95,756.25	$ 95,756.25
JCBOYLE	25	1.025	ST	Remove & Dispose Stop Logs and Slots (steel)	8420	92,000	LB	$ 0.65	$ 59,800.00	$ 0.77	$ 71,044.96	$ 71,044.96
JCBOYLE	26	1.026	ST	Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder St	8420	4,200	LB	$ 0.65	$ 2,730.00	$ 0.77	$ 3,243.36	$ 3,243.36
JCBOYLE	26a	1.026a	ST	Remove petroleum products from Red Bam Area	8420	1,600	GAL	$ 10.00	$ 16,000.00			$ 19,008.69
JCBOYLE	27	1.027	ST	Remove & Dispose of Spillway gate motor & control panel	8430	1	EA	$ 600.00	$ 600.00	$ 712.83	$ 712.83	$ 712.83
JCBOYLE	28	1.028	ST	Remove & Dispose of Distribution equipment, panelboards	8430	1	EA	$ 6,000.00	$ 6,000.00	$ 7,128.26	$ 7,128.26	$ 7,128.26
JCBOYLE	29	1.029	CW	Remove Powerhouse Concrete down to Elevation 3324.0	8130	1,500	CY	$ 370.00	$ 555,000.00	**$ 354.38**	$ 531,565.91	$ -
JCBOYLE	30	1.030	ST	Remove Structural Steel Item associated with Powerhouse	8130	94,000	LB	$ 0.65	$ 61,100.00	$ 0.77	$ 72,589.42	$ -
JCBOYLE	31	1.031	BD	Remove Warehouse near Powerhouse	8130	5,200	SF	$ 40.00	$ 208,000.00	**$ 64.10**	$ 333,302.97	$ 333,302.97
JCBOYLE	32	1.032	ST	Remove & Dispose of 2 - Governor oil systems	8420	52,500	LB	$ 0.65	$ 34,125.00	$ 0.77	$ 40,541.96	$ -
JCBOYLE	33	1.033	ST	Remove & Dispose of Cooling water and bearing oil systems	8420	6,500	LB	$ 0.65	$ 4,225.00	$ 0.77	$ 5,019.48	$ -

JC BOYLE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	20,597,050	2017 subtotal	$	22,248,333	$ 14,607,422
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
JCBOYLE	34	1.034	ST	Remove & Dispose of 2 - Francis Turbines	8420	560,000	LB	$ 0.65	$	364,000.00	**$ 1.02**	$	572,438.67	$ -
JCBOYLE	35	1.035	ST	Remove & Dispose of 150 Ton crane	8420	240,000	LB	$ 0.65	$	156,000.00	**$ 0.96**	$	230,017.90	$ 230,017.90
JCBOYLE	36	1.036	ST	Remove & Dispose of Compressed Air systems	8420	1,100	LB	$ 0.65	$	715.00	$ 0.77	$	849.45	$ -
JCBOYLE	37	1.037	ST	Remove & Dispose of 2 - CO2 systems	8420	6,600	LB	$ 0.65	$	4,290.00	$ 0.77	$	5,096.70	$ -
JCBOYLE	38	1.038	ST	Remove & Dispose of Plant Water and Fire Protection	8420	3,100	LB	$ 0.65	$	2,015.00	$ 0.77	$	2,393.91	$ -
JCBOYLE	39	1.039	ST	Remove & Dispose of Transformer Oil Fire Protection	8420	6,500	LB	$ 0.65	$	4,225.00	$ 0.77	$	5,019.48	$ -
JCBOYLE	40	1.040	ST	Remove & Dispose of Unwatering Piping	8420	33,000	LB	$ 0.65	$	21,450.00	$ 0.77	$	25,483.52	$ -
JCBOYLE	41	1.041	ST	Remove & Dispose of Drainage Piping	8420	10,000	LB	$ 0.65	$	6,500.00	$ 0.77	$	7,722.28	$ -
JCBOYLE	42	1.042	ST	Remove & Dispose of 2-Oil Sump pumps	8420	2,000	LB	$ 0.65	$	1,300.00	$ 0.77	$	1,544.46	$ -
JCBOYLE	43	1.043	ST	Remove & Dispose of Draft Tube Bulk Head Gates and Hoists at th	8420	65,000	LB	$ 0.65	$	42,250.00	$ 0.77	$	50,194.81	$ -
JCBOYLE	43a	1.043a	ST	Remove petroleum products from Mechanical Equipment	8420	2,700	GAL	$ 10.00	$	27,000.00				$ 32,077.16
JCBOYLE	44	1.044	ST	Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 M	8430	2	EA	$ 200,000.00	$	400,000.00	**$ 283,834.89**	$	567,669.77	$ 567,669.77
JCBOYLE	45	1.045	ST	Remove & Dispose of Excitation equipment for 53/50 MVA Gener	8430	2	EA	$ 12,500.00	$	25,000.00	$ 14,850.54	$	29,701.07	$ -
JCBOYLE	46	1.046	ST	Remove & Dispose of Surge protection equip. for 53/50 MVA Gen	8430	2	EA	$ 7,000.00	$	14,000.00	$ 8,316.30	$	16,632.60	$ -
JCBOYLE	47	1.047	ST	Remove & Dispose of Neutral grounding equip. for 53/50 MVA Ge	8430	2	EA	$ 3,000.00	$	6,000.00	$ 3,564.13	$	7,128.26	$ -
JCBOYLE	48	1.048	ST	Remove & Dispose of Generator Switchgear, 15kV - (6 sections)	8430	1	EA	$ 20,000.00	$	20,000.00	$ 23,760.86	$	23,760.86	$ -
JCBOYLE	49	1.049	ST	Remove & Dispose of Station Service Switchgear, 600 volt - (5 sec	8430	1	EA	$ 9,000.00	$	9,000.00	$ 10,692.39	$	10,692.39	$ -
JCBOYLE	50	1.050	ST	Remove & Dispose of Unit and plant control switchboard	8430	1	EA	$ 5,000.00	$	5,000.00	$ 5,940.21	$	5,940.21	$ -
JCBOYLE	51	1.051	ST	Remove & Dispose of Battery system	8430	1	EA	$ 8,000.00	$	8,000.00	$ 9,504.34	$	9,504.34	$ 9,504.34
JCBOYLE	52	1.052	EL	Remove & Dispose of Raceways, Conduit and Cable	8430	1	EA	$ 11,000.00	$	11,000.00	$ 13,068.47	$	13,068.47	$ -
JCBOYLE	53	1.053	EL	Remove & Dispose of Misc. power & control boards	8430	1	EA	$ 6,000.00	$	6,000.00	$ 7,128.26	$	7,128.26	$ -
JCBOYLE	54	1.054	EL	Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux	8430	1	EA	$ 2,000.00	$	2,000.00	$ 2,376.09	$	2,376.09	$ 2,376.09
JCBOYLE	55	1.055	EL	Remove & Dispose of Gantry Crane control equipment (3 cubicles	8430	1	EA	$ 6,000.00	$	6,000.00	$ 7,128.26	$	7,128.26	$ 7,128.26
JCBOYLE	56	1.056	EL	Remove & Dispose of Conduit and Cable	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ 11,880.43
JCBOYLE	57	1.057	EL	Remove & Dispose of Exterior Lighting	8430	1	EA	$ 2,000.00	$	2,000.00	$ 2,376.09	$	2,376.09	$ 2,376.09
JCBOYLE	58	1.058	EL	Remove & Dispose of Transmission Line No. 59	8430	1.66	MILE	$ 25,000.00	$	41,500.00	$ 29,701.07	$	49,303.78	$ 49,303.78
JCBOYLE	59	1.059	EL	Remove & Dispose of Transmission Line No. 98	8430	0.24	MILE	$ 25,000.00	$	6,000.00	$ 29,701.07	$	7,128.26	$ 7,128.26
JCBOYLE	60	1.060	EL	Remove & Dispose of Transmission Line No. 58	8430	1.66	MILE	$ 25,000.00	$	41,500.00	$ 29,701.07	$	49,303.78	$ 49,303.78
JCBOYLE	61	1.061	CW	Remove Instake Structure Concrete	8130	1,600	CY	$ 260.00	$	416,000.00	**$ 339.41**	$	543,055.11	$ -
JCBOYLE	62	1.062	BD	Remove Fish Screen Building	8130	1,300	SF	$ 40.00	$	52,000.00	$ 47.52	$	61,778.23	$ -
JCBOYLE	63	1.063	ST	Remove 24-inch-dia. Steel Fish Discharge Pipe	8130	22,000	LB	$ 0.65	$	14,300.00	$ 0.77	$	16,989.01	$ 16,989.01
JCBOYLE	64	1.064	CW	Remove Concrete Items associated with the 14-ft-diameter Steel I	8130	1,100	CY	$ 260.00	$	286,000.00	**$ 238.13**	$	261,942.03	$ -
JCBOYLE	65	1.065	CW	Remove Open Concrete Flume	8130	26,000	CY	$ 260.00	$	6,760,000.00	**$ 264.16**	$	6,868,076.87	$ 3,222,712.99
JCBOYLE	66	1.066	ST	Remove Structural Steel Items associated with the Forebat Trashr	8130	11,500	LB	$ 0.65	$	7,475.00	$ 0.77	$	8,880.62	$ 8,880.62

JC BOYLE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	20,597,050	2017 subtotal	$	22,248,333	$ 14,607,422
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
JCBOYLE	67	1.067	CW	Remove Forebay Concrete	8130	2,500	CY	$ 260.00	$	650,000.00	**$ 341.64**	$	854,104.87	$ 512,462.92
JCBOYLE	68	1.068	CW	Place Concrete Plugs at Tunnel Portals	8130	30	CY	$ 1,000.00	$	30,000.00	$ 1,188.04	$	35,641.29	$ 35,641.29
JCBOYLE	69	1.069	CW	Remove Concrete Items associated with Penstocks D/S from Tunn	8130	1,800	CY	$ 260.00	$	468,000.00	**$ 254.85**	$	458,728.93	$ 458,728.93
JCBOYLE	70	1.070	BD	Remove Headgate Control Building at Flume Entrance	8130	330	SF	$ 40.00	$	13,200.00	$ 47.52	$	15,682.17	$ 15,682.17
JCBOYLE	71	1.071	BD	Remove Forebay Spillway Gate House	8130	570	SF	$ 40.00	$	22,800.00	$ 47.52	$	27,087.38	$ 27,087.38
JCBOYLE	72	1.072	BD	Remove Forebay Control Building	8130	470	SF	$ 40.00	$	18,800.00	$ 47.52	$	22,335.21	$ 22,335.21
JCBOYLE	73	1.073	ST	Remove Communication Tower next to Forebay Control Building	8130	7,100	LB	$ 0.65	$	4,615.00	$ 0.77	$	5,482.82	$ 5,482.82
JCBOYLE	74	1.074	BD	Remove Insulated Generator Building next to Forebay Control Bui	8130	72	SF	$ 40.00	$	2,880.00	$ 47.52	$	3,421.56	$ 3,421.56
JCBOYLE	75	1.075	ST	Remove Fixed Wheel Gate (gate, Frame, and Hoist)	8420	55,000	LB	$ 0.65	$	35,750.00	$ 0.77	$	42,472.53	$ -
JCBOYLE	76	1.076	ST	Remove Trash rack and trash rake (steel)	8420	75,000	LB	$ 0.50	$	37,500.00	$ 0.59	$	44,551.61	$ -
JCBOYLE	77	1.077	ST	Remove stop Logs and slots (steel)	8420	136,000	LB	$ 0.65	$	88,400.00	$ 0.77	$	105,022.99	$ -
JCBOYLE	78	1.078	ST	Remove Traveling Water Screen	8420	124,000	LB	$ 0.65	$	80,600.00	$ 0.77	$	95,756.25	$ -
JCBOYLE	79	1.079	ST	Remove Fish By-Pass and Supports (steel)	8420	610,000	LB	$ 0.65	$	396,500.00	**$ 0.86**	$	523,977.48	$ -
JCBOYLE	80	1.080	ST	Remove Gates and Hoists	8420	16,500	LB	$ 0.65	$	10,725.00	$ 0.77	$	12,741.76	$ 12,741.76
JCBOYLE	81	1.081	ST	Remove Trash rack and trash rake (steel)	8420	43,500	LB	$ 0.50	$	21,750.00	$ 0.59	$	25,839.93	$ 25,839.93
JCBOYLE	82	1.082	ST	Remove stop Logs and slots (steel)	8420	14,500	LB	$ 0.65	$	9,425.00	$ 0.77	$	11,197.30	$ 11,197.30
JCBOYLE	83	1.083	ST	Remove & Dispose Penstocks and bifurcation (steel)	8420	1,600,000	LB	$ 0.65	$	1,040,000.00	**$ 0.87**	$	1,391,976.84	$ 1,391,976.84
JCBOYLE	84	1.084	ST	Remove & Dispose Surge Tank (steel)	8420	79,000	LB	$ 0.65	$	51,350.00	$ 0.77	$	61,006.00	$ 61,006.00
JCBOYLE	85	1.085	ST	Remove & Dispose 2 - 108" Butterfly valves	8420	148,000	LB	$ 0.65	$	96,200.00	$ 0.77	$	114,289.72	$ -
JCBOYLE	86	1.086	ST	Remove & Dispose Gate, Stem and Frame	8420	28,000	LB	$ 0.65	$	18,200.00	$ 0.77	$	21,622.38	$ 21,622.38
JCBOYLE	87	1.087	ST	Remove & Dispose of Steel Transition Manifolds on Upstream and	8420	250,000	LB	$ 0.50	$	125,000.00	**$ 0.74**	$	184,809.69	$ 184,809.69
JCBOYLE	87a	1.087a	ST	Remove petroleum products from Mechanical Equipment	8420	380	GAL	$ 10.00	$	3,800.00				$ 4,514.56
JCBOYLE	88	1.088	EW	Temporary Access Roads	8140	2	MILE	$ 150,000.00	$	300,000.00	**$ 174,524.00**	$	349,047.99	$ 349,047.99
JCBOYLE	89	1.089	RE	Spring Ground Seeding	8220	247	AC	$ 3,500.00	$	864,500.00	**$ 4,149.27**	$	1,024,869.45	$ 1,024,869.45
JCBOYLE	90	1.090	RE	Spring Barge Seeding	8220	-	AC	$ -	$	-	$ -	$	-	$ -
JCBOYLE	91	1.091	RE	Spring Aerial Seeding	8220	-	AC	$ 7,500.00	$	-	$ 8,910.32	$	-	$ -
JCBOYLE	92	1.092	RE	Fall Ground Seeding	8220	124	AC	$ 3,500.00	$	434,000.00	**$ 4,195.22**	$	520,206.89	$ 520,206.89
JCBOYLE	93	1.093	RE	Riparian Pole Planting	8220	54	AC	$ 8,500.00	$	459,000.00	**$ 15,762.27**	$	851,162.45	$ 851,162.45
JCBOYLE	94	1.094	RE	Weed Management	8220	124	AC	$ 1,500.00	$	186,000.00	**$ 1,859.37**	$	230,561.58	$ 230,561.58
JCBOYLE	95	1.095	RE	Fall Ground Seeding	8220	99	AC	$ 3,500.00	$	346,500.00	**$ 4,493.52**	$	444,858.41	$ 444,858.41
JCBOYLE	96	1.096	RE	Weed Management	8220	99	AC	$ 1,500.00	$	148,500.00	**$ 1,851.07**	$	183,255.84	$ 183,255.84
JCBOYLE	97	1.097	RE	Clear and Grub Disposal Area (Embankment)	8313	10	AC	$ 5,000.00	$	50,000.00	$ 5,940.21	$	59,402.14	$ 59,402.14
JCBOYLE	98	1.098	RE	Clear and Grub, 40' width	8313	2.4	AC	$ 5,000.00	$	12,000.00	$ 5,940.21	$	14,256.51	$ 14,256.51
JCBOYLE	99	1.099	EW	4" thick gravel surfacing	8313	2,150	TN	$ 30.00	$	64,500.00	$ 35.64	$	76,628.76	$ 76,628.76

JC BOYLE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	20,597,050	2017 subtotal	$	22,248,333	$ 14,607,422
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
JCBOYLE	100	1.100	RE	Soil Cover over Concrete Rubble	8313	-	AC	$ 5,000.00	$	-	$ 5,940.21	$	-	$ -
JCBOYLE	101	1.101	RE	Clear and Grub, 20' width	8313	-	AC	$ 5,000.00	$	-	$ 5,940.21	$	-	$ -
JCBOYLE	102	1.102	EW	4" thick gravel surfacing	8313	-	TN	$ -	$	-	$ -	$	-	$ -
JCBOYLE	103	1.103	EW	Soil Cover over Concrete Rubble	8313	13,000	CY	$ 140.00	$	1,820,000.00	**$ 59.43**	$	772,600.13	$ 772,600.13
JCBOYLE	104	1.104	CW	Disposal of Concrete Rubble from Dam	8313	-	CY	$ -	$	-	$ -	$	-	$ -
JCBOYLE	105	1.105	CW	Disposal of Concrete Rubble from Flume/Forebay	8313	-	CY	$ -	$	-	$ -	$	-	$ -
JCBOYLE	106	1.106	CW	Dispose of Concrete Rubble from Power House	8313	-	CY	$ -	$	-	$ -	$	-	$ -
JCBOYLE	107	1.107	EW	Embankment Fill in Wasteway (Forebay) Scour Hole	8313	-	CY	$ 140.00	$	-	$ 166.33	$	-	$ -
JCBOYLE	108	1.108	CW	Topsy Recreational Area - Concrete total	BLM	68	CY	$ 220.00	$	14,960.00	$ 261.37	$	17,773.12	$ 17,773.12
JCBOYLE	109	1.109	BD	Topsy Recreational Area - 6'x80' Floating dock made of lumber an	BLM	1	EA	$ 5,000.00	$	5,000.00	$ 5,940.21	$	5,940.21	$ 5,940.21
JCBOYLE	110	1.110	EW	Topsy Recreational Area - 5'x20' Walkway leading to hex fishing p	BLM	200	SF	$ 13.00	$	2,600.00	$ 15.44	$	3,088.91	$ 3,088.91
JCBOYLE	111	1.111	EW	Topsy Recreational Area - Regrade to natural contour and reseed	BLM	300	SF	$ 4.00	$	1,200.00	$ 4.75	$	1,425.65	$ 1,425.65
JCBOYLE	112	1.112	BD	Pioneer Park - Picnic tables to be removed and hauled away	BLM	12	EA	$ 60.00	$	720.00	$ 71.28	$	855.39	$ 855.39
JCBOYLE	113	1.113	CW	Pioneer Park - 12 Concrete fire rings	BLM	5	CY	$ 220.00	$	1,100.00	$ 261.37	$	1,306.85	$ 1,306.85
JCBOYLE	114	1.114	BD	Pioneer Park - Portable toilets to be removed and hauled away	BLM	2	EA	$ 1,000.00	$	2,000.00	$ 1,188.04	$	2,376.09	$ 2,376.09
JCBOYLE	115	1.115	BD	Pioneer Park - Signs to be removed and hauled away	BLM	6	EA	$ 150.00	$	900.00	$ 178.21	$	1,069.24	$ 1,069.24
JCBOYLE	116	1.116	BD	Pioneer Park - Dumpster to be removed and hauled away	BLM	1	EA	$ 1,000.00	$	1,000.00	$ 1,188.04	$	1,188.04	$ 1,188.04
JCBOYLE	117	1.117	RE	Pioneer Park - Remove paved access road	BLM	200	LF	$ 250.00	$	50,000.00	$ 297.01	$	59,402.14	$ 59,402.14
JCBOYLE	118	1.118	RE	Pioneer Park - Regrade to natural contour, rip, plant and seed par	BLM	0.5	AC	$ 20,000.00	$	10,000.00	$ 23,760.86	$	11,880.43	$ 11,880.43
				SUBTOTAL					**$**	**20,597,050**		**$**	**22,248,333**	**$ 14,607,422**
				Mobilization, 5%		5.00%			$	1,029,853		$	1,112,417	$ 730,372
				SUBTOTAL (w/ Mobilization)					**$**	**21,626,903**		**$**	**23,360,750**	**$ 15,337,794**
				Escalation from January 2010 to January 2017 using ENR's Construction Cost Index		18.80%			$	4,066,785		$	-	$ -
				SUBTOTAL (cost in 2017 dollars)					**$**	**25,693,687**		**$**	**23,360,750**	**$ 15,337,794**
				Escalation to Notice to Proceed (NTP) from Unit Price Level (January 2017) to NTP (January 2020) 3.0% / year for 3 years		9.27%			$	2,382,499		$	2,166,172	$ 1,422,228

JC BOYLE DAM

WBS						ORIGINAL ESTIMATE, July 2010				REVISED ESTIMATE, Jan. 2017				PARTIAL EST. Jan. 2017
						2010 subtotal	$	20,597,050		2017 subtotal	$	22,248,333		$ 14,607,422
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
				SUBTOTAL (Escalation to January 2020)					**$**	**28,076,186**		**$**	**25,526,922**	**$ 16,760,022**
				Design Contingencies, 10%		10.00%			$	2,807,619		$	2,552,692	$ 1,676,002
				CONTRACT COST					**$**	**30,883,804**		**$**	**28,079,615**	**$ 18,436,024**
				Construction Contingencies, 20%		20.00%			$	6,176,761		$	5,615,923	$ 3,687,205
				FIELD COST					**$**	**37,060,565**		**$**	**33,695,538**	**$ 22,123,229**
				Non-Contract Cost		55.00%			$	20,383,311		$	18,532,546	$ 12,167,776
				CONTRUCTION COST					**$**	**57,440,000**		**$**	**52,230,000**	**$ 34,290,000**

COPCO 1 DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	36,555,585	2017 subtotal	$	46,393,628	$ 34,721,149
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
COPCO1	1	2.001	EW	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir fc	8130	1	LS	$ 350,000.00	$	350,000.00	**$ 206,292.52**	$	206,292.52	$ 206,292.52
COPCO1	2	2.002	EW	Remove Sediment from Diversion Tunnel Intake to provide access	8130	30	CY	$ 2,000.00	$	60,000.00	$ 2,376.09	$	71,282.57	$ 71,282.57
COPCO1	3	2.003	EW	Furnish, Install, and Remove Large Crane on Right Abutment	8130	1	LS	$ -	$	-	$ -	$	-	$ -
COPCO1	4	2.004	EW	Remove Water from behind Tailracce Cofferdam	8130	200,000	GAL	$ 0.01	$	2,000.00	$ 0.01	$	2,376.09	$ -
COPCO1	5	2.005	EW	Riprap Protection on Cofferdam	8130	260	CY	$ 150.00	$	39,000.00	$ 178.21	$	46,333.67	$ -
COPCO1	6	2.006	EW	Provide Dewatering behind Tailrace Cofferdam	8130	1	LS	$ 35,000.00	$	35,000.00	$ 41,581.50	$	41,581.50	$ -
COPCO1	7	2.007	EW	Remove Current Diversion Tunnel Plug	8130	195	CY	$ 1,500.00	$	292,500.00	**$ 972.52**	$	189,642.05	$ 189,642.05
COPCO1	8	2.008	EW	Construct Embankment Cofferdam in Tailrace	8130	1,700	CY	$ 85.00	$	144,500.00	**$ 36.20**	$	61,538.34	$ -
COPCO1	9	2.009	ST	Furnish, Install & Remove 3'-6"x6' Fabricated Slide Gates	8420	40,500	LB	$ 15.00	$	607,500.00	**$ 20.00**	$	809,942.32	$ 809,942.32
COPCO1	10	2.010	CW	Remove Concrete Dam down to Elev. 2476	8130	36,000	CY	$ 300.00	$	10,800,000.00	**$ 304.95**	$	10,978,313.02	$ 10,978,313.02
COPCO1	11	2.011	CW	Remove Concrete Intake Structure on Right Abutment	8130	21,000	CY	$ 350.00	$	7,350,000.00	**$ 344.00**	$	7,224,011.41	$ -
COPCO1	12	2.012	ST	Remove Structural Steel from Spillway	8130	55,000	LB	$ 1.00	$	55,000.00	$ 1.19	$	65,342.36	$ 65,342.36
COPCO1	13	2.013	CW	Install Diversion Tunnel Plugs	8130	30	CY	$ 1,200.00	$	36,000.00	$ 1,425.65	$	42,769.54	$ 34,215.63
COPCO1	14	2.014	CW	Remove Diversion Tunnel Control Structure Concrete	8130	350	CY	$ 215.00	$	75,250.00	$ 255.43	$	89,400.23	$ -
COPCO1	15	2.015	ST	Remove & Dispose of Hand Rails	8420	11,000	LB	$ 1.00	$	11,000.00	$ 1.19	$	13,068.47	$ 13,068.47
COPCO1	16	2.016	ST	Remove & Dispose of Radial Gates	8420	140,500	LB	$ 1.00	$	140,500.00	**$ 1.57**	$	220,035.74	$ 220,035.74
COPCO1	17	2.017	ST	Remove & Dispose Radial Gate Stoplogs	8420	18,000	LB	$ 1.00	$	18,000.00	$ 1.19	$	21,384.77	$ 21,384.77
COPCO1	18	2.018	ST	Remove & Dispose Stoplog hoist, track and supports	8420	26,000	LB	$ 1.00	$	26,000.00	$ 1.19	$	30,889.11	$ 30,889.11
COPCO1	19	2.019	ST	Remove & Dispose of 3 sections of 23' of 72" Dia. steel lining (em	8420	54,000	LB	$ 0.85	$	45,900.00	$ 1.01	$	54,531.17	$ -
COPCO1	20	2.020	ST	Remove & Dispose of 3 - 72" butterfly valves (embedded)	8420	55,000	LB	$ 0.85	$	46,750.00	$ 1.01	$	55,541.00	$ -
COPCO1	21	2.021	ST	Remove & Dispose of 3 - 72" flapper valves with remote mechani	8420	78,000	LB	$ 3.00	$	234,000.00	**$ 4.37**	$	340,657.62	$ 340,657.62
COPCO1	22	2.022	ST	Remove & Dispose of Spillway gate motor & control panel	8430	1	EA	$ 1,000.00	$	1,000.00	$ 1,188.04	$	1,188.04	$ 1,188.04
COPCO1	23	2.023	EL	Remove & Dispose Distribution equipment, panelboards	8430	1	EA	$ 6,000.00	$	6,000.00	$ 7,128.26	$	7,128.26	$ 7,128.26
COPCO1	24	2.024	CW	Remove Powerhouse Concrete down to top of rock under the Pov	8130	3,100	CY	$ 350.00	$	1,085,000.00	**$ 404.01**	$	1,252,440.59	$ -
COPCO1	25	2.025	ST	Remove Powerhouse Structural Steel	8130	110,000	LB	$ 0.85	$	93,500.00	$ 1.01	$	111,082.01	$ -
COPCO1	26	2.026	ST	Remove & Dispose of 2 - Governor Oil Systems	8420	38,000	LB	$ 0.85	$	32,300.00	$ 1.01	$	38,373.78	$ -
COPCO1	27	2.027	ST	Remove & Dispose of Cooling water and bearing oil systems	8420	11,000	LB	$ 0.85	$	9,350.00	$ 1.01	$	11,108.20	$ -
COPCO1	28	2.028	ST	Remove & Dispose of 4 - Horizontal Tandem Francis Turbines	8420	452,000	LB	$ 0.85	$	384,200.00	$ 1.01	$	456,446.07	$ -
COPCO1	29	2.029	ST	Remove & Dispose of 2 - 40 Ton indoor cranes	8420	140,000	LB	$ 0.85	$	119,000.00	**$ 1.27**	$	177,473.36	$ -
COPCO1	30	2.030	ST	Remove & Dispose of Compressed Air System	8420	1,000	LB	$ 0.85	$	850.00	$ 1.01	$	1,009.84	$ -
COPCO1	31	2.031	ST	Remove & Dispose of 2 - CO2 Systems	8420	3,100	LB	$ 0.85	$	2,635.00	$ 1.01	$	3,130.49	$ -
COPCO1	32	2.032	ST	Remove & Dispose of Plant Water and Fire Protection	8420	2,600	LB	$ 0.85	$	2,210.00	$ 1.01	$	2,625.57	$ -
COPCO1	33	2.033	ST	Remove & Dispose of Transformer Oil Fire Protection	8420	5,400	LB	$ 0.85	$	4,590.00	$ 1.01	$	5,453.12	$ -
COPCO1	34	2.034	ST	Remove & Dispose of Unwatering Piping	8420	27,000	LB	$ 0.85	$	22,950.00	$ 1.01	$	27,265.58	$ -

COPCO 1 DAM

WBS								ORIGINAL ESTIMATE, July 2010		REVISED ESTIMATE, Jan. 2017		PARTIAL EST. Jan. 2017
								2010 subtotal	$ 36,555,585	2017 subtotal	$ 46,393,628	$ 34,721,149
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total	Unit Price	Total	Total
COPCO1	35	2.035	ST	Remove & Dispose of Drainage Piping	8420	5,000	LB	$ 0.85	$ 4,250.00	$ 1.01	$ 5,049.18	$ -
COPCO1	35a	2.035a	ST	Remove petroleum products from mechanical equipment	8420	1,250	GAL	$ 10.00	$ 12,500.00			$ 14,850.54
COPCO1	36	2.036	ST	Remove & Dispose of Horizontal AC Generator, Indoor Open Fram	8430	2	EA	$ 35,000.00	$ 70,000.00	$ 41,581.50	$ 83,163.00	$ -
COPCO1	37	2.037	EL	Remove & Dispose of Excitation equipment for 12.5 MVA Generat	8430	1.5	EA	$ 8,000.00	$ 12,000.00	$ 9,504.34	$ 14,256.51	$ -
COPCO1	38	2.038	EL	Remove & Dispose of Surge protection equip. for 12.5 MVA Gene	8430	2	EA	$ 2,000.00	$ 4,000.00	$ 2,376.09	$ 4,752.17	$ -
COPCO1	39	2.039	EL	Remove & Dispose of Neutral grounding equip. for 12.5 MVA Gen	8430	2	EA	$ 2,000.00	$ 4,000.00	$ 2,376.09	$ 4,752.17	$ -
COPCO1	40	2.040	EL	Remove & Dispose of Generator Switchgear, 5kV-includes unit bre	8430	1	EA	$ 20,000.00	$ 20,000.00	$ 23,760.86	$ 23,760.86	$ -
COPCO1	41	2.041	EL	Remove & Dispose of Station Service Switchgear, 600 volt - (5 sec	8430	1	EA	$ 20,000.00	$ 20,000.00	$ 23,760.86	$ 23,760.86	$ -
COPCO1	42	2.042	EL	Remove & Dispose of Unit and plant control switchboard	8430	1	EA	$ 15,000.00	$ 15,000.00	$ 17,820.64	$ 17,820.64	$ -
COPCO1	43	2.043	EL	Remove & Dispose of Battery System	8430	1	EA	$ 10,000.00	$ 10,000.00	$ 11,880.43	$ 11,880.43	$ 11,880.43
COPCO1	44	2.044	EL	Remove & Dispose of Raceways, Conduit and Cable	8430	1	EA	$ 15,000.00	$ 15,000.00	$ 17,820.64	$ 17,820.64	$ -
COPCO1	45	2.045	EL	Remove & Dispose of Misc. power & control boards	8430	1	EA	$ 5,000.00	$ 5,000.00	$ 5,940.21	$ 5,940.21	$ -
COPCO1	46	2.046	EL	Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-p	8430	3	EA	$ 50,000.00	$ 150,000.00	**$ 74,781.26**	$ 224,343.78	$ -
COPCO1	47	2.047	EL	Remove & Dispose of Step-up Transformers, indoor, oil-filled, 1-p	8430	3	EA	$ 50,000.00	$ 150,000.00	**$ 66,810.57**	$ 200,431.70	$ -
COPCO1	48	2.048	ST	Remove & Dispose of Seven 40-Ton Travelling Crane motors - hois	8430	1	EA	$ 2,500.00	$ 2,500.00	$ 2,970.11	$ 2,970.11	$ -
COPCO1	49	2.049	ST	Remove & Dispose of 40-Ton Travelling Crane control equipment	8430	1	EA	$ 10,000.00	$ 10,000.00	$ 11,880.43	$ 11,880.43	$ -
COPCO1	50	2.050	ST	Remove & Dispose of 40-Ton Travelling Crane Festoon Cable	8430	1	EA	$ 1,500.00	$ 1,500.00	$ 1,782.06	$ 1,782.06	$ -
COPCO1	51	2.051	ST	Remove & Dispose of Four 15-Ton Overhead Crane Motors - hoist	8430	1	EA	$ 1,000.00	$ 1,000.00	$ 1,188.04	$ 1,188.04	$ -
COPCO1	52	2.052	ST	Remove & Dispose of 15-Ton Overhead Crane control equipment	8430	1	EA	$ 300.00	$ 300.00	$ 356.41	$ 356.41	$ -
COPCO1	53	2.053	ST	Remove & Dispose of 15-Ton Overhead Crane Festoon Cable	8430	1	EA	$ 500.00	$ 500.00	$ 594.02	$ 594.02	$ -
COPCO1	53a	2.053a	ST	Remove petroleum products from mechanical equipment	8420	10,500	GAL	$ 10.00	$ 105,000.00			$ 124,744.50
COPCO1	54	2.054	ST	Remove & Dispose of 69kV circuit breakers, oil0filled, PCB	8430	2	EA	$ 3,000.00	$ 6,000.00	$ 3,564.13	$ 7,128.26	$ 7,128.26
COPCO1	55	2.055	ST	Remove & Dispose of 69kV disconnect switches, group-operated	8430	2	EA	$ 1,500.00	$ 3,000.00	$ 1,782.06	$ 3,564.13	$ 3,564.13
COPCO1	56	2.056	ST	Remove & Dispose of 60-foot wood poles	8430	12	EA	$ 1,000.00	$ 12,000.00	$ 1,188.04	$ 14,256.51	$ 14,256.51
COPCO1	57	2.057	ST	Remove & Dispose of 30-foot wood crossarms	8430	24	EA	$ 500.00	$ 12,000.00	$ 594.02	$ 14,256.51	$ 14,256.51
COPCO1	58	2.058	ST	Remove & Dispose of 69-kV insulator strings	8430	12	EA	$ 400.00	$ 4,800.00	$ 475.22	$ 5,702.61	$ 5,702.61
COPCO1	59	2.059	EL	Remove & Dispose of Transmission Line No. 3	8430	1.66	MILE	$ 30,000.00	$ 49,800.00	$ 35,641.29	$ 59,164.53	$ 59,164.53
COPCO1	60	2.060	EL	Remove & Dispose of Transmission Line No. 15	8430	1.23	MILE	$ 30,000.00	$ 36,900.00	$ 35,641.29	$ 43,838.78	$ 43,838.78
COPCO1	61	2.061	EL	Remove & Dispose of Transmission Line No. 26-1	8430	0.07	MILE	$ 30,000.00	$ 2,100.00	$ 35,641.29	$ 2,494.89	$ 2,494.89
COPCO1	62	2.062	EL	Remove & Dispose of Transmission Line No. 26-2	8430	0.07	MILE	$ 30,000.00	$ 2,100.00	$ 35,641.29	$ 2,494.89	$ 2,494.89
COPCO1	63	2.063	BD	Remove gate house #1 from top of dam	8130	570	SF	$ 60.00	$ 34,200.00	$ 71.28	$ 40,631.07	$ -
COPCO1	64	2.064	BD	Remove gate house #2 from top of dam	8130	690	SF	$ 60.00	$ 41,400.00	$ 71.28	$ 49,184.97	$ -
COPCO1	65	2.065	CW	Remove Concrete Items associated with 10 ft. diam. Penstocks, re	8130	1,050	CY	$ 215.00	$ 225,750.00	**$ 354.32**	$ 372,040.87	$ -
COPCO1	66	2.066	CW	Plug 14-foot diameter penstock with concrete	8130	23	CY	$ 1,200.00	$ 27,600.00	$ 1,425.65	$ 32,789.98	$ -

COPCO 1 DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	36,555,585	2017 subtotal	$	46,393,628	$ 34,721,149
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
COPCO1	67	2.067	ST	Remove & Dispose of 8 screens	8420	18,000	LB	$ 0.85	$	15,300.00	$ 1.01	$	18,177.06	$ -
COPCO1	68	2.068	ST	Remove & Dispose of 8 Water Gates	8420	18,000	LB	$ 0.85	$	15,300.00	$ 1.01	$	18,177.06	$ -
COPCO1	69	2.069	ST	Remove & Dispose of 3 - 30" Dia. x 25' stand pipes	8420	6,000	LB	$ 0.85	$	5,100.00	$ 1.01	$	6,059.02	$ -
COPCO1	70	2.070	ST	Remove & Dispose of 14' Dia. penstock pipe	8420	256,000	LB	$ 0.85	$	217,600.00	**$ 1.24**	$	318,042.18	$ -
COPCO1	71	2.071	ST	Remove & Dispose of 10' Dia. penstock pipe	8140	270,000	LB	$ 0.85	$	229,500.00	**$ 1.24**	$	334,226.08	$ -
COPCO1	72	2.072	EW	Temporary Access Roads	8220	7	MILE	$ 50,000.00	$	350,000.00	**$ 71,058.51**	$	497,409.57	$ 497,409.57
COPCO1	73	2.073	RE	Spring Ground Seeding	8220	420	AC	$ 3,500.00	$	1,470,000.00	**$ 4,538.34**	$	1,906,102.49	$ 1,906,102.49
COPCO1	74	2.074	RE	Spring Barge Seeding	8220	82	AC	$ 6,500.00	$	533,000.00	**$ 8,827.72**	$	723,873.19	$ 723,873.19
COPCO1	75	2.075	RE	Spring Aerial Seeding	8220	300	AC	$ 7,500.00	$	2,250,000.00	**$ 5,932.17**	$	1,779,651.47	$ 1,779,651.47
COPCO1	76	2.076	RE	Fall Ground Seeding	8220	401	AC	$ 3,500.00	$	1,403,500.00	**$ 4,351.14**	$	1,744,805.59	$ 1,744,805.59
COPCO1	77	2.077	RE	Riparian Pole Planting	8220	170	AC	$ 8,500.00	$	1,445,000.00	**$ 14,126.56**	$	2,401,515.71	$ 2,401,515.71
COPCO1	78	2.078	RE	Weed Management	8220	401	AC	$ 1,500.00	$	601,500.00	**$ 1,858.48**	$	745,249.57	$ 745,249.57
COPCO1	79	2.079	RE	Fall Ground Seeding	8220	321	AC	$ 3,500.00	$	1,123,500.00	**$ 5,403.91**	$	1,734,654.42	$ 1,734,654.42
COPCO1	80	2.080	RE	Weed Management	8220	321	AC	$ 1,500.00	$	481,500.00	**$ 1,846.31**	$	592,664.16	$ 592,664.16
COPCO1	81	2.081	RE	Sitework - Clear and Grub Disposal Area	8313	7	AC	$ 6,000.00	$	42,000.00	$ 7,128.26	$	49,897.80	$ 39,205.41
COPCO1	82	2.082	RE	Sitework - Soil Cover for Disposal Area	8313	23,000	CY	$ 50.00	$	1,150,000.00	**$ 59.43**	$	1,366,907.93	$ 1,069,754.03
COPCO1	83	2.083	EW	Access/Haul Road Improvements - Soil Excavation	8313	4,500	CY	$ 13.00	$	58,500.00	$ 15.44	$	69,500.51	$ 69,500.51
COPCO1	84	2.084	EW	Access/Haul Road Improvements - Rock Excavation	8313	4,500	CY	$ 40.00	$	180,000.00	**$ 49.99**	$	224,947.32	$ 224,947.32
COPCO1	85	2.085	EW	Access/Haul Road Improvements - Soil Excavation	8313	16,000	CY	$ 50.00	$	800,000.00	**$ 19.65**	$	314,321.91	$ 314,321.91
COPCO1	86	2.086	EW	Access/Haul Road Improvements - 4" Gravel Surfacing	8313	320	TN	$ 100.00	$	32,000.00	$ 118.80	$	38,017.37	$ 38,017.37
COPCO1	87	2.087	EW	County Road Improvements - Asphalt Overlay Repair - Juniper Roa	8313	3	MILE	$ 40,000.00	$	120,000.00	**$ 349,300.13**	$	1,047,900.38	$ 1,047,900.38
COPCO1	88	2.088	EW	County Road Improvements - Asphalt Overlay Repair - Copco Roa	8313	19	MILE	$ 40,000.00	$	760,000.00	**$ 330,291.29**	$	6,275,534.50	$ 6,275,534.50
COPCO1	89	2.089	CW	Mallard Cove - Concrete total	BLM	106	CY	$ 300.00	$	31,800.00	$ 356.41	$	37,779.76	$ 37,779.76
COPCO1	90	2.090	BD	Mallard Cove - 25'x5' Dock made of composite decking and poly fl	BLM	1	EA	$ 2,500.00	$	2,500.00	$ 2,970.11	$	2,970.11	$ 2,970.11
COPCO1	91	2.091	BD	Mallard Cove - 20'x5' Gangway w/ aluminum grame and railings	BLM	1	EA	$ 2,000.00	$	2,000.00	$ 2,376.09	$	2,376.09	$ 2,376.09
COPCO1	92	2.092	BD	Mallard Cove - Signs to be removed and hauled away	BLM	6	EA	$ 300.00	$	1,800.00	$ 356.41	$	2,138.48	$ 2,138.48
COPCO1	93	2.093	BD	Mallard Cove - Wood plank tables to be removed and hauled awa	BLM	8	EA	$ 100.00	$	800.00	$ 118.80	$	950.43	$ 950.43
COPCO1	94	2.094	RE	Mallard Cove - Parking area to be regraded, ripped, seeded, and p	BLM	2.5	AC	$ 25,000.00	$	62,500.00	$ 29,701.07	$	74,252.68	$ 74,252.68
COPCO1	95	2.095	CW	Copco Cove - Concrete Total	BLM	84	CY	$ 300.00	$	25,200.00	$ 356.41	$	29,938.68	$ 29,938.68
COPCO1	96	2.096	ST	Copco Cove - Dock abutment railing made of 2.5" dia. steel pipe	BLM	25	LF	$ 40.00	$	1,000.00	$ 47.52	$	1,188.04	$ 1,188.04
COPCO1	97	2.097	BD	Copco Cove - Signs to be removed and hauled away	BLM	6	EA	$ 300.00	$	1,800.00	$ 356.41	$	2,138.48	$ 2,138.48
COPCO1	98	2.098	BD	Copco Cove - Wood plank tables to be removed and hauled away	BLM	2	EA	$ 100.00	$	200.00	$ 118.80	$	237.61	$ 237.61
COPCO1	99	2.099	RE	Copco Cove - Regrade, rip, seed, and plant disturbed areas	BLM	2.3	AC	$ 25,000.00	$	57,500.00	$ 29,701.07	$	68,312.46	$ 68,312.46

COPCO 1 DAM

WBS							ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
							2010 subtotal	$	36,555,585	2017 subtotal	$	46,393,628	$ 34,721,149
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total	Total
				SUBTOTAL					**$ 36,555,585**			**$ 46,393,628**	**$ 34,721,149**
				Mobilization, 5%		5.00%			$ 1,050,000			$ 2,319,682	$ 1,736,058
				SUBTOTAL (w/ Mobilization)					**$ 37,605,585**			**$ 48,713,310**	**$ 36,457,207**
				Escalation from January 2010 to January 2017 using ENR's Construction Cost Index		18.80%			$ 7,071,462			$ -	$ -
				SUBTOTAL (cost in 2017 dollars)					**$ 44,677,047**			**$ 48,713,310**	**$ 36,457,207**
				Escalation to Notice to Proceed (NTP) from Unit Price Level (January 2017) to NTP (January 2020) 3.0% / year for 3 years		9.27%			$ 4,142,769			$ 4,517,039	$ 3,380,567
				SUBTOTAL (Escalation to January 2020)					**$ 48,819,815**			**$ 53,230,349**	**$ 39,837,775**
				Design Contingencies, 10%		10.00%			$ 4,881,982			$ 5,323,035	$ 3,983,777
				CONTRACT COST					**$ 53,701,797**			**$ 58,553,384**	**$ 43,821,552**
				Construction Contingencies, 20%		20.00%			$ 10,740,359			$ 11,710,677	$ 8,764,310
				FIELD COST					**$ 64,442,156**			**$ 70,264,060**	**$ 52,585,863**
				Non-Contract Cost		55.00%			$ 35,443,186			$ 38,645,233	$ 28,922,225
				CONTRUCTION COST					**$ 99,890,000**			**$ 108,910,000**	**$ 81,510,000**

COPCO 2 DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	8,436,910	2017 subtotal	$	10,621,633	$ 4,835,025
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
COPCO2	1	3.001	EW	Construct and Remove Embankment Cofferdam-Right Side of Dan	8130	3,100	CY	$ 85.00	$	263,500.00	$ **44.15**	$	136,879.89	$ 136,879.89
COPCO2	2	3.002	EW	Furnish, Install, and Remove RipRap	8130	465	CY	$ 150.00	$	69,750.00	$ 178.21	$	82,865.99	$ 82,865.99
COPCO2	3	3.003	EW	Provide Dewatering behind Cofferdams	8130	1	LS	$ 45,000.00	$	45,000.00	$ 53,461.93	$	53,461.93	$ 53,461.93
COPCO2	4	3.004	EW	Remove Water from behind Cofferdams	8130	241,000	GAL	$ 0.01	$	2,410.00	$ 0.01	$	2,863.18	$ 2,863.18
COPCO2	5	3.005	EW	Construct and Remove Embankment Cofferdam-Left Side of Dam	8130	1,100	CY	$ 85.00	$	93,500.00	$ 100.98	$	111,082.01	$ 111,082.01
COPCO2	6	3.006	EW	Furnish, Install, and Remove RipRap	8130	250	CY	$ 150.00	$	37,500.00	$ 178.21	$	44,551.61	$ 44,551.61
COPCO2	7	3.007	EW	Provide Dewatering behind lett Side Cofferdam	8130	1	LS	$ 45,000.00	$	45,000.00	$ 53,461.93	$	53,461.93	$ 53,461.93
COPCO2	8	3.008	EW	Remove Water from behind Cofferdams	8130	36,000	GAL	$ 0.05	$	1,800.00	$ 0.06	$	2,138.48	$ 2,138.48
COPCO2	9	3.009	EW	Remove Water from behind Tailrace Cofferdam	8130	400,000	GAL	$ 0.01	$	4,000.00	$ 0.01	$	4,752.17	$ -
COPCO2	10	3.010	EW	Provide Dewatering behind Tailrace Cofferdam	8130	1	LS	$ 35,000.00	$	35,000.00	$ 41,581.50	$	41,581.50	$ -
COPCO2	11	3.011	EW	Construct Embankment Cofferdam across Tailrace	8130	1,700	CY	$ 85.00	$	144,500.00	$ **32.84**	$	55,834.97	$ -
COPCO2	12	3.012	CW	Construct 240-ft-long, 2-span concrete Bridge	8130	-	SF	$ 300.00	$	-	$ 356.41	$	-	$ -
COPCO2	13	3.013	CW	Remove and dispose of existing bridge	8130	-	LS	$ 400,000.00	$	-	$ 475,217.15	$	-	$ -
COPCO2	14	3.014	CW	Remove Concrete in Dam	8130	4,400	CY	$ 315.00	$	1,386,000.00	$ **402.71**	$	1,771,925.78	$ 1,691,383.70
COPCO2	15	3.015	CW	Remove concrete equipment slab from top of embankment wing	8130	5	CY	$ 215.00	$	1,075.00	$ 255.43	$	1,277.15	$ 1,277.15
COPCO2	16	3.016	CW	Remove Concrete Wingwall	8130	220	CY	$ 215.00	$	47,300.00	$ 255.43	$	56,194.43	$ 56,194.43
COPCO2	17	3.017	CW	Right Abutment Removal - Random Fill	8313	1,200	CY	$ 15.00	$	18,000.00	$ 17.82	$	21,384.77	$ -
COPCO2	18	3.018	EW	Right Abutment Removal - Remove Hand Placed Riprap	8313	7,800	SF	$ 1.00	$	7,800.00	$ 1.19	$	9,266.73	$ -
COPCO2	19	3.019	CW	Right Abutment Removal - Gunite Curtain Wall	8313	210	CY	$ 215.00	$	45,150.00	$ 255.43	$	53,640.14	$ -
COPCO2	20	3.020	ST	Remove & Dispose - Hand rails and Light Poles	8420	5,000	LB	$ 0.85	$	4,250.00	$ 1.01	$	5,049.18	$ 5,049.18
COPCO2	21	3.021	ST	Remove & Dispose - Radial Gates and Hoists	8420	66,000	LB	$ 0.85	$	56,100.00	$ 1.01	$	66,649.20	$ 66,649.20
COPCO2	22	3.022	ST	Remove & Dispose - 5-Radial Gate Stoplogs & Slots (steel)	8420	95,800	LB	$ 0.85	$	81,430.00	$ 1.01	$	96,742.33	$ 96,742.33
COPCO2	23	3.023	ST	Remove & Dispose - Spillway intake gate motor & control panel	8430	1	EA	$ 1,000.00	$	1,000.00	$ 1,188.04	$	1,188.04	$ 1,188.04
COPCO2	24	3.024	ST	Remove & Dispose - Spillway radial gate motor & control panel	8430	1	EA	$ 1,000.00	$	1,000.00	$ 1,188.04	$	1,188.04	$ 1,188.04
COPCO2	25	3.025	ST	Remove & Dispose - Spillway trashrake motor, festoon cable & co	8430	1	EA	$ 500.00	$	500.00	$ 594.02	$	594.02	$ 594.02
COPCO2	26	3.026	ST	Remove & Dispose - Distribution equipment, panelboards	8430	1	EA	$ 4,500.00	$	4,500.00	$ 5,346.19	$	5,346.19	$ 5,346.19
COPCO2	27	3.027	BD	Remove Copper Shingles from Roff of Powerhouse	8130	7,000	SF	$ 2.50	$	17,500.00	$ 2.97	$	20,790.75	$ -
COPCO2	28	3.028	CW	Remove Powerhouse Concrete down to spring-line of turbine	8130	1,050	CY	$ 350.00	$	367,500.00	$ **412.49**	$	433,111.50	$ -
COPCO2	29	3.029	ST	Remove Structural Steel items associated with Powerhouse	8130	220,000	LB	$ 0.85	$	187,000.00	$ 1.01	$	222,164.02	$ -
COPCO2	30	3.030	CW	Remove Control House Concrete	8130	30	CY	$ 215.00	$	6,450.00	$ 255.43	$	7,662.88	$ 7,662.88
COPCO2	31	3.031	ST	Remove Control House Structural Steel Items	8130	3,500	LB	$ 0.85	$	2,975.00	$ 1.01	$	3,534.43	$ 3,534.43
COPCO2	32	3.032	BD	Remove Shop Building	8130	3,600	SF	$ 60.00	$	216,000.00	$ **78.44**	$	282,368.80	$ -
COPCO2	33	3.033	ST	Remove & Dispose - 2 - Governor oil systems	8420	38,000	LB	$ 0.85	$	32,300.00	$ 1.01	$	38,373.78	$ -
COPCO2	34	3.034	ST	Remove & Dispose - Cooling water and bearing oil systems	8420	13,300	LB	$ 0.85	$	11,305.00	$ 1.01	$	13,430.82	$ -

COPCO 2 DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	8,436,910	2017 subtotal	$	10,621,633	$ 4,835,025
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
COPCO2	35	3.035	ST	Remove & Dispose - Oil / Water separator tank and piping	8420	2,700	LB	$ 0.85	$	2,295.00	$ 1.01	$	2,726.56	$ -
COPCO2	36	3.036	ST	Remove & Dispose - 12 - Cast Iron Columns	8420	54,000	LB	$ 0.85	$	45,900.00	$ 1.01	$	54,531.17	$ -
COPCO2	37	3.037	ST	Remove & Dispose - 2 - Francis Turbines	8420	660,000	LB	$ 0.85	$	561,000.00	$ 1.01	$	666,492.05	$ -
COPCO2	38	3.038	ST	Remove & Dispose - 2 - 40 Ton indoor cranes	8420	140,000	LB	$ 0.85	$	119,000.00	$ 1.01	$	141,377.10	$ -
COPCO2	39	3.039	ST	Remove & Dispose - Compressed Air Systems	8420	1,000	LB	$ 0.85	$	850.00	$ 1.01	$	1,009.84	$ -
COPCO2	40	3.040	ST	Remove & Dispose - 2 - CO2 Systems	8420	2,100	LB	$ 0.85	$	1,785.00	$ 1.01	$	2,120.66	$ -
COPCO2	41	3.041	ST	Remove & Dispose - Plant Water and Fire Protection	8420	3,100	LB	$ 0.85	$	2,635.00	$ 1.01	$	3,130.49	$ -
COPCO2	42	3.042	ST	Remove & Dispose - Transformr Oil Fire Protection	8420	6,500	LB	$ 0.85	$	5,525.00	$ 1.01	$	6,563.94	$ -
COPCO2	43	3.043	ST	Remove & Dispose - Unwatering Piping	8420	32,000	LB	$ 0.85	$	27,200.00	$ 1.01	$	32,314.77	$ -
COPCO2	44	3.044	ST	Remove & Dispose - Drainage Piping	8420	10,000	LB	$ 0.85	$	8,500.00	$ 1.01	$	10,098.36	$ -
COPCO2	44a	3.044a	ST	Remove & Dispose - Petroleum Products from Mechanical Equip.	8420	3,300	GAL	$ 10.00	$	33,000.00				$ 39,205.41
COPCO2	44b	3.044b	ST	Remove & Dispose - Remove Petroleum Products at or near the P	8420	2,000	GAL	$ 10.00	$	20,000.00				$ 23,760.86
COPCO2	45	3.045	EL	Remove & Dispose - AC Generator, Indoor Vertical	8430	2	EA	$ 125,000.00	$	250,000.00	**$ 197,929.69**	$	395,859.37	$ -
COPCO2	46	3.046	EL	Remove & Dispose - Excitation equipment for 15 MVA Generator	8430	2	EA	$ 6,000.00	$	12,000.00	$ 7,128.26	$	14,256.51	$ -
COPCO2	47	3.047	EL	Remove & Dispose - Surge protection equip. for 15 MVA Generat	8430	2	EA	$ 2,000.00	$	4,000.00	$ 2,376.09	$	4,752.17	$ -
COPCO2	48	3.048	EL	Remove & Dispose - Neutral grounding equip. for 15 MVA Genera	8430	2	EA	$ 2,000.00	$	4,000.00	$ 2,376.09	$	4,752.17	$ -
COPCO2	49	3.049	EL	Remove & Dispose - Generator Switchgear, 7.2kV-includes unit br	8430	1	EA	$ 20,000.00	$	20,000.00	$ 23,760.86	$	23,760.86	$ -
COPCO2	50	3.050	EL	Remove & Dispose - Station Service Switchgear, 600-volt (5 sectio	8430	1	EA	$ 20,000.00	$	20,000.00	$ 23,760.86	$	23,760.86	$ -
COPCO2	51	3.051	EL	Remove & Dispose - Unit and plant control switchboard	8430	1	EA	$ 15,000.00	$	15,000.00	$ 17,820.64	$	17,820.64	$ -
COPCO2	52	3.052	EL	Remove & Dispose - Battery system	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ -
COPCO2	53	3.053	EL	Remove & Dispose - Raceways, Conduit and Cable	8430	1	EA	$ 15,000.00	$	15,000.00	$ 17,820.64	$	17,820.64	$ -
COPCO2	54	3.054	EL	Remove & Dispose - Misc. Power & Control Boards	8430	1	EA	$ 5,000.00	$	5,000.00	$ 5,940.21	$	5,940.21	$ -
COPCO2	55	3.055	ST	Remove & Dispose - 7 - 40-Ton Travelling Crane motors-hoist (2-3	8430	1	EA	$ 2,500.00	$	2,500.00	$ 2,970.11	$	2,970.11	$ -
COPCO2	56	3.056	ST	Remove & Dispose - 40-Ton Travelling Crane control equipment	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ -
COPCO2	57	3.057	ST	Remove & Dispose - 40-Ton Travelling Crane Festoon Cable	8430	1	EA	$ 1,500.00	$	1,500.00	$ 1,782.06	$	1,782.06	$ -
COPCO2	58	3.058	ST	Remove & Dispose - Step-up Transformers, outdoor, oil-filled, 1-p	8430	-	EA	$ -	$	-	$ -	$	-	$ -
COPCO2	58a	3.058a	ST	Remove Oil from Oil-Filled Step-up Transformers	8430	23,000	GAL	$ 10.00	$	230,000.00				$ 273,249.86
COPCO2	59	3.059	ST	Remove & Dispose - Step-up Transformers, outdoor, oil-filled, 1-p	8430	-	EA	$ -	$	-	$ -	$	-	$ -
COPCO2	60	3.060	EL	Remove & Dispose - Transmission Line No. 15	8430	0.14	MILE	$ 30,000.00	$	4,200.00	$ 35,641.29	$	4,989.78	$ 4,989.78
COPCO2	61	3.061	CW	Remove Intake Structure Concrete	8130	1,500	CY	$ 215.00	$	322,500.00	**$ 221.33**	$	331,997.77	$ -
COPCO2	62	3.062	CW	Remove Concrete Items associated with 16-foot I.D. Wood Stave I	8130	1,300	CY	$ 215.00	$	279,500.00	**$ 222.89**	$	289,759.87	$ -
COPCO2	63	3.063	CW	Place Concrete Plugs for Tunnels	8130	100	CY	$ 1,200.00	$	120,000.00	**$ 1,762.16**	$	176,216.23	$ 112,778.39
COPCO2	64	3.064	CW	Remove Concrete Items associated with Penstocks D/S from Tunr	8130	3,500	CY	$ 215.00	$	752,500.00	**$ 293.74**	$	1,028,094.12	$ -
COPCO2	65	3.065	ST	Remove & Dispose of Caterpiller Gate (steel)	8420	50,000	LB	$ 0.85	$	42,500.00	$ 1.01	$	50,491.82	$ -

COPCO 2 DAM

WBS									ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
									2010 subtotal	$	8,436,910	2017 subtotal	$	10,621,633	$ 4,835,025
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total			Unit Price	Total		Total
COPCO2	66	3.066	ST	Remove & Dispose of Trash rack and trash rake (steel)	8420	86,000	LB	$ 0.75	$	64,500.00		$ 0.89	$	76,628.76	$ -
COPCO2	67	3.067	ST	Remove & Dispose of Stop Logs and slots for intake (steel)	8420	220,000	LB	$ 0.85	$	187,000.00		**$ 1.09**	$	239,604.27	$ -
COPCO2	68	3.068	ST	Remove & Dispose of Wood Staves Soaked in Creosote	8420	1,100,000	LB	$ 0.70	$	770,000.00		**$ 1.02**	$	1,120,266.59	$ 1,120,266.59
COPCO2	69	3.069	ST	Remove & Dispose of Cradles (steel)	8420	290,000	LB	$ 0.85	$	246,500.00		**$ 1.01**	$	292,864.36	$ 292,864.36
COPCO2	70	3.070	ST	Remove & Dispose of Bands (steel)	8420	463,000	LB	$ 0.85	$	393,550.00		**$ 1.17**	$	543,795.44	$ 543,795.44
COPCO2	71	3.071	ST	Remove & Dispose of Penstock after bifurcation to butterfly valve	8420	860,000	LB	$ 0.85	$	731,000.00		**$ 1.28**	$	1,101,776.00	$ -
COPCO2	72	3.072	ST	Remove & Dispose of Bifurcated vent pipes and support structure	8420	19,500	LB	$ 0.85	$	16,575.00		$ 1.01	$	19,691.81	$ -
COPCO2	73	3.073	ST	Remove & Dispose of 2 - 138" Butterfly valves	8420	148,000	LB	$ 0.85	$	125,800.00		**$ 1.26**	$	186,498.27	$ -
				SUBTOTAL					**$**	**8,436,910**			**$**	**10,621,633**	**$ 4,835,025**
				Mobilization, 5%		5.00%			$	1,050,000			$	531,082	$ 241,752
				SUBTOTAL (w/ Mobilization)					**$**	**9,486,910**			**$**	**11,152,715**	**$ 5,076,777**
				Escalation from January 2010 to January 2017 using ENR's Construction Cost Index		18.80%			$	1,783,946			$	-	$ -
				SUBTOTAL (cost in 2017 dollars)					**$**	**11,270,856**			**$**	**11,152,715**	**$ 5,076,777**
				Escalation to Notice to Proceed (NTP) from Unit Price Level (January 2017) to NTP (January 2020) 3.0% / year for 3 years		9.27%			$	1,045,113			$	1,034,158	$ 470,754
				SUBTOTAL (Escalation to January 2020)					**$**	**12,315,968**			**$**	**12,186,873**	**$ 5,547,532**
				Design Contingencies, 10%		10.00%			$	1,231,597			$	1,218,687	$ 554,753
				CONTRACT COST					**$**	**13,547,565**			**$**	**13,405,560**	**$ 6,102,285**
				Construction Contingencies, 20%		20.00%			$	2,709,513			$	2,681,112	$ 1,220,457
				FIELD COST					**$**	**16,257,078**			**$**	**16,086,672**	**$ 7,322,742**
				Non-Contract Cost		55.00%			$	8,941,393			$	8,847,670	$ 4,027,508
				CONTRUCTION COST					**$**	**25,200,000**			**$**	**24,930,000**	**$ 11,350,000**

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	33,554,754	2017 subtotal	$	35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
IRONGATE	1	4.001	EW	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir	8130	1	LS	$ 200,000.00	$	200,000.00	**$ 206,292.52**	$	206,292.52	$ 206,292.52
IRONGATE	2	4.002	EW	Furnish, Install, and Remove Temporary Air Vent Hose from Barge	8130	-	LS	$ -	$	-	$ -	$	-	$ -
IRONGATE	3	4.003	CW	Remove Reinforced Concrete Ring Located D/S of Closure Gate an	8130	31	CY	$ 1,500.00	$	46,500.00	$ 1,782.06	$	55,243.99	$ 55,243.99
IRONGATE	4	4.004	EW	remove Reinforced Concrete Stoplog Structure	8130	3	CY	$ 215.00	$	645.00	$ 255.43	$	766.29	$ 766.29
IRONGATE	5	4.005	ST	Remove Water from behind Tailrace Cofferdam	8130	300,000	GAL	$ 0.01	$	3,000.00	$ 0.01	$	3,564.13	$ -
IRONGATE	6	4.006	EW	Provide Dewatering behind Tailrace Cofferdam for removal of Pov	8130	1	LS	$ 35,000.00	$	35,000.00	$ 41,581.50	$	41,581.50	$ -
IRONGATE	7	4.007	EW	Construct Embankment Cofferdam across Tailrace to remove Pow	8130	1,650	CY	$ 70.00	$	115,500.00	**$ 34.19**	$	56,416.20	$ -
IRONGATE	8	4.008	CW	Construct 240-ft-long, 2-span concrete Bridge	8130	-	SF	$ 300.00	$	-	$ 356.41	$	-	$ -
IRONGATE	9	4.009	EW	Remove and dispose of existing bridge	8130	-	LS	$ 400,000.00	$	-	$ 475,217.15	$	-	$ -
IRONGATE	10	4.010	EW	Upstream Cofferdam to be Removed in the Wet	8313	20,000	CY	$ 70.00	$	1,400,000.00	**$ 66.44**	$	1,328,771.24	$ 1,328,771.24
IRONGATE	11	4.011	ST	Remove 9' dia. hinged blind flange	8420	19,000	LB	$ 2.00	$	38,000.00	$ 2.38	$	45,145.63	$ 45,145.63
IRONGATE	12	4.012	ST	Remove 18" plug valve and 7' of 18" drainage pipe	8420	2,900	LB	$ 2.00	$	5,800.00	$ 2.38	$	6,890.65	$ 6,890.65
IRONGATE	13	4.013	ST	Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and ope	8420	110,000	LB	$ 15.00	$	1,650,000.00	**$ 19.65**	$	2,161,597.79	$ 2,161,597.79
IRONGATE	14	4.014	CW	Remove Concrete in Observation Platform, Crest Wall and Wall Ex	8130	580	CY	$ 215.00	$	124,700.00	**$ 222.56**	$	129,082.17	$ 129,082.17
IRONGATE	15	4.015	CW	Remove Concrete in Diversion Tunnel Intake Structure	8130	530	CY	$ 215.00	$	113,950.00	**$ 221.24**	$	117,255.56	$ 117,255.56
IRONGATE	16	4.016	CW	Remove Concrete in Diversion Tunnel Gate Tower	8130	410	CY	$ 215.00	$	88,150.00	$ 255.43	$	104,725.98	$ 104,725.98
IRONGATE	17	4.017	ST	Remove Steel Footbridge to Gate Tower	8130	13,000	LB	$ 0.85	$	11,050.00	$ 1.01	$	13,127.87	$ 13,127.87
IRONGATE	18	4.018	CW	Remove Concrete in Diversion Tunnel Footbridge Abutment	8130	20	CY	$ 215.00	$	4,300.00	$ 255.43	$	5,108.58	$ 5,108.58
IRONGATE	19	4.019	CW	Place Concrete Plugs for Diversion Tunnel	8130	43	CY	$ 1,200.00	$	51,600.00	$ 1,425.65	$	61,303.01	$ 61,303.01
IRONGATE	20	4.020	CW	Remove Cocnrete Closure Gates in Gate Tower	8130	61	CY	$ 1,000.00	$	61,000.00	$ 1,188.04	$	72,470.61	$ 72,470.61
IRONGATE	21	4.021	EW	Remove Upstream Riprap	8313	80,000	CY	$ 13.00	$	1,040,000.00	**$ 18.29**	$	1,463,314.40	$ 1,463,314.40
IRONGATE	22	4.022	EW	Remove Downstream Riprap	8313	30,000	CY	$ 13.00	$	390,000.00	**$ 14.90**	$	446,947.04	$ 446,947.04
IRONGATE	23	4.023	EW	Miscellaneous Excavation	8313	880,000	CY	$ 13.00	$	11,440,000.00	**$ 10.42**	$	9,173,193.63	$ 9,173,193.63
IRONGATE	24	4.024	CW	Cutoff Wall Concrete Demolition	8313	1,250	CY	$ 215.00	$	268,750.00	**$ 220.05**	$	275,059.51	$ 275,059.51
IRONGATE	25	4.025	EW	Earth Fill Crest Raise	8313	13,000	CY	$ 13.00	$	169,000.00	**$ 13.26**	$	172,388.86	$ 172,388.86
IRONGATE	26	4.026	EW	Sheetpile Crest Raise	8313	800	LF	$ 250.00	$	200,000.00	**$ 248.81**	$	199,050.96	$ 199,050.96
IRONGATE	27	4.027	ST	Remove 5 Monitoring Wells	8313	5	EA	$ 2,000.00	$	10,000.00	$ 2,376.09	$	11,880.43	$ 11,880.43
IRONGATE	28	4.028	ST	Remove and Dispose of Trash Sluice Gate - 10 ft x 9 ft H	8420	4,500	LB	$ 0.85	$	3,825.00	$ 1.01	$	4,544.26	$ 4,544.26
IRONGATE	29	4.029	ST	Remove and Dispose of Intake Structure	8420	72,000	LB	$ 0.70	$	50,400.00	$ 0.83	$	59,877.36	$ 59,877.36
IRONGATE	30	4.030	ST	Remove and Dispose of Sluice and Diversion Tunnel Gate	8420	28,000	LB	$ 0.85	$	23,800.00	$ 1.01	$	28,275.42	$ 28,275.42
IRONGATE	31	4.031	ST	Remove and Dispose of Hoist Stem - 6" Dia. Sch 160x150'	8420	7,500	LB	$ 0.85	$	6,375.00	$ 1.01	$	7,573.77	$ 7,573.77
IRONGATE	32	4.032	ST	Remove and Dispose of Air Vent Pipe - 8" Dia. Sch 40 x160'	8420	4,650	LB	$ 2.00	$	9,300.00	$ 2.38	$	11,048.80	$ 11,048.80
IRONGATE	33	4.033	ST	Remove and Dispose of Transition Gate Structure	8420	-	LB	$ -	$	-	$ -	$	-	$ -
IRONGATE	34	4.034	ST	Remove and Dispose of Air Vent Pipe - 12" Dia. Sch 40 x560'	8420	30,250	LB	$ 2.00	$	60,500.00	$ 2.38	$	71,876.59	$ 71,876.59

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	33,554,754	2017 subtotal	$	35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
IRONGATE	35	4.035	ST	Remove and Dispose of Outlet Works Stop Logs	8420	2,670	LB	$ 0.85	$	2,269.50	$ 1.01	$	2,696.26	$ 2,696.26
IRONGATE	36	4.036	ST	Remove and Dispose of Hydraulic Pump Motor (10 HP est) & cont	8430	1	EA	$ 350.00	$	350.00	$ 415.82	$	415.82	$ 415.82
IRONGATE	37	4.037	EL	Remove and Dispose of Distribution Equipment, Junction Boxes	8430	1	EA	$ 1,700.00	$	1,700.00	$ 2,019.67	$	2,019.67	$ 2,019.67
IRONGATE	38	4.038	EL	Remove and Dispose of Power Cable and 4" Conduit from Penstoc	8430	800	FT	$ 35.00	$	28,000.00	$ 41.58	$	33,265.20	$ 33,265.20
IRONGATE	39	4.039	CW	Remove Powerhouse Concrete	8130	3,700	CY	$ 350.00	$	1,295,000.00	**$ 412.49**	$	1,526,202.43	$ -
IRONGATE	40	4.040	ST	Remove and Dispose of Turbine Unit	8420	344,058	LB	$ 0.85	$	292,449.30	**$ 1.31**	$	450,686.75	$ -
IRONGATE	41	4.041	ST	Remove and Dispose of Draft Tube Bulkheads	8420	16,500	LB	$ 0.85	$	14,025.00	$ 1.01	$	16,662.30	$ -
IRONGATE	42	4.042	ST	Remove and Dispose of Crane	8420	24,000	LB	$ 0.85	$	20,400.00	$ 1.01	$	24,236.07	$ -
IRONGATE	43	4.043	ST	Remove and Dispose of Gorvernor	8420	20,310	LB	$ 0.85	$	17,263.50	$ 1.01	$	20,509.78	$ -
IRONGATE	44	4.044	ST	Remove and Dispose of Bearing Oil System and Cooling Water Sys	8420	9,182	LB	$ 0.85	$	7,804.70	$ 1.01	$	9,272.32	$ -
IRONGATE	45	4.045	ST	Remove and Dispose of CO2 Systems	8420	2,568	LB	$ 0.85	$	2,182.80	$ 1.01	$	2,593.26	$ -
IRONGATE	46	4.046	ST	Remove and Dispose of Plant Water and Fire Protection System	8420	9,182	LB	$ 0.85	$	7,804.70	$ 1.01	$	9,272.32	$ -
IRONGATE	47	4.047	ST	Remove and Dispose of Sump Pumps	8420	2,000	LB	$ 0.85	$	1,700.00	$ 1.01	$	2,019.67	$ -
IRONGATE	48	4.048	ST	Remove and Dispose of Pumps	8420	22,000	LB	$ 0.85	$	18,700.00	$ 1.01	$	22,216.40	$ -
IRONGATE	49	4.049	ST	Remove and Dispose of Exposed Piping Around the Plant	8420	19,291	LB	$ 0.85	$	16,397.35	$ 1.01	$	19,480.75	$ -
IRONGATE	50	4.050	ST	Remove and Dispose of Unwatering Piping	8420	19,291	LB	$ 0.85	$	16,397.35	$ 1.01	$	19,480.75	$ -
IRONGATE	51	4.051	ST	Remove and Dispose of Drainage Piping	8420	9,518	LB	$ 0.85	$	8,090.30	$ 1.01	$	9,611.62	$ -
IRONGATE	52	4.052	ST	Remove and Dispose of Transformer Oil and Fire Protection	8420	9,182	LB	$ 0.85	$	7,804.70	$ 1.01	$	9,272.32	$ -
IRONGATE	53	4.053	ST	Remove and Dispose of Compressed Air System	8420	1,450	LB	$ 0.85	$	1,232.50	$ 1.01	$	1,464.26	$ -
IRONGATE	53a	4.053a	ST	Remove & Dispose - Petroleum Products from Mechanical Equip.	8420	1,100	GAL	$ 10.00	$	11,000.00				$ 13,068.47
IRONGATE	54	4.054	EL	Remove and Dispose of AC Generator, Outdoor Horizontal	8430	1	EA	$ 125,000.00	$	125,000.00	**$ 196,118.88**	$	196,118.88	$ -
IRONGATE	55	4.055	EL	Remove and Dispose of Excitation equipment for 18.975 MVA Ge	8430	1	EA	$ 2,000.00	$	2,000.00	$ 2,376.09	$	2,376.09	$ -
IRONGATE	56	4.056	EL	Remove and Dispose of Surge protection equip. for 18.975 MVA G	8430	1	EA	$ 2,000.00	$	2,000.00	$ 2,376.09	$	2,376.09	$ -
IRONGATE	57	4.057	EL	Remove and Dispose of Neutral grounding equip. for 18.975 MVA	8430	1	EA	$ 4,000.00	$	4,000.00	$ 4,752.17	$	4,752.17	$ -
IRONGATE	58	4.058	EL	Remove and Dispose of Station Service Switchgear, 600 volt - (5 s	8430	1	EA	$ 20,000.00	$	20,000.00	$ 23,760.86	$	23,760.86	$ -
IRONGATE	59	4.059	EL	Remove and Dispose of Unit and plant control switchboard	8430	1	EA	$ 20,000.00	$	20,000.00	$ 23,760.86	$	23,760.86	$ -
IRONGATE	60	4.060	EL	Remove and Dispose of Battery System - assume 60 batteries, cha	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ 11,880.43
IRONGATE	61	4.061	EL	Remove and Dispose of Raceways, Bus, Conduit and Cable	8430	1	EA	$ 15,000.00	$	15,000.00	$ 17,820.64	$	17,820.64	$ -
IRONGATE	62	4.062	EL	Remove and Dispose of Misc. power & control boards	8430	1	EA	$ 5,000.00	$	5,000.00	$ 5,940.21	$	5,940.21	$ -
IRONGATE	63	4.063	EL	Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ -
IRONGATE	64	4.064	EL	Remove and Dispose of Governor Oil Pump Motors (10 hp and 20	8430	2	EA	$ 250.00	$	500.00	$ 297.01	$	594.02	$ -
IRONGATE	65	4.065	EL	Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP e	8430	4	EA	$ 600.00	$	2,400.00	$ 712.83	$	2,851.30	$ 2,851.30
IRONGATE	66	4.066	EL	Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480	8430	1	EA	$ 10,000.00	$	10,000.00	$ 11,880.43	$	11,880.43	$ 11,880.43
IRONGATE	67	4.067	EL	Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3	8430	1	EA	$ 100,000.00	$	100,000.00	**$ 153,594.79**	$	153,594.79	$ 153,594.79

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	33,554,754	2017 subtotal	$	35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
IRONGATE	68	4.068	EL	Remove and Dispose of Lattice steel structure, with 69-kV disconr	8430	1	EA	$ 5,000.00	$	5,000.00	$ 5,940.21	$	5,940.21	$ 5,940.21
IRONGATE	69	4.069	EL	Remove and Dispose of Generator Switchgear, outdoor, 7.2kV	8430	1	EA	$ 35,000.00	$	35,000.00	$ 41,581.50	$	41,581.50	$ 41,581.50
IRONGATE	70	4.070	EL	Remove and Dispose of Single Phase Pole Transformers (25 kVA e	8430	3	EA	$ 2,000.00	$	6,000.00	$ 2,376.09	$	7,128.26	$ 7,128.26
IRONGATE	71	4.071	CW	Remove Concrete in Penstock Intake Structure	8430	460	CY	$ 215.00	$	98,900.00	$ 255.43	$	117,497.44	$ 117,497.44
IRONGATE	72	4.072	CW	Remove Concrete in Penstock Encasement	8430	840	CY	$ 215.00	$	180,600.00	**$ 221.45**	$	186,020.44	$ 186,020.44
IRONGATE	73	4.073	CW	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	8430	1,900	CY	$ 215.00	$	408,500.00	$ 255.43	$	485,315.51	$ 485,315.51
IRONGATE	74	4.074	ST	Remove Steel Footbridge to Intake Structure	8430	11,000	LB	$ 0.85	$	9,350.00	$ 1.01	$	11,108.20	$ 11,108.20
IRONGATE	75	4.075	CW	Remove Concrete in Intake Structure Footbridge Abutment	8430	5	CY	$ 215.00	$	1,075.00	$ 255.43	$	1,277.15	$ 1,277.15
IRONGATE	76	4.076	ST	Remove and Dispose of Intake Structure	8420	131,630	LB	$ 0.85	$	111,885.50	**$ 1.37**	$	179,935.27	$ 179,935.27
IRONGATE	77	4.077	ST	Remove and Dispose of Gate Hoist Stem - 6" Sch160x40'	8420	1,800	LB	$ 0.85	$	1,530.00	***$ 1.24***	$	2,232.00	$ 2,232.00
IRONGATE	78	4.078	ST	Remove and Dispose of Water Fill line- 12" Dia STD x 27'	8420	1,350	LB	$ 0.85	$	1,147.50	$ 1.01	$	1,363.28	$ 1,363.28
IRONGATE	79	4.079	ST	Remove and Dispose of Air Vent - 12" Dia STD x 32'	8420	1,600	LB	$ 0.85	$	1,360.00	$ 1.01	$	1,615.74	$ 1,615.74
IRONGATE	80	4.080	ST	Remove and Dispose of Gage Wells	8420	2,612	LB	$ 0.85	$	2,220.20	$ 1.01	$	2,637.69	$ 2,637.69
IRONGATE	81	4.081	ST	Remove and Dispose of Penstock Vent - 46" Dia, 0.25" Thick x 60'	8420	7,440	LB	$ 0.85	$	6,324.00	$ 1.01	$	7,513.18	$ 7,513.18
IRONGATE	82	4.082	ST	Remove and Dispose of Penstock - 12" Dia, 0.25" Thick x 698'	8420	294,428	LB	$ 0.85	$	250,263.80	**$ 1.32**	$	387,778.28	$ 387,778.28
IRONGATE	83	4.083	ST	Remove and Dispose of Bypass Outlet - 96" Dia, 0.25" Thick x 50'	8420	12,850	LB	$ 0.85	$	10,922.50	$ 1.01	$	12,976.40	$ 12,976.40
IRONGATE	84	4.084	ST	Remove and Dispose of Outlet Valve on bypass outlet - 66" Dia.	8420	18,000	LB	$ 0.85	$	15,300.00	$ 1.01	$	18,177.06	$ 18,177.06
IRONGATE	85	4.085	EL	Remove and Dispose Overhead trolley Crane Motor (4hp est) & C	8430	1	EA	$ 1,000.00	$	1,000.00	$ 1,188.04	$	1,188.04	$ 1,188.04
IRONGATE	86	4.086	EL	Remove and Dispose Distribution equipment, Junction Boxes	8430	1	EA	$ 2,500.00	$	2,500.00	$ 2,970.11	$	2,970.11	$ 2,970.11
IRONGATE	87	4.087	EL	Remove and Dispose Power Cable and Conduit	8430	1	EA	$ 70,000.00	$	70,000.00	$ 83,163.00	$	83,163.00	$ 83,163.00
IRONGATE	88	4.088	EW	Temporary Access Roads	8140	2.6	MILE	$ 300,000.00	$	780,000.00	**$ 174,454.04**	$	453,580.50	$ 453,580.50
IRONGATE	89	4.089	RE	Spring Ground Seeding	8220	370	AC	$ 3,500.00	$	1,295,000.00	**$ 4,666.38**	$	1,726,560.07	$ 1,726,560.07
IRONGATE	90	4.090	RE	Spring Barge Seeding	8220	296	AC	$ 6,500.00	$	1,924,000.00	**$ 8,540.82**	$	2,528,082.18	$ 2,528,082.18
IRONGATE	91	4.091	RE	Spring Aerial Seeding	8220	159	AC	$ 7,500.00	$	1,192,500.00	**$ 4,195.66**	$	667,109.15	$ 667,109.15
IRONGATE	92	4.092	RE	Fall Ground Seeding	8220	413	AC	$ 3,500.00	$	1,445,500.00	**$ 4,350.16**	$	1,796,614.63	$ 1,796,614.63
IRONGATE	93	4.093	RE	Riparian Pole Planting	8220	50	AC	$ 8,500.00	$	425,000.00	**$ 14,120.47**	$	706,023.34	$ 706,023.34
IRONGATE	94	4.094	RE	Weed Management	8220	413	AC	$ 1,500.00	$	619,500.00	**$ 1,858.44**	$	767,536.91	$ 767,536.91
IRONGATE	95	4.095	RE	Fall Ground Seeding	8220	330	AC	$ 3,500.00	$	1,155,000.00	**$ 5,405.27**	$	1,783,737.93	$ 1,783,737.93
IRONGATE	96	4.096	RE	Weed Management	8220	330	AC	$ 1,500.00	$	495,000.00	**$ 1,851.43**	$	610,970.40	$ 610,970.40
IRONGATE	97	4.097	RE	Clear and Grub Disposal Area	8313	29	AC	$ 6,000.00	$	174,000.00	**$ 8,818.71**	$	255,742.54	$ 255,742.54
IRONGATE	98	4.098	EW	Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.2	8313	13,500	CY	$ 40.00	$	540,000.00	**$ 45.90**	$	619,609.03	$ 619,609.03
IRONGATE	99	4.099	RE	Clear and Grub, 40' width for 1 mile - Prepare Haul Road - 1.25 mi	8313	5.0	AC	$ 6,000.00	$	30,000.00	$ 7,128.26	$	35,641.29	$ 35,641.29
IRONGATE	100	4.100	EW	4" thick gravel surfacing - Prepare Haul Road - 1.25 mi	8313	5,300	TN	$ 70.00	$	371,000.00	**$ 77.24**	$	409,365.94	$ 409,365.94
IRONGATE	101	4.101	BD	Remove Building No. 2	8130	800	SF	$ 60.00	$	48,000.00	$ 71.28	$	57,026.06	$ 57,026.06

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010		REVISED ESTIMATE, Jan. 2017		PARTIAL EST. Jan. 2017
								2010 subtotal	$ 33,554,754	2017 subtotal	$ 35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total	Unit Price	Total	Total
IRONGATE	102	4.102	BD	Remove Building No. 3	8130	1,088	SF	$ 60.00	$ 65,280.00	$ 71.28	$ 77,555.44	$ 77,555.44
IRONGATE	103	4.103	CW	Remove Concrete in Fish Ladder	8130	950	CY	$ 215.00	$ 204,250.00	$ 255.43	$ 242,657.76	$ 242,657.76
IRONGATE	104	4.104	CW	Remove Concrete in Holding Ponds #1 thru #6	8130	420	CY	$ 215.00	$ 90,300.00	$ 255.43	$ 107,280.27	$ 107,280.27
IRONGATE	105	4.105	CW	Remove Concrete in Fish Facility Items	8130	380	CY	$ 215.00	$ 81,700.00	$ 255.43	$ 97,063.10	$ 97,063.10
IRONGATE	106	4.106	ST	Remove Miscellaneous Metalwork in Fish Facilities	8130	12,000	LB	$ 0.85	$ 10,200.00	$ 1.01	$ 12,118.04	$ 12,118.04
IRONGATE	107	4.107	CW	Remoce Concrete Associated with 30" Dia. water supply line	8130	68	CY	$ 215.00	$ 14,620.00	$ 255.43	$ 17,369.19	$ 17,369.19
IRONGATE	108	4.108	CW	Remove Concrete in Aerator Structure	8130	50	CY	$ 215.00	$ 10,750.00	$ 255.43	$ 12,771.46	$ 12,771.46
IRONGATE	109	4.109	ST	Remove Wood in Aerator Structure	8130	6,000	LB	$ 0.70	$ 4,200.00	$ 0.83	$ 4,989.78	$ 4,989.78
IRONGATE	110	4.110	ST	Remove Structural Steel in Aerator Structure	8130	2,500	LB	$ 0.85	$ 2,125.00	$ 1.01	$ 2,524.59	$ 2,524.59
IRONGATE	111	4.111	RE	Remove Asphalt Pavement	8130	39,000	SF	$ 6.00	$ 234,000.00	**$ 7.97**	$ 310,932.95	$ 310,932.95
IRONGATE	112	4.112	RE	Remove Restroom Building near Aerator Structure	8130	340	SF	$ 60.00	$ 20,400.00	$ 71.28	$ 24,236.07	$ 24,236.07
IRONGATE	113	4.113	RE	Remove Storage Shed near Aerator Structure	8130	90	SF	$ 60.00	$ 5,400.00	$ 71.28	$ 6,415.43	$ 6,415.43
IRONGATE	114	4.114	EW	Remove Toe Drain Pipe	8313	260	LF	$ 20.00	$ 5,200.00	$ 23.76	$ 6,177.82	$ 6,177.82
IRONGATE	115	4.115	EW	Remove Toe Drain Manhole	8313	25	LF	$ 50.00	$ 1,250.00	$ 59.40	$ 1,485.05	$ 1,485.05
IRONGATE	116	4.116	EW	Berm Removal	8313	53,000	CY	$ 13.00	$ 689,000.00	**$ 10.75**	$ 569,945.44	$ 569,945.44
IRONGATE	117	4.117	ST	Remove and Dispose of Intake Structures Trashracks	8420	5,000	LB	$ 0.75	$ 3,750.00	$ 0.89	$ 4,455.16	$ 4,455.16
IRONGATE	118	4.118	ST	Remove and Dispose of Pipe Conduit, 30" Dia. x 0.25" Thick x 960	8420	76,640	LB	$ 0.85	$ 65,144.00	$ 1.01	$ 77,393.86	$ 77,393.86
IRONGATE	119	4.119	ST	Remove and Dispose of Sluice Gate Valve, 30" Dia.	8420	3,000	LB	$ 0.85	$ 2,550.00	$ 1.01	$ 3,029.51	$ 3,029.51
IRONGATE	120	4.120	ST	Remove and Dispose of Sluice Gate Stem, 2" Dia. Sch160x45'	8420	360	LB	$ 0.85	$ 306.00	$ 1.01	$ 363.54	$ 363.54
IRONGATE	121	4.121	ST	Remove and Dispose of Butterfly Valve, 30" Dia.	8420	2,435	LB	$ 0.85	$ 2,069.75	$ 1.01	$ 2,458.95	$ 2,458.95
IRONGATE	122	4.122	ST	Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thikness x 90'	8420	7,200	LB	$ 0.85	$ 6,120.00	$ 1.01	$ 7,270.82	$ 7,270.82
IRONGATE	123	4.123	ST	Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thikness x 248'	8420	15,872	LB	$ 0.85	$ 13,491.20	$ 1.01	$ 16,028.12	$ 16,028.12
IRONGATE	124	4.124	ST	Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thikness x 85'	8420	4,505	LB	$ 0.85	$ 3,829.25	$ 1.01	$ 4,549.31	$ 4,549.31
IRONGATE	125	4.125	ST	Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thikness x 432'	8420	29,088	LB	$ 0.85	$ 24,724.80	$ 1.01	$ 29,374.12	$ 29,374.12
IRONGATE	126	4.126	ST	Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thikness x 166'	8420	6,972	LB	$ 0.85	$ 5,926.20	$ 1.01	$ 7,040.58	$ 7,040.58
IRONGATE	127	4.127	ST	Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thikness x 64'	8420	2,176	LB	$ 0.85	$ 1,849.60	$ 1.01	$ 2,197.40	$ 2,197.40
IRONGATE	128	4.128	ST	Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thikness x 69'	8420	1,932	LB	$ 0.85	$ 1,642.20	$ 1.01	$ 1,951.00	$ 1,951.00
IRONGATE	129	4.129	ST	Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thikness x 30'	8420	3,588	LB	$ 0.85	$ 3,049.80	$ 1.01	$ 3,623.29	$ 3,623.29
IRONGATE	130	4.130	ST	Remove and Dispose of Piping- 3-in. Dia. x STD x 30'	8420	1,088	LB	$ 0.85	$ 924.80	$ 1.01	$ 1,098.70	$ 1,098.70
IRONGATE	131	4.131	ST	Remove and Dispose of Gate Valves	8420	21,792	LB	$ 0.85	$ 18,523.20	$ 1.01	$ 22,006.36	$ 22,006.36
IRONGATE	132	4.132	ST	Remove and Dispose of Basin #1	8420	2,880	LB	$ 0.85	$ 2,448.00	$ 1.01	$ 2,908.33	$ 2,908.33
IRONGATE	133	4.133	ST	Remove and Dispose of Basin #2	8420	3,860	LB	$ 0.85	$ 3,281.00	$ 1.01	$ 3,897.97	$ 3,897.97
IRONGATE	134	4.134	ST	Remove and Dispose of Basin #3	8420	2,880	LB	$ 0.85	$ 2,448.00	$ 1.01	$ 2,908.33	$ 2,908.33
IRONGATE	135	4.135	ST	Remove and Dispose of Basin #4	8420	3,580	LB	$ 0.85	$ 3,043.00	$ 1.01	$ 3,615.21	$ 3,615.21

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010		REVISED ESTIMATE, Jan. 2017		PARTIAL EST. Jan. 2017
								2010 subtotal	$ 33,554,754	2017 subtotal	$ 35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total	Unit Price	Total	Total
IRONGATE	136	4.136	ST	Remove and Dispose of Basin #5	8420	1,440	LB	$ 0.85	$ 1,224.00	$ 1.01	$ 1,454.16	$ 1,454.16
IRONGATE	137	4.137	ST	Remove and Dispose of Basin #6	8420	1,440	LB	$ 0.85	$ 1,224.00	$ 1.01	$ 7,472.79	$ 7,472.79
IRONGATE	138	4.138	ST	Remove and Dispose of Holding Tank	8420	7,400	LB	$ 0.85	$ 6,290.00	$ 1.01	$ 7,472.79	$ 7,472.79
IRONGATE	139	4.139	EL	Remove and Dispose of Misc.: Motors, control panles, cables, con	8430	1	EA	$ 1,500.00	$ 1,500.00	$ 1,782.06	$ 1,782.06	$ 1,782.06
IRONGATE	140	4.140	CW	Wanaka Springs - Concrete Total	BLM	28	CY	$ 300.00	$ 8,400.00	$ 356.41	$ 9,979.56	$ 9,979.56
IRONGATE	141	4.141	EW	Wanaka Springs - Double Pipe Railings	BLM	60	LF	$ 40.00	$ 2,400.00	$ 47.52	$ 2,851.30	$ 2,851.30
IRONGATE	142	4.142	BD	Wanaka Springs - Wood picnic tables to be removed and hauled	BLM	5	EA	$ 100.00	$ 500.00	$ 118.80	$ 594.02	$ 594.02
IRONGATE	143	4.143	RE	Wanaka Springs - 25'x5' Wooden floating dock	BLM	125	SF	$ 20.00	$ 2,500.00	$ 23.76	$ 2,970.11	$ 2,970.11
IRONGATE	144	4.144	RE	Wanaka Springs - Rip and reseed site and access road	BLM	2.5	AC	$ 25,000.00	$ 62,500.00	$ 29,701.07	$ 74,252.68	$ 74,252.68
IRONGATE	145	4.145	BD	Wanaka Springs - Signs to be removed and hauled away	BLM	3	EA	$ 300.00	$ 900.00	$ 356.41	$ 1,069.24	$ 1,069.24
IRONGATE	146	4.146	RE	Wanaka Springs - 15'x5' Gangplank with Railings	BLM	75	SF	$ 20.00	$ 1,500.00	$ 23.76	$ 1,782.06	$ 1,782.06
IRONGATE	147	4.147	CW	Juniper Point - Concrete Total	BLM	19	CY	$ 300.00	$ 5,700.00	$ 356.41	$ 6,771.84	$ 6,771.84
IRONGATE	148	4.148	RE	Juniper Point - 2, 4x4 Toilet Vaults	BLM	32	SF	$ 100.00	$ 3,200.00	$ 118.80	$ 3,801.74	$ 3,801.74
IRONGATE	149	4.149	BD	Juniper Point - Wood picnic tables to be removed and hauled	BLM	8	EA	$ 100.00	$ 800.00	$ 118.80	$ 950.43	$ 950.43
IRONGATE	150	4.150	BD	Juniper Point - Signs to be removed and hauled away	BLM	4	EA	$ 300.00	$ 1,200.00	$ 356.41	$ 1,425.65	$ 1,425.65
IRONGATE	151	4.151	EW	Juniper Point - Dock pile railing	BLM	50	LF	$ 40.00	$ 2,000.00	$ 47.52	$ 2,376.09	$ 2,376.09
IRONGATE	152	4.152	RE	Juniper Point - 50'x5' Composite dock with poly floats	BLM	250	SF	$ 20.00	$ 5,000.00	$ 23.76	$ 5,940.21	$ 5,940.21
IRONGATE	153	4.153	RE	Juniper Point - 20'x5' Composite gangplank with railings	BLM	100	SF	$ 20.00	$ 2,000.00	$ 23.76	$ 2,376.09	$ 2,376.09
IRONGATE	154	4.154	RE	Juniper Point - Bury 3' Dia. boulders on site	BLM	50	EA	$ -	$ -	$ -	$ -	$ -
IRONGATE	155	4.155	RE	Juniper Point - Regrade to Natural Contour, rip, and reseed	BLM	2	AC	$ 25,000.00	$ 50,000.00	$ 29,701.07	$ 59,402.14	$ 59,402.14
IRONGATE	156	4.156	CW	Camp Creek - Concrete Total	BLM	110	CY	$ 300.00	$ 33,000.00	$ 356.41	$ 39,205.41	$ 39,205.41
IRONGATE	157	4.157	EW	Camp Creek - 180'Lx16'Wx8'D Earth jetty to remove and/or regra	BLM	855	CY	$ 25.00	$ 21,375.00	$ 29.70	$ 25,394.42	$ 25,394.42
IRONGATE	158	4.158	CW	Camp Creek - Well house 10'x16' concrete block building	BLM	160	SF	$ 100.00	$ 16,000.00	$ 118.80	$ 19,008.69	$ 19,008.69
IRONGATE	159	4.159	RE	Camp Creek - 2, 20'x5' Composite decking gangplanks	BLM	200	SF	$ 20.00	$ 4,000.00	$ 23.76	$ 4,752.17	$ 4,752.17
IRONGATE	160	4.160	RE	Camp Creek - 2, 20'x5' Floating composite w/ aluminum frame	BLM	200	SF	$ 20.00	$ 4,000.00	$ 23.76	$ 4,752.17	$ 4,752.17
IRONGATE	161	4.161	CW	Camp Creek - Concrete block double toilet bldg 10'x16'	BLM	160	SF	$ 100.00	$ 16,000.00	$ 118.80	$ 19,008.69	$ 19,008.69
IRONGATE	162	4.162	ST	Camp Creek - Dump stations and approx. 2000 gal buried	BLM	1	EA	$ 5,000.00	$ 5,000.00	$ 5,940.21	$ 5,940.21	$ 5,940.21
IRONGATE	163	4.163	EL	Camp Creek - Power poles and lines	BLM	3	EA	$ 1,500.00	$ 4,500.00	$ 1,782.06	$ 5,346.19	$ 5,346.19
IRONGATE	164	4.164	EW	Camp Creek - Remove waterlines and 3 faucets and regrade	BLM	600	LF	$ 5.00	$ 3,000.00	$ 5.94	$ 3,564.13	$ 3,564.13
IRONGATE	165	4.165	RE	Camp Creek - Recycle/bury 3' Dia. boulders	BLM	5	EA	$ -	$ -	$ -	$ -	$ -
IRONGATE	166	4.166	BD	Camp Creek - Steel pipe/plank picnic tables to be removed and ha	BLM	5	EA	$ 100.00	$ 500.00	$ 118.80	$ 594.02	$ 594.02
IRONGATE	167	4.167	BD	Camp Creek - Relocate concrete tables	BLM	12	EA	$ 100.00	$ 1,200.00	$ 118.80	$ 1,425.65	$ 1,425.65
IRONGATE	168	4.168	RE	Camp Creek - Regrade, rip, and reseed	BLM	4	AC	$ 25,000.00	$ 100,000.00	**$ 34,784.87**	$ 139,139.47	$ 139,139.47
IRONGATE	169	4.169	BD	Camp Creek - Signs to be removed and hauled away	BLM	7	EA	$ 300.00	$ 2,100.00	$ 356.41	$ 2,494.89	$ 2,494.89

IRON GATE DAM

WBS									ORIGINAL ESTIMATE, July 2010		REVISED ESTIMATE, Jan. 2017		PARTIAL EST. Jan. 2017
								2010 subtotal	$ 33,554,754	2017 subtotal	$ 35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total	Unit Price	Total	Total
IRONGATE	170	4.170	CW	Dutch Creek - 50'4'3' Dock Concrete Abutment	BLM	22	CY	$ 300.00	$ 6,600.00	$ 356.41	$ 7,841.08	$ 7,841.08
IRONGATE	171	4.171	EW	Dutch Creek - Double Pipe Railing	BLM	100	LF	$ 40.00	$ 4,000.00	$ 47.52	$ 4,752.17	$ 4,752.17
IRONGATE	172	4.172	CW	Mirror Cove - Concrete Total	BLM	89	CY	$ 300.00	$ 26,700.00	$ 356.41	$ 31,720.74	$ 31,720.74
IRONGATE	173	4.173	RE	Mirror Cove - 10'x16' Toilet Vault	BLM	160	SF	$ 100.00	$ 16,000.00	$ 118.80	$ 19,008.69	$ 19,008.69
IRONGATE	174	4.174	RE	Mirror Cove - 2, 30'x5' Composite Gangplanks w/ aluminum	BLM	300	SF	$ 20.00	$ 6,000.00	$ 23.76	$ 7,128.26	$ 7,128.26
IRONGATE	175	4.175	EW	Mirror Cove - Double pipe railings on dock	BLM	80	LF	$ 40.00	$ 3,200.00	$ 47.52	$ 3,801.74	$ 3,801.74
IRONGATE	176	4.176	BD	Mirror Cove - Bury 3' Dia. boulders	BLM	120	EA	$ -	$ -	$ -	$ -	$ -
IRONGATE	177	4.177	RE	Mirror Cove - Regrade site, rip, and reseed	BLM	3	AC	$ 25,000.00	$ 75,000.00	$ 29,701.07	$ 89,103.21	$ 89,103.21
IRONGATE	178	4.178	BD	Mirror Cove - Signs to be removed and hauled away	BLM	7	EA	$ 300.00	$ 2,100.00	$ 356.41	$ 2,494.89	$ 2,494.89
IRONGATE	179	4.179	CW	Overlook Point - 1 concrete picnic table base	BLM	1	CY	$ 300.00	$ 300.00	$ 356.41	$ 356.41	$ 356.41
IRONGATE	180	4.180	BD	Overlook Point - Steel frame table to be removed and hauled awa	BLM	1	EA	$ 100.00	$ 100.00	$ 118.80	$ 118.80	$ 118.80
IRONGATE	181	4.181	RE	Overlook Point - Regrade steep access road and site to natural co	BLM	0.5	AC	$ 25,000.00	$ 12,500.00	$ 29,701.07	$ 14,850.54	$ 14,850.54
IRONGATE	182	4.182	CW	Long Gulch - 80'x25x4" Concrete boat ramp to be removed	BLM	25	CY	$ 300.00	$ 7,500.00	$ 356.41	$ 8,910.32	$ 8,910.32
IRONGATE	183	4.183	BD	Long Gulch - Remove picnic tables (steel frames with planks) and	BLM	2	EA	$ 100.00	$ 200.00	$ 118.80	$ 237.61	$ 237.61
IRONGATE	184	4.184	RE	Long Gulch - Regrade ramp area to natural contours, rip, reseed	BLM	0.05	AC	$ 25,000.00	$ 1,250.00	$ 29,701.07	$ 1,485.05	$ 1,485.05

SUBTOTAL		**$ 33,554,754**	**$ 35,307,212**	**$ 32,786,358**
Mobilization, 5%	5.00%	$ 1,050,000	$ 1,765,361	$ 1,639,318
SUBTOTAL (w/ Mobilization)		**$ 34,604,754**	**$ 37,072,573**	**$ 34,425,676**
Escalation from January 2010 to January 2017 using ENR's Construction Cost Index	18.80%	$ 6,507,177	$ -	$ -
SUBTOTAL (cost in 2017 dollars)		**$ 41,111,931**	**$ 37,072,573**	**$ 34,425,676**
Escalation to Notice to Proceed (NTP) from Unit Price Level (January 2017) to NTP (January 2020) 3.0% / year for 3 years	9.27%	$ 3,812,186	$ 3,437,628	$ 3,192,190
SUBTOTAL (Escalation to January 2020)		**$ 44,924,117**	**$ 40,510,202**	**$ 37,617,865**
Design Contingencies, 10%	10.00%	$ 4,492,412	$ 4,051,020	$ 3,761,787

IRON GATE DAM

WBS								ORIGINAL ESTIMATE, July 2010			REVISED ESTIMATE, Jan. 2017			PARTIAL EST. Jan. 2017
								2010 subtotal	$	33,554,754	2017 subtotal	$	35,307,212	$ 32,786,358
Project	Pay Item	WinEst Pay Item	Scope	Description	Code	Quantity	Unit	Unit Price	Total		Unit Price	Total		Total
				CONTRACT COST					**$**	**49,416,529**		**$**	**44,561,222**	**$ 41,379,652**
				Construction Contingencies, 20%		20.00%			$	9,883,306		$	8,912,244	$ 8,275,930
				FIELD COST					**$**	**59,299,835**		**$**	**53,473,466**	**$ 49,655,582**
				Non-Contract Cost		55.00%			$	32,614,909		$	29,410,406	$ 27,310,570
				CONTRUCTION COST					**$**	**91,910,000**		**$**	**82,880,000**	**$ 76,970,000**

- Appendix A -
LIST OF THE TOP 110 PAY ITEMS IN COST (95% OF THE COST)

DAMS PROJECT	WINEST ITEM NO.	Description	Quantity	Unit	Original 2010 Estimate
JC BOYLE	1.004	Construct Embankment Cofferdam in Tailrace around Powe	2,000	CY	$ 120,000
JC BOYLE	1.005	Remove Spillway Concrete	2,500	CY	$ 650,000
JC BOYLE	1.007	Remove Fish Ladder Concrete	1,600	CY	$ 416,000
JC BOYLE	1.008	Remove Gravity Dam Section Concrete	600	CY	$ 156,000
JC BOYLE	1.020	Miscellaneous Excavation	132,500	CY	$ 1,192,500
JC BOYLE	1.029	Remove Powerhouse Concrete down to Elevation 3324.0	1,500	CY	$ 555,000
JC BOYLE	1.031	Remove Warehouse near Powerhouse	5,200	SF	$ 208,000
JC BOYLE	1.034	Remove & Dispose of 2 - Francis Turbines	560,000	LB	$ 364,000
JC BOYLE	1.035	Remove & Dispose of 150 Ton crane	240,000	LB	$ 156,000
JC BOYLE	1.044	Remove & Dispose of Outdoor Vertical AC Generator, Unit	2	EA	$ 400,000
JC BOYLE	1.061	Remove Intake Structure Concrete	1,600	CY	$ 416,000
JC BOYLE	1.064	Remove Concrete Items associated with the 14-ft-diameter	1,100	CY	$ 286,000
JC BOYLE	1.065	Remove Open Concrete Flume	26,000	CY	$ 6,760,000
JC BOYLE	1.067	Remove Forebay Concrete	2,500	CY	$ 650,000
JC BOYLE	1.069	Remove Concrete Items associated with Penstocks D/S fro	1,800	CY	$ 468,000
JC BOYLE	1.079	Remove Fish By-Pass and Supports (steel)	610,000	LB	$ 396,500
JC BOYLE	1.083	Remove & Dispose Penstocks and bifurcation (steel)	1,600,000	LB	$ 1,040,000
JC BOYLE	1.087	Remove & Dispose of Steel Transition Manifolds on Upstre	250,000	LB	$ 125,000
JC BOYLE	1.088	Temporary Access Roads	2	MILE	$ 300,000
JC BOYLE	1.089	Spring Ground Seeding	247	AC	$ 864,500
JC BOYLE	1.092	Fall Ground Seeding	124	AC	$ 434,000
JC BOYLE	1.093	Riparian Pole Planting	54	AC	$ 459,000
JC BOYLE	1.094	Weed Management	124	AC	$ 186,000
JC BOYLE	1.095	Fall Ground Seeding	99	AC	$ 346,500
JC BOYLE	1.096	Weed Management	99	AC	$ 148,500
JC BOYLE	1.103	Soil Cover over Concrete Rubble	13,000	CY	$ 1,820,000
COPCO 1	2.001	Furnish, Install, and Remove Barge-Mounted Crane in Rese	1	LS	$ 350,000
COPCO 1	2.007	Remove Current Diversion Tunnel Plug	195	CY	$ 292,500
COPCO 1	2.008	Construct Embankment Cofferdam in Tailrace	1,700	CY	$ 144,500
COPCO 1	2.009	Furnish, Install & Remove 3'-6"x6' Fabricated Slide Gates	40,500	LB	$ 607,500
COPCO 1	2.010	Remove Concrete Dam down to Elev. 2476	36,000	CY	$ 10,800,000
COPCO 1	2.011	Remove Concrete Intake Structure on Right Abutment	21,000	CY	$ 7,350,000
COPCO 1	2.016	Remove & Dispose of Radial Gates	140,500	LB	$ 140,500
COPCO 1	2.021	Remove & Dispose of 3 - 72" flapper valves with remote m	78,000	LB	$ 234,000
COPCO 1	2.024	Remove Powerhouse Concrete down to top of rock under t	3,100	CY	$ 1,085,000
COPCO 1	2.029	Remove & Dispose of 2 - 40 Ton indoor cranes	140,000	LB	$ 119,000
COPCO 1	2.046	Remove & Dispose of Step-up Transformers, indoor, oil-fill	3	EA	$ 150,000
COPCO 1	2.047	Remove & Dispose of Step-up Transformers, indoor, oil-fill	3	EA	$ 150,000
COPCO 1	2.065	Remove Concrete Items associated with 10 ft. diam. Penst	1,050	CY	$ 225,750
COPCO 1	2.070	Remove & Dispose of 14' Dia. penstock pipe	256,000	LB	$ 217,600
COPCO 1	2.071	Remove & Dispose of 10' Dia. penstock pipe	270,000	LB	$ 229,500
COPCO 1	2.072	Temporary Access Roads	7	MILE	$ 350,000
COPCO 1	2.073	Spring Ground Seeding	420	AC	$ 1,470,000

DAMS PROJECT	WINEST ITEM NO.	Description	Quantity	Unit	Original 2010 Estimate
COPCO 1	2.074	Spring Barge Seeding	82	AC	$ 533,000
COPCO 1	2.075	Spring Aerial Seeding	300	AC	$ 2,250,000
COPCO 1	2.076	Fall Ground Seeding	401	AC	$ 1,403,500
COPCO 1	2.077	Riparian Pole Planting	170	AC	$ 1,445,000
COPCO 1	2.078	Weed Management	401	AC	$ 601,500
COPCO 1	2.079	Fall Ground Seeding	321	AC	$ 1,123,500
COPCO 1	2.080	Weed Management	321	AC	$ 481,500
COPCO 1	2.082	Sitework - Soil Cover for Disposal Area	23,000	CY	$ 1,150,000
COPCO 1	2.084	Access/Haul Road Improvements - Rock Excavation	4,500	CY	$ 180,000
COPCO 1	2.085	Access/Haul Road Improvements - Soil Excavation	16,000	CY	$ 800,000
COPCO 1	2.087	County Road Improvements - Asphalt Overlay Repair - Juni	3	MILE	$ 120,000
COPCO 1	2.088	County Road Improvements - Asphalt Overlay Repair - Cop	19	MILE	$ 760,000
COPCO 2	3.001	Construct and Remove Embankment Cofferdam-Right Side	3,100	CY	$ 263,500
COPCO 2	3.011	Construct Embankment Cofferdam across Tailrace	1,700	CY	$ 144,500
COPCO 2	3.014	Remove Concrete in Dam	4,400	CY	$ 1,386,000
COPCO 2	3.028	Remove Powerhouse Concrete down to spring-line of turbi	1,050	CY	$ 367,500
COPCO 2	3.029	Remove Structural Steel items associated with Powerhouse	220,000	LB	$ 187,000
COPCO 2	3.032	Remove Shop Building	3,600	SF	$ 216,000
COPCO 2	3.037	Remove & Dispose - 2 - Francis Turbines	660,000	LB	$ 561,000
COPCO 2	3.038	Remove & Dispose - 2 - 40 Ton indoor cranes	140,000	LB	$ 119,000
COPCO 2	3.045	Remove & Dispose - AC Generator, Indoor Vertical	2	EA	$ 250,000
COPCO 2	3.061	Remove Intake Structure Concrete	1,500	CY	$ 322,500
COPCO 2	3.062	Remove Concrete Items associated with 16-foot I.D. Wood	1,300	CY	$ 279,500
COPCO 2	3.063	Place Concrete Plugs for Tunnels	100	CY	$ 120,000
COPCO 2	3.064	Remove Concrete Items associated with Penstocks D/S fro	3,500	CY	$ 752,500
COPCO 2	3.067	Remove & Dispose of Stop Logs and slots for intake (steel)	220,000	LB	$ 187,000
COPCO 2	3.068	Remove & Dispose of Wood Staves Soaked in Creosote	1,100,000	LB	$ 770,000
COPCO 2	3.069	Remove & Dispose of Cradles (steel)	290,000	LB	$ 246,500
COPCO 2	3.070	Remove & Dispose of Bands (steel)	463,000	LB	$ 393,550
COPCO 2	3.071	Remove & Dispose of Penstock after bifurcation to butterfl	860,000	LB	$ 731,000
COPCO 2	3.073	Remove & Dispose of 2 - 138" Butterfly valves	148,000	LB	$ 125,800
IRON GATE	4.001	Furnish, Install, and Remove Barge-Mounted Crane in Rese	1	LS	$ 200,000
IRON GATE	4.007	Construct Embankment Cofferdam across Tailrace to remo	1,650	CY	$ 115,500
IRON GATE	4.010	Upstream Cofferdam to be Removed in the Wet	20,000	CY	$ 1,400,000
IRON GATE	4.013	Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, a	110,000	LB	$ 1,650,000
IRON GATE	4.014	Remove Concrete in Observation Platform, Crest Wall and	580	CY	$ 124,700
IRON GATE	4.015	Remove Concrete in Diversion Tunnel Intake Structure	530	CY	$ 113,950
IRON GATE	4.021	Remove Upstream Riprap	80,000	CY	$ 1,040,000
IRON GATE	4.022	Remove Downstream Riprap	30,000	CY	$ 390,000
IRON GATE	4.023	Miscellaneous Excavation	880,000	CY	$ 11,440,000
IRON GATE	4.024	Cutoff Wall Concrete Demolition	1,250	CY	$ 268,750
IRON GATE	4.025	Earth Fill Crest Raise	13,000	CY	$ 169,000
IRON GATE	4.026	Sheetpile Crest Raise	800	LF	$ 200,000

DAMS PROJECT	WINEST ITEM NO.	Description	Quantity	Unit	Original 2010 Estimate
IRON GATE	4.039	Remove Powerhouse Concrete	3,700	CY	$ 1,295,000
IRON GATE	4.040	Remove and Dispose of Turbine Unit	344,058	LB	$ 292,449
IRON GATE	4.054	Remove and Dispose of AC Generator, Outdoor Horizontal	1	EA	$ 125,000
IRON GATE	4.067	Remove and Dispose of Step-up Transformer, outdoor, oil-	1	EA	$ 100,000
IRON GATE	4.072	Remove Concrete in Penstock Encasement	840	CY	$ 180,600
IRON GATE	4.073	Remove Concrete in 3 Penstock Anchors and 7 Penstock Su	1,900	CY	$ 408,500
IRON GATE	4.076	Remove and Dispose of Intake Structure	131,630	LB	$ 111,886
IRON GATE	4.082	Remove and Dispose of Penstock - 12" Dia, 0.25" Thick x 69	294,428	LB	$ 250,264
IRON GATE	4.088	Temporary Access Roads	2.6	MILE	$ 780,000
IRON GATE	4.089	Spring Ground Seeding	370	AC	$ 1,295,000
IRON GATE	4.090	Spring Barge Seeding	296	AC	$ 1,924,000
IRON GATE	4.091	Spring Aerial Seeding	159	AC	$ 1,192,500
IRON GATE	4.092	Fall Ground Seeding	413	AC	$ 1,445,500
IRON GATE	4.093	Riparian Pole Planting	50	AC	$ 425,000
IRON GATE	4.094	Weed Management	413	AC	$ 619,500
IRON GATE	4.095	Fall Ground Seeding	330	AC	$ 1,155,000
IRON GATE	4.096	Weed Management	330	AC	$ 495,000
IRON GATE	4.097	Clear and Grub Disposal Area	29	AC	$ 174,000
IRON GATE	4.098	Rock Excavation for Haul Road Widening-Prepare Haul Roa	13,500	CY	$ 540,000
IRON GATE	4.100	4" thick gravel surfacing - Prepare Haul Road - 1.25 mi	5,300	TN	$ 371,000
IRON GATE	4.103	Remove Concrete in Fish Ladder	950	CY	$ 204,250
IRON GATE	4.111	Remove Asphalt Pavement	39,000	SF	$ 234,000
IRON GATE	4.116	Berm Removal	53,000	CY	$ 689,000
IRON GATE	4.168	Camp Creek - Regrade, rip, and reseed	4	AC	$ 100,000

- Appendix B -
LABOR AND EQUIPMENT

LABOR & EQUIPMENT TABLE

☑ Use $3.00

ITEM	SELECTED HOURLY RATE	L/E	HOURLY RATE with $3.00 Fuel Rates	$4.00 Fuel rates	Burden Rate
Acetylene Torches	$ 0.44	E	$ 0.44	$ 0.44	
Air Compressor 124 cfm	$ 5.51	E	$ 5.51	$ 5.67	
Air Compressor 185 cfm	$ 6.95	E	$ 6.95	$ 7.16	
Air Compressor 600 cfm	$ 21.74	E	$ 21.74	$ 22.39	
Air Compressor 900 cfm	$ 38.87	E	$ 38.87	$ 40.03	
Air Tool, Chipping Hammer	$ 1.64	E	$ 1.64	$ 1.64	
Asphalt Paver (80hp)	$ 180.11	E	$ 180.11	$ 182.46	
Backhoe Loader (91hp)	$ 40.35	E	$ 40.35	$ 43.89	
Barge (400T)	$ 99.50	E	$ 99.50	$ 107.46	
Barge Operator	$ 68.11	L	$ 40.30		$ 27.81
Barge, Bargeman, Deckhand, Fireman, Oiler	$ 60.96	L	$ 33.15		$ 27.81
Barge, Deck Engineer, Winch Operator	$ 64.26	L	$ 36.45		$ 27.81
Barge, Sectional, 20'x10'	$ 4.48	E	$ 4.48	$ 4.48	
Barge, Sectional, 40'x10', includes ramp	$ 16.48	E	$ 16.48	$ 16.48	
Carpenter Foreman (out)	$ 74.60	L	$ 46.40		$ 28.20
Carpenters	$ 72.60	L	$ 44.40		$ 28.20
Carpenters, Journeyman	$ 65.37	L	$ 37.17		$ 28.20
Cement finisher	$ 72.60	L	$ 44.40		$ 28.20
Conc Bucket (1cy)	$ 2.83	E	$ 2.83	$ 3.06	
Conc Pump (large, 196 cy/hr, 111' & over)	$ 130.47	E	$ 130.47	$ 130.47	
Conc Pump (small)	$ 61.43	E	$ 61.43	$ 61.43	
Conc Saw (19 - 36 hp)	$ 6.89	E	$ 6.89	$ 7.10	
Crawler Crane (130tn)	$ 258.66	E	$ 258.66	$ 269.71	
Crawler Crane (270tn)	$ 399.50	E	$ 399.50	$ 461.69	
Crawler Crane (90tn)	$ 208.09	E	$ 208.09	$ 218.52	
Diver, Assistant Tender	$ 71.85	L	$ 43.65		$ 28.20
Diver, Standby	$ 80.01	L	$ 48.61		$ 31.40
Diver, Tender	$ 79.22	L	$ 47.82		$ 31.40
Diver, Wet	$ 124.57	L	$ 93.17		$ 31.40
Diver, Manifold Operator (mixed gas)	$ 84.22	L	$ 52.82		$ 31.40
Dozer (125hp)(CATD6)	$ 82.17	E	$ 82.17	$ 87.42	
Dozer (235hp)(CATD7)	$ 165.11	E	$ 165.11	$ 174.28	
Dozer (310hp)(CATD8)	$ 197.60	E	$ 197.60	$ 208.96	
Dozer (520hp+)(CATD10)	$ 326.06	E	$ 326.06	$ 346.15	
Drill Rig & Augers	$ 85.23	E	$ 85.23	$ 85.23	
Electrician	$ 45.23	L	$ 31.70		$ 13.53
Electrician Foreman	$ 47.23	L	$ 33.70		$ 13.53
Electricians (Luminaires)	$ 45.23	L	$ 31.70		$ 13.53
Equipment Operator (crane)	$ 68.41	L	$ 40.97		$ 27.44
Equipment Operator (light landscape Eq,)	$ 57.35	L	$ 31.64		$ 25.71
Equipment Operator (light)	$ 64.90	L	$ 37.46		$ 27.44
Equipment Operator (medium)	$ 66.28	L	$ 38.84		$ 27.44
Equipment Operator (oiler)	$ 62.94	L	$ 35.50		$ 27.44
Forklift, Rough Terrain (9,000 lb capacity)	$ 54.70	E	$ 54.70	$ 57.83	
Gas Engine Tamp	$ 4.10	E	$ 4.10	$ 4.10	
Gas Engine Vibrator	$ 4.10	E	$ 4.10	$ 4.10	
Generator, Large Generator, 20 - 50 kW	$ 11.42	E	$ 11.42	$ 11.99	
Generator, Small Generator, 10 - 15 kW	$ 7.04	E	$ 7.04	$ 7.25	
Grader, 180hp, 13' blade	$ 80.79	E	$ 80.79	$ 86.55	
Heavyduty Repairman	$ 65.38	L	$ 37.57		$ 27.81
Hydraulic Crane (120tn)	$ 239.06	E	$ 239.06	$ 251.36	
Hydraulic Crane (17tn)	$ 81.52	E	$ 81.52	$ 86.14	
Hydraulic Crane (35tn)	$ 116.30	E	$ 116.30	$ 122.41	
Hydraulic Crane (50tn)	$ 134.32	E	$ 134.32	$ 144.16	
Hydraulic Crane (80tn)	$ 190.46	E	$ 190.46	$ 201.73	
Hydraulic Excavator (1.5cy)	$ 141.92	E	$ 141.92	$ 153.17	
Hydraulic Excavator (2.5cy)	$ 203.63	E	$ 203.63	$ 240.28	
Hydraulic Excavator (5.0cy)	$ 274.63	E	$ 274.63	$ 295.58	
Hydraulic Excavator (6.0cy)	$ 322.48	E	$ 322.48	$ 345.49	
Hydraulic Impact Breaker Attachment (2k-3k ft-lb)	$ 30.85	E	$ 30.85	$ 30.85	
Hydraulic Impact Breaker Attachment (3k-4k ft-lb)	$ 36.58	E	$ 36.58	$ 36.58	
Hydraulic Impact Breaker Attachment (5k+ ft-lb)	$ 62.72	E	$ 62.72	$ 62.72	
Hydraulic Thumbs/Shear Attachment	$ 62.72	E	$ 62.72	$ 16.39	
Ironworkers	$ 63.95	L	$ 34.75		$ 29.20

LABOR & EQUIPMENT TABLE

☑ Use $3.00

ITEM	SELECTED HOURLY RATE	L/E	HOURLY RATE with $3.00 Fuel Rates	$4.00 Fuel rates	Burden Rate
Labor Foreman	$ 48.27	L	$ 29.61		$ 18.66
Labor Foreman (out)	$ 46.27	L	$ 27.61		$ 18.66
Laborer	$ 45.80	L	$ 27.14		$ 18.66
Leverman	$ 70.34	L	$ 42.53		$ 27.81
Loader, FE Rubber Tire (3.5cy)	$ 64.23	E	$ 64.23	$ 69.76	
Loader, FE Rubber Tire (5.25cy)	$ 75.42	E	$ 75.42	$ 83.44	
Loader, FE Rubber Tire (8.6cy)	$ 221.50	E	$ 221.50	$ 238.39	
Manlift, Telescopic Boom, 51 - 60 ft	$ 62.72	E	$ 62.72	$ 42.31	
Manlift, Telescopic Boom, 71 - 80 ft	$ 62.72	E	$ 62.72	$ 64.06	
Millwright	$ 69.46	L	$ 39.67		$ 29.79
Pump, Centrifugal, 3"	$ 2.76	E	$ 2.76	$ 3.14	
Pump, Submersible Trash Pump, 3" & 4"	$ 3.87	E	$ 3.87	$ 3.99	
Pump, Trash Pump, 6"+	$ 16.11	E	$ 16.11	$ 16.59	
Roller, Dbl Drum (steel wheel, 1.8 - 2.9 MTn)	$ 20.54	E	$ 20.54	$ 21.04	
Roller, Dbl Drum (steel wheel, 5.0 - 7.9 MTn)	$ 64.77	E	$ 64.77	$ 66.60	
Roller, Single Drum (steel wheel, 12.0 - 14.9 MTn)	$ 72.79	E	$ 72.79	$ 76.51	
Roller, Single Drum (steel wheel, 8.0 - 11.9 MTn)	$ 56.02	E	$ 56.02	$ 59.25	
Seed sprayer, truck mounted, 3000 gal	$ 34.62	E	$ 34.62	$ 39.18	
Steelworker	$ 65.52	L	$ 37.32		$ 28.20
Trencher	$ 4.07	E	$ 4.07	$ 4.25	
Truck Driver (heavy)	$ 57.59	L	$ 30.93		$ 26.66
Truck Driver (light)	$ 56.29	L	$ 29.63		$ 26.66
Truck, Flatbed (4x4, 10,000 gvw)	$ 31.90	E	$ 31.90	$ 39.29	
Truck, Off-Road, Articulated Rear, 20cy	$ 111.64	E	$ 111.64	$ 117.98	
Truck, On-Highway Dump (6x4, 12cy)	$ 70.35	E	$ 70.35	$ 81.55	
Truck, Pickup (4x4, 3/4tn)	$ 16.94	E	$ 16.94	$ 20.07	
Truck, Tractor (400hp)	$ 69.30	E	$ 69.30	$ 78.83	
Tugboat (250hp)	$ 88.74	E	$ 88.74	$ 103.29	
Tugboat Captain	$ 67.76	L	$ 40.32		$ 27.44
Tugboat Hand	$ 45.80	L	$ 27.14		$ 18.66
Vibratory Hammer & Extractor	$ 94.34	E	$ 94.34	$ 102.77	
Water Tanker (5,000gal)	$ 74.56	E	$ 74.56	$ 80.54	
Welder, Portable	$ 7.84	E	$ 7.84	$ 7.84	

- Appendix C -
EQUIPMENT WATCH BACKUP

EquipmentWatch™

www.equipmentwatch.com

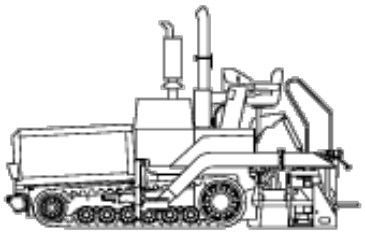
All prices shown in US$

Custom Cost Evaluator

May 15, 2017

ABG TITAN 125
Crawler Mounted Asphalt Pavers

Size Class:
19,000 - 24,999 lbs
Weight:
20,925 lbs.



Configuration for TITAN 125

Screed Model	**VB 30**	Net Horsepower	**81 hp**
Power Mode	**Diesel**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$43.59/hr	$44.85/hr	+2.9%
Cost of Facilities Capital (CFC)	$4.18/hr	-	-
Overhead	$12.36/hr	-	-
Overhaul Labor	$22.67/hr	-	-
Overhaul Parts	$36.30/hr	-	-
Total Hourly Ownership Cost:	**$119.10/hr**	**$120.36/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$32.38/hr	-	-
Field Parts	$16.10/hr	-	-
Ground Engaging Component (GEC)	$1.34/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$5.40/hr	$7.05/hr	+30.6%
Lube	$2.88/hr	-	-
Total Operating Ownership Cost:	**$58.10/hr**	**$59.75/hr**	**+2.8%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$119.10/hr	$120.36/hr	+1.1%
Hourly Operating Costs	$58.10/hr	$59.75/hr	+2.8%
Total Hourly Cost	**$177.20**	**$180.11/hr**	**+1.6%**

Revised Date: 1st Half 2017

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EquipmentWatch™

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All prices shown in US$

Rental Rate Blue Book®

May 15, 2017

Miscellaneous LOADING RAMPS
Sectional Barges

Size Class:
All
Weight:
N/A

Configuration for LOADING RAMPS

Power Mode **Manual** Type **Loading Ramps**

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$590.00	$165.00	$41.00	$6.00	$0.40	$3.75
Adjustments						
Region (Redding: 98.4%)	($9.44)	($2.64)	($0.66)	($0.10)		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$580.56**	**$162.36**	**$40.34**	**$5.90**	**$0.40**	**$3.70**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	54%	$318.60/mo
Overhaul (ownership)	16%	$94.40/mo
CFC (ownership)	7%	$41.30/mo
Indirect (ownership)	23%	$135.70/mo

Fuel cost data is not available for these rates.

Revised Date: 2nd Half 2016

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Rental Rate Blue Book®

May 15, 2017

Miscellaneous 20'X10'
Sectional Barges

Size Class:
All
Weight:
N/A

Configuration for 20'X10'

Type	**Mid-Section**	Power Mode	**Manual**
Size	**20' X 10'**		

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$705.00	$195.00	$49.00	$7.00	$0.45	$4.46
Adjustments						
Region (Redding: 98.4%)	($11.28)	($3.12)	($0.78)	($0.11)		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$693.72**	**$191.88**	**$48.22**	**$6.89**	**$0.45**	**$4.39**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	54%	$380.70/mo
Overhaul (ownership)	16%	$112.80/mo
CFC (ownership)	7%	$49.35/mo
Indirect (ownership)	23%	$162.15/mo

Fuel cost data is not available for these rates.

Revised Date: 2nd Half 2016

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EquipmentWatch™

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All prices shown in US$

Rental Rate Blue Book®

May 15, 2017

Miscellaneous 40'X10'
Sectional Barges

Size Class:
All
Weight:
N/A

Configuration for 40'X10'

Type	**Mid-Section**	Size	**40' X 10'**
Power Mode	**Manual**		

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$1,105.00	$310.00	$78.00	$12.00	$0.55	$6.83
Adjustments						
Region (Redding: 98.4%)	($17.68)	($4.96)	($1.25)	($0.19)		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$1,087.32**	**$305.04**	**$76.75**	**$11.81**	**$0.55**	**$6.73**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	54%	$596.70/mo
Overhaul (ownership)	16%	$176.80/mo
CFC (ownership)	7%	$77.35/mo
Indirect (ownership)	23%	$254.15/mo

Fuel cost data is not available for these rates.

Revised Date: 2nd Half 2016

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EquipmentWatch

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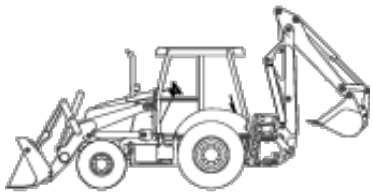
May 15, 2017

Case 580 SUPER M SERIES 3
Tractor-Loader-Backhoes

Size Class:
14' to Under 15'
Weight:
14,285 lbs.



Configuration for 580 SUPER M SERIES 3

Net Horsepower	**91 hp**	Loader Bucket Capacity--Heaped	**1.03 cu yd**
Operator Protection	**ROPS**	Drive	**2WD**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$7.47/hr	$7.71/hr	+3.2%
Cost of Facilities Capital (CFC)	$1.92/hr	-	-
Overhead	$4.10/hr	-	-
Overhaul Labor	$3.12/hr	-	-
Overhaul Parts	$2.63/hr	-	-
Total Hourly Ownership Cost:	**$19.24/hr**	**$19.48/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$3.17/hr	-	-
Field Parts	$3.27/hr	-	-
Ground Engaging Component (GEC)	$0.44/hr	-	-
Tire	$1.29/hr	-	-
Electrical/Fuel	$8.35/hr	$10.62/hr	+27.2%
Lube	$2.08/hr	-	-
Total Operating Ownership Cost:	**$18.60/hr**	**$20.87/hr**	**+12.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$19.24/hr	$19.48/hr	+1.2%
Hourly Operating Costs	$18.60/hr	$20.87/hr	+12.2%
Total Hourly Cost	**$37.84**	**$40.35/hr**	**+6.6%**

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May 13, 2017

Caterpillar H120CS
Hydraulic Impact Breakers

Size Class:
2,001 - 3,000 flb
Weight:
2,860 lbs.

Configuration for H120CS

Impact Energy	**3000 ft-lb**	Impact Energy (AEM)	**2127 ft-lb**
Frequency Range	**350/620**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$8.13/hr	$8.30/hr	+2.1%
Cost of Facilities Capital (CFC)	$0.72/hr	-	-
Overhead	$1.17/hr	-	-
Overhaul Labor	$6.69/hr	-	-
Overhaul Parts	$2.61/hr	-	-
Total Hourly Ownership Cost:	**$19.32/hr**	**$19.49/hr**	**+0.9%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$7.45/hr	-	-
Field Parts	$3.52/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$0.39/hr	-	-
Total Operating Ownership Cost:	**$11.36/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$19.32/hr	$19.49/hr	+0.9%
Hourly Operating Costs	$11.36/hr	-	-
Total Hourly Cost	**$30.68**	**$30.85/hr**	**+0.6%**

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May 13, 2017

Caterpillar H130S
Hydraulic Impact Breakers

Size Class:
3,001 - 4,000 flb
Weight:
3,740 lbs.

Configuration for H130S

Frequency Range	**320/600**	Impact Energy (AEM)	**2758 ft-lb**
Impact Energy	**3500 ft-lb**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$9.93/hr	$10.14/hr	+2.1%
Cost of Facilities Capital (CFC)	$0.88/hr	-	-
Overhead	$1.44/hr	-	-
Overhaul Labor	$7.50/hr	-	-
Overhaul Parts	$3.19/hr	-	-
Total Hourly Ownership Cost:	**$22.94/hr**	**$23.15/hr**	**+0.9%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.64/hr	-	-
Field Parts	$4.31/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$0.48/hr	-	-
Total Operating Ownership Cost:	**$13.43/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$22.94/hr	$23.15/hr	+0.9%
Hourly Operating Costs	$13.43/hr	-	-
Total Hourly Cost	**$36.37**	**$36.58/hr**	**+0.6%**

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May 13, 2017

Caterpillar H160CS
Hydraulic Impact Breakers

Size Class:
5,001 flb & Over
Weight:
N/A

Configuration for H160CS

Impact Energy (AEM)	**3851 ft-lb**	Frequency Range	**- /480**
Impact Energy	**7500 ft-lb**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$15.33/hr	$15.66/hr	+2.2%
Cost of Facilities Capital (CFC)	$1.49/hr	-	-
Overhead	$2.48/hr	-	-
Overhaul Labor	$15.11/hr	-	-
Overhaul Parts	$5.21/hr	-	-
Total Hourly Ownership Cost:	**$39.62/hr**	**$39.95/hr**	**+0.8%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$16.30/hr	-	-
Field Parts	$5.64/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$0.83/hr	-	-
Total Operating Ownership Cost:	**$22.77/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$39.62/hr	$39.95/hr	+0.8%
Hourly Operating Costs	$22.77/hr	-	-
Total Hourly Cost	**$62.39**	**$62.72/hr**	**+0.5%**

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May 15, 2017

Cifa K3-ZX/36
Concrete Pump Booms For Truck Mounting

Size Class:
111' & Over
Weight:
56,967 lbs.

Configuration for K3-ZX/36

Maximum Output	**196 cu yd/hr**	Vertical Boom Reach	**1408 in**
Power Mode	**PTO**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$44.62/hr	$45.65/hr	+2.3%
Cost of Facilities Capital (CFC)	$5.63/hr	-	-
Overhead	$17.71/hr	-	-
Overhaul Labor	$8.29/hr	-	-
Overhaul Parts	$13.00/hr	-	-
Total Hourly Ownership Cost:	**$89.25/hr**	**$90.28/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$16.59/hr	-	-
Field Parts	$20.80/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$2.80/hr	-	-
Total Operating Ownership Cost:	**$40.19/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$89.25/hr	$90.28/hr	+1.2%
Hourly Operating Costs	$40.19/hr	-	-
Total Hourly Cost	**$129.44**	**$130.47/hr**	**+0.8%**

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May 15, 2017

Manitowoc 555
Crawler Mounted Lattice Boom Cranes

Size Class:
108.0 - 149.9 MTons
Weight:
216,655 lbs.

Configuration for 555

Net Horsepower	**335 hp**	Power Mode	**Diesel**
Maximum Lift Capacity	**136 mt**	Boom Base Length	**160 ft**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$51.68/hr	$53.23/hr	+3%
Cost of Facilities Capital (CFC)	$8.65/hr	-	-
Overhead	$26.34/hr	-	-
Overhaul Labor	$24.79/hr	-	-
Overhaul Parts	$32.89/hr	-	-
Total Hourly Ownership Cost:	**$144.35/hr**	**$145.90/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$33.65/hr	-	-
Field Parts	$33.03/hr	-	-
Ground Engaging Component (GEC)	$2.78/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$25.43/hr	$33.17/hr	+30.4%
Lube	$10.13/hr	-	-
Total Operating Ownership Cost:	**$105.02/hr**	**$112.76/hr**	**+7.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$144.35/hr	$145.90/hr	+1.1%
Hourly Operating Costs	$105.02/hr	$112.76/hr	+7.4%
Total Hourly Cost	**$249.37**	**$258.66/hr**	**+3.7%**

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Manitowoc 2250 SERIES 3
Crawler Mounted Lattice Boom Cranes

Size Class:
201.0 MTons & Over
Weight:
417,585 lbs.

Configuration for 2250 SERIES 3

Boom Base Length	**70 ft**	Maximum Lift Capacity	**272.2 mt**
Net Horsepower	**450 hp**	Power Mode	**Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$87.38/hr	$90.17/hr	+3.2%
Cost of Facilities Capital (CFC)	$18.05/hr	-	-
Overhead	$53.42/hr	-	-
Overhaul Labor	$32.63/hr	-	-
Overhaul Parts	$59.68/hr	-	-
Total Hourly Ownership Cost:	**$251.16/hr**	**$253.95/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$37.78/hr	-	-
Field Parts	$84.26/hr	-	-
Ground Engaging Component (GEC)	$7.02/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$34.16/hr	$44.55/hr	+30.4%
Lube	$19.28/hr	-	-
Total Operating Ownership Cost:	**$182.50/hr**	**$192.89/hr**	**+5.7%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$251.16/hr	$253.95/hr	+1.1%
Hourly Operating Costs	$182.50/hr	$192.89/hr	+5.7%
Total Hourly Cost	**$433.66**	**$446.84/hr**	**+3%**

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May 15, 2017

Manitowoc 10000
Crawler Mounted Lattice Boom Cranes

Size Class:
81.0 - 107.9 MTons
Weight:
124,390 lbs.

Configuration for 10000

Boom Base Length	**40 ft**	Net Horsepower	**316 hp**
Power Mode	**Diesel**	Maximum Lift Capacity	**90.7 mt**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$44.77/hr	$46.11/hr	+3%
Cost of Facilities Capital (CFC)	$6.35/hr	-	-
Overhead	$19.12/hr	-	-
Overhaul Labor	$17.71/hr	-	-
Overhaul Parts	$24.26/hr	-	-
Total Hourly Ownership Cost:	**$112.21/hr**	**$113.55/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$26.56/hr	-	-
Field Parts	$26.56/hr	-	-
Ground Engaging Component (GEC)	$2.24/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$23.98/hr	$31.28/hr	+30.4%
Lube	$7.90/hr	-	-
Total Operating Ownership Cost:	**$87.24/hr**	**$94.54/hr**	**+8.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$112.21/hr	$113.55/hr	+1.2%
Hourly Operating Costs	$87.24/hr	$94.54/hr	+8.4%
Total Hourly Cost	**$199.45**	**$208.09/hr**	**+4.3%**

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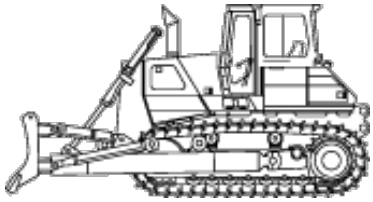
May 15, 2017

Caterpillar D7E
Standard Crawler Dozers

Size Class:
190 - 259 HP
Weight:
56,669 lbs.



Configuration for D7E

Dozer Type	**Semi-U**	Net Horsepower	**235 hp**
Power Mode	**Diesel**	Operator Protection	**EROPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$34.94/hr	$35.88/hr	+2.7%
Cost of Facilities Capital (CFC)	$7.46/hr	-	-
Overhead	$16.65/hr	-	-
Overhaul Labor	$9.48/hr	-	-
Overhaul Parts	$23.78/hr	-	-
Total Hourly Ownership Cost:	**$92.31/hr**	**$93.25/hr**	**+1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$11.69/hr	-	-
Field Parts	$23.04/hr	-	-
Ground Engaging Component (GEC)	$3.84/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$21.63/hr	$27.49/hr	+27.1%
Lube	$5.80/hr	-	-
Total Operating Ownership Cost:	**$66.00/hr**	**$71.86/hr**	**+8.9%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$92.31/hr	$93.25/hr	+1%
Hourly Operating Costs	$66.00/hr	$71.86/hr	+8.9%
Total Hourly Cost	**$158.31**	**$165.11/hr**	**+4.3%**

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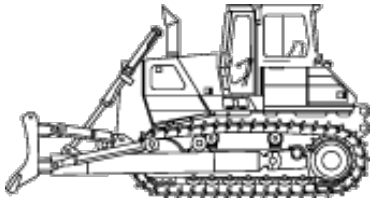
Caterpillar D8R SERIES II
Standard Crawler Dozers

Size Class:
260 - 359 HP
Weight:
83,500 lbs.



Configuration for D8R SERIES II

Dozer Type	**Semi-U**	Net Horsepower	**307 hp**
Power Mode	**Diesel**	Operator Protection	**EROPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$39.34/hr	$40.32/hr	+2.5%
Cost of Facilities Capital (CFC)	$7.45/hr	-	-
Overhead	$21.91/hr	-	-
Overhaul Labor	$14.57/hr	-	-
Overhaul Parts	$26.49/hr	-	-
Total Hourly Ownership Cost:	**$109.76/hr**	**$110.74/hr**	**+0.9%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$16.19/hr	-	-
Field Parts	$25.56/hr	-	-
Ground Engaging Component (GEC)	$4.26/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$26.81/hr	$34.08/hr	+27.1%
Lube	$6.77/hr	-	-
Total Operating Ownership Cost:	**$79.59/hr**	**$86.86/hr**	**+9.1%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$109.76/hr	$110.74/hr	+0.9%
Hourly Operating Costs	$79.59/hr	$86.86/hr	+9.1%
Total Hourly Cost	**$189.35**	**$197.60/hr**	**+4.4%**

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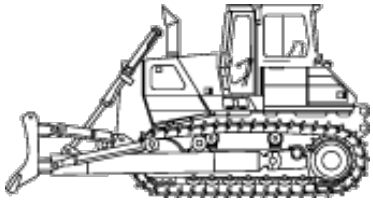
Caterpillar D6K XL (disc. 2014)
Standard Crawler Dozers

Size Class:
105 - 129 HP
Weight:
28,409 lbs.



Configuration for D6K XL (disc. 2014)

Dozer Type	**VPAT**	Net Horsepower	**125 hp**
Power Mode	**Diesel**	Operator Protection	**ROPS/FOPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.07/hr	$14.48/hr	+2.9%
Cost of Facilities Capital (CFC)	$3.00/hr	-	-
Overhead	$6.31/hr	-	-
Overhaul Labor	$9.04/hr	-	-
Overhaul Parts	$9.85/hr	-	-
Total Hourly Ownership Cost:	**$42.27/hr**	**$42.68/hr**	**+1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$11.03/hr	-	-
Field Parts	$8.66/hr	-	-
Ground Engaging Component (GEC)	$1.41/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$12.39/hr	$15.75/hr	+27.1%
Lube	$2.64/hr	-	-
Total Operating Ownership Cost:	**$36.13/hr**	**$39.49/hr**	**+9.3%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$42.27/hr	$42.68/hr	+1%
Hourly Operating Costs	$36.13/hr	$39.49/hr	+9.3%
Total Hourly Cost	**$78.40**	**$82.17/hr**	**+4.8%**

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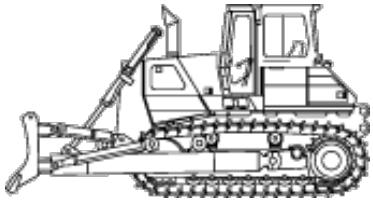
Caterpillar D10T
Standard Crawler Dozers

Size Class:
520 HP & Over
Weight:
146,500 lbs.



Configuration for D10T

Dozer Type	**Semi-U**	Operator Protection	**EROPS**
Net Horsepower	**574 hp**	Power Mode	**Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$57.79/hr	$59.22/hr	+2.5%
Cost of Facilities Capital (CFC)	$12.29/hr	-	-
Overhead	$37.25/hr	-	-
Overhaul Labor	$16.60/hr	-	-
Overhaul Parts	$50.61/hr	-	-
Total Hourly Ownership Cost:	**$174.54/hr**	**$175.97/hr**	**+0.8%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$19.43/hr	-	-
Field Parts	$49.29/hr	-	-
Ground Engaging Component (GEC)	$8.22/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$47.41/hr	$60.27/hr	+27.1%
Lube	$12.88/hr	-	-
Total Operating Ownership Cost:	**$137.23/hr**	**$150.09/hr**	**+9.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$174.54/hr	$175.97/hr	+0.8%
Hourly Operating Costs	$137.23/hr	$150.09/hr	+9.4%
Total Hourly Cost	**$311.77**	**$326.06/hr**	**+4.6%**

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Miscellaneous 6X4 12YD 50KGVW
On-Highway Rear Dumps

Size Class:
45,001 - 60,000 GVW
Weight:
14,607 lbs.

Configuration for 6X4 12YD 50KGVW

Axle Configuration	**6X4**	Maximum Gross Vehicle Weight	**50000 lbs**
Struck Capacity	**10 cu yd - 12 cu yd**	Power Mode	**Diesel**
Horsepower	**400**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$10.80/hr	$11.06/hr	+2.4%
Cost of Facilities Capital (CFC)	$1.26/hr	-	-
Overhead	$2.51/hr	-	-
Overhaul Labor	$3.72/hr	-	-
Overhaul Parts	$3.03/hr	-	-
Total Hourly Ownership Cost:	**$21.32/hr**	**$21.58/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$5.83/hr	-	-
Field Parts	$3.67/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$2.15/hr	-	-
Electrical/Fuel	$26.43/hr	$33.60/hr	+27.1%
Lube	$3.52/hr	-	-
Total Operating Ownership Cost:	**$41.60/hr**	**$48.77/hr**	**+17.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$21.32/hr	$21.58/hr	+1.2%
Hourly Operating Costs	$41.60/hr	$48.77/hr	+17.2%
Total Hourly Cost	**$62.92**	**$70.35/hr**	**+11.8%**

Revised Date: 2nd Half 2016

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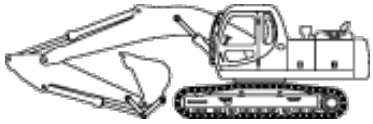
May 15, 2017

Caterpillar 336D L (disc. 2014)
Crawler Mounted Hydraulic Excavators



Size Class:
33.1 - 40.0 MTons
Weight:
80,464 lbs.

Configuration for 336D L (disc. 2014)

Net Horsepower	**268 hp**	Power Mode	**Diesel**
Operating Weight	**36.5 mt**	Bucket Capacity - Heaped	**1.56 cu yd**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$28.22/hr	$28.97/hr	+2.7%
Cost of Facilities Capital (CFC)	$4.89/hr	-	-
Overhead	$8.49/hr	-	-
Overhaul Labor	$14.88/hr	-	-
Overhaul Parts	$12.43/hr	-	-
Total Hourly Ownership Cost:	**$68.91/hr**	**$69.66/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$18.16/hr	-	-
Field Parts	$12.70/hr	-	-
Ground Engaging Component (GEC)	$1.97/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$26.56/hr	$33.77/hr	+27.1%
Lube	$5.66/hr	-	-
Total Operating Ownership Cost:	**$65.05/hr**	**$72.26/hr**	**+11.1%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$68.91/hr	$69.66/hr	+1.1%
Hourly Operating Costs	$65.05/hr	$72.26/hr	+11.1%
Total Hourly Cost	**$133.96**	**$141.92/hr**	**+5.9%**

Revised Date: 2nd Half 2016

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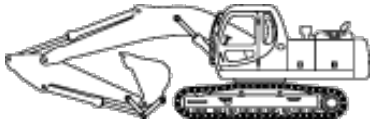
May 15, 2017

Caterpillar 345C L (disc. 2008)
Crawler Mounted Hydraulic Excavators



Size Class:
40.1 - 50.0 MTons
Weight:
100,810 lbs.

Configuration for 345C L (disc. 2008)

Bucket Capacity - Heaped	**2.46 cu yd**	Net Horsepower	**345 hp**
Power Mode	**Diesel**	Operating Weight	**45.7 mt**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$48.35/hr	$49.62/hr	+2.6%
Cost of Facilities Capital (CFC)	$8.13/hr	-	-
Overhead	$5.12/hr	-	-
Overhaul Labor	$18.16/hr	-	-
Overhaul Parts	$22.31/hr	-	-
Total Hourly Ownership Cost:	**$102.07/hr**	**$103.34/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$22.32/hr	-	-
Field Parts	$22.80/hr	-	-
Ground Engaging Component (GEC)	$3.28/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$34.20/hr	$43.47/hr	+27.1%
Lube	$8.42/hr	-	-
Total Operating Ownership Cost:	**$91.02/hr**	**$100.29/hr**	**+10.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$102.07/hr	$103.34/hr	+1.2%
Hourly Operating Costs	$91.02/hr	$100.29/hr	+10.2%
Total Hourly Cost	**$193.09**	**$203.63/hr**	**+5.5%**

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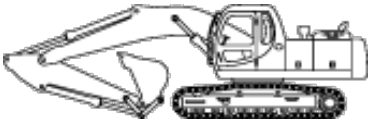
May 11, 2017

Caterpillar 374D L
Crawler Mounted Hydraulic Excavators



Size Class:
66.1 - 90.0 MTons
Weight:
160,627 lbs.

Configuration for 374D L

Net Horsepower	**476 hp**	Power Mode	**Diesel**
Bucket Capacity - Heaped	**5 cu yd**	Operating Weight	**72.8 mt**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$55.05/hr	$56.43/hr	+2.5%
Cost of Facilities Capital (CFC)	$9.48/hr	-	-
Overhead	$19.59/hr	-	-
Overhaul Labor	$24.89/hr	-	-
Overhaul Parts	$22.33/hr	-	-
Total Hourly Ownership Cost:	**$131.34/hr**	**$132.72/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$38.86/hr	-	-
Field Parts	$24.78/hr	-	-
Ground Engaging Component (GEC)	$3.97/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$49.43/hr	$62.83/hr	+27.1%
Lube	$11.47/hr	-	-
Total Operating Ownership Cost:	**$128.51/hr**	**$141.91/hr**	**+10.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$131.34/hr	$132.72/hr	+1.1%
Hourly Operating Costs	$128.51/hr	$141.91/hr	+10.4%
Total Hourly Cost	**$259.85**	**$274.63/hr**	**+5.7%**

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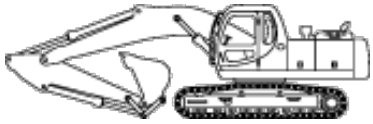
May 11, 2017

Caterpillar 390D L
Crawler Mounted Hydraulic Excavators



Size Class:
66.1 - 90.0 MTons
Weight:
190,016 lbs.

Configuration for 390D L

Bucket Capacity - Heaped	**6 cu yd**	Operating Weight	**87 mt**
Net Horsepower	**523 hp**	Power Mode	**Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$70.88/hr	$72.65/hr	+2.5%
Cost of Facilities Capital (CFC)	$12.20/hr	-	-
Overhead	$25.23/hr	-	-
Overhaul Labor	$24.89/hr	-	-
Overhaul Parts	$28.75/hr	-	-
Total Hourly Ownership Cost:	**$161.95/hr**	**$163.72/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$38.86/hr	-	-
Field Parts	$31.91/hr	-	-
Ground Engaging Component (GEC)	$5.11/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$54.31/hr	$69.04/hr	+27.1%
Lube	$13.84/hr	-	-
Total Operating Ownership Cost:	**$144.03/hr**	**$158.76/hr**	**+10.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$161.95/hr	$163.72/hr	+1.1%
Hourly Operating Costs	$144.03/hr	$158.76/hr	+10.2%
Total Hourly Cost	**$305.98**	**$322.48/hr**	**+5.4%**

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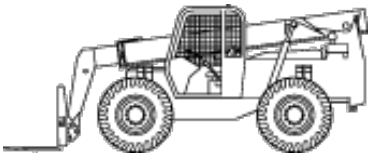
Custom Cost Evaluator

May 16, 2017

Caterpillar TL943C
Telescoping Boom Rough Terrain Lift Trucks



Size Class:
4.0 - 4.4 MTons
Weight:
N/A

Configuration for TL943C

Base Capacity	**9000 lbs**	Power Mode	**Diesel**
Maximum Lift Height	**43 ft**	Maximum Reach	**31.5'**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$9.55/hr	$9.86/hr	+3.2%
Cost of Facilities Capital (CFC)	$1.00/hr	-	-
Overhead	$3.63/hr	-	-
Overhaul Labor	$8.04/hr	-	-
Overhaul Parts	$6.81/hr	-	-
Total Hourly Ownership Cost:	**$29.03/hr**	**$29.34/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.40/hr	-	-
Field Parts	$4.58/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$1.48/hr	-	-
Electrical/Fuel	$7.19/hr	$9.38/hr	+30.5%
Lube	$1.52/hr	-	-
Total Operating Ownership Cost:	**$23.17/hr**	**$25.36/hr**	**+9.5%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$29.03/hr	$29.34/hr	+1.1%
Hourly Operating Costs	$23.17/hr	$25.36/hr	+9.5%
Total Hourly Cost	**$52.20**	**$54.70/hr**	**+4.8%**

Revised Date: 1st Half 2017

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All prices shown in US$

AED Green Book®

May 16, 2017

Airman SDG25S
Large Generator Sets

Size Class:
20 - 50 KW
Weight:
N/A

Configuration for SDG25S

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$1,732.00	$632.00	$211.00
Adjustments			
Region (California: 116%)	$277.12	$101.12	$33.76
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$2,009.12**	**$733.12**	**$244.76**

Date Last Updated: Nov 06, 2016

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All prices shown in US$

AED Green Book®

May 16, 2017

Atlas Copco QAS14
Small Generator Sets

Size Class:
10,001 - 15,000 Watts
Weight:
N/A

Configuration for QAS14

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$1,015.00	$364.00	$102.00
Adjustments			
Region (California: 122%)	$223.30	$80.08	$22.44
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$1,238.30**	**$444.08**	**$124.44**

Date Last Updated: Nov 06, 2016

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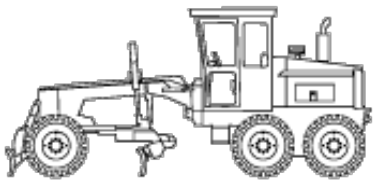
Custom Cost Evaluator

May 15, 2017

Case 865
Articulated Frame Graders

Size Class:
170 - 199 HP
Weight:
32,265 lbs.



Configuration for 865

Moldboard Size	**13 ft**	Net Horsepower	**180 hp**
Power Mode	**Diesel**	Operator Protection	**EROPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.18/hr	$14.56/hr	+2.7%
Cost of Facilities Capital (CFC)	$3.51/hr	-	-
Overhead	$8.23/hr	-	-
Overhaul Labor	$7.29/hr	-	-
Overhaul Parts	$8.51/hr	-	-
Total Hourly Ownership Cost:	**$41.72/hr**	**$42.10/hr**	**+0.9%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$6.07/hr	-	-
Field Parts	$7.89/hr	-	-
Ground Engaging Component (GEC)	$0.69/hr	-	-
Tire	$3.48/hr	-	-
Electrical/Fuel	$13.59/hr	$17.28/hr	+27.2%
Lube	$3.28/hr	-	-
Total Operating Ownership Cost:	**$35.00/hr**	**$38.69/hr**	**+10.5%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$41.72/hr	$42.10/hr	+0.9%
Hourly Operating Costs	$35.00/hr	$38.69/hr	+10.5%
Total Hourly Cost	**$76.72**	**$80.79/hr**	**+5.3%**

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May 15, 2017

Volvo L90G
4-Wd Articulated Wheel Loaders

Size Class:
150 - 174 HP
Weight:
33,150 lbs.

Configuration for L90G

Bucket Capacity - Heaped	**3.3 cu yd**	Net Horsepower	**173 hp**
Power Mode	**Diesel**	Operator Protection	**ROPS/FOPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.11/hr	$14.52/hr	+2.9%
Cost of Facilities Capital (CFC)	$2.86/hr	-	-
Overhead	$6.25/hr	-	-
Overhaul Labor	$4.12/hr	-	-
Overhaul Parts	$4.32/hr	-	-
Total Hourly Ownership Cost:	**$31.66/hr**	**$32.07/hr**	**+1.3%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$5.10/hr	-	-
Field Parts	$4.21/hr	-	-
Ground Engaging Component (GEC)	$0.56/hr	-	-
Tire	$2.84/hr	-	-
Electrical/Fuel	$13.06/hr	$16.61/hr	+27.2%
Lube	$2.84/hr	-	-
Total Operating Ownership Cost:	**$28.61/hr**	**$32.16/hr**	**+12.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$31.66/hr	$32.07/hr	+1.3%
Hourly Operating Costs	$28.61/hr	$32.16/hr	+12.4%
Total Hourly Cost	**$60.27**	**$64.23/hr**	**+6.6%**

Revised Date: 2nd Half 2016

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May 15, 2017

Volvo L150D (disc. 2002)
4-Wd Articulated Wheel Loaders

Size Class:
225 - 249 HP
Weight:
52,205 lbs.

Configuration for L150D (disc. 2002)

Bucket Capacity - Heaped	**5.25 cu yd**	Net Horsepower	**249 hp**
Power Mode	**Diesel**	Operator Protection	**EROPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.56/hr	$14.99/hr	+3%
Cost of Facilities Capital (CFC)	$3.04/hr	-	-
Overhead	$2.09/hr	-	-
Overhaul Labor	$4.12/hr	-	-
Overhaul Parts	$6.56/hr	-	-
Total Hourly Ownership Cost:	**$30.37/hr**	**$30.80/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$5.10/hr	-	-
Field Parts	$6.32/hr	-	-
Ground Engaging Component (GEC)	$0.60/hr	-	-
Tire	$5.03/hr	-	-
Electrical/Fuel	$18.92/hr	$24.05/hr	+27.1%
Lube	$3.52/hr	-	-
Total Operating Ownership Cost:	**$39.49/hr**	**$44.62/hr**	**+13%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$30.37/hr	$30.80/hr	+1.4%
Hourly Operating Costs	$39.49/hr	$44.62/hr	+13%
Total Hourly Cost	**$69.86**	**$75.42/hr**	**+8%**

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May 11, 2017

Volvo L350F
4-Wd Articulated Wheel Loaders

Size Class:
500 - 999 HP
Weight:
109,820 lbs.

Configuration for L350F

Bucket Capacity - Heaped	**8.6 cu yd**	Net Horsepower	**528 hp**
Power Mode	**Diesel**	Operator Protection	**ROPS/FOPS**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$53.09/hr	$54.56/hr	+2.8%
Cost of Facilities Capital (CFC)	$11.16/hr	-	-
Overhead	$25.42/hr	-	-
Overhaul Labor	$9.80/hr	-	-
Overhaul Parts	$14.33/hr	-	-
Total Hourly Ownership Cost:	**$113.80/hr**	**$115.27/hr**	**+1.3%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$11.96/hr	-	-
Field Parts	$15.81/hr	-	-
Ground Engaging Component (GEC)	$2.15/hr	-	-
Tire	$15.51/hr	-	-
Electrical/Fuel	$39.87/hr	$50.69/hr	+27.1%
Lube	$10.11/hr	-	-
Total Operating Ownership Cost:	**$95.41/hr**	**$106.23/hr**	**+11.3%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$113.80/hr	$115.27/hr	+1.3%
Hourly Operating Costs	$95.41/hr	$106.23/hr	+11.3%
Total Hourly Cost	**$209.21**	**$221.50/hr**	**+5.9%**

Revised Date: 2nd Half 2016

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May 16, 2017

Genie S-60 X
I.C. Self Propelled Telescopic Boom Aerial Lifts

Size Class:
51 - 60 ft
Weight:
N/A

Configuration for S-60 X

Power Mode	**Gasoline/LPG**	Drive	**4WD**
Maximum Platform Height	**700 in**	Maximum Platform Capacity	**500 lbs**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$12.59/hr	$12.95/hr	+2.9%
Cost of Facilities Capital (CFC)	$1.01/hr	-	-
Overhead	$2.70/hr	-	-
Overhaul Labor	$8.04/hr	-	-
Overhaul Parts	$5.47/hr	-	-
Total Hourly Ownership Cost:	**$29.81/hr**	**$30.17/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.29/hr	-	-
Field Parts	$2.26/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.73/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$0.86/hr	-	-
Total Operating Ownership Cost:	**$12.14/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$29.81/hr	$30.17/hr	+1.2%
Hourly Operating Costs	$12.14/hr	-	-
Total Hourly Cost	**$41.95**	**$42.31/hr**	**+0.9%**

Revised Date: 1st Half 2017

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Custom Cost Evaluator

May 16, 2017

Genie S-80X
I.C. Self Propelled Telescopic Boom Aerial Lifts

Size Class:
71 - 80 ft
Weight:
N/A

Configuration for S-80X

Power Mode **Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.88/hr	$15.31/hr	+2.9%
Cost of Facilities Capital (CFC)	$1.20/hr	-	-
Overhead	$3.26/hr	-	-
Overhaul Labor	$12.22/hr	-	-
Overhaul Parts	$6.35/hr	-	-
Total Hourly Ownership Cost:	**$37.91/hr**	**$38.34/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$12.75/hr	-	-
Field Parts	$2.87/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.81/hr	-	-
Electrical/Fuel	$4.49/hr	$5.86/hr	+30.5%
Lube	$1.47/hr	-	-
Total Operating Ownership Cost:	**$22.39/hr**	**$23.76/hr**	**+6.1%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$37.91/hr	$38.34/hr	+1.1%
Hourly Operating Costs	$22.39/hr	$23.76/hr	+6.1%
Total Hourly Cost	**$60.30**	**$62.10/hr**	**+3%**

Revised Date: 1st Half 2017

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Custom Cost Evaluator

May 16, 2017

Miscellaneous 6
Acetylene Torches

Size Class:
All
Weight:
18 lbs.

Configuration for 6

Welding Size	**1 in**	Cutting Size	**6 in**
Hose Size	**3/16" X 20'**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$0.28/hr	$0.29/hr	+3.6%
Cost of Facilities Capital (CFC)	$0.01/hr	-	-
Overhead	$0.01/hr	-	-
Overhaul Labor	$0.00/hr	-	-
Overhaul Parts	$0.00/hr	-	-
Total Hourly Ownership Cost:	**$0.30/hr**	**$0.31/hr**	**+3.3%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$0.08/hr	-	-
Field Parts	$0.05/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$0.00/hr	-	-
Lube	$0.00/hr	-	-
Total Operating Ownership Cost:	**$0.13/hr**	**-**	**-**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$0.30/hr	$0.31/hr	+3.3%
Hourly Operating Costs	$0.13/hr	-	-
Total Hourly Cost	**$0.43**	**$0.44/hr**	**+2.3%**

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Rental Rate Blue Book®

May 11, 2017

Miscellaneous WETBATCH 30"
Concrete Rail Cars

Size Class:
All
Weight:
3,000 lbs.

Configuration for WETBATCH 30"

Capcity	**3 cu yd**	Rail Gauge	**30**
Batch Type	**Wet**		

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$910.00	$255.00	$64.00	$10.00	$7.75	$12.92
Adjustments						
Region (Redding: 100.4%)	$3.64	$1.02	$0.26	$0.04		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$913.64**	**$256.02**	**$64.26**	**$10.04**	**$7.75**	**$12.94**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	40%	$364.00/mo
Overhaul (ownership)	43%	$391.30/mo
CFC (ownership)	5%	$45.50/mo
Indirect (ownership)	12%	$109.20/mo

Fuel cost data is not available for these rates.

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Rental Rate Blue Book®

May 15, 2017

Miscellaneous BOW & STERN SECTIONS
Sectional Barges

Size Class:
All
Weight:
N/A

Configuration for BOW & STERN SECTIONS

Type	**Bow & Stern Sections**	Power Mode	**Manual**

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$225.00	$63.00	$16.00	$2.00	$0.30	$1.58
Adjustments						
Region (Redding: 98.4%)	($3.60)	($1.01)	($0.26)	($0.03)		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$221.40**	**$61.99**	**$15.74**	**$1.97**	**$0.30**	**$1.56**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	54%	$121.50/mo
Overhaul (ownership)	16%	$36.00/mo
CFC (ownership)	7%	$15.75/mo
Indirect (ownership)	23%	$51.75/mo

Fuel cost data is not available for these rates.

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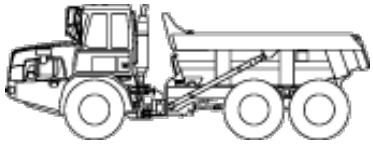
Custom Cost Evaluator

May 11, 2017

Caterpillar 730
Articulated Rear Dumps

Size Class:
26 - 29 MTons
Weight:
50,376 lbs.



Configuration for 730

Body Capacity (Struck--Heaped)	**16.9 cu yd - 22.1 cu yd**	Axle Configuration	**6 X 6**
Net Horsepower	**317 hp**	Power Mode	**Diesel**
Rated Payload	**28.1 mt**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$24.28/hr	$24.87/hr	+2.4%
Cost of Facilities Capital (CFC)	$4.18/hr	-	-
Overhead	$9.73/hr	-	-
Overhaul Labor	$15.32/hr	-	-
Overhaul Parts	$8.56/hr	-	-
Total Hourly Ownership Cost:	**$62.07/hr**	**$62.66/hr**	**+1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$12.10/hr	-	-
Field Parts	$5.28/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$7.06/hr	-	-
Electrical/Fuel	$14.96/hr	$19.02/hr	+27.1%
Lube	$5.52/hr	-	-
Total Operating Ownership Cost:	**$44.92/hr**	**$48.98/hr**	**+9%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$62.07/hr	$62.66/hr	+1%
Hourly Operating Costs	$44.92/hr	$48.98/hr	+9%
Total Hourly Cost	**$106.99**	**$111.64/hr**	**+4.3%**

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May 15, 2017

Miscellaneous 4X4 10KGVW GAS
On-Highway Flatbed Trucks

Size Class:
6,001 - 10,000 GVW
Weight:
N/A

Configuration for 4X4 10KGVW GAS

Maximum Gross Vehicle Weight	**10000 lbs**	Axle Configuration	**4X4**
Power Mode	**Gasoline**	Horsepower	**220**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$2.49/hr	$2.56/hr	+2.8%
Cost of Facilities Capital (CFC)	$0.32/hr	-	-
Overhead	$0.61/hr	-	-
Overhaul Labor	$0.80/hr	-	-
Overhaul Parts	$0.72/hr	-	-
Total Hourly Ownership Cost:	**$4.94/hr**	**$5.01/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$1.29/hr	-	-
Field Parts	$0.90/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.52/hr	-	-
Electrical/Fuel	$17.30/hr	$22.18/hr	+28.2%
Lube	$2.00/hr	-	-
Total Operating Ownership Cost:	**$22.01/hr**	**$26.89/hr**	**+22.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$4.94/hr	$5.01/hr	+1.4%
Hourly Operating Costs	$22.01/hr	$26.89/hr	+22.2%
Total Hourly Cost	**$26.95**	**$31.90/hr**	**+18.4%**

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May 15, 2017

Miscellaneous 4X4 3/4 165 CONV GAS
On-Highway Light Duty Trucks

Size Class:
100 - 199 HP
Weight:
4,500 lbs.

Configuration for 4X4 3/4 165 CONV GAS

Ton Rating	**3/4**	Power Mode	**Gasoline**
Horsepower	**165**	Axle Configuration	**4X4**
Cab Type	**Conventional**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$2.61/hr	$2.67/hr	+2.3%
Cost of Facilities Capital (CFC)	$0.22/hr	-	-
Overhead	$0.42/hr	-	-
Overhaul Labor	$0.77/hr	-	-
Overhaul Parts	$0.60/hr	-	-
Total Hourly Ownership Cost:	**$4.62/hr**	**$4.68/hr**	**+1.3%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$0.96/hr	-	-
Field Parts	$0.58/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.42/hr	-	-
Electrical/Fuel	$7.34/hr	$9.41/hr	+28.2%
Lube	$0.89/hr	-	-
Total Operating Ownership Cost:	**$10.19/hr**	**$12.26/hr**	**+20.3%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$4.62/hr	$4.68/hr	+1.3%
Hourly Operating Costs	$10.19/hr	$12.26/hr	+20.3%
Total Hourly Cost	**$14.81**	**$16.94/hr**	**+14.4%**

Revised Date: 2nd Half 2016

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Custom Cost Evaluator

May 15, 2017

Miscellaneous 6X4 75KGVW DSL
On-Highway Truck Tractors

Size Class:
60,001 GVW & Over
Weight:
19,688 lbs.

Configuration for 6X4 75KGVW DSL

Maximum Gross Vehicle Weight	**75000 lbs**	Power Mode	**Diesel**
Horsepower	**400**	Axle Configuration	**6X4**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$11.01/hr	$11.28/hr	+2.5%
Cost of Facilities Capital (CFC)	$1.31/hr	-	-
Overhead	$2.76/hr	-	-
Overhaul Labor	$4.70/hr	-	-
Overhaul Parts	$3.27/hr	-	-
Total Hourly Ownership Cost:	**$23.05/hr**	**$23.32/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$6.92/hr	-	-
Field Parts	$3.67/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$2.54/hr	-	-
Electrical/Fuel	$23.13/hr	$29.40/hr	+27.1%
Lube	$3.45/hr	-	-
Total Operating Ownership Cost:	**$39.71/hr**	**$45.98/hr**	**+15.8%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$23.05/hr	$23.32/hr	+1.2%
Hourly Operating Costs	$39.71/hr	$45.98/hr	+15.8%
Total Hourly Cost	**$62.76**	**$69.30/hr**	**+10.4%**

Revised Date: 2nd Half 2016

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AED Green Book®

May 16, 2017

Tsurumi HS3.75S-61
Submersible Trash Pumps

Size Class:
3.0 & 4.0 Inch
Weight:
N/A

Configuration for HS3.75S-61

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$598.00	$211.00	$60.00
Adjustments			
Region (California: 114%)	$83.72	$29.54	$8.40
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$681.72**	**$240.54**	**$68.40**

Date Last Updated: Aug 14, 2016

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All prices shown in US$

AED Green Book®

May 16, 2017

Godwin CD150M 6"
Self Priming Trash Pumps

Size Class:
6" & Over
Weight:
N/A

Configuration for CD150M 6"

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$2,509.00	$911.00	$323.00
Adjustments			
Region (California: 113%)	$326.17	$118.43	$41.99
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$2,835.17**	**$1,029.43**	**$364.99**

Date Last Updated: Nov 06, 2016

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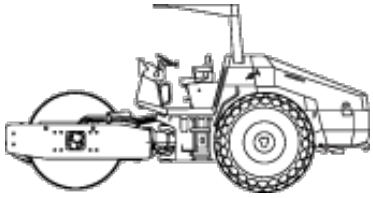
Custom Cost Evaluator

May 13, 2017

Caterpillar CS-533E
Single Drum Vibratory Compactors

Size Class:
8.0 - 11.9 MTons
Weight:
23,120 lbs.



Configuration for CS-533E

Net Horsepower	**124 hp**	Power Mode	**Diesel**
Drum Type	**Smooth**	Drum Width	**84 in**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$12.67/hr	$13.12/hr	+3.6%
Cost of Facilities Capital (CFC)	$1.77/hr	-	-
Overhead	$5.73/hr	-	-
Overhaul Labor	$2.06/hr	-	-
Overhaul Parts	$3.13/hr	-	-
Total Hourly Ownership Cost:	**$25.36/hr**	**$25.81/hr**	**+1.8%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$6.18/hr	-	-
Field Parts	$10.18/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.82/hr	-	-
Electrical/Fuel	$7.42/hr	$9.67/hr	+30.3%
Lube	$3.36/hr	-	-
Total Operating Ownership Cost:	**$27.96/hr**	**$30.21/hr**	**+8%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$25.36/hr	$25.81/hr	+1.8%
Hourly Operating Costs	$27.96/hr	$30.21/hr	+8%
Total Hourly Cost	**$53.32**	**$56.02/hr**	**+5.1%**

Revised Date: 1st Half 2017

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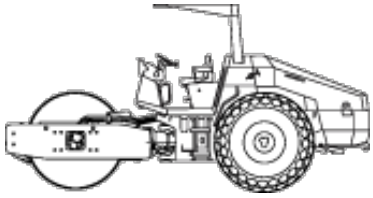
May 13, 2017

Caterpillar CP-64
Single Drum Vibratory Compactors

Size Class:
12.0 - 14.9 MTons
Weight:
31,550 lbs.



Configuration for CP-64

Power Mode	**Diesel**	Net Horsepower	**143 hp**
Drum Type	**Padfoot**	Drum Width	**84 in**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$18.06/hr	$18.70/hr	+3.5%
Cost of Facilities Capital (CFC)	$2.53/hr	-	-
Overhead	$6.42/hr	-	-
Overhaul Labor	$2.06/hr	-	-
Overhaul Parts	$4.47/hr	-	-
Total Hourly Ownership Cost:	**$33.54/hr**	**$34.18/hr**	**+1.9%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$7.21/hr	-	-
Field Parts	$14.52/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$1.17/hr	-	-
Electrical/Fuel	$8.55/hr	$11.15/hr	+30.4%
Lube	$4.56/hr	-	-
Total Operating Ownership Cost:	**$36.01/hr**	**$38.61/hr**	**+7.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$33.54/hr	$34.18/hr	+1.9%
Hourly Operating Costs	$36.01/hr	$38.61/hr	+7.2%
Total Hourly Cost	**$69.55**	**$72.79/hr**	**+4.7%**

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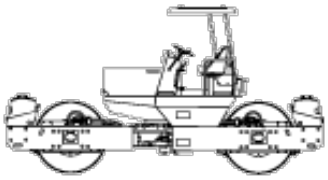
May 11, 2017

Caterpillar CB-14 XW
Tandem Vibratory Compactors

Size Class:
1.8 - 2.9 MTons
Weight:
4,057 lbs.



Configuration for CB-14 XW

Net Horsepower **21 hp**

Power Mode **Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$3.26/hr	$3.36/hr	+3.1%
Cost of Facilities Capital (CFC)	$0.50/hr	-	-
Overhead	$1.50/hr	-	-
Overhaul Labor	$4.67/hr	-	-
Overhaul Parts	$2.17/hr	-	-
Total Hourly Ownership Cost:	**$12.10/hr**	**$12.20/hr**	**+0.8%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$4.00/hr	-	-
Field Parts	$1.66/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$1.14/hr	$1.48/hr	+29.8%
Lube	$1.20/hr	-	-
Total Operating Ownership Cost:	**$8.00/hr**	**$8.34/hr**	**+4.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$12.10/hr	$12.20/hr	+0.8%
Hourly Operating Costs	$8.00/hr	$8.34/hr	+4.2%
Total Hourly Cost	**$20.10**	**$20.54/hr**	**+2.2%**

Revised Date: 1st Half 2017

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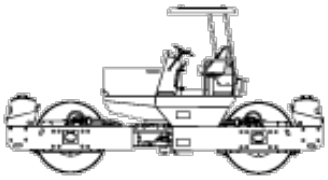
Custom Cost Evaluator

May 11, 2017

Caterpillar CB-434D XW
Tandem Vibratory Compactors

Size Class:
5.0 - 7.9 MTons
Weight:
16,975 lbs.



Configuration for CB-434D XW

Net Horsepower **78 hp**

Power Mode **Diesel**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$12.85/hr	$13.24/hr	+3%
Cost of Facilities Capital (CFC)	$1.95/hr	-	-
Overhead	$5.91/hr	-	-
Overhaul Labor	$7.67/hr	-	-
Overhaul Parts	$11.65/hr	-	-
Total Hourly Ownership Cost:	**$40.03/hr**	**$40.42/hr**	**+1%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$7.00/hr	-	-
Field Parts	$8.93/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$4.22/hr	$5.50/hr	+30.3%
Lube	$2.92/hr	-	-
Total Operating Ownership Cost:	**$23.07/hr**	**$24.35/hr**	**+5.5%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$40.03/hr	$40.42/hr	+1%
Hourly Operating Costs	$23.07/hr	$24.35/hr	+5.5%
Total Hourly Cost	**$63.10**	**$64.77/hr**	**+2.6%**

Revised Date: 1st Half 2017

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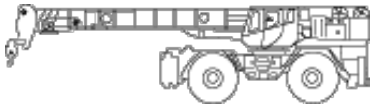
May 15, 2017

Grove RT58D
Rough Terrain Hydraulic Cranes



Size Class:
17.0 - 24.9 MTons
Weight:
44,120 lbs.

Configuration for RT58D

Maximum Lift Capacity	**18.1 mt**	Net Horsepower	**125 hp**
Power Mode	**Diesel**	Maximum Boom Length	**70 ft**
Axle Configuration	**4 X 4 X 4**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$18.66/hr	$19.28/hr	+3.3%
Cost of Facilities Capital (CFC)	$2.18/hr	-	-
Overhead	$5.04/hr	-	-
Overhaul Labor	$6.77/hr	-	-
Overhaul Parts	$10.54/hr	-	-
Total Hourly Ownership Cost:	**$43.19/hr**	**$43.81/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$6.09/hr	-	-
Field Parts	$11.11/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$3.21/hr	-	-
Electrical/Fuel	$10.64/hr	$13.88/hr	+30.5%
Lube	$3.42/hr	-	-
Total Operating Ownership Cost:	**$34.47/hr**	**$37.71/hr**	**+9.4%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$43.19/hr	$43.81/hr	+1.4%
Hourly Operating Costs	$34.47/hr	$37.71/hr	+9.4%
Total Hourly Cost	**$77.66**	**$81.52/hr**	**+5%**

Revised Date: 1st Half 2017

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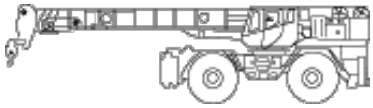
Custom Cost Evaluator

May 15, 2017

Grove RT640E
Rough Terrain Hydraulic Cranes



Size Class:
35.0 - 39.9 MTons
Weight:
72,254 lbs.

Configuration for RT640E

Net Horsepower	**165 hp**	Power Mode	**Diesel**
Maximum Lift Capacity	**36.3 mt**	Maximum Boom Length	**105 ft**
Axle Configuration	**4 X 4 X 4**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$23.65/hr	$24.44/hr	+3.3%
Cost of Facilities Capital (CFC)	$3.47/hr	-	-
Overhead	$8.20/hr	-	-
Overhaul Labor	$8.46/hr	-	-
Overhaul Parts	$15.72/hr	-	-
Total Hourly Ownership Cost:	**$59.50/hr**	**$60.29/hr**	**+1.3%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.46/hr	-	-
Field Parts	$18.08/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$5.93/hr	-	-
Electrical/Fuel	$14.04/hr	$18.31/hr	+30.4%
Lube	$5.23/hr	-	-
Total Operating Ownership Cost:	**$51.74/hr**	**$56.01/hr**	**+8.3%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$59.50/hr	$60.29/hr	+1.3%
Hourly Operating Costs	$51.74/hr	$56.01/hr	+8.3%
Total Hourly Cost	**$111.24**	**$116.30/hr**	**+4.5%**

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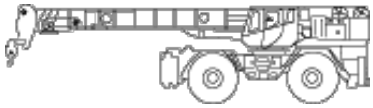
May 15, 2017

Grove RT700E
Rough Terrain Hydraulic Cranes



Size Class:
50.0 - 65.9 MTons
Weight:
89,906 lbs.

Configuration for RT700E

Maximum Lift Capacity	**50 mt**	Maximum Boom Length	**110 ft**
Net Horsepower	**240 hp**	Power Mode	**Diesel**
Axle Configuration	**4 X 4 X 4**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$24.84/hr	$25.68/hr	+3.4%
Cost of Facilities Capital (CFC)	$3.89/hr	-	-
Overhead	$9.23/hr	-	-
Overhaul Labor	$9.13/hr	-	-
Overhaul Parts	$14.48/hr	-	-
Total Hourly Ownership Cost:	**$61.57/hr**	**$62.41/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.80/hr	-	-
Field Parts	$20.35/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$6.67/hr	-	-
Electrical/Fuel	$22.63/hr	$29.52/hr	+30.4%
Lube	$6.57/hr	-	-
Total Operating Ownership Cost:	**$65.02/hr**	**$71.91/hr**	**+10.6%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$61.57/hr	$62.41/hr	+1.4%
Hourly Operating Costs	$65.02/hr	$71.91/hr	+10.6%
Total Hourly Cost	**$126.59**	**$134.32/hr**	**+6.1%**

Revised Date: 1st Half 2017

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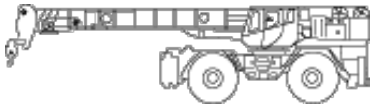
May 15, 2017

Grove RT890E
Rough Terrain Hydraulic Cranes



Size Class:
81.0 - 110.9 MTons
Weight:
115,372 lbs.

Configuration for RT890E

Axle Configuration	**4 X 4 X 4**	Maximum Boom Length	**142 ft**
Net Horsepower	**275 hp**	Power Mode	**Diesel**
Maximum Lift Capacity	**81.6 mt**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$37.58/hr	$38.84/hr	+3.4%
Cost of Facilities Capital (CFC)	$5.86/hr	-	-
Overhead	$13.91/hr	-	-
Overhaul Labor	$13.53/hr	-	-
Overhaul Parts	$21.80/hr	-	-
Total Hourly Ownership Cost:	**$92.68/hr**	**$93.94/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$13.53/hr	-	-
Field Parts	$30.65/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$9.42/hr	-	-
Electrical/Fuel	$25.93/hr	$33.83/hr	+30.5%
Lube	$9.09/hr	-	-
Total Operating Ownership Cost:	**$88.62/hr**	**$96.52/hr**	**+8.9%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$92.68/hr	$93.94/hr	+1.4%
Hourly Operating Costs	$88.62/hr	$96.52/hr	+8.9%
Total Hourly Cost	**$181.30**	**$190.46/hr**	**+5.1%**

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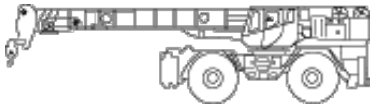
May 15, 2017

Grove RT9130E
Rough Terrain Hydraulic Cranes



Size Class:
111.0 - 139.9 MTons
Weight:
175,289 lbs.

Configuration for RT9130E

Axle Configuration	**4 X 4 X 4**	Maximum Boom Length	**160 ft**
Maximum Lift Capacity	**120 mt**	Net Horsepower	**300 hp**
Power Mode	**Diesel**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$50.99/hr	$52.69/hr	+3.3%
Cost of Facilities Capital (CFC)	$7.95/hr	-	-
Overhead	$18.87/hr	-	-
Overhaul Labor	$13.53/hr	-	-
Overhaul Parts	$29.58/hr	-	-
Total Hourly Ownership Cost:	**$120.92/hr**	**$122.62/hr**	**+1.4%**

User Defined Adjustments: Sales Tax (5.1% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$13.53/hr	-	-
Field Parts	$41.58/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$12.79/hr	-	-
Electrical/Fuel	$28.29/hr	$36.90/hr	+30.4%
Lube	$11.64/hr	-	-
Total Operating Ownership Cost:	**$107.83/hr**	**$116.44/hr**	**+8%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$120.92/hr	$122.62/hr	+1.4%
Hourly Operating Costs	$107.83/hr	$116.44/hr	+8%
Total Hourly Cost	**$228.75**	**$239.06/hr**	**+4.5%**

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Bowie IMPERIAL 3000
Seed Sprayers For Truck Mounting

Size Class:
1,001 gal & Over
Weight:
8,820 lbs.

Configuration for IMPERIAL 3000

Power Mode	**Diesel**	Horsepower	**127**
Working Capacity	**3000 gal**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$6.63/hr	$6.79/hr	+2.4%
Cost of Facilities Capital (CFC)	$0.77/hr	-	-
Overhead	$1.50/hr	-	-
Overhaul Labor	$2.43/hr	-	-
Overhaul Parts	$2.93/hr	-	-
Total Hourly Ownership Cost:	**$14.26/hr**	**$14.42/hr**	**+1.1%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$3.45/hr	-	-
Field Parts	$1.68/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$10.76/hr	$13.68/hr	+27.1%
Lube	$1.39/hr	-	-
Total Operating Ownership Cost:	**$17.28/hr**	**$20.20/hr**	**+16.9%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$14.26/hr	$14.42/hr	+1.1%
Hourly Operating Costs	$17.28/hr	$20.20/hr	+16.9%
Total Hourly Cost	**$31.54**	**$34.62/hr**	**+9.8%**

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Rental Rate Blue Book®

May 16, 2017

Miscellaneous 66HTWL
Hydraulic Bucket Thumbs

Size Class:
ALL
Weight:
N/A

Configuration for 66HTWL

Recommended Machine Weight	**50.1 mt - 66 mt**	Power Mode	**Hydraulic**
Type	**Wide**		

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$2,355.00	$660.00	$165.00	$25.00	$3.05	$16.43
Adjustments						
Region (Redding: 99.7%)	($7.07)	($1.98)	($0.50)	($0.08)		
Model Year (2017: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$2,347.93**	**$658.02**	**$164.50**	**$24.92**	**$3.05**	**$16.39**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	38%	$894.90/mo
Overhaul (ownership)	54%	$1,271.70/mo
CFC (ownership)	3%	$70.65/mo
Indirect (ownership)	5%	$117.75/mo

Fuel cost data is not available for these rates.

Revised Date: 2nd Half 2016

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May 15, 2017

Miscellaneous 250
Inland Tug Boats

Size Class:
To 299 HP
Weight:
8,300 lbs.

Configuration for 250

Length	**26 ft**	Horsepower	**250**
Power Mode	**Diesel**	Type	**w/Steering Nozzle**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$9.42/hr	$9.63/hr	+2.2%
Cost of Facilities Capital (CFC)	$1.31/hr	-	-
Overhead	$4.20/hr	-	-
Overhaul Labor	$4.96/hr	-	-
Overhaul Parts	$4.93/hr	-	-
Total Hourly Ownership Cost:	**$24.82/hr**	**$25.03/hr**	**+0.8%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$11.33/hr	-	-
Field Parts	$4.39/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$34.34/hr	$43.65/hr	+27.1%
Lube	$4.34/hr	-	-
Total Operating Ownership Cost:	**$54.40/hr**	**$63.71/hr**	**+17.1%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$24.82/hr	$25.03/hr	+0.8%
Hourly Operating Costs	$54.40/hr	$63.71/hr	+17.1%
Total Hourly Cost	**$79.22**	**$88.74/hr**	**+12%**

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May 15, 2017

American Piledriving 100 VIBRO
Vibratory Hammers/Extractors

Size Class:
75.0 - 99.9 Tons
Weight:
6,800 lbs.

Configuration for 100 VIBRO

Extraction Line Pull	**60 t**	Maximum Driving Force	**88 t**
Power Mode	**Diesel**	Horsepower	**240**

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$25.07/hr	$25.66/hr	+2.4%
Cost of Facilities Capital (CFC)	$2.91/hr	-	-
Overhead	$6.71/hr	-	-
Overhaul Labor	$4.72/hr	-	-
Overhaul Parts	$8.20/hr	-	-
Total Hourly Ownership Cost:	**$47.61/hr**	**$48.20/hr**	**+1.2%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$8.82/hr	-	-
Field Parts	$8.75/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$0.00/hr	-	-
Electrical/Fuel	$19.88/hr	$25.27/hr	+27.1%
Lube	$3.30/hr	-	-
Total Operating Ownership Cost:	**$40.75/hr**	**$46.14/hr**	**+13.2%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$47.61/hr	$48.20/hr	+1.2%
Hourly Operating Costs	$40.75/hr	$46.14/hr	+13.2%
Total Hourly Cost	**$88.36**	**$94.34/hr**	**+6.8%**

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Rental Rate Blue Book®

May 15, 2017

Ditch Witch 510 (disc. 1990)
Walk-Behind Chain Trenchers

Size Class:
To 14 HP
Weight:
275 lbs.

Configuration for 510 (disc. 1990)

Trench Width	**2 in**	Trench Depth	**10 in**
Power Mode	**Gasoline**	Horsepower	**4.6**

Blue Book Rates

** FHWA Rate is equal to the monthly ownership cost divided by 176 plus the hourly estimated operating cost.

	Ownership Costs				Estimated Operating Costs	FHWA Rate**
	Monthly	**Weekly**	**Daily**	**Hourly**	**Hourly**	**Hourly**
Published Rates	$295.00	$83.00	$21.00	$3.00	$2.40	$4.08
Adjustments						
Region (Redding: 99.7%)	($0.89)	($0.25)	($0.06)	($0.01)		
Model Year (1990: 100%)	-	-	-	-		
Ownership (100%)	-	-	-	-		
Operating (100%)					-	
Total:	**$294.11**	**$82.75**	**$20.94**	**$2.99**	**$2.40**	**$4.07**

Rate Element Allocation

Element	Percentage	Value
Depreciation (ownership)	27%	$79.65/mo
Overhaul (ownership)	65%	$191.75/mo
CFC (ownership)	3%	$8.85/mo
Indirect (ownership)	5%	$14.75/mo
Fuel (operating) @ 2.34	29%	$0.70/hr

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May 15, 2017

Miscellaneous 5000 150
Off-Highway Water Tanker Trucks

Size Class:
To 199 HP
Weight:
30,000 lbs.

Configuration for 5000 150

Power Mode	**Diesel**	Horsepower	**175**
Tank Capacity	**5000 gal**		

Hourly Ownership Costs

	Standard Value	User Adjusted Value	Variance
Depreciation	$14.75/hr	$15.15/hr	+2.7%
Cost of Facilities Capital (CFC)	$2.69/hr	-	-
Overhead	$4.68/hr	-	-
Overhaul Labor	$5.18/hr	-	-
Overhaul Parts	$3.63/hr	-	-
Total Hourly Ownership Cost:	**$30.93/hr**	**$31.33/hr**	**+1.3%**

User Defined Adjustments: Sales Tax (5.6% -> 7.8%)

Hourly Operating Costs

	Standard Value	User Adjusted Value	Variance
Field Labor	$11.33/hr	-	-
Field Parts	$6.84/hr	-	-
Ground Engaging Component (GEC)	$0.00/hr	-	-
Tire	$4.11/hr	-	-
Electrical/Fuel	$14.12/hr	$17.96/hr	+27.2%
Lube	$2.99/hr	-	-
Total Operating Ownership Cost:	**$39.39/hr**	**$43.23/hr**	**+9.7%**

User Defined Adjustments:

Total

	Standard Value	User Adjusted Value	Variance
Hourly Ownership Costs	$30.93/hr	$31.33/hr	+1.3%
Hourly Operating Costs	$39.39/hr	$43.23/hr	+9.7%
Total Hourly Cost	**$70.32**	**$74.56/hr**	**+6%**

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May 15, 2017

Lincoln Electric INVERTEC V130S
Portable Welders

Size Class:
To 200 amps
Weight:
N/A

Configuration for INVERTEC V130S

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$533.00	$216.00	$66.00
Adjustments			
Region (Florida: 95%)	($26.65)	($10.80)	($3.30)
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$506.35**	**$205.20**	**$62.70**

Date Last Updated: Nov 06, 2016

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All prices shown in US$

AED Green Book®

May 16, 2017

Airman PDS100S
Portable Rotary Screw Air Compressors

Size Class:
To 124 cfm
Weight:
1,956 lbs.

Configuration for PDS100S

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$873.00	$337.00	$101.00
Adjustments			
Region (California: 115%)	$130.95	$50.55	$15.15
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$1,003.95**	**$387.55**	**$116.15**

Date Last Updated: Aug 15, 2016

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AED Green Book®

May 16, 2017

Atlas Copco XAMS1000
Portable Rotary Screw Air Compressors

Size Class:
900 cfm & Over
Weight:
10,365 lbs.

Configuration for XAMS1000

AED Rental Rates

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	Monthly	Weekly	Daily
Published Rates	$6,163.00	$2,276.00	$840.00
Adjustments			
Region (California: 115%)	$924.45	$341.40	$126.00
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$7,087.45**	**$2,617.40**	**$966.00**

Date Last Updated: Nov 06, 2016

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AED Green Book®

May 16, 2017

Atlas Copco XAS185CD7
Portable Rotary Screw Air Compressors

Size Class:
125 - 249 cfm
Weight:
N/A

Configuration for XAS185CD7

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$1,064.00	$399.00	$120.00
Adjustments			
Region (California: 115%)	$159.60	$59.85	$18.00
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$1,223.60**	**$458.85**	**$138.00**

Date Last Updated: Nov 06, 2016

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All prices shown in US$

AED Green Book®

May 16, 2017

Doosan P600WCU
Portable Rotary Screw Air Compressors

Size Class:
600 - 899 cfm
Weight:
N/A

Configuration for P600WCU

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$3,327.00	$1,166.00	$445.00
Adjustments			
Region (California: 115%)	$499.05	$174.90	$66.75
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$3,826.05**	**$1,340.90**	**$511.75**

Date Last Updated: Aug 15, 2016

The equipment represented in this report has been exclusively prepared for DAVID CABAGE (david.cabage@aecom.com)

All prices shown in US$

AED Green Book®

May 16, 2017

APT 1133
Chipping Hammers Rivet Busters

Size Class:
All
Weight:
N/A

Configuration for 1133

AED Rental Rates

These rental rates reflect an average for equipment of this type and size. Rates shown for specific brands or models are provided for convenience only. Rates charged by rental companies for specific brands or models will vary depending on many factors

	Monthly	Weekly	Daily
Published Rates	$317.00	$124.00	$42.00
Adjustments			
Region (Florida: 91%)	($28.53)	($11.16)	($3.78)
User Defined			
Rental Rates (100%)	-	-	-
Total:	**$288.47**	**$112.84**	**$38.22**

Date Last Updated: Aug 15, 2016

The equipment represented in this report has been exclusively prepared for DAVID CABAGE (david.cabage@aecom.com)

- Appendix D -
DAVIS BACON WAGE DETERMINATION

General Decision Number: CA170009 05/05/2017 CA9

Superseded General Decision Number: CA20160009

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Marin, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba Counties in California.

BUILDING CONSTRUCTION PROJECTS (excluding Amador County only); DREDGING CONSTRUCTION PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); AND HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/20/2017
2	01/27/2017
3	02/17/2017
4	03/31/2017
5	04/07/2017
6	04/14/2017
7	04/21/2017
8	05/05/2017

ASBE0016-001 01/01/2017

AREA 1: MARIN, NAPA, SAN BENITO, SAN FRANCISCO, SOLANO, & SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHEMA, TRINITY, YOLO, & YUBA COUNTIES

	Rates	Fringes
Asbestos Workers/Insulator		

(Includes the application of
all insulating materials,
Protective Coverings,
Coatings, and Finishes to all
types of mechanical systems)
Area 1.....$ 62.36 22.98
Area 2.....$ 46.96 23.10

ASBE0016-007 01/01/2017

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

AREA 2: MARIN & NAPA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
AREA 1	$ 28.20	8.95
AREA 2	$ 32.98	8.95

BOIL0549-002 10/01/2016

	Rates	Fringes
BOILERMAKER		
(1) Marin & Solano Counties	$ 43.28	37.91
(2) Remaining Counties	$ 39.68	35.71

BRCA0003-001 02/01/2017

	Rates	Fringes
MARBLE FINISHER	$ 31.17	14.99

BRCA0003-004 05/01/2016

AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
BRICKLAYER		

AREA 1.....$ 38.21 20.71
AREA 2.....$ 40.89 25.78

SPECIALTY PAY:
(A) Underground work such as tunnel work, sewer work, manholes, catch basins, sewer pipes and telephone conduit shall be paid $1.25 per hour above the regular rate. Work in direct contact with raw sewage shall receive $1.25 per hour in addition to the above.
(B) Operating a saw or grinder shall receive $1.25 per hour above the regular rate.
(C) Gunite nozzle person shall receive $1.25 per hour above the regular rate.

BRCA0003-008 07/01/2016

	Rates	Fringes
TERRAZZO FINISHER	$ 34.43	16.58
TERRAZZO WORKER/SETTER	$ 42.41	26.31

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* BRCA0003-010 04/01/2017

	Rates	Fringes
TILE FINISHER		
Area 1	$ 25.08	12.97
Area 2	$ 24.68	15.55
Area 3	$ 27.48	15.45
Area 4	$ 25.60	14.90
Tile Layer		
Area 1	$ 41.81	15.62
Area 2	$ 40.06	17.43
Area 3	$ 45.80	17.5
Area 4	$ 42.67	17.46

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehema, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 02/01/2017

	Rates	Fringes
MARBLE MASON	$ 41.77	26.76

CARP0034-001 07/01/2016

	Rates	Fringes
Diver		
Assistant Tender, ROV		
Tender/Technician	$ 43.65	31.40
Diver standby	$ 48.61	31.40
Diver Tender	$ 47.82	31.40

Diver wet.....$ 93.17 31.40
Manifold Operator (mixed gas).....$ 52.82 31.40
Manifold Operator (Standby).$ 47.82 31.40

DEPTH PAY (Surface Diving):
050 to 100 ft $2.00 per foot
101 to 150 ft $3.00 per foot
151 to 220 ft $4.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2016

	Rates	Fringes
Piledriver	$ 44.65	31.40

CARP0035-001 08/01/2016

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO, WESTERN EL DORADO (Territory west of an including highway 49 and the territory inside the city limits of Placerville), WESTERN PLACER (Territory west of and including highway 49), & YOLO

AREA 4: ALPINE, BUTTE, COLUSA, EASTERN EL DORADO, GLENN, LASSEN, MODOC, NEVADA, EASTERN PLACER, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, & YUBA

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1	$ 44.40	28.64
Area 3	$ 39.02	28.64
Area 4	$ 37.67	28.64
Drywall Stocker/Scrapper		

Area 1	$ 22.20	16.57
Area 3	$ 19.51	16.57
Area 4	$ 18.84	16.57

CARP0035-009 07/01/2016

Marin County

	Rates	Fringes
CARPENTER		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 44.55	28.20
Journeyman Carpenter	$ 44.40	28.20
Millwright	$ 44.50	29.79

CARP0035-010 07/01/2016

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Monterey, San Benito and Santa Cruz

AREA 3: Alpine, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo & Yuba counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer I	$ 24.91	19.63
Installer II	$ 21.48	19.63
Lead Installer	$ 28.36	20.13
Master Installer	$ 32.58	20.13
Area 2		
Installer I	$ 22.26	19.63
Installer II	$ 19.31	19.63
Lead Installer	$ 25.23	20.13
Master Installer	$ 28.86	20.13
Area 3		
Installer I	$ 21.31	19.63
Installer II	$ 18.54	19.63
Lead Installer	$ 24.11	20.13
Master Installer	$ 31.13	20.13

CARP0046-001 07/01/2016

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20

Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 38.67 28.20
Journeyman Carpenter.....$ 38.52 28.20
Millwright.....$ 41.02 29.79

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-002 07/01/2016

Alpine, Colusa, El Dorado (East), Nevada, Placer (East), Sierra, Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 37.32	28.20
Journeyman Carpenter	$ 37.17	28.20
Millwright	$ 39.67	29.79

CARP0152-003 07/01/2016

Amador County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 37.32	28.20
Journeyman Carpenter	$ 37.17	28.20
Millwright	$ 39.67	29.79

CARP0180-001 07/01/2016

Solano County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer,		

Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 44.55 28.20
Journeyman Carpenter.....$ 44.40 28.20
Millwright.....$ 44.50 29.79

CARP0751-001 07/01/2016

Napa and Sonoma Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 44.55	28.20
Journeyman Carpenter	$ 44.40	28.20
Millwright	$ 44.50	29.79

CARP1599-001 07/01/2016

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama and Trinity Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 44.40	28.20
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 37.32	28.20
Journeyman Carpenter	$ 37.17	28.20
Millwright	$ 39.67	29.79

ELEC0180-001 06/01/2016

NAPA AND SOLANO COUNTIES

	Rates	Fringes
CABLE SPLICER	$ 50.97	3%+20.13
ELECTRICIAN	$ 46.31	22.52

ELEC0180-003 12/01/2016

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Sound & Communications Installer	$ 35.07	3%+17.55

Technician	$ 39.93	3%+17.55

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0340-002 12/01/2016

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
Communications System		
Sound & Communications Installer	$ 28.35	3%+14.46
Sound & Communications Technician	$ 32.60	3%+14.46

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS
Background foreground music Intercom and telephone interconnect systems, Telephone systems, Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide.

B. FIRE ALARM SYSTEMS
Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems, Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

ELEC0340-003 02/01/2016

ALPINE (West of Sierra Mt. Watershed), AMADOR, BUTTE, COLUSA, EL DORADO (West of Sierra Mt. Watershed), GLENN, LASSEN, NEVADA (West of Sierra Mt. Watershed), PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA (West of Sierra Mt. Watershed), SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Remaining area	$ 39.06	24.51
Sierra Army Depot, Herlong	$ 48.83	18.54
Tunnel work	$ 41.01	18.54

CABLE SPLICER: Receives 110% of the Electrician basic hourly rate.

ELEC0401-005 07/01/2016

ALPINE (east of the main watershed divide), EL DORADO (east of the main watershed divide), NEVADA (east of the main watershed), PLACER (east of the main watershed divide) and SIERRA (east of the main watershed divide) COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 38.50	16.82

ELEC0551-004 06/01/2016

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 47.40	19.78

ELEC0551-005 12/01/2016

MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 35.07	18.91
Technician	$ 39.33	19.04

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0659-006 01/01/2017

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 31.70	13.53

ELEC0659-008 02/01/2013

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer	$ 51.09	4%+13.30
(2) Lineman, Pole Sprayer,		

Heavy Line Equipment Man....$ 45.62 4%+13.30
(3) Tree Trimmer.....$ 32.07 4%+9.80
(4) Line Equipment Man.....$ 45.62 4%+9.80
(5) Powdermen, Jackhammermen.....$ 34.22 4%+9.80
(6) Groundman.....$ 31.31 4%+9.80

ELEC1245-004 06/01/2015

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	$ 52.85	15.53
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	$ 42.21	14.32
(3) Groundman.....	$ 32.28	14.03
(4) Powderman.....	$ 47.19	14.06

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0008-001 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC.....	$ 63.44	31.585

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-008 07/01/2013

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman.....	$ 40.53	27.81
(2) Dredge Dozer; Heavy duty repairman.....	$ 35.57	27.81
(3) Booster Pump Operator; Deck Engineer; Deck mate;		

Dredge Tender; Winch
Operator.....$ 34.45 27.81
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 31.15 27.81
AREA 2:
(1) Leverman.....$ 42.53 27.81
(2) Dredge Dozer; Heavy
duty repairman.....$ 37.57 27.81
(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender; Winch
Operator.....$ 36.45 27.81
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 33.15 27.81

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
Area 1: All but the Western border with Mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeastern border with Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

ENGI0003-018 06/30/2014

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1	$ 39.85	27.44
GROUP 2	$ 38.32	27.44
GROUP 3	$ 36.84	27.44
GROUP 4	$ 35.46	27.44
GROUP 5	$ 34.19	27.44
GROUP 6	$ 32.87	27.44
GROUP 7	$ 31.73	27.44
GROUP 8	$ 30.59	27.44
GROUP 8-A	$ 28.38	27.44
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		
Cranes	$ 40.73	27.44
Oiler	$ 33.76	27.44
Truck crane oiler	$ 37.33	27.44
GROUP 2		
Cranes	$ 38.97	27.44
Oiler	$ 33.50	27.44
Truck crane oiler	$ 37.04	27.44
GROUP 3		
Cranes	$ 37.23	27.44
Hydraulic	$ 32.87	27.44
Oiler	$ 33.26	27.44
Truck Crane Oiler	$ 36.77	27.44
GROUP 4		
Cranes	$ 34.19	27.44
OPERATOR: Power Equipment (Piledriving - AREA 1:)		
GROUP 1		
Lifting devices	$ 41.07	27.44
Oiler	$ 31.81	27.44
Truck crane oiler	$ 34.09	27.44
GROUP 2		
Lifting devices	$ 39.25	27.44
Oiler	$ 31.54	27.44
Truck Crane Oiler	$ 33.84	27.44
GROUP 3		
Lifting devices	$ 37.57	27.44
Oiler	$ 31.32	27.44
Truck Crane Oiler	$ 33.55	27.44
GROUP 4		
Lifting devices	$ 35.80	27.44
GROUP 5		
Lifting devices	$ 34.50	27.44
GROUP 6		
Lifting devices	$ 33.16	27.44
OPERATOR: Power Equipment (Steel Erection - AREA 1:)		
GROUP 1		
Cranes	$ 41.70	27.44
Oiler	$ 32.15	27.44
Truck Crane Oiler	$ 34.38	27.44

GROUP 2
Cranes.....$ 39.93 27.44
Oiler.....$ 31.88 27.44
Truck Crane Oiler.....$ 34.16 27.44
GROUP 3
Cranes.....$ 38.45 27.44
Hydraulic.....$ 32.67 27.44
Oiler.....$ 31.66 27.44
Truck Crane Oiler.....$ 33.89 27.44
GROUP 4
Cranes.....$ 36.43 27.44
GROUP 5
Cranes.....$ 35.13 27.44

OPERATOR: Power Equipment
(Tunnel and Underground Work
- AREA 1:)
SHAFTS, STOPES, RAISES:
GROUP 1.....$ 35.95 27.44
GROUP 1-A.....$ 38.32 27.44
GROUP 2.....$ 34.59 27.44
GROUP 3.....$ 33.36 27.44
GROUP 4.....$ 32.22 27.44
GROUP 5.....$ 31.08 27.44
UNDERGROUND:
GROUP 1.....$ 35.85 27.44
GROUP 1-A.....$ 38.32 27.44
GROUP 2.....$ 34.59 27.44
GROUP 3.....$ 33.26 27.44
GROUP 4.....$ 32.12 27.44
GROUP 5.....$ 30.98 27.44

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose

A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons; Truck-mounted rotating

telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

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AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts

Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
  Area 1: Western part along the Southern portion of border
  with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
  Area 1: All but the Northern portion along the border of
  Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
  Area 1: All but the Western border with mendocino & Trinity
  Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

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SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment		
(LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1	$ 29.64	25.71
AREA 2	$ 31.64	25.71
GROUP 2		
AREA 1	$ 26.04	25.71
AREA 2	$ 28.04	25.71
GROUP 3		
AREA 1	$ 21.43	25.71
AREA 2	$ 23.43	25.71

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
Area 1: All but the Western border with mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

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	Rates	Fringes
Ironworkers:		
Fence Erector	$ 28.33	20.64
Ornamental, Reinforcing and Structural	$ 34.75	29.20

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0067-002 06/27/2016

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Asbestos Removal Laborer		
Areas A & B	$ 20.66	10.02
LABORER (Lead Removal)		
Area A	$ 30.00	21.34
Area B	$ 29.00	21.34

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LABO0067-006 06/30/2014

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, EL DORADO, FRESNO, GLENN, KINGS, LASSEN, MADERA, MARIPOSA, MERCED,

MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 29.09	18.66
GROUP 1	$ 28.39	18.66
GROUP 1-a	$ 28.61	18.66
GROUP 1-c	$ 28.44	18.66
GROUP 1-e	$ 28.94	18.66
GROUP 1-f	$ 28.97	18.66
GROUP 1-g (Contra Costa County)	$ 28.59	18.66
GROUP 2	$ 28.24	18.66
GROUP 3	$ 28.14	18.66
GROUP 4	$ 21.83	18.66
See groups 1-b and 1-d under laborer classifications.		
Laborers: (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 28.09	18.66
GROUP 1	$ 27.39	18.66
GROUP 1-a	$ 27.61	18.66
GROUP 1-c	$ 27.44	18.66
GROUP 1-e	$ 27.94	18.66
GROUP 1-f	$ 27.97	18.66
GROUP 2	$ 27.24	18.66
GROUP 3	$ 27.14	18.66
GROUP 4	$ 20.83	18.66
See groups 1-b and 1-d under laborer classifications.		
Laborers: (GUNITE - AREA A:)		
GROUP 1	$ 29.35	18.66
GROUP 2	$ 28.85	18.66
GROUP 3	$ 28.26	18.66
GROUP 4	$ 28.14	18.66
Laborers: (GUNITE - AREA B:)		
GROUP 1	$ 28.35	18.66
GROUP 2	$ 27.85	18.66
GROUP 3	$ 27.26	18.66
GROUP 4	$ 27.14	18.66
Laborers: (WRECKING - AREA A:)		
GROUP 1	$ 28.39	18.66
GROUP 2	$ 28.24	18.66
Laborers: (WRECKING - AREA B:)		
GROUP 1	$ 27.39	18.66
GROUP 2	$ 27.24	18.66
Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 28.14	18.66
(2) Establishment Warranty Period	$ 21.83	18.66
Landscape Laborer (GARDENERS, HORTICULURAL & LANDSCAPE		

LABORERS - AREA B:)
(1) New Construction.....$ 27.14 18.66
(2) Establishment Warranty
Period.....$ 20.83 18.66

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143

and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12

inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0185-002 06/30/2014

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 31.11	17.34

LABO0185-005 06/30/2014

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 34.60	19.49
GROUP 2	$ 34.37	19.49
GROUP 3	$ 34.12	19.49
GROUP 4	$ 33.67	19.49
GROUP 5	$ 33.13	19.49
Shotcrete Specialist	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-002 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.14	19.03
Traffic Control Person I	$ 28.44	19.03
Traffic Control Person II	$ 25.94	19.03

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0261-004 06/30/2014

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 34.60	19.49
GROUP 2	$ 34.37	19.49
GROUP 3	$ 34.12	19.49
GROUP 4	$ 33.67	19.49
GROUP 5	$ 33.13	19.49
Shotcrete Specialist	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-007 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 32.36	17.34

LABO0324-004 06/30/2014

NAPA, SOLANO, AND SONOMA, COUNTIES

	Rates	Fringes

LABORER (TRAFFIC CONTROL/LANE CLOSURE)

Escort Driver, Flag Person..	$ 27.14	19.03
Traffic Control Person I....	$ 27.44	19.03
Traffic Control Person II...	$ 24.94	19.03

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0324-008 06/30/2014

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	$ 34.60	19.49
GROUP 2.....	$ 34.37	19.49
GROUP 3.....	$ 34.12	19.49
GROUP 4.....	$ 33.67	19.49
GROUP 5.....	$ 33.13	19.49
Shotcrete Specialist.....	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0324-010 06/30/2014

NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
LABORER (Brick)		
Mason Tender-Brick	$ 31.36	17.34

LABO1414-005 08/03/2016

	Rates	Fringes
Plasterer tender	$ 34.15	19.28

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0016-004 01/01/2017

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:	$ 38.87	22.83

PREMIUMS:
EXOTIC MATERIALS - $0.75 additional per hour.
SPRAY WORK: - $0.50 additional per hour.
INDUSTRIAL PAINTING - $0.25 additional per hour
[Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:
over 50 feet - $2.00 per hour additional
100 to 180 feet - $4.00 per hour additional
Over 180 feet - $6.00 per houir additional

PAIN0016-005 01/01/2017

ALPINE, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Hwy. 395, excluding Honey Lake); MARIN, MODOC, NAPA, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 40.03	24.29

PAIN0016-007 01/01/2017

ALPINE, AMADOR, BUTTE, COLUSA. EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Highway 395, excluding Honey Lake), MODOC, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
Painters:	$ 32.16	18.26

SPRAY/SANDBLAST: $0.50 additional per hour.
EXOTIC MATERIALS: $1.00 additional per hour.
HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour. 100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.

PAIN0016-008 01/01/2017

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 47.39	24.64

PAIN0169-004 01/01/2017

MARIN , NAPA & SONOMA COUNTIES; SOLANO COUNTY (west of a line defined as follows: Hwy. 80 corridor beginning at the City of Fairfield, including Travis Air Force Base and Suisun City; going north of Manakas Corner Rd., continue north on Suisun Valley Rd. to the Napa County line; Hwy. 80 corridor south on Grizzly Island Rd. to the Grizzly Island Management area)

	Rates	Fringes
GLAZIER	$ 45.13	26.79

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* PAIN0567-001 05/01/2017

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Painters:		
Brush and Roller	$ 24.80	11.44
Spray Painter & Paperhanger	$ 26.04	11.44

PREMIUMS:
Special Coatings (Brush), and Sandblasting = $0.50/hr
Special Coatings (Spray), and Steeplejack = $1.00/hr
Special Coating Spray Steel = $1.25/hr
Swing Stage = $2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-007 07/01/2016

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains) AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
SOFT FLOOR LAYER	$ 27.30	11.94

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* PAIN0567-010 05/01/2017

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Drywall		
(1) Taper	$ 29.42	12.04
(2) Steeplejack - Taper, over 40 ft with open space below	$ 30.92	12.04

PAIN0767-004 01/01/2017

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

	Rates	Fringes
GLAZIER	$ 34.57	25.96

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee rquired to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2014

HIGHWAY IMPR0VEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1	$ 34.26	11.65

GROUP 2.....$ 29.12 11.65
GROUP 3.....$ 29.46 11.65

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-001 01/01/2017

ALPINE; COLUSA; EL DORADO (west of the Sierra Nevada Mountains); GLENN; LASSEN (west of Highway 395, beginning at Stacey and including Honey Lake); MODOC; NEVADA (west of the Sierra Nevada Mountains); PLACER (west of the Sierra Nevada Mountains); PLUMAS; SACRAMENTO; SHASTA; SIERRA (west of the Sierra Nevada Mountains); SISKIYOU; SUTTER; TEHAMA; TRINITY; YOLO AND YUBA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 33.93	20.39

PLAS0300-003 07/01/2014

	Rates	Fringes
PLASTERER		
AREA 295: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehema, Trinity, Yolo & Yuba Counties	$ 31.41	22.26
AREA 355: Marin	$ 34.75	22.26
AREA 355: Napa & Sonoma Counties	$ 31.41	22.26

PLAS0300-005 07/01/2016

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 37.74	19.37

PLUM0038-002 07/01/2016

MARIN AND SONOMA COUNTIES

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration		

Fitter)
(1) Work on wooden frame structures 5 stories or less excluding hgih-rise buildings and commercial work such as hospitals, prisons, hotels, schools, casinos, wastewater treatment plants, and resarch facilities as well as refrigeration pipefitting, service and repair work - MARKET RECOVERY RATE.....$ 57.80 43.21
(2) All other work - NEW CONSTRUCTION RATE.....$ 68.00 45.09

PLUM0038-006 07/01/2016

MARIN & SONOMA COUNTIES

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter)	$ 57.80	33.46

PLUM0228-001 01/01/2017

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER	$ 38.75	28.89

PLUM0343-001 07/01/2016

NAPA AND SOLANO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial	$ 30.85	20.40
All Other Work	$ 47.50	28.20

DEFINITION OF LIGHT COMMERICIAL:
Work shall include strip shopping centers, office buildings, schools and other commercial structures which the total plumbing bid does not exceed Two Hundred and Fifty Thousand ($250,000) and the total heating and cooling does not exceed Two Hundred Fifty Thousand ($250,000); or Any projects bid in phases shall not qualify unless the total project is less than Two Hundred Fifty Thousand ($250,000) for the plumbing bid; and Two Hundred Fifty Thousand ($250,000) for the heating and cooling bid. Excluded are hospitals, jails, institutions and industrial projects, regardless size of the project

FOOTNOTES: While fitting galvanized material: $.75 per hour

additional. Work from trusses, temporary staging, unguarded structures 35' from the ground or water: $.75 per hour additional. Work from swinging scaffolds, boatswains chairs or similar devices: $.75 per hour additional.

PLUM0350-001 02/01/2015

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 30.88	11.51

PLUM0355-001 07/01/2015

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter	$ 28.60	10.05

PLUM0442-003 01/01/2017

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER	$ 40.00	28.39

PLUM0447-001 07/01/2016

AMADOR (north of San Joaquin River), EL DORADO (excluding Lake Tahoe area), NEVADA (excluding Lake Tahoe area); PLACER (excluding Lake Tahoe area), SACRAMENTO AND YOLO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Journeyman	$ 47.02	22.85
Light Commercial Work	$ 36.23	17.72

ROOF0081-006 08/01/2015

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer	$ 36.08	14.90

ROOF0081-007 08/01/2015

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN,LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Roofer	$ 34.00	14.80

SFCA0483-003 01/01/2017

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 58.72	28.07

SFCA0669-003 04/01/2016

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER	$ 35.71	20.25

SHEE0104-006 06/27/2016

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes
Sheet Metal Worker		
Mechanical Contracts		
$200,000 or less	$ 48.23	36.45
All other work	$ 54.58	37.08

SHEE0104-009 07/01/2016

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER	$ 40.66	32.13

SHEE0104-010 07/01/2016

AlPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER	$ 38.12	30.50

SHEE0104-011 07/01/2015

BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

	Rates	Fringes
Sheet Metal Worker (Metal decking and siding only)	$ 34.15	32.98

SHEE0104-014 07/01/2016

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only)	$ 35.64	31.49

SHEE0104-019 07/01/2016

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER		
Mechanical Jobs $200,000 & under	$ 30.61	30.25
Mechanical Jobs over $200,000	$ 40.66	32.13

TEAM0094-001 07/01/2016

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 29.63	26.66
GROUP 2	$ 29.93	26.66
GROUP 3	$ 30.23	26.66
GROUP 4	$ 30.58	26.66
GROUP 5	$ 30.93	26.66

FOOTNOTES:
Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.
Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck

(when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours

they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average

calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

- Appendix E -
SALES TAX BACKUP

Yreka, California Sales Tax Rate

California

California Cities

California Counties

Combined Sales Tax Rate

7.75%

Sales Tax Jurisdiction Breakdown

California:	6%
Siskiyou County:	0.25%
Yreka:	0.5%
Special:	1%

Click to download sales tax rates

The combined sales tax rate for Yreka, CA is 7.75%. This is the total of state, county and city sales tax rates. The California

ATTACHMENT E
Insurance Policies

SUSTNOR-01 PATHAKAL

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 2/3/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Willis of Illinois, Inc.
c/o 26 Century Blvd
P.O. Box 305191
Nashville, TN 37230-5191

CONTACT NAME: Willis Towers Watson Certificate Center
PHONE (A/C, No, Ext): (877) 945-7378 FAX (A/C, No): (888) 467-2378
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Covington Specialty Insurance Company	13027
INSURER B : Starstone National Insurance Company	25496
INSURER C : Underwriters at Lloyd's London	15792
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Klamath River Renewal Corporation
423 Washington Street
4th Floor
San Francisco, CA 94111

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY							
	CLAIMS-MADE X OCCUR	X		VBA48015700	01/31/2017	01/31/2018	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 50,000
							MED EXP (Any one person)	$ 1,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 0
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
B	UMBRELLA LIAB X OCCUR						EACH OCCURRENCE	$ 5,000,000
	X EXCESS LIAB CLAIMS-MADE			85128T171ALI	01/31/2017	01/31/2018	AGGREGATE	$ 5,000,000
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N (Mandatory in NH)	N/A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
C	Directors & Officers			ANV109585A	01/31/2017	01/31/2018	Each Claim/Aggregate	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
THIS CERTIFICATE VOIDS & REPLACES THE PREVIOUSLY ISSUED CERTIFICATE DATED 02/03/2017.
Public Utility Commission of Oregon is included as an Additional Insured as respects to General Liability.

CERTIFICATE HOLDER

Public Utility Commission of Oregon
PO Box 1088
201 High Street SE
Salem, OR 97308-1088

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Andrea Paris

Insurance Policy

CLAIM OFFICE:

Mail claims to:
945 E. Paces Ferry Rd.
Suite 1800
Atlanta, GA 30326-1160

Fax claims to:
(404) 231-3755
(Attn: Claims Department)

Email claims to:
reportclaims@rsui.com
(Attn: Claims Department)

Your policy has been signed on our behalf by our President and by our Secretary and Treasurer. However, your policy will not be binding on us unless it is also countersigned by one of our duly authorized agents.

President

RSUI Indemnity Company
Landmark American Insurance Company
Covington Specialty Insurance Company

Secretary

RSUI Indemnity Company
Landmark American Insurance Company
Covington Specialty Insurance Company

RSUI

COMMON POLICY DECLARATIONS

THIS POLICY IS ISSUED BY THE COMPANY NAMED BELOW

COMPANY NAME: Covington Specialty Insurance Company (A New Hampshire Stock Company)

BRANCH ADDRESS: 945 East Paces Ferry Road, Suite 1800, Atlanta, GA 30326-1160

POLICY NO.: VBA480157 00 **PRIOR POLICY:** VBA342387 00

NAMED INSURED:
Klamath River Renewal Corporation (KRRC)

MAILING ADDRESS:
423 Washington Street
4th Floor
San Francisco, CA 94111

POLICY PERIOD: From 1/31/2017 to 1/31/2018 12:01 A.M. Standard Time at your Mailing Address above.

IN RETURN FOR THE PAYMENT OF THE PREMIUM, AND SUBJECT TO ALL THE TERMS OF THIS POLICY, WE AGREE WITH YOU TO PROVIDE THE INSURANCE AS STATED IN THIS POLICY.

THIS POLICY CONSISTS OF THE FOLLOWING COVERAGE PARTS FOR WHICH A PREMIUM IS INDICATED. THIS PREMIUM MAY BE SUBJECT TO ADJUSTMENT.

COVERAGE PARTS		PREMIUM	
Commercial Property		$ Not Covered	
Commercial General Liability		$ 600.00	(MP)
Liquor Liability		$ Not Covered	
Commercial Inland Marine		$ Not Covered	
Commercial Professional Liability		$ Not Covered	
Annual Minimum and Deposit Premium		$ 600.00	
Audit Period: Annual unless otherwise stated:			
SL taxes and fees: Policy Fee: 100; CA SL Tax: 18; CA Stamp Fee: 1.20	Terrorism Premium	$ --Excluded--	
Other	Other charges (SL taxes, fees)	$ 119.20	
	TOTAL POLICY PREMIUM	$ 719.20	

FORMS AND ENDORSEMENTS APPLICABLE TO ALL COVERAGE PARTS:
SEE SCHEDULE OF FORMS AND ENDORSEMENTS – GBA900002

BUSINESS DESCRIPTION: LRO

THESE DECLARATIONS TOGETHER WITH THE COMMON POLICY CONDITIONS, COVERAGE PART DECLARATIONS, COVERAGE FORM(S) AND ENDORSEMENTS, IF ANY, ISSUED TO FORM A PART THEREOF, COMPLETE THE CONTRACT OF INSURANCE.

AGENCY NAME / ADDRESS:

Brown & Riding - Chicago, IL
200 South Wacker Drive, Suite 1500
Chicago, IL 60606

Countersigned: 2/7/2017 (Date) By: Timothy M Pedersen (Authorized Representative)

COMMERCIAL LINES SUPPLEMENTAL DECLARATIONS

POLICY NO.: VBA480157 00 **EFFECTIVE DATE:** 1/31/2017

NAMED INSURED: Klamath River Renewal Corporation (KRRC)

SCHEDULE OF ENDORSEMENTS

FORM NUMBER	TITLE
GBA 901001 1112	Insurance Policy Jacket
	Forms Applicable to All Coverage Parts
GBA 900001 1012	Common Policy Declarations
RSG 99019 0117	California Surplus Lines Disclosure Notice
GBA 909022 0415	State Fraud Statement
RSG 99018 1211	Notice - Rejection of Terrorism Coverage
GBA 904010 1007	Minimum Earned Premium Retained
GBA 906005 0115	Exclusion Of Terrorism
GBA 906011 0414	Exclusion of Other Nuclear, Biological, Chemical or Radiological Acts of Terrorism
IL 0017 1198	Common Policy Conditions
IL 0021 0504	Nuclear Exclusion
	Forms Applicable to Coverage Part - GENERAL LIABILITY
GBA 100001 0813	Commercial General Liability Coverage Part Declarations
CG 0001 0413	Commercial General Liability Coverage Form
CG 2011 0413	Additional Insured - Managers or Lessors of Premises
CG 2104 1185	Exclusion - Products - Completed Operations Hazard
CG 2139 1093	Limitation-Contractual Liability
CG 2144 0798	Limitation of Coverage to Designated Premises or Project
GBA 104014 0106	Basis of Premium
GBA 106015 1106	Classification Limitation
GBA 106059 0113	Exclusions and Limitations Amendatory
GBA 106099 0913	Exclusion - Intellectual Property Hazard
GBA 106109 0115	Exclusion - Access or Disclosure of Confidential or Personal Information and Data - Related Liability
	Forms Applicable to STATE FORMS and ENDORSEMENTS
GBA 902002 0416	California - Service of Suit

IMPORTANT NOTICE

CALIFORNIA SURPLUS LINES DISCLOSURE NOTICE

1. THE INSURANCE POLICY THAT YOU HAVE PURCHASED IS BEING ISSUED BY AN INSURER THAT IS NOT LICENSED BY THE STATE OF CALIFORNIA. THESE COMPANIES ARE CALLED "NONADMITTED" OR "SURPLUS LINE" INSURERS.
2. THE INSURER IS NOT SUBJECT TO THE FINANCIAL SOLVENCY REGULATION AND ENFORCEMENT THAT APPLY TO CALIFORNIA LICENSED INSURERS.
3. THE INSURER DOES NOT PARTICIPATE IN ANY OF THE INSURANCE GUARANTEE FUNDS CREATED BY CALIFORNIA LAW. THEREFORE, THESE FUNDS WILL NOT PAY YOUR CLAIMS OR PROTECT YOUR ASSETS IF THE INSURER BECOMES INSOLVENT AND IS UNABLE TO MAKE PAYMENTS AS PROMISED.
4. THE INSURER SHOULD BE LICENSED EITHER AS A FOREIGN INSURER IN ANOTHER STATE IN THE UNITED STATES OR AS A NON-UNITED STATES (ALIEN) INSURER. YOU SHOULD ASK QUESTIONS OF YOUR INSURANCE AGENT, BROKER, OR "SURPLUS LINE" BROKER OR CONTACT THE CALIFORNIA DEPARTMENT OF INSURANCE AT THE FOLLOWING TOLL-FREE TELEPHONE NUMBER: 1-800-927-4357 OR INTERNET WEB SITE WWW.INSURANCE.CA.GOV. ASK WHETHER OR NOT THE INSURER IS LICENSED AS A FOREIGN OR NON-UNITED STATES (ALIEN) INSURER AND FOR ADDITIONAL INFORMATION ABOUT THE INSURER. YOU MAY ALSO CONTACT THE NAIC'S INTERNET WEB SITE AT WWW.NAIC.ORG.
5. FOREIGN INSURERS SHOULD BE LICENSED BY A STATE IN THE UNITED STATES AND YOU MAY CONTACT THAT STATE'S DEPARTMENT OF INSURANCE TO OBTAIN MORE INFORMATION ABOUT THAT INSURER.
6. FOR NON-UNITED STATES (ALIEN) INSURERS, THE INSURER SHOULD BE LICENSED BY A COUNTRY OUTSIDE OF THE UNITED STATES AND SHOULD BE ON THE NAIC'S INTERNATIONAL INSURERS DEPARTMENT (IID) LISTING OF APPROVED NONADMITTED NON-UNITED STATES INSURERS. ASK YOUR AGENT,

BROKER, OR "SURPLUS LINE" BROKER TO OBTAIN MORE INFORMATION ABOUT THAT INSURER.

7. CALIFORNIA MAINTAINS A LIST OF APPROVED SURPLUS LINE INSURERS. ASK YOUR AGENT OR BROKER IF THE INSURER IS ON THAT LIST, OR VIEW THAT LIST AT THE INTERNET WEB SITE OF THE CALIFORNIA DEPARTMENT OF INSURANCE: WWW.INSURANCE.CA.GOV.
8. IF YOU, AS THE APPLICANT, REQUIRED THAT THE INSURANCE POLICY YOU HAVE PURCHASED BE BOUND IMMEDIATELY, EITHER BECAUSE EXISTING COVERAGE WAS GOING TO LAPSE WITHIN TWO BUSINESS DAYS OR BECAUSE YOU WERE REQUIRED TO HAVE COVERAGE WITHIN TWO BUSINESS DAYS, AND YOU DID NOT RECEIVE THIS DISCLOSURE FORM AND A REQUEST FOR YOUR SIGNATURE UNTIL AFTER COVERAGE BECAME EFFECTIVE, YOU HAVE THE RIGHT TO CANCEL THIS POLICY WITHIN FIVE DAYS OF RECEIVING THIS DISCLOSURE. IF YOU CANCEL COVERAGE, THE PREMIUM WILL BE PRORATED AND ANY BROKER'S FEE CHARGED FOR THIS INSURANCE WILL BE RETURNED TO YOU.

State Fraud Statements
Fraud Statements – Signature Required for New York Only

ARKANSAS, LOUISIANA, RHODE ISLAND, TEXAS AND WEST VIRGINIA FRAUD STATEMENT

Any person who knowingly presents a false or fraudulent claim for payment of a loss or benefit or knowingly presents false information in an application for insurance is guilty of a crime and may be subject to fines and confinement in prison.

ALASKA FRAUD STATEMENT

A person who knowingly and with intent to injure, defraud, or deceive an insurance company files a claim containing false, incomplete, or misleading information may be prosecuted under state law.

ALABAMA FRAUD STATEMENT

Any person who knowingly presents a false or fraudulent claim for payment of a loss or benefit or who knowingly presents false information in an application for insurance is guilty of a crime and may be subject to restitution fines or confinement in prison, or any combination thereof.

ARIZONA FRAUD STATEMENT

For your protection Arizona law requires the following statement to appear on this form. Any person who knowingly presents a false or fraudulent claim for payment of a loss is subject to criminal and civil penalties.

CALIFORNIA FRAUD STATEMENT

For your protection, California law requires that you be made aware of the following: Any person who knowingly presents false or fraudulent claim for the payment of a loss is guilty of a crime and may be subject to fines and confinement in state prison.

COLORADO FRAUD STATEMENT

It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

DELAWARE FRAUD STATEMENT

Any person who knowingly, and with intent to injure, defraud or deceive any insurer, files a statement of claim containing any false, incomplete or misleading information is guilty of a felony.

DISTRICT OF COLUMBIA FRAUD STATEMENT

WARNING: It is a crime to provide false, or misleading information to an insurer for the purpose of defrauding the insurer or any other person. Penalties include imprisonment and/or fines. In addition, an insurer may deny insurance benefits if false information materially related to a claim was provided by the applicant.

FLORIDA FRAUD STATEMENT

Any person who knowingly and with intent to injure, defraud or deceive any insurer, files a statement of claim or an application containing any false, incomplete, or misleading information is guilty of a felony of the third degree.

HAWAII FRAUD STATEMENT

For your protection, Hawaii law requires you to be informed that any person who presents a fraudulent claim for payment of a loss or benefit is guilty of a crime punishable by fines or imprisonment, or both.

IDAHO FRAUD STATEMENT

Any person who knowingly, and with intent to defraud or deceive any insurance company, files a statement of claim containing any false, incomplete or misleading information is guilty of a felony.

INDIANA FRAUD STATEMENT

Any person who knowingly and with intent to defraud an insurer files a statement of claim containing any false, incomplete, or misleading information commits a felony.

KANSAS FRAUD STATEMENT

Any person who, knowingly and with intent to defraud, presents, causes to be presented or prepares with knowledge or belief that it will be presented to or by an insurer, purported insurer, broker or any agent thereof, any written statement as part of, or in support of, an application for the issuance of, or the rating of an insurance policy for personal or commercial insurance, or a claim for payment or other benefit pursuant to an insurance policy for commercial or personal insurance which such person knows to contain materially false information concerning any fact material thereto; or conceals, for the purpose of misleading, information concerning any fact material thereto commits a fraudulent insurance act.

KENTUCKY FRAUD STATEMENT

Any person who knowingly and with intent to defraud any insurance company or other person files an application for insurance containing any materially false information or conceals, for the purpose of misleading, information concerning any fact material thereto commits a fraudulent insurance act, which is a crime.

MAINE FRAUD STATEMENT

It is a crime to knowingly provide false, incomplete or misleading information to an insurance company for the purpose of defrauding the company. Penalties may include imprisonment, fines or a denial of insurance benefits.

MARYLAND FRAUD STATEMENT

Any person who knowingly or willfully presents a false or fraudulent claim for payment of a loss or benefit or who knowingly or willfully presents false information in an application for insurance is guilty of a crime and may be subject to fines and confinement in prison.

MINNESOTA FRAUD STATEMENT

Any person who files a claim with intent to defraud or helps commit a fraud against an insurer is guilty of a crime.

NEW HAMPSHIRE FRAUD STATEMENT

Any person who, with a purpose to injure, defraud or deceive any insurance company, files a statement of claim containing any false, incomplete or misleading information is subject to prosecution and punishment for insurance fraud, as provided in RSA 638:20.

NEW JERSEY FRAUD STATEMENT

Any person who includes any false or misleading information on an application for an insurance policy is subject to criminal and civil penalties.

NEW MEXICO FRAUD STATEMENT

Any person who knowingly presents a false or fraudulent claim for payment of a loss or benefit or knowingly presents false information in an application for insurance is guilty of a crime and may be subject to civil fines and criminal penalties.

OHIO FRAUD STATEMENT

Any person who, with intent to defraud or knowing that he is facilitating a fraud against an insurer, submits an application or files a claim containing a false or deceptive statement is guilty of insurance fraud.

OKLAHOMA FRAUD STATEMENT

WARNING: Any person who knowingly and with intent to injure, defraud, or deceive any insurer, makes any claim for the proceeds of an insurance policy containing any false, incomplete or misleading information is guilty of a felony.

OREGON FRAUD STATEMENT

Any person who knowingly presents a false or fraudulent claim for payment of a loss or benefit or knowingly presents materially false information in an application for insurance may be guilty of a crime and may be subject to fines and confinement in prison.

PENNSYLVANIA FRAUD STATEMENT

Any person who knowingly and with intent to defraud any insurance company or other person files an application for insurance or statement of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties.

PUERTO RICO FRAUD STATEMENT

Any person who knowingly and with the intention of defrauding presents false information in an insurance application, or presents, helps, or causes the presentation of a fraudulent claim for the payment of a loss or any other benefit, or presents more than one claim for the same damage or loss, shall incur a felony and, upon conviction, shall be sanctioned for each violation by a fine of not less than five thousand dollars ($5,000) and not more than ten thousand dollars ($10,000), or a fixed term of imprisonment for three (3) years, or both penalties. Should aggravating circumstances be present, the penalty thus established may be increased to a maximum of five (5) years, if extenuating circumstances are present, it may be reduced to a minimum of two (2) years.

TENNESSEE, VIRGINIA, AND WASHINGTON FRAUD STATEMENT

It is a crime to knowingly provide false, incomplete or misleading information to an insurance company for the purpose of defrauding the company. Penalties include imprisonment, fines and denial of insurance benefits.

SIGNATURE REQUIRED

NEW YORK FRAUD STATEMENT

Any person who knowingly and with intent to defraud any insurance company or other person files an application for insurance or statement of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime, and shall also be subject to a civil penalty not to exceed five thousand dollars and the stated value of the claim for each such violation.

_____

Insured/Applicant/Claimant

_____

By (Authorized Representative)

_____

Title

_____

Date

Policy Number: VBA480157 00

Insurer: Covington Specialty Insurance Company

Named Insured: Klamath River Renewal Corporation (KRRC)

NOTICE - REJECTION OF TERRORISM COVERAGE

Coverage has been "rejected" by the Insured for all acts of terrorism including but not limited to "certified acts of terrorism" under the federal Terrorism Risk Insurance Act.

This Endorsement Changes The Policy. Please Read It Carefully.

MINIMUM EARNED PREMIUM RETAINED

This endorsement modifies insurance provided under the following:

ALL COVERAGE PARTS

If this insurance is cancelled at your request, there will be a minimum earned premium retained by us of $ 300.00 or 50 % of the premium for this insurance, whichever is greater.

Nothing in this endorsement is deemed to affect the Company's cancellation rights, which remain indicated in the policy form.

All other terms and conditions of this policy remain unchanged.

This Endorsement Changes The Policy. Please Read It Carefully.

EXCLUSION OF TERRORISM

This endorsement modifies insurance provided under the following:

ALL COVERAGE PARTS

A. Definitions

1. "Certified act of terrorism" means an act that is certified by the Secretary of the Treasury, in accordance with the provisions of the federal Terrorism Risk Insurance Act to be an act of terrorism pursuant to such Act. The criteria contained in the Terrorism Risk Insurance Act for a "certified act of terrorism" include the following:
   a. The act resulted in aggregate losses in excess of $5 million in the aggregate, attributable to all types of insurance subject to the Terrorism Risk Insurance Act; and
   b. The act is a violent act or an act that is dangerous to human life, property or infrastructure and is committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.
2. "Other act of terrorism" means activities against persons, organizations or property of any nature:
   A. That involves the following or preparation for the following:
      1. Use or threat of force or violence; or
      2. Commission or threat of a dangerous act; or
      3. Commission or threat of an act that interferes with or disrupts an electronic, communication, information, or mechanical system; and
   B. When one or both of the following applies:
      1. The effect is to intimidate or coerce a government or the civilian population or any segment thereof, or to disrupt any segment of the economy; or
      2. It appears that the intent is to intimidate or coerce a government, or to further political, ideological, religious, social or economic objectives or to express (or express opposition to) a philosophy or ideology.
   C. The act is not certified as a terrorist act pursuant to the federal Terrorism Risk Insurance Act.

B. The following exclusion is added:

Exclusion of Certified Acts of Terrorism and Other Acts of Terrorism

We will not pay for loss or damage including but not limited to "bodily injury", "property damage", "personal and advertising injury" or medical payments, under any Coverage Part of this policy, caused directly or indirectly by a "certified act of terrorism" or an "other act of terrorism". Such loss or damage is excluded regardless of any other cause or event that contributes concurrently or in any sequence to the loss. But with respect to an "other act of terrorism" which may be subject to any underlying policy exclusion, this exclusion applies only when one or more of the following are attributed to such act:

1. That involves the use, release or escape of nuclear materials, or that directly or indirectly results in nuclear reaction or radiation or radioactive contamination; or
2. That is carried out by means of the dispersal or application of pathogenic or poisonous biological or chemical materials, or
3. In which pathogenic or poisonous biological or chemical materials are released, and it appears that one purpose of the terrorism was to release such materials.

This Endorsement Changes The Policy. Please Read It Carefully.

EXCLUSION OF OTHER NUCLEAR, BIOLOGICAL, CHEMICAL OR RADIOLOGICAL ACTS OF TERRORISM

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
COMMERCIAL INLAND MARINE COVERAGE PART
COMMERCIAL PROFESSIONAL LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART

A. The following exclusion is added:

This insurance does not apply to any liability arising, directly or indirectly, out of an "other act of terrorism". However, with respect to an "other act of terrorism", this exclusion applies only when one or more of the following are attributed to such act:

1. The terrorism involves the use, release or escape of nuclear materials, or directly or indirectly results in nuclear reaction or radiation or radioactive contamination; or
2. The terrorism is carried out by means of the dispersal or application of pathogenic or poisonous biological or chemical materials; or
3. Pathogenic or poisonous biological or chemical materials are released, and it appears that one purpose of the terrorism was to release such material.

B. The following definition is added:

"Other act of terrorism" means a violent act or an act that is dangerous to human life, property or infrastructure that is committed by an individual or individuals and that appears to be part of an effort to coerce a civilian population or to influence the policy or affect the conduct of any government by coercion, and the act is not certified as a terrorism act pursuant to the federal Terrorism Risk Insurance Act. Multiple incidents of an "other act of terrorism" which occur within a seventy-two hour period and appear to be carried out in concert or to have related purpose or common leadership shall be considered to be one incident.

COMMON POLICY CONDITIONS

All Coverage Parts included in this policy are subject to the following conditions.

A. Cancellation

1. The first Named Insured shown in the Declarations may cancel this policy by mailing or delivering to us advance written notice of cancellation.
2. We may cancel this policy by mailing or delivering to the first Named Insured written notice of cancellation at least:
   a. 10 days before the effective date of cancellation if we cancel for nonpayment of premium; or
   b. 30 days before the effective date of cancellation if we cancel for any other reason.
3. We will mail or deliver our notice to the first Named Insured's last mailing address known to us.
4. Notice of cancellation will state the effective date of cancellation. The policy period will end on that date.
5. If this policy is cancelled, we will send the first Named Insured any premium refund due. If we cancel, the refund will be pro rata. If the first Named Insured cancels, the refund may be less than pro rata. The cancellation will be effective even if we have not made or offered a refund.
6. If notice is mailed, proof of mailing will be sufficient proof of notice.

B. Changes

This policy contains all the agreements between you and us concerning the insurance afforded. The first Named Insured shown in the Declarations is authorized to make changes in the terms of this policy with our consent. This policy's terms can be amended or waived only by endorsement issued by us and made a part of this policy.

C. Examination Of Your Books And Records

We may examine and audit your books and records as they relate to this policy at any time during the policy period and up to three years afterward.

D. Inspections And Surveys

1. We have the right to:
   a. Make inspections and surveys at any time;
   b. Give you reports on the conditions we find; and
   c. Recommend changes.
2. We are not obligated to make any inspections, surveys, reports or recommendations and any such actions we do undertake relate only to insurability and the premiums to be charged. We do not make safety inspections. We do not undertake to perform the duty of any person or organization to provide for the health or safety of workers or the public. And we do not warrant that conditions:
   a. Are safe or healthful; or
   b. Comply with laws, regulations, codes or standards.
3. Paragraphs **1.** and **2.** of this condition apply not only to us, but also to any rating, advisory, rate service or similar organization which makes insurance inspections, surveys, reports or recommendations.
4. Paragraph **2.** of this condition does not apply to any inspections, surveys, reports or recommendations we may make relative to certification, under state or municipal statutes, ordinances or regulations, of boilers, pressure vessels or elevators.

E. Premiums

The first Named Insured shown in the Declarations:

1. Is responsible for the payment of all premiums; and
2. Will be the payee for any return premiums we pay.

F. Transfer Of Your Rights And Duties Under This Policy

Your rights and duties under this policy may not be transferred without our written consent except in the case of death of an individual named insured.

If you die, your rights and duties will be transferred to your legal representative but only while acting within the scope of duties as your legal representative. Until your legal representative is appointed, anyone having proper temporary custody of your property will have your rights and duties but only with respect to that property.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

NUCLEAR ENERGY LIABILITY EXCLUSION ENDORSEMENT

(Broad Form)

This endorsement modifies insurance provided under the following:

COMMERCIAL AUTOMOBILE COVERAGE PART
COMMERCIAL GENERAL LIABILITY COVERAGE PART
FARM COVERAGE PART
LIQUOR LIABILITY COVERAGE PART
OWNERS AND CONTRACTORS PROTECTIVE LIABILITY COVERAGE PART
POLLUTION LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
PROFESSIONAL LIABILITY COVERAGE PART
RAILROAD PROTECTIVE LIABILITY COVERAGE PART

1. The insurance does not apply:
   - **A.** Under any Liability Coverage, to "bodily injury" or "property damage":
     - **(1)** With respect to which an "insured" under the policy is also an insured under a nuclear energy liability policy issued by Nuclear Energy Liability Insurance Association, Mutual Atomic Energy Liability Underwriters, Nuclear Insurance Association of Canada or any of their successors, or would be an insured under any such policy but for its termination upon exhaustion of its limit of liability; or
     - **(2)** Resulting from the "hazardous properties" of "nuclear material" and with respect to which **(a)** any person or organization is required to maintain financial protection pursuant to the Atomic Energy Act of 1954, or any law amendatory thereof, or **(b)** the "insured" is, or had this policy not been issued would be, entitled to indemnity from the United States of America, or any agency thereof, under any agreement entered into by the United States of America, or any agency thereof, with any person or organization.
   - **B.** Under any Medical Payments coverage, to expenses incurred with respect to "bodily injury" resulting from the "hazardous properties" of "nuclear material" and arising out of the operation of a "nuclear facility" by any person or organization.
   - **C.** Under any Liability Coverage, to "bodily injury" or "property damage" resulting from "hazardous properties" of "nuclear material", if:
     - **(1)** The "nuclear material" **(a)** is at any "nuclear facility" owned by, or operated by or on behalf of, an "insured" or **(b)** has been discharged or dispersed therefrom;
     - **(2)** The "nuclear material" is contained in "spent fuel" or "waste" at any time possessed, handled, used, processed, stored, transported or disposed of, by or on behalf of an "insured"; or
     - **(3)** The "bodily injury" or "property damage" arises out of the furnishing by an "insured" of services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of any "nuclear facility", but if such facility is located within the United States of America, its territories or possessions or Canada, this exclusion **(3)** applies only to "property damage" to such "nuclear facility" and any property thereat.

2. As used in this endorsement:

"Hazardous properties" includes radioactive, toxic or explosive properties;

"Nuclear material" means "source material", "Special nuclear material" or "by-product material";

"Source material", "special nuclear material," and "by-product material" have the meanings given them in the Atomic Energy Act of 1954 or in any law amendatory thereof;

"Spent fuel" means any fuel element or fuel component, solid or liquid, which has been used or exposed to radiation in a "nuclear reactor";

"Waste" means any waste material **(a)** containing "by-product material" other than the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its "source material" content, and **(b)** resulting from the operation by any person or organization of any "nuclear facility" included under the first two paragraphs of the definition of "nuclear facility".

"Nuclear facility" means:

(a) Any "nuclear reactor";

(b) Any equipment or device designed or used for **(1)** separating the isotopes of uranium or plutonium, **(2)** processing or utilizing "spent fuel", or **(3)** handling, processing or packaging "waste";

(c) Any equipment or device used for the processing, fabricating or alloying of "special nuclear material" if at any time the total amount of such material in the custody of the "insured" at the premises where such equipment or device is located consists of or contains more than 25 grams of plutonium or uranium 233 or any combination thereof, or more than 250 grams of uranium 235;

(d) Any structure, basin, excavation, premises or place prepared or used for the storage or disposal of "waste";

and includes the site on which any of the foregoing is located, all operations conducted on such site and all premises used for such operations;

"Nuclear reactor" means any apparatus designed or used to sustain nuclear fission in a self-supporting chain reaction or to contain a critical mass of fissionable material;

"Property damage" includes all forms of radioactive contamination of property.

COMMERCIAL GENERAL LIABILITY COVERAGE PART DECLARATIONS

☐ "X" IF SUPPLEMENTAL DECLARATIONS ATTACHED

1. POLICY NO.: VBA480157 00 **EFFECTIVE DATE:** 1/31/2017

2. NAMED INSURED: Klamath River Renewal Corporation (KRRC)

3. LIMITS OF INSURANCE

General Aggregate Limit (Other Than Products - Completed Operations)	$	2,000,000	
Products-Completed Operations Aggregate Limit	$	--Not Covered--	
Personal and Advertising Injury Limit	$	1,000,000	
Each Occurrence Limit	$	1,000,000	
Damage To Premises Rented To You Limit	$	50,000	Any One Premise
Medical Expense Limit	$	1,000	Any One Person

Coverage A of this insurance does not apply to injury caused by a wrongful act which was committed before the Retroactive Date, if any shown here: Retroactive Date: None (Enter Date or "None" if no Retroactive Date)

LOCATIONS INCLUDING ZIP CODE OF ALL PREMISES YOU OWN, RENT OR OCCUPY (Enter "same" if same location as your mailing address):
1. 423 WASHINGTON STREET, SAN FRANCISCO, CA 94111

CODE NO.	PREM NO.	CLASSIFICATION	PREMIUM BASIS	EXPOSURE AMOUNT	RATE PR/CO	RATE ALL OTHER	ADVANCE PREMIUM PR/CO	ADVANCE PREMIUM ALL OTHER
49950	1	Additional Insured	Each	1	Not Covered	100.000	Not Covered	$100.00
61225	1	Buildings or Premises - office - premises occupied by employees of the insured - Not-For-Profit	Area	500	Not Covered	250.000	Not Covered	$500.00 (MP)
					TOTAL ADVANCE PREMIUM FOR THIS PAGE		$ .00	$ 600.00
					TOTAL ADVANCE PREMIUM FOR THIS COVERAGE PART			$ 600.00

4. FORMS AND ENDORSEMENTS APPLICABLE (other than applicable Forms and Endorsements shown elsewhere in this policy)
*Forms and Endorsements applying to this Coverage Part and made a part of this policy at time of issue:

SEE SCHEDULE OF FORMS AND ENDORSEMENTS – GBA900002

*Entry optional if shown on Common Policy Declarations

5. FORM OF BUSINESS:

☐ Individual ☐ Joint Venture ☐ Partnership ☐ Limited Liability Company ☒ Corporation ☐ Other

THESE DECLARATIONS, WHEN COMBINED WITH THE COMMON POLICY DECLARATIONS, THE COMMON POLICY CONDITIONS, COVERAGE FORM(S) AND FORMS AND ENDORSEMENTS, IF ANY, ISSUED TO FORM A PART THEREOF, COMPLETE THE CONTRACT OF INSURANCE.

COMMERCIAL GENERAL LIABILITY COVERAGE FORM

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine rights, duties and what is and is not covered.

Throughout this policy the words "you" and "your" refer to the Named Insured shown in the Declarations, and any other person or organization qualifying as a Named Insured under this policy. The words "we", "us" and "our" refer to the company providing this insurance.

The word "insured" means any person or organization qualifying as such under Section **II** – Who Is An Insured.

Other words and phrases that appear in quotation marks have special meaning. Refer to Section **V** – Definitions.

SECTION I – COVERAGES

COVERAGE A – BODILY INJURY AND PROPERTY DAMAGE LIABILITY

1. Insuring Agreement

a. We will pay those sums that the insured becomes legally obligated to pay as damages because of "bodily injury" or "property damage" to which this insurance applies. We will have the right and duty to defend the insured against any "suit" seeking those damages. However, we will have no duty to defend the insured against any "suit" seeking damages for "bodily injury" or "property damage" to which this insurance does not apply. We may, at our discretion, investigate any "occurrence" and settle any claim or "suit" that may result. But:

(1) The amount we will pay for damages is limited as described in Section **III** – Limits Of Insurance; and

(2) Our right and duty to defend ends when we have used up the applicable limit of insurance in the payment of judgments or settlements under Coverages **A** or **B** or medical expenses under Coverage **C.**

No other obligation or liability to pay sums or perform acts or services is covered unless explicitly provided for under Supplementary Payments – Coverages **A** and **B.**

b. This insurance applies to "bodily injury" and "property damage" only if:

(1) The "bodily injury" or "property damage" is caused by an "occurrence" that takes place in the "coverage territory";

(2) The "bodily injury" or "property damage" occurs during the policy period; and

(3) Prior to the policy period, no insured listed under Paragraph **1.** of Section **II** – Who Is An Insured and no "employee" authorized by you to give or receive notice of an "occurrence" or claim, knew that the "bodily injury" or "property damage" had occurred, in whole or in part. If such a listed insured or authorized "employee" knew, prior to the policy period, that the "bodily injury" or "property damage" occurred, then any continuation, change or resumption of such "bodily injury" or "property damage" during or after the policy period will be deemed to have been known prior to the policy period.

c. "Bodily injury" or "property damage" which occurs during the policy period and was not, prior to the policy period, known to have occurred by any insured listed under Paragraph **1.** of Section **II** – Who Is An Insured or any "employee" authorized by you to give or receive notice of an "occurrence" or claim, includes any continuation, change or resumption of that "bodily injury" or "property damage" after the end of the policy period.

d. "Bodily injury" or "property damage" will be deemed to have been known to have occurred at the earliest time when any insured listed under Paragraph **1.** of Section **II** – Who Is An Insured or any "employee" authorized by you to give or receive notice of an "occurrence" or claim:

(1) Reports all, or any part, of the "bodily injury" or "property damage" to us or any other insurer;

(2) Receives a written or verbal demand or claim for damages because of the "bodily injury" or "property damage"; or

(3) Becomes aware by any other means that "bodily injury" or "property damage" has occurred or has begun to occur.

e. Damages because of "bodily injury" include damages claimed by any person or organization for care, loss of services or death resulting at any time from the "bodily injury".

2. Exclusions

This insurance does not apply to:

a. Expected Or Intended Injury

"Bodily injury" or "property damage" expected or intended from the standpoint of the insured. This exclusion does not apply to "bodily injury" resulting from the use of reasonable force to protect persons or property.

b. Contractual Liability

"Bodily injury" or "property damage" for which the insured is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages:

(1) That the insured would have in the absence of the contract or agreement; or

(2) Assumed in a contract or agreement that is an "insured contract", provided the "bodily injury" or "property damage" occurs subsequent to the execution of the contract or agreement. Solely for the purposes of liability assumed in an "insured contract", reasonable attorneys' fees and necessary litigation expenses incurred by or for a party other than an insured are deemed to be damages because of "bodily injury" or "property damage", provided:

(a) Liability to such party for, or for the cost of, that party's defense has also been assumed in the same "insured contract"; and

(b) Such attorneys' fees and litigation expenses are for defense of that party against a civil or alternative dispute resolution proceeding in which damages to which this insurance applies are alleged.

c. Liquor Liability

"Bodily injury" or "property damage" for which any insured may be held liable by reason of:

(1) Causing or contributing to the intoxication of any person;

(2) The furnishing of alcoholic beverages to a person under the legal drinking age or under the influence of alcohol; or

(3) Any statute, ordinance or regulation relating to the sale, gift, distribution or use of alcoholic beverages.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in:

(a) The supervision, hiring, employment, training or monitoring of others by that insured; or

(b) Providing or failing to provide transportation with respect to any person that may be under the influence of alcohol;

if the "occurrence" which caused the "bodily injury" or "property damage", involved that which is described in Paragraph **(1)**, **(2)** or **(3)** above.

However, this exclusion applies only if you are in the business of manufacturing, distributing, selling, serving or furnishing alcoholic beverages. For the purposes of this exclusion, permitting a person to bring alcoholic beverages on your premises, for consumption on your premises, whether or not a fee is charged or a license is required for such activity, is not by itself considered the business of selling, serving or furnishing alcoholic beverages.

d. Workers' Compensation And Similar Laws

Any obligation of the insured under a workers' compensation, disability benefits or unemployment compensation law or any similar law.

e. Employer's Liability

"Bodily injury" to:

(1) An "employee" of the insured arising out of and in the course of:

(a) Employment by the insured; or

(b) Performing duties related to the conduct of the insured's business; or

(2) The spouse, child, parent, brother or sister of that "employee" as a consequence of Paragraph **(1)** above.

This exclusion applies whether the insured may be liable as an employer or in any other capacity and to any obligation to share damages with or repay someone else who must pay damages because of the injury.

This exclusion does not apply to liability assumed by the insured under an "insured contract".

f. Pollution

(1) "Bodily injury" or "property damage" arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants":

(a) At or from any premises, site or location which is or was at any time owned or occupied by, or rented or loaned to, any insured. However, this subparagraph does not apply to:

(i) "Bodily injury" if sustained within a building and caused by smoke, fumes, vapor or soot produced by or originating from equipment that is used to heat, cool or dehumidify the building, or equipment that is used to heat water for personal use, by the building's occupants or their guests;

(ii) "Bodily injury" or "property damage" for which you may be held liable, if you are a contractor and the owner or lessee of such premises, site or location has been added to your policy as an additional insured with respect to your ongoing operations performed for that additional insured at that premises, site or location and such premises, site or location is not and never was owned or occupied by, or rented or loaned to, any insured, other than that additional insured; or

(iii) "Bodily injury" or "property damage" arising out of heat, smoke or fumes from a "hostile fire";

(b) At or from any premises, site or location which is or was at any time used by or for any insured or others for the handling, storage, disposal, processing or treatment of waste;

(c) Which are or were at any time transported, handled, stored, treated, disposed of, or processed as waste by or for:

(i) Any insured; or

(ii) Any person or organization for whom you may be legally responsible; or

(d) At or from any premises, site or location on which any insured or any contractors or subcontractors working directly or indirectly on any insured's behalf are performing operations if the "pollutants" are brought on or to the premises, site or location in connection with such operations by such insured, contractor or subcontractor. However, this subparagraph does not apply to:

(i) "Bodily injury" or "property damage" arising out of the escape of fuels, lubricants or other operating fluids which are needed to perform the normal electrical, hydraulic or mechanical functions necessary for the operation of "mobile equipment" or its parts, if such fuels, lubricants or other operating fluids escape from a vehicle part designed to hold, store or receive them. This exception does not apply if the "bodily injury" or "property damage" arises out of the intentional discharge, dispersal or release of the fuels, lubricants or other operating fluids, or if such fuels, lubricants or other operating fluids are brought on or to the premises, site or location with the intent that they be discharged, dispersed or released as part of the operations being performed by such insured, contractor or subcontractor;

(ii) "Bodily injury" or "property damage" sustained within a building and caused by the release of gases, fumes or vapors from materials brought into that building in connection with operations being performed by you or on your behalf by a contractor or subcontractor; or

(iii) "Bodily injury" or "property damage" arising out of heat, smoke or fumes from a "hostile fire".

(e) At or from any premises, site or location on which any insured or any contractors or subcontractors working directly or indirectly on any insured's behalf are performing operations if the operations are to test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants".

(2) Any loss, cost or expense arising out of any:

(a) Request, demand, order or statutory or regulatory requirement that any insured or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants"; or

(b) Claim or suit by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of, "pollutants".

However, this paragraph does not apply to liability for damages because of "property damage" that the insured would have in the absence of such request, demand, order or statutory or regulatory requirement, or such claim or "suit" by or on behalf of a governmental authority.

g. Aircraft, Auto Or Watercraft

"Bodily injury" or "property damage" arising out of the ownership, maintenance, use or entrustment to others of any aircraft, "auto" or watercraft owned or operated by or rented or loaned to any insured. Use includes operation and "loading or unloading".

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage" involved the ownership, maintenance, use or entrustment to others of any aircraft, "auto" or watercraft that is owned or operated by or rented or loaned to any insured.

This exclusion does not apply to:

(1) A watercraft while ashore on premises you own or rent;

(2) A watercraft you do not own that is:

(a) Less than 26 feet long; and

(b) Not being used to carry persons or property for a charge;

(3) Parking an "auto" on, or on the ways next to, premises you own or rent, provided the "auto" is not owned by or rented or loaned to you or the insured;

(4) Liability assumed under any "insured contract" for the ownership, maintenance or use of aircraft or watercraft; or

(5) "Bodily injury" or "property damage" arising out of:

(a) The operation of machinery or equipment that is attached to, or part of, a land vehicle that would qualify under the definition of "mobile equipment" if it were not subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged; or

(b) The operation of any of the machinery or equipment listed in Paragraph **f.(2)** or **f.(3)** of the definition of "mobile equipment".

h. Mobile Equipment

"Bodily injury" or "property damage" arising out of:

(1) The transportation of "mobile equipment" by an "auto" owned or operated by or rented or loaned to any insured; or

(2) The use of "mobile equipment" in, or while in practice for, or while being prepared for, any prearranged racing, speed, demolition, or stunting activity.

i. War

"Bodily injury" or "property damage", however caused, arising, directly or indirectly, out of:

(1) War, including undeclared or civil war;

(2) Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or

(3) Insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending against any of these.

j. Damage To Property

"Property damage" to:

(1) Property you own, rent, or occupy, including any costs or expenses incurred by you, or any other person, organization or entity, for repair, replacement, enhancement, restoration or maintenance of such property for any reason, including prevention of injury to a person or damage to another's property;

(2) Premises you sell, give away or abandon, if the "property damage" arises out of any part of those premises;

(3) Property loaned to you;

(4) Personal property in the care, custody or control of the insured;

(5) That particular part of real property on which you or any contractors or subcontractors working directly or indirectly on your behalf are performing operations, if the "property damage" arises out of those operations; or

(6) That particular part of any property that must be restored, repaired or replaced because "your work" was incorrectly performed on it.

Paragraphs **(1)**, **(3)** and **(4)** of this exclusion do not apply to "property damage" (other than damage by fire) to premises, including the contents of such premises, rented to you for a period of seven or fewer consecutive days. A separate limit of insurance applies to Damage To Premises Rented To You as described in Section **III** – Limits Of Insurance.

Paragraph **(2)** of this exclusion does not apply if the premises are "your work" and were never occupied, rented or held for rental by you.

Paragraphs **(3)**, **(4)**, **(5)** and **(6)** of this exclusion do not apply to liability assumed under a sidetrack agreement.

Paragraph **(6)** of this exclusion does not apply to "property damage" included in the "products-completed operations hazard".

k. Damage To Your Product

"Property damage" to "your product" arising out of it or any part of it.

l. Damage To Your Work

"Property damage" to "your work" arising out of it or any part of it and included in the "products-completed operations hazard".

This exclusion does not apply if the damaged work or the work out of which the damage arises was performed on your behalf by a subcontractor.

m. Damage To Impaired Property Or Property Not Physically Injured

"Property damage" to "impaired property" or property that has not been physically injured, arising out of:

(1) A defect, deficiency, inadequacy or dangerous condition in "your product" or "your work"; or

(2) A delay or failure by you or anyone acting on your behalf to perform a contract or agreement in accordance with its terms.

This exclusion does not apply to the loss of use of other property arising out of sudden and accidental physical injury to "your product" or "your work" after it has been put to its intended use.

n. Recall Of Products, Work Or Impaired Property

Damages claimed for any loss, cost or expense incurred by you or others for the loss of use, withdrawal, recall, inspection, repair, replacement, adjustment, removal or disposal of:

(1) "Your product";

(2) "Your work"; or

(3) "Impaired property";

if such product, work, or property is withdrawn or recalled from the market or from use by any person or organization because of a known or suspected defect, deficiency, inadequacy or dangerous condition in it.

o. Personal And Advertising Injury

"Bodily injury" arising out of "personal and advertising injury".

p. Electronic Data

Damages arising out of the loss of, loss of use of, damage to, corruption of, inability to access, or inability to manipulate electronic data.

However, this exclusion does not apply to liability for damages because of "bodily injury".

As used in this exclusion, electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software, including systems and applications software, hard or floppy disks, CD-ROMs, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

q. Recording And Distribution Of Material Or Information In Violation Of Law

"Bodily injury" or "property damage" arising directly or indirectly out of any action or omission that violates or is alleged to violate:

(1) The Telephone Consumer Protection Act (TCPA), including any amendment of or addition to such law;

(2) The CAN-SPAM Act of 2003, including any amendment of or addition to such law;

(3) The Fair Credit Reporting Act (FCRA), and any amendment of or addition to such law, including the Fair and Accurate Credit Transactions Act (FACTA); or

(4) Any federal, state or local statute, ordinance or regulation, other than the TCPA, CAN-SPAM Act of 2003 or FCRA and their amendments and additions, that addresses, prohibits, or limits the printing, dissemination, disposal, collecting, recording, sending, transmitting, communicating or distribution of material or information.

Exclusions **c.** through **n.** do not apply to damage by fire to premises while rented to you or temporarily occupied by you with permission of the owner. A separate limit of insurance applies to this coverage as described in Section **III** – Limits Of Insurance.

COVERAGE B – PERSONAL AND ADVERTISING INJURY LIABILITY

1. Insuring Agreement

a. We will pay those sums that the insured becomes legally obligated to pay as damages because of "personal and advertising injury" to which this insurance applies. We will have the right and duty to defend the insured against any "suit" seeking those damages. However, we will have no duty to defend the insured against any "suit" seeking damages for "personal and advertising injury" to which this insurance does not apply. We may, at our discretion, investigate any offense and settle any claim or "suit" that may result. But:

(1) The amount we will pay for damages is limited as described in Section **III** – Limits Of Insurance; and

(2) Our right and duty to defend end when we have used up the applicable limit of insurance in the payment of judgments or settlements under Coverages **A** or **B** or medical expenses under Coverage **C.**

No other obligation or liability to pay sums or perform acts or services is covered unless explicitly provided for under Supplementary Payments – Coverages **A** and **B.**

b. This insurance applies to "personal and advertising injury" caused by an offense arising out of your business but only if the offense was committed in the "coverage territory" during the policy period.

2. Exclusions

This insurance does not apply to:

a. Knowing Violation Of Rights Of Another

"Personal and advertising injury" caused by or at the direction of the insured with the knowledge that the act would violate the rights of another and would inflict "personal and advertising injury".

b. Material Published With Knowledge Of Falsity

"Personal and advertising injury" arising out of oral or written publication, in any manner, of material, if done by or at the direction of the insured with knowledge of its falsity.

c. Material Published Prior To Policy Period

"Personal and advertising injury" arising out of oral or written publication, in any manner, of material whose first publication took place before the beginning of the policy period.

d. Criminal Acts

"Personal and advertising injury" arising out of a criminal act committed by or at the direction of the insured.

e. Contractual Liability

"Personal and advertising injury" for which the insured has assumed liability in a contract or agreement. This exclusion does not apply to liability for damages that the insured would have in the absence of the contract or agreement.

f. Breach Of Contract

"Personal and advertising injury" arising out of a breach of contract, except an implied contract to use another's advertising idea in your "advertisement".

g. Quality Or Performance Of Goods – Failure To Conform To Statements

"Personal and advertising injury" arising out of the failure of goods, products or services to conform with any statement of quality or performance made in your "advertisement".

h. Wrong Description Of Prices

"Personal and advertising injury" arising out of the wrong description of the price of goods, products or services stated in your "advertisement".

i. Infringement Of Copyright, Patent, Trademark Or Trade Secret

"Personal and advertising injury" arising out of the infringement of copyright, patent, trademark, trade secret or other intellectual property rights. Under this exclusion, such other intellectual property rights do not include the use of another's advertising idea in your "advertisement".

However, this exclusion does not apply to infringement, in your "advertisement", of copyright, trade dress or slogan.

j. Insureds In Media And Internet Type Businesses

"Personal and advertising injury" committed by an insured whose business is:

(1) Advertising, broadcasting, publishing or telecasting;

(2) Designing or determining content of web sites for others; or

(3) An Internet search, access, content or service provider.

However, this exclusion does not apply to Paragraphs **14.a., b.** and **c.** of "personal and advertising injury" under the Definitions section.

For the purposes of this exclusion, the placing of frames, borders or links, or advertising, for you or others anywhere on the Internet, is not by itself, considered the business of advertising, broadcasting, publishing or telecasting.

k. Electronic Chatrooms Or Bulletin Boards

"Personal and advertising injury" arising out of an electronic chatroom or bulletin board the insured hosts, owns, or over which the insured exercises control.

l. Unauthorized Use Of Another's Name Or Product

"Personal and advertising injury" arising out of the unauthorized use of another's name or product in your e-mail address, domain name or metatag, or any other similar tactics to mislead another's potential customers.

m. Pollution

"Personal and advertising injury" arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants" at any time.

n. Pollution-related

Any loss, cost or expense arising out of any:

(1) Request, demand, order or statutory or regulatory requirement that any insured or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, "pollutants"; or

(2) Claim or suit by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of, "pollutants".

o. War

"Personal and advertising injury", however caused, arising, directly or indirectly, out of:

(1) War, including undeclared or civil war;

(2) Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or

(3) Insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending against any of these.

p. Recording And Distribution Of Material Or Information In Violation Of Law

"Personal and advertising injury" arising directly or indirectly out of any action or omission that violates or is alleged to violate:

(1) The Telephone Consumer Protection Act (TCPA), including any amendment of or addition to such law;

(2) The CAN-SPAM Act of 2003, including any amendment of or addition to such law;

(3) The Fair Credit Reporting Act (FCRA), and any amendment of or addition to such law, including the Fair and Accurate Credit Transactions Act (FACTA); or

(4) Any federal, state or local statute, ordinance or regulation, other than the TCPA, CAN-SPAM Act of 2003 or FCRA and their amendments and additions, that addresses, prohibits, or limits the printing, dissemination, disposal, collecting, recording, sending, transmitting, communicating or distribution of material or information.

COVERAGE C – MEDICAL PAYMENTS

1. Insuring Agreement

a. We will pay medical expenses as described below for "bodily injury" caused by an accident:

(1) On premises you own or rent;

(2) On ways next to premises you own or rent; or

(3) Because of your operations;

provided that:

(a) The accident takes place in the "coverage territory" and during the policy period;

(b) The expenses are incurred and reported to us within one year of the date of the accident; and

(c) The injured person submits to examination, at our expense, by physicians of our choice as often as we reasonably require.

b. We will make these payments regardless of fault. These payments will not exceed the applicable limit of insurance. We will pay reasonable expenses for:

(1) First aid administered at the time of an accident;

(2) Necessary medical, surgical, X-ray and dental services, including prosthetic devices; and

(3) Necessary ambulance, hospital, professional nursing and funeral services.

2. Exclusions

We will not pay expenses for "bodily injury":

a. Any Insured

To any insured, except "volunteer workers".

b. Hired Person

To a person hired to do work for or on behalf of any insured or a tenant of any insured.

c. Injury On Normally Occupied Premises

To a person injured on that part of premises you own or rent that the person normally occupies.

d. Workers' Compensation And Similar Laws

To a person, whether or not an "employee" of any insured, if benefits for the "bodily injury" are payable or must be provided under a workers' compensation or disability benefits law or a similar law.

e. Athletics Activities

To a person injured while practicing, instructing or participating in any physical exercises or games, sports, or athletic contests.

f. Products-Completed Operations Hazard

Included within the "products-completed operations hazard".

g. Coverage A Exclusions

Excluded under Coverage **A.**

SUPPLEMENTARY PAYMENTS – COVERAGES A AND B

1. We will pay, with respect to any claim we investigate or settle, or any "suit" against an insured we defend:

a. All expenses we incur.

b. Up to $250 for cost of bail bonds required because of accidents or traffic law violations arising out of the use of any vehicle to which the Bodily Injury Liability Coverage applies. We do not have to furnish these bonds.

c. The cost of bonds to release attachments, but only for bond amounts within the applicable limit of insurance. We do not have to furnish these bonds.

d. All reasonable expenses incurred by the insured at our request to assist us in the investigation or defense of the claim or "suit", including actual loss of earnings up to $250 a day because of time off from work.

e. All court costs taxed against the insured in the "suit". However, these payments do not include attorneys' fees or attorneys' expenses taxed against the insured.

f. Prejudgment interest awarded against the insured on that part of the judgment we pay. If we make an offer to pay the applicable limit of insurance, we will not pay any prejudgment interest based on that period of time after the offer.

g. All interest on the full amount of any judgment that accrues after entry of the judgment and before we have paid, offered to pay, or deposited in court the part of the judgment that is within the applicable limit of insurance.

These payments will not reduce the limits of insurance.

2. If we defend an insured against a "suit" and an indemnitee of the insured is also named as a party to the "suit", we will defend that indemnitee if all of the following conditions are met:

   a. The "suit" against the indemnitee seeks damages for which the insured has assumed the liability of the indemnitee in a contract or agreement that is an "insured contract";

   b. This insurance applies to such liability assumed by the insured;

   c. The obligation to defend, or the cost of the defense of, that indemnitee, has also been assumed by the insured in the same "insured contract";

   d. The allegations in the "suit" and the information we know about the "occurrence" are such that no conflict appears to exist between the interests of the insured and the interests of the indemnitee;

   e. The indemnitee and the insured ask us to conduct and control the defense of that indemnitee against such "suit" and agree that we can assign the same counsel to defend the insured and the indemnitee; and

   f. The indemnitee:

      (1) Agrees in writing to:

         (a) Cooperate with us in the investigation, settlement or defense of the "suit";

         (b) Immediately send us copies of any demands, notices, summonses or legal papers received in connection with the "suit";

         (c) Notify any other insurer whose coverage is available to the indemnitee; and

         (d) Cooperate with us with respect to coordinating other applicable insurance available to the indemnitee; and

      (2) Provides us with written authorization to:

         (a) Obtain records and other information related to the "suit"; and

         (b) Conduct and control the defense of the indemnitee in such "suit".

   So long as the above conditions are met, attorneys' fees incurred by us in the defense of that indemnitee, necessary litigation expenses incurred by us and necessary litigation expenses incurred by the indemnitee at our request will be paid as Supplementary Payments. Notwithstanding the provisions of Paragraph **2.b.(2)** of Section I – Coverage A – Bodily Injury And Property Damage Liability, such payments will not be deemed to be damages for "bodily injury" and "property damage" and will not reduce the limits of insurance.

   Our obligation to defend an insured's indemnitee and to pay for attorneys' fees and necessary litigation expenses as Supplementary Payments ends when we have used up the applicable limit of insurance in the payment of judgments or settlements or the conditions set forth above, or the terms of the agreement described in Paragraph **f.** above, are no longer met.

SECTION II – WHO IS AN INSURED

1. If you are designated in the Declarations as:

   a. An individual, you and your spouse are insureds, but only with respect to the conduct of a business of which you are the sole owner.

   b. A partnership or joint venture, you are an insured. Your members, your partners, and their spouses are also insureds, but only with respect to the conduct of your business.

   c. A limited liability company, you are an insured. Your members are also insureds, but only with respect to the conduct of your business. Your managers are insureds, but only with respect to their duties as your managers.

   d. An organization other than a partnership, joint venture or limited liability company, you are an insured. Your "executive officers" and directors are insureds, but only with respect to their duties as your officers or directors. Your stockholders are also insureds, but only with respect to their liability as stockholders.

   e. A trust, you are an insured. Your trustees are also insureds, but only with respect to their duties as trustees.

2. Each of the following is also an insured:
   a. Your "volunteer workers" only while performing duties related to the conduct of your business, or your "employees", other than either your "executive officers" (if you are an organization other than a partnership, joint venture or limited liability company) or your managers (if you are a limited liability company), but only for acts within the scope of their employment by you or while performing duties related to the conduct of your business. However, none of these "employees" or "volunteer workers" are insureds for:
      (1) "Bodily injury" or "personal and advertising injury":
         (a) To you, to your partners or members (if you are a partnership or joint venture), to your members (if you are a limited liability company), to a co-"employee" while in the course of his or her employment or performing duties related to the conduct of your business, or to your other "volunteer workers" while performing duties related to the conduct of your business;
         (b) To the spouse, child, parent, brother or sister of that co-"employee" or "volunteer worker" as a consequence of Paragraph **(1)(a)** above;
         (c) For which there is any obligation to share damages with or repay someone else who must pay damages because of the injury described in Paragraph **(1)(a)** or **(b)** above; or
         (d) Arising out of his or her providing or failing to provide professional health care services.
      (2) "Property damage" to property:
         (a) Owned, occupied or used by;
         (b) Rented to, in the care, custody or control of, or over which physical control is being exercised for any purpose by;

      you, any of your "employees", "volunteer workers", any partner or member (if you are a partnership or joint venture), or any member (if you are a limited liability company).
   b. Any person (other than your "employee" or "volunteer worker"), or any organization while acting as your real estate manager.
   c. Any person or organization having proper temporary custody of your property if you die, but only:
      (1) With respect to liability arising out of the maintenance or use of that property; and
      (2) Until your legal representative has been appointed.
   d. Your legal representative if you die, but only with respect to duties as such. That representative will have all your rights and duties under this Coverage Part.
3. Any organization you newly acquire or form, other than a partnership, joint venture or limited liability company, and over which you maintain ownership or majority interest, will qualify as a Named Insured if there is no other similar insurance available to that organization. However:
   a. Coverage under this provision is afforded only until the 90th day after you acquire or form the organization or the end of the policy period, whichever is earlier;
   b. Coverage **A** does not apply to "bodily injury" or "property damage" that occurred before you acquired or formed the organization; and
   c. Coverage **B** does not apply to "personal and advertising injury" arising out of an offense committed before you acquired or formed the organization.

No person or organization is an insured with respect to the conduct of any current or past partnership, joint venture or limited liability company that is not shown as a Named Insured in the Declarations.

SECTION III – LIMITS OF INSURANCE

1. The Limits of Insurance shown in the Declarations and the rules below fix the most we will pay regardless of the number of:
   a. Insureds;
   b. Claims made or "suits" brought; or
   c. Persons or organizations making claims or bringing "suits".
2. The General Aggregate Limit is the most we will pay for the sum of:
   a. Medical expenses under Coverage **C;**
   b. Damages under Coverage **A,** except damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard"; and
   c. Damages under Coverage **B.**

3. The Products-Completed Operations Aggregate Limit is the most we will pay under Coverage **A** for damages because of "bodily injury" and "property damage" included in the "products-completed operations hazard".
4. Subject to Paragraph **2.** above, the Personal And Advertising Injury Limit is the most we will pay under Coverage **B** for the sum of all damages because of all "personal and advertising injury" sustained by any one person or organization.
5. Subject to Paragraph **2.** or **3.** above, whichever applies, the Each Occurrence Limit is the most we will pay for the sum of:
   a. Damages under Coverage **A**; and
   b. Medical expenses under Coverage **C**

   because of all "bodily injury" and "property damage" arising out of any one "occurrence".
6. Subject to Paragraph **5.** above, the Damage To Premises Rented To You Limit is the most we will pay under Coverage **A** for damages because of "property damage" to any one premises, while rented to you, or in the case of damage by fire, while rented to you or temporarily occupied by you with permission of the owner.
7. Subject to Paragraph **5.** above, the Medical Expense Limit is the most we will pay under Coverage **C** for all medical expenses because of "bodily injury" sustained by any one person.

The Limits of Insurance of this Coverage Part apply separately to each consecutive annual period and to any remaining period of less than 12 months, starting with the beginning of the policy period shown in the Declarations, unless the policy period is extended after issuance for an additional period of less than 12 months. In that case, the additional period will be deemed part of the last preceding period for purposes of determining the Limits of Insurance.

SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS

1. **Bankruptcy**

   Bankruptcy or insolvency of the insured or of the insured's estate will not relieve us of our obligations under this Coverage Part.

2. **Duties In The Event Of Occurrence, Offense, Claim Or Suit**
   a. You must see to it that we are notified as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, notice should include:
      (1) How, when and where the "occurrence" or offense took place;
      (2) The names and addresses of any injured persons and witnesses; and
      (3) The nature and location of any injury or damage arising out of the "occurrence" or offense.
   b. If a claim is made or "suit" is brought against any insured, you must:
      (1) Immediately record the specifics of the claim or "suit" and the date received; and
      (2) Notify us as soon as practicable.

      You must see to it that we receive written notice of the claim or "suit" as soon as practicable.
   c. You and any other involved insured must:
      (1) Immediately send us copies of any demands, notices, summonses or legal papers received in connection with the claim or "suit";
      (2) Authorize us to obtain records and other information;
      (3) Cooperate with us in the investigation or settlement of the claim or defense against the "suit"; and
      (4) Assist us, upon our request, in the enforcement of any right against any person or organization which may be liable to the insured because of injury or damage to which this insurance may also apply.
   d. No insured will, except at that insured's own cost, voluntarily make a payment, assume any obligation, or incur any expense, other than for first aid, without our consent.

3. **Legal Action Against Us**

   No person or organization has a right under this Coverage Part:
   a. To join us as a party or otherwise bring us into a "suit" asking for damages from an insured; or
   b. To sue us on this Coverage Part unless all of its terms have been fully complied with.

   A person or organization may sue us to recover on an agreed settlement or on a final judgment against an insured; but we will not be liable for damages that are not payable under the terms of this Coverage Part or that are in excess of the applicable limit of insurance. An agreed settlement means a settlement and release of liability signed by us, the insured and the claimant or the claimant's legal representative.

4. Other Insurance

If other valid and collectible insurance is available to the insured for a loss we cover under Coverages **A** or **B** of this Coverage Part, our obligations are limited as follows:

a. Primary Insurance

This insurance is primary except when Paragraph **b.** below applies. If this insurance is primary, our obligations are not affected unless any of the other insurance is also primary. Then, we will share with all that other insurance by the method described in Paragraph **c.** below.

b. Excess Insurance

(1) This insurance is excess over:

(a) Any of the other insurance, whether primary, excess, contingent or on any other basis:

(i) That is Fire, Extended Coverage, Builder's Risk, Installation Risk or similar coverage for "your work";

(ii) That is Fire insurance for premises rented to you or temporarily occupied by you with permission of the owner;

(iii) That is insurance purchased by you to cover your liability as a tenant for "property damage" to premises rented to you or temporarily occupied by you with permission of the owner; or

(iv) If the loss arises out of the maintenance or use of aircraft, "autos" or watercraft to the extent not subject to Exclusion **g.** of Section **I** – Coverage **A** – Bodily Injury And Property Damage Liability.

(b) Any other primary insurance available to you covering liability for damages arising out of the premises or operations, or the products and completed operations, for which you have been added as an additional insured.

(2) When this insurance is excess, we will have no duty under Coverages **A** or **B** to defend the insured against any "suit" if any other insurer has a duty to defend the insured against that "suit". If no other insurer defends, we will undertake to do so, but we will be entitled to the insured's rights against all those other insurers.

(3) When this insurance is excess over other insurance, we will pay only our share of the amount of the loss, if any, that exceeds the sum of:

(a) The total amount that all such other insurance would pay for the loss in the absence of this insurance; and

(b) The total of all deductible and self-insured amounts under all that other insurance.

(4) We will share the remaining loss, if any, with any other insurance that is not described in this Excess Insurance provision and was not bought specifically to apply in excess of the Limits of Insurance shown in the Declarations of this Coverage Part.

c. Method Of Sharing

If all of the other insurance permits contribution by equal shares, we will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable limit of insurance or none of the loss remains, whichever comes first.

If any of the other insurance does not permit contribution by equal shares, we will contribute by limits. Under this method, each insurer's share is based on the ratio of its applicable limit of insurance to the total applicable limits of insurance of all insurers.

5. Premium Audit

a. We will compute all premiums for this Coverage Part in accordance with our rules and rates.

b. Premium shown in this Coverage Part as advance premium is a deposit premium only. At the close of each audit period we will compute the earned premium for that period and send notice to the first Named Insured. The due date for audit and retrospective premiums is the date shown as the due date on the bill. If the sum of the advance and audit premiums paid for the policy period is greater than the earned premium, we will return the excess to the first Named Insured.

c. The first Named Insured must keep records of the information we need for premium computation, and send us copies at such times as we may request.

6. Representations

By accepting this policy, you agree:

a. The statements in the Declarations are accurate and complete;

b. Those statements are based upon representations you made to us; and

c. We have issued this policy in reliance upon your representations.

7. **Separation Of Insureds**

Except with respect to the Limits of Insurance, and any rights or duties specifically assigned in this Coverage Part to the first Named Insured, this insurance applies:

a. As if each Named Insured were the only Named Insured; and

b. Separately to each insured against whom claim is made or "suit" is brought.

8. **Transfer Of Rights Of Recovery Against Others To Us**

If the insured has rights to recover all or part of any payment we have made under this Coverage Part, those rights are transferred to us. The insured must do nothing after loss to impair them. At our request, the insured will bring "suit" or transfer those rights to us and help us enforce them.

9. **When We Do Not Renew**

If we decide not to renew this Coverage Part, we will mail or deliver to the first Named Insured shown in the Declarations written notice of the nonrenewal not less than 30 days before the expiration date.

If notice is mailed, proof of mailing will be sufficient proof of notice.

SECTION V – DEFINITIONS

1. "Advertisement" means a notice that is broadcast or published to the general public or specific market segments about your goods, products or services for the purpose of attracting customers or supporters. For the purposes of this definition:

a. Notices that are published include material placed on the Internet or on similar electronic means of communication; and

b. Regarding web sites, only that part of a web site that is about your goods, products or services for the purposes of attracting customers or supporters is considered an advertisement.

2. "Auto" means:

a. A land motor vehicle, trailer or semitrailer designed for travel on public roads, including any attached machinery or equipment; or

b. Any other land vehicle that is subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged.

However, "auto" does not include "mobile equipment".

3. "Bodily injury" means bodily injury, sickness or disease sustained by a person, including death resulting from any of these at any time.

4. "Coverage territory" means:

a. The United States of America (including its territories and possessions), Puerto Rico and Canada;

b. International waters or airspace, but only if the injury or damage occurs in the course of travel or transportation between any places included in Paragraph **a.** above; or

c. All other parts of the world if the injury or damage arises out of:

(1) Goods or products made or sold by you in the territory described in Paragraph **a.** above;

(2) The activities of a person whose home is in the territory described in Paragraph **a.** above, but is away for a short time on your business; or

(3) "Personal and advertising injury" offenses that take place through the Internet or similar electronic means of communication;

provided the insured's responsibility to pay damages is determined in a "suit" on the merits, in the territory described in Paragraph **a.** above or in a settlement we agree to.

5. "Employee" includes a "leased worker". "Employee" does not include a "temporary worker".

6. "Executive officer" means a person holding any of the officer positions created by your charter, constitution, bylaws or any other similar governing document.

7. "Hostile fire" means one which becomes uncontrollable or breaks out from where it was intended to be.

8. "Impaired property" means tangible property, other than "your product" or "your work", that cannot be used or is less useful because:

a. It incorporates "your product" or "your work" that is known or thought to be defective, deficient, inadequate or dangerous; or

b. You have failed to fulfill the terms of a contract or agreement;

if such property can be restored to use by the repair, replacement, adjustment or removal of "your product" or "your work" or your fulfilling the terms of the contract or agreement.

9. "Insured contract" means:

   a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for damage by fire to premises while rented to you or temporarily occupied by you with permission of the owner is not an "insured contract";

   b. A sidetrack agreement;

   c. Any easement or license agreement, except in connection with construction or demolition operations on or within 50 feet of a railroad;

   d. An obligation, as required by ordinance, to indemnify a municipality, except in connection with work for a municipality;

   e. An elevator maintenance agreement;

   f. That part of any other contract or agreement pertaining to your business (including an indemnification of a municipality in connection with work performed for a municipality) under which you assume the tort liability of another party to pay for "bodily injury" or "property damage" to a third person or organization. Tort liability means a liability that would be imposed by law in the absence of any contract or agreement.

      Paragraph **f.** does not include that part of any contract or agreement:

      (1) That indemnifies a railroad for "bodily injury" or "property damage" arising out of construction or demolition operations, within 50 feet of any railroad property and affecting any railroad bridge or trestle, tracks, road-beds, tunnel, underpass or crossing;

      (2) That indemnifies an architect, engineer or surveyor for injury or damage arising out of:

         (a) Preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

         (b) Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage; or

      (3) Under which the insured, if an architect, engineer or surveyor, assumes liability for an injury or damage arising out of the insured's rendering or failure to render professional services, including those listed in **(2)** above and supervisory, inspection, architectural or engineering activities.

10. "Leased worker" means a person leased to you by a labor leasing firm under an agreement between you and the labor leasing firm, to perform duties related to the conduct of your business. "Leased worker" does not include a "temporary worker".

11. "Loading or unloading" means the handling of property:

   a. After it is moved from the place where it is accepted for movement into or onto an aircraft, watercraft or "auto";

   b. While it is in or on an aircraft, watercraft or "auto"; or

   c. While it is being moved from an aircraft, watercraft or "auto" to the place where it is finally delivered;

   but "loading or unloading" does not include the movement of property by means of a mechanical device, other than a hand truck, that is not attached to the aircraft, watercraft or "auto".

12. "Mobile equipment" means any of the following types of land vehicles, including any attached machinery or equipment:

   a. Bulldozers, farm machinery, forklifts and other vehicles designed for use principally off public roads;

   b. Vehicles maintained for use solely on or next to premises you own or rent;

   c. Vehicles that travel on crawler treads;

   d. Vehicles, whether self-propelled or not, maintained primarily to provide mobility to permanently mounted:

      (1) Power cranes, shovels, loaders, diggers or drills; or

      (2) Road construction or resurfacing equipment such as graders, scrapers or rollers;

   e. Vehicles not described in Paragraph **a.**, **b.**, **c.** or **d.** above that are not self-propelled and are maintained primarily to provide mobility to permanently attached equipment of the following types:

      (1) Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting and well servicing equipment; or

      (2) Cherry pickers and similar devices used to raise or lower workers;

   f. Vehicles not described in Paragraph **a.**, **b.**, **c.** or **d.** above maintained primarily for purposes other than the transportation of persons or cargo.

However, self-propelled vehicles with the following types of permanently attached equipment are not "mobile equipment" but will be considered "autos":

(1) Equipment designed primarily for:

(a) Snow removal;

(b) Road maintenance, but not construction or resurfacing; or

(c) Street cleaning;

(2) Cherry pickers and similar devices mounted on automobile or truck chassis and used to raise or lower workers; and

(3) Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting and well servicing equipment.

However, "mobile equipment" does not include any land vehicles that are subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged. Land vehicles subject to a compulsory or financial responsibility law or other motor vehicle insurance law are considered "autos".

13. "Occurrence" means an accident, including continuous or repeated exposure to substantially the same general harmful conditions.

14. "Personal and advertising injury" means injury, including consequential "bodily injury", arising out of one or more of the following offenses:

a. False arrest, detention or imprisonment;

b. Malicious prosecution;

c. The wrongful eviction from, wrongful entry into, or invasion of the right of private occupancy of a room, dwelling or premises that a person occupies, committed by or on behalf of its owner, landlord or lessor;

d. Oral or written publication, in any manner, of material that slanders or libels a person or organization or disparages a person's or organization's goods, products or services;

e. Oral or written publication, in any manner, of material that violates a person's right of privacy;

f. The use of another's advertising idea in your "advertisement"; or

g. Infringing upon another's copyright, trade dress or slogan in your "advertisement".

15. "Pollutants" mean any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.

16. "Products-completed operations hazard":

a. Includes all "bodily injury" and "property damage" occurring away from premises you own or rent and arising out of "your product" or "your work" except:

(1) Products that are still in your physical possession; or

(2) Work that has not yet been completed or abandoned. However, "your work" will be deemed completed at the earliest of the following times:

(a) When all of the work called for in your contract has been completed.

(b) When all of the work to be done at the job site has been completed if your contract calls for work at more than one job site.

(c) When that part of the work done at a job site has been put to its intended use by any person or organization other than another contractor or subcontractor working on the same project.

Work that may need service, maintenance, correction, repair or replacement, but which is otherwise complete, will be treated as completed.

b. Does not include "bodily injury" or "property damage" arising out of:

(1) The transportation of property, unless the injury or damage arises out of a condition in or on a vehicle not owned or operated by you, and that condition was created by the "loading or unloading" of that vehicle by any insured;

(2) The existence of tools, uninstalled equipment or abandoned or unused materials; or

(3) Products or operations for which the classification, listed in the Declarations or in a policy Schedule, states that products-completed operations are subject to the General Aggregate Limit.

17. "Property damage" means:

a. Physical injury to tangible property, including all resulting loss of use of that property. All such loss of use shall be deemed to occur at the time of the physical injury that caused it; or

b. Loss of use of tangible property that is not physically injured. All such loss of use shall be deemed to occur at the time of the "occurrence" that caused it.

For the purposes of this insurance, electronic data is not tangible property.

As used in this definition, electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software, including systems and applications software, hard or floppy disks, CD-ROMs, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

18. "Suit" means a civil proceeding in which damages because of "bodily injury", "property damage" or "personal and advertising injury" to which this insurance applies are alleged. "Suit" includes:
    a. An arbitration proceeding in which such damages are claimed and to which the insured must submit or does submit with our consent; or
    b. Any other alternative dispute resolution proceeding in which such damages are claimed and to which the insured submits with our consent.
19. "Temporary worker" means a person who is furnished to you to substitute for a permanent "employee" on leave or to meet seasonal or short-term workload conditions.
20. "Volunteer worker" means a person who is not your "employee", and who donates his or her work and acts at the direction of and within the scope of duties determined by you, and is not paid a fee, salary or other compensation by you or anyone else for their work performed for you.
21. "Your product":
    a. Means:
        (1) Any goods or products, other than real property, manufactured, sold, handled, distributed or disposed of by:
            (a) You;
            (b) Others trading under your name; or
            (c) A person or organization whose business or assets you have acquired; and
        (2) Containers (other than vehicles), materials, parts or equipment furnished in connection with such goods or products.
    b. Includes:
        (1) Warranties or representations made at any time with respect to the fitness, quality, durability, performance or use of "your product"; and
        (2) The providing of or failure to provide warnings or instructions.
    c. Does not include vending machines or other property rented to or located for the use of others but not sold.
22. "Your work":
    a. Means:
        (1) Work or operations performed by you or on your behalf; and
        (2) Materials, parts or equipment furnished in connection with such work or operations.
    b. Includes:
        (1) Warranties or representations made at any time with respect to the fitness, quality, durability, performance or use of "your work"; and
        (2) The providing of or failure to provide warnings or instructions.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – MANAGERS OR LESSORS OF PREMISES

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Designation Of Premises (Part Leased To You): **423 Washington Street, San Francisco, CA 94111**
Name Of Person(s) Or Organization(s) (Additional Insured): **California Environmental Associates**
Additional Premium: $ 100
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability arising out of the ownership, maintenance or use of that part of the premises leased to you and shown in the Schedule and subject to the following additional exclusions:

This insurance does not apply to:

1. Any "occurrence" which takes place after you cease to be a tenant in that premises.
2. Structural alterations, new construction or demolition operations performed by or on behalf of the person(s) or organization(s) shown in the Schedule.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

EXCLUSION – PRODUCTS-COMPLETED OPERATIONS HAZARD

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

This insurance does not apply to "bodily injury" or "property damage" included within the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

CONTRACTUAL LIABILITY LIMITATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The definition of "insured contract" in the DEFINITIONS Section is replaced by the following:

"Insured contract" means:

a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for damage by fire to premises while rented to you or temporarily occupied by you with permission of the owner is not an "insured contract";

b. A sidetrack agreement;

c. Any easement or license agreement, except in connection with construction or demolition operations on or within 50 feet of a railroad;

d. An obligation, as required by ordinance, to indemnify a municipality, except in connection with work for a municipality;

e. An elevator maintenance agreement.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

LIMITATION OF COVERAGE TO DESIGNATED PREMISES OR PROJECT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Premises: 423 Washington Street, San Francisco, CA 94111
Project:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

This insurance applies only to "bodily injury", "property damage", "personal and advertising injury" and medical expenses arising out of:

1. The ownership, maintenance or use of the premises shown in the Schedule and operations necessary or incidental to those premises; or
2. The project shown in the Schedule.

This Endorsement Changes The Policy. Please Read It Carefully.

BASIS OF PREMIUM

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM

The words and phrases that appear in the Declarations related to the calculation of premium have special meaning and are defined below:

1. "Admissions" means the total number of persons, other than employees of the named insured, admitted to the event(s) insured or to the event(s) conducted on the premises whether on paid admissions, tickets, complimentary tickets or passes.
2. "Area" means the total number of square feet of floor space at the insured premises.
3. "Each" This basis of premium involves units of exposure, and the quantity comprising each unit of exposure is indicated in the premium classification footnotes, such as "each person".
4. "Gross Sales" means the gross amount charged by the named insured, concessionaires of the named insured or by others trading under the insured's name for:
   a. All goods or products, sold or distributed;
   b. Operations performed during the policy period, including operations performed for the insured by independent contractors;
   c. Rentals; and
   d. Dues or fees.

   "Gross Sales" does not include sales or excise taxes which are collected and submitted to a governmental division, or finance charges for items sold on installments.
5. "Payroll" means the total payroll earned during the policy period by proprietors and by all "employees", "leased workers" and "temporary workers" of the Named Insured and includes commissions, bonuses, extra pay for overtime work and pay for holidays, vacations or period of sickness. Payroll does not include tips and other gratuities.
6. "Total Cost" means the total cost of all work let or sublet including:
   a. The cost of all labor, materials and equipment furnished, used or delivered for use in the execution of the work; and
   b. All fees, bonuses or commissions made, paid or due.
7. "Units" means a single room or group of rooms intended for occupancy as separate living quarters by a family, by a group of unrelated persons living together, or by a person living alone.

This Endorsement Changes The Policy. Please Read It Carefully.

CLASSIFICATION LIMITATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

The following is added as an item to SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions; and COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions:

"Bodily injury", "property damage" or "personal and advertising injury" for operations which are not classified or shown on the Commercial General Liability Coverage Part Declarations, its endorsements or supplements.

All other terms and conditions of this policy remain unchanged.

This Endorsement Changes The Policy. Please Read It Carefully.

EXCLUSIONS AND LIMITATIONS AMENDATORY

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. Employment Related Practices

The following is added as an item to SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions and COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions:

"Bodily injury" or "personal and advertising injury" to:

1. A person arising out of any:
   a. Refusal to employ that person;
   b. Termination of that person's employment; or
   c. Employment-related practices, policies, acts or omissions, such as coercion, demotion, evaluation, reassignment, discipline, defamation, harassment, humiliation or discrimination directed at that person; or
2. The spouse, child, parent, brother or sister of that person as a consequence of "bodily injury" or "personal and advertising injury" to that person at whom any of the employment-related practices described in A.1.a., b. or c. above is directed.

This exclusion applies:

1. Whether the insured may be liable as an employer or in any other capacity; and
2. To any obligation to share damages with or repay someone else who must pay damages because of the injury.

B. Professional Services

The following is added as an item to SECTION I - COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions; COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions; and COVERAGE C MEDICAL PAYMENTS, 2 Exclusions:

"Bodily injury", "property damage", "personal and advertising injury" or medical expenses arising out of the rendering of or failure to render any professional service.

C. Deposit Premium and Minimum Premium

SECTION IV - CONDITIONS, 5. Premium Audit, item b. is deleted and replaced by the following:

Premium shown in this Coverage Part as advance premium is both a deposit premium and a minimum premium for the full policy period. At the close of each audit period, we will compute the earned premium for that period. If the earned premium is more than the advanced premium, notice of the amount by which it exceeds the advance premium will be sent to the first Named Insured. The due date for audit and retrospective premiums is the date shown as the due date on the bill. If the earned premium is less than the advance premium, the advance premium will apply as the minimum premium, with no return premium payable to you.

Should it become necessary to institute collection activities, including litigation, in order to collect an earned premium, then, in addition to the earned premium, you shall be responsible for a collection fee of 33%, and 100% of any and all other collection expenses, fees, and costs that we incur, plus interest as provided by law.

You shall maintain records of such information as is necessary for premium computation, and shall send copies of such records at the end of the policy period and at such times during the policy period as we may direct.

Policy No.: VBA480157

D. Asbestos, Silica

The following is added as an item to SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions; and COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions:

"Bodily injury", "property damage" or "personal and advertising injury" arising out of or in any way related to the actual or alleged presence or actual, alleged or threatened dispersal, discharge, emission, release, escape, handling, contact with, exposure to or inhalation or respiration of:

1. Asbestos, asbestos fibers or products containing asbestos provided that the "bodily injury", "property damage" or "personal and advertising injury" is caused or contributed to by the hazardous properties of asbestos.
2. Silica or products or substances containing silica.

This includes but is not limited to:

1. Any supervision, instruction, recommendations, warnings or advice given or which should have been given in connection with the above; and
2. Any obligation to share damages with or repay someone else who must pay damages because of such "bodily injury", "property damage" or "personal and advertising injury".

This exclusion applies to all such "bodily injury", "property damage" or "personal and advertising injury" whether or not the "bodily injury", "property damage" or "personal and advertising injury" is included in the "products-completed operations hazard".

E. Fungi, Bacteria or Mold

The following is added as an item to SECTION I - COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions and COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions:

1. "Bodily injury", "property damage" or "personal and advertising injury" which would not have occurred, in whole or in part, but for the actual, alleged or threatened inhalation of, ingestion of, contact with, exposure to, existence of, or presence of, any "fungi", bacteria or mold on or within a building or structure, including its contents, regardless of whether any other cause, event, material or product contributed concurrently or in any sequence to such "bodily injury", "property damage" or "personal and advertising injury".
2. Any loss, cost or expense arising out of the abating, testing for, monitoring, cleaning up, removing, containing, treating, detoxifying, neutralizing, remediating or disposing of, or in any way responding to, or assessing the effects of, "fungi", bacteria or mold, by any insured or by any other person or entity.

This exclusion does not apply to any "fungi", bacteria or mold that are on, or are contained in, a good or product intended for bodily consumption.

F. The following is added as an item to the SECTION V. DEFINITIONS:

"Fungi" means any type or form of fungus, including mold or mildew and any mycotoxins, spores, scents or byproducts produced or released by fungi.

G. Total Pollution

SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions, item f. Pollution is replaced by the following:

f. Pollution

(1) "Bodily injury" or "property damage" which would not have occurred in whole or part but for the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants" at any time.

(2) Any loss, cost or expense arising out of any:

(a) Request, demand or order or statutory or regulatory requirement that any insured or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of "pollutants"; or

(b) Claim or "suit" by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing, the effects of, "pollutants".

H. Pollutants Definition Amended

SECTION V - DEFINITIONS, 15. Pollutants is deleted and replaced by the following:

15. "Pollutants" mean any solid, liquid, gaseous or thermal irritant, contaminant or toxin, including but not limited to, smoke, vapor, soot, fumes, acids, alkalis, chemicals, metals and waste. Waste also includes materials to be recycled, reconditioned, or reclaimed.

I. Lead or Lead Hazard

The following is added as an item to SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY, 2. Exclusions; COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, 2. Exclusions; and COVERAGE C MEDICAL PAYMENTS, 2 Exclusions:

"Bodily injury", "property damage", "personal and advertising injury", medical payments, loss, cost, payment or expense, including, but not limited to, defense and investigation, of any kind arising out of, resulting from, caused by or contributed to by the actual or alleged presence or actual, alleged or threatened dispersal, release, ingestion, inhalation or absorption of lead, lead compounds or lead which is or was contained or incorporated into any material or substance. This exclusion applies, but is not limited to any:

1. Supervision, instructions, recommendations, warnings or advice given in connection with the above;
2. Obligation to share damages, losses, costs, payments or expenses with or repay someone else who must make payment because of such "bodily injury", "property damage", "personal and advertising injury", medical payments, loss, cost, payment or expense; or
3. Request, order or requirement to abate, mitigate, remediate, contain, remove or dispose of lead, lead compounds or materials or substances containing lead.

All other terms and conditions of this policy remain unchanged.

This Endorsement Changes The Policy. Please Read It Carefully.

EXCLUSION – INTELLECTUAL PROPERTY HAZARD

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. SECTION I – COVERAGES, COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY, Exclusion 2.i. is deleted in its entirety and replaced with the following:

Intellectual Property Hazard

This insurance does not apply to, nor do we have any duty or obligation to indemnify, investigate, settle, or defend, any claim, "suit" or administrative proceeding, or any actual or threatened injury or damage of any nature to any persons or property brought against you which arise out of any:

1. "Intellectual property hazard";
2. Non-disclosure agreement;
3. Non-compete agreement; or
4. Non-solicitation agreement.

B. DEFINITIONS are amended as follows:

1. Paragraphs d., e., f., and g. in the definition of "personal and advertising injury" in the COMMERCIAL GENERAL LIABILITY COVERAGE FORM are deleted in their entirety.
2. The following is added to DEFINITIONS:

"Intellectual property hazard" means:

a. Infringement of a copyright, patent, trademark, service mark, trade dress, title or slogan, service name, trade name or copyright joint ownership or other intellectual property rights;
b. Oral or written publication, in any manner, of material that slanders or libels a person or organization or disparages a person's or organization's goods, products, services or claims;
c. Piracy, unfair competition;
d. Oral or written publication, in any manner, of material that violates a person's right to privacy;
e. Claims which arise out of advertising ideas, style of doing business, intellectual property, trade secrets, or market share agreements;
f. The use of another's advertising idea in your "advertisement";
g. Violations of or claims relating to the Lanham Act (15 USC §1051-1141N); and/or
h. Violations of or claims relating to the Computer Fraud and Abuse Act (CFAA) (15 USC §1030), any regulations implementing the CFAA, and any similar state or federal law or regulation.

All other terms and conditions of this policy remain unchanged.

Policy No.: VBA480157

This Endorsement Changes The Policy. Please Read It Carefully.

EXCLUSION – ACCESS OR DISCLOSURE OF CONFIDENTIAL OR PERSONAL INFORMATION AND DATA-RELATED LIABILITY

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. Exclusion 2.p. of SECTION I – COVERAGES, COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY is replaced by the following:

2. Exclusions

This insurance does not apply to:

p. Access Or Disclosure Of Confidential Or Personal Information And Data-related Liability

Damages arising out of:

(1) Any access to or disclosure of any person's or organization's confidential or personal information, including patents, trade secrets, processing methods, customer lists, financial information, credit card information, health information or any other type of nonpublic information; or

(2) The loss of, loss of use of, damage to, corruption of, inability to access, or inability to manipulate electronic data.

This exclusion applies even if damages are claimed for notification costs, credit monitoring expenses, forensic expenses, public relations expenses or any other loss, cost or expense incurred by you or others arising out of that which is described in Paragraph **(1)** or **(2)** above.

As used in this exclusion, electronic data means information, facts or programs stored as or on, created or used on, or transmitted to or from computer software, including systems and applications software, hard or floppy disks, CD-ROMs, tapes, drives, cells, data processing devices or any other media which are used with electronically controlled equipment.

B. The following is added to Paragraph 2. Exclusions; SECTION I – COVERAGE B PERSONAL AND ADVERTISING INJURY LIABILITY:

2. Exclusions

This insurance does not apply to:

Access Or Disclosure Of Confidential Or Personal Information

"Personal and advertising injury" arising out of any access to or disclosure of any person's or organization's confidential or personal information, including patents, trade secrets, processing methods, customer lists, financial information, credit card information, health information or any other type of nonpublic information.

This exclusion applies even if damages are claimed for notification costs, credit monitoring expenses, forensic expenses, public relations expenses or any other loss, cost or expense incurred by you or others arising out of any access to or disclosure of any person's or organization's confidential or personal information.

All other terms and conditions of this policy remain unchanged.

This Endorsement Changes The Policy. Please Read It Carefully.

SERVICE OF SUIT (CALIFORNIA)

This endorsement modifies insurance provided under the following:

ALL COVERAGE PARTS

Notwithstanding anything to the contrary contained in the printed form of this policy, it is agreed and understood that service of suit in the State of California may be made upon the following:

Corporation Service Company

2710 Gateway Oaks Drive, Suite 150N

Sacramento, CA 95833-3505

All other provisions of the service of suit clause remain unchanged.

StarStone National Insurance Company

Following Form Excess Liability Insurance Policy

Company Address:

Harborside 5
185 Hudson Street, Suite 2600
Jersey City, NJ 07311
(201) 743-7700
www.starstone.com

To Report a Claim:

Contact your Insurance Agent, or
Contact the Company at (201) 743-7700 or
Send an email to: claims@starstone.com

To File a Complaint

Contact your Insurance Agent, or
Contact the Company at (201) 743-7700 or
Contact your State Director of Insurance

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Tel: 201 743 7700
Fax: 201 743 7701
www.starstone.com
Report claims to:
claims@starstone.com

STARSTONE NATIONAL INSURANCE COMPANY

HOME OFFICE: WILMINGTON DELAWARE

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY DECLARATIONS

1/30/2017 4:32:02 PM

POLICY NO.: 85128T171ALI **RENEWAL OF: 85128T160ALI**

ITEM 1. (a) NAMED INSURED: Klamath River Renewal Corporation (KRRC)
(b) ADDRESS: 423 Washington St. 4th Floor
San Francisco, CA 94111

ITEM 2. POLICY PERIOD: From: 01/31/2017 To:01/31/2018
(12:01 A.M. prevailing time at the address stated in **Item 1.** above)

ITEM 3. RETROACTIVE DATE: Not Applicable

ITEM 4. COVERAGE: Following Form Excess Liability

ITEM 5. LIMITS OF LIABILITY:

$5,000,000	Per Occurrence
$5,000,000	Other Aggregate
Excluded	Products/Completed Operations Aggregate

Excess of Total Limits in **Item 6.** below

ITEM 6. TOTAL LIMITS OF UNDERLYING POLICIES:

See Schedule of Followed Policies and Limits

ITEM 7. FOLLOWED POLICY:

See Schedule of Followed Policies and Limits

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Jersey City, NJ 07311
Tel: 201 743 7700
Fax: 201 743 7701
www.starstone.com
Report claims to:
claims@starstone.com

STARSTONE NATIONAL INSURANCE COMPANY

HOME OFFICE: WILMINGTON DELAWARE

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

ITEM 8. (a) PREMIUM: $3,350
$34 Additional TRIPRA Premium
Broker Fee $250
(b) MINIMUM EARNED PREMIUM: $0

ITEM 9. NOTICES TO THE INSURER:

(a) All notices of Occurrence or Claim: Claim Department
(b) All other notices: Underwriting Department
At the address and numbers shown at the top of the Declarations Page.

ITEM 10. POLICY FORM: SSN EXS 0001 CW 03 16 together with endorsements as per attached form SSN EXS 0004 CW 03 16 Schedule of Endorsements:

Authorized Representative

Date of Issue: 01/30/2017

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STARSTONE NATIONAL INSURANCE COMPANY

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

There are provisions in this Policy that restrict coverage. Read the entire Policy carefully to determine rights, duties and what is and is not covered.

Throughout this policy the words "you" and "your" refer to the Named Insured. The words "we", "us" and "our" refer to StarStone National Insurance Company, the company providing this insurance.

The word Insured means any person or organization qualifying as such in the **Followed Policy** but only to the extent which such Insured qualifies for coverage in the **Followed Policy.**

In consideration of the payment of premium and in reliance upon the statements in the Declarations and in accordance with the provisions of this Policy we agree with you to provide coverage as follows:

SECTION I. - COVERAGE

A. We will pay on behalf of the Insured the sums in excess of the Total Limits of Underlying Policies shown in **Item 6.** of the Declarations that the Insured becomes legally obligated to pay as damages.

B. This Policy applies only to damages covered by the **Followed Policy** as shown in **Item 7.** of the Declarations. Except as otherwise provided by this Policy, the coverage follows the definitions, terms, conditions, limitations and exclusions of the **Followed Policy** in effect at the inception of this Policy.

C. This Policy applies only to damages arising out of any claim or of any occurrence likely to give rise to a claim, of which no **Responsible Insured** was aware prior to the Inception Date set forth in **Item 2.** of the Declarations, regardless of whether such **Responsible Insured** believed such claim or occurrence would involve this Policy.

D. Notwithstanding **A.**, **B.** and **C.** above, in no event will this Policy follow the terms, conditions, exclusions or limitations in the **Followed Policy** or provide coverage under this Policy with respect to or as a result of any of the following clauses or similar clauses in the **Followed Policy**:

1. Liberalization clause;

2. Crisis Management or Crisis Response endorsement; or

3. Sublimit of liability, unless coverage for such sublimit is specifically endorsed to this Policy.

E. The amount we will pay for damages is limited as described in **SECTION II. – LIMITS OF LIABILITY.**

If we are prevented by law from paying on behalf of the Insured, we will indemnify you for damages covered under the terms of the Policy, which you become legally obligated to pay.

SECTION II. - LIMITS OF LIABILITY

A. The Limits of Liability shown in the Declarations and the rules below describe the most we will pay regardless of the number of:

1. Insureds;

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2. Claims made or suits brought; or
3. Persons or organizations making claims or bringing suits.

B. The Limits of Liability of this Policy will apply as follows:

1. This Policy applies only in excess of the Total Limits of Underlying Policies shown in **Item 6.** of the Declarations.

2. If our Limits of Liability stated in **Item 5.** of the Declarations are less than the total Limits of Liability stated in **Item 5.**, the limits of our liability shall be that proportion of all damages which our Limits of Liability bear to the total Limits of Liability in **Item 5.** and which is in excess of the Total Limits of Underlying Policies stated in **Item 6.** of the Declarations.

3. Subject to Paragraph **B.2.** above, the Per Occurrence Limit stated in **Item 5.** of the Declarations is the most we will pay for all damages arising out of any one occurrence to which this Policy applies.

4. Subject to Paragraphs **B.2.** and **B.3.** above, the limit stated in **Item 5.** of the Declarations for the Products/Completed Operations Aggregate is the most we will pay for all damages during our policy period under the products-completed operations hazard.

5. Subject to Paragraphs **B.2.** and **B.3.** above, the limit stated in **Item 5.** of the Declarations for the Other Aggregate is the most we will pay for all damages, except for damages covered under the products-completed operations hazard, that are subject to an aggregate limit provided by the **Followed Policy.** The Other Aggregate Limit applies separately and in the same manner as the aggregate limits provided by the **Followed Policy.**

6. Subject to Paragraphs **B.2., B.3., B.4. B.5.** above, if the Total Limits of Underlying Policies stated in **Item 6.** of the Declarations are reduced or exhausted solely by payment of damages to which this Policy applies, such insurance provided by this Policy will apply in excess of the reduced Limits of Underlying Policies, or if all Limits of Underlying Policies are exhausted, will apply as underlying insurance subject to the same terms, conditions, definitions and exclusions of the **Followed Policy,** except for the terms, conditions, definitions and exclusions of this Policy.

7. This Policy will not apply in excess of any reduced or exhausted Limits of Underlying Policies to the extent such reduction or exhaustion is caused by payment of damages that are not covered under this Policy. This provision applies whether the lack of coverage under this Policy arises:

   a. From a difference between the terms, conditions, definitions and exclusions of this Policy and the **Underlying Policies**; or

   b. From injury or damage occurring outside the coverage period of this Policy.

8. Defense costs to which this Policy applies shall not reduce the Limits of Liability of this Policy, except to the extent defense costs reduce the limits of liability of the **Followed Policy** or **Underlying Policies.**

9. The Limits of Liability of this Policy apply separately to each consecutive annual period and to any remaining period of less than 12 months, starting with the beginning of the policy period shown in

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the Declarations, unless the policy period is extended after issuance for an additional period of less than 12 months. In that case, the additional period will be deemed part of the preceding period for purposes of determining our Limits of Liability.

SECTION III. – DEFENSE

A. We will not be required to assume charge of the investigation of any claim or defense of any suit against an Insured.

B. We will have the right, but not the duty, to be associated with an Insured or underlying insurer or both in the investigation of any claim or defense of any suit which in our opinion may create liability on us for payment under this Policy.

C. If all Limits of Underlying Policies stated in **Item 6.** of the Declarations are exhausted solely by payment of damages, we shall have the right but not the duty to investigate and settle any claim or assume the defense of any suit, which in our opinion may give rise to a payment under this Policy. We may, however, withdraw from the defense of such suit and tender the continued defense to an Insured if our applicable Limit of Liability stated in **Item 5.** of the Declarations are exhausted by payment of damages.

D. If we exercise our rights under Paragraphs **B.** or **C.** above, we will do so at our own expense, and any such payments will not reduce the Limits of Liability provided by this Policy, unless such payments reduce the Limits of Underlying Policies. If defense payments reduce the Limits of Underlying Policies, they will also reduce the Limits of Liability provided by this Policy.

SECTION IV. - EXCLUSIONS

This Policy does not apply to any liability, damage, loss, cost or expense:

A. ASBESTOS

Arising out of:

1. The manufacturing, mining, use, sale, installation, removal, distribution of or exposure to asbestos, asbestos products, asbestos fibers, asbestos dust or products or materials containing asbestos;

2. Any obligation of an Insured to indemnify any party because of damages arising out of the manufacturing, mining , use, sale, installation, removal, distribution of or exposure to asbestos, asbestos products, asbestos fibers, asbestos dust or products or materials containing asbestos; or

3. Any obligation to defend any suit or claim against an Insured that seeks damages if such suit or claim arises as the result of the manufacturing, mining, use, sale, installation, removal, distribution of or exposure to asbestos, asbestos products, asbestos fibers, asbestos dust or products or materials containing asbestos.

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B. LAWS VARIOUS

Imposed on an Insured, or an Insured's insurer:

1. Under any of the following laws: Uninsured motorists, Underinsured motorists, Auto no-fault laws or other first party personal injury laws, or medical expense benefits and income loss benefits laws of any applicable state or jurisdiction.

2. For any obligation of an Insured under any workers compensation, disability benefits or unemployment compensation law or any similar law.

3. For any obligations incurred or imposed upon an Insured (or which are imputed to an Insured) under the Employee Retirement Income Security Act of 1974, Public Law 93-406 and any law amendatory thereof.

C. NUCLEAR

1. With respect to which an Insured under this Policy is also an insured under a nuclear energy liability policy issued by Nuclear Energy Insurance Association, Mutual Atomic Energy Liability Underwriters, Nuclear Insurance Association of Canada or any of their successors, or would be an insured under any such policy but for its termination upon exhaustion of its limit of liability; or

2. Resulting from the **hazardous properties** of **nuclear material** and with respect to which:

   a. Any person or organization is required to maintain financial protection pursuant to the Atomic Energy Act of 1954, or any law amendatory thereof; or

   b. The Insured is, or had this Policy not been issued would be, entitled to indemnity from the United States of America, or any agency thereof, under any agreement entered into by the United States of America, or any agency thereof, with any person or organization.

3. Bodily injury or **nuclear property damage** resulting from the **hazardous properties** of **nuclear material**, if:

   a. The **nuclear material:**

      1) Is at any **nuclear facility** owned by, or operated by or on behalf of, an Insured; or

      2) Has been discharged or dispersed therefrom;

   b. The **nuclear material** is contained in **spent fuel** or **waste** at any time possessed, handled, used, processed, stored, transported or disposed of by or on behalf of an Insured; or

   c. The bodily injury or **nuclear property damage** arises out of the furnishing by an Insured of services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of any **nuclear facility**, but if such facility is located within the United States of America, its territories or possessions or Canada, this Sub-paragraph **c.** applies only to **nuclear property damage** to such **nuclear facility** and any property thereat.

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As used in this Exclusion **C.:**

1. **Hazardous properties** include radioactive, toxic or explosive properties;

2. **Nuclear facility** means:

   a. Any **nuclear reactor**;

   b. Any equipment or device designed or used for:

      1) Separating the isotopes of uranium or plutonium;

      2) Processing or utilizing **spent fuel**; or

      3) Handling, processing or packaging **waste**;

   c. Any equipment or device used for the processing, fabricating or alloying of **special nuclear material** if at any time the total amount of such material in the custody of the Insured at the premises where such equipment or device is located consists of or contains more than 25 grams of plutonium or uranium 233 or any combination thereof, or more than 250 grams of uranium 235; or

   d. Any structure, basin, excavation, premises or place prepared or used for the storage or disposal of **waste**, and includes the site on which any of the foregoing is located, all operations conducted on such site and all premises used for such operations;

3. **Nuclear material** means **source material**, **special nuclear material** or **by-product material**;

4. **Nuclear property damage** includes all forms of radioactive contamination of property.

5. **Nuclear reactor** means any apparatus designed or used to sustain nuclear fission in a self-supporting chain reaction or to contain a critical mass of fissionable material;

6. **Source material**, **special nuclear material**, and **by-product material** have the meanings given them in the Atomic Energy Act of 1954 or in any law amendatory thereof;

7. **Spent fuel** means any fuel element or fuel component, solid or liquid, which has been used or exposed to radiation in a **nuclear reactor;**

8. **Waste** means any waste material:

   a. Containing **by-product material** other than the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its **source material** content; and

   c. Resulting from the operation by any person or organization of any **nuclear facility** included under the first two paragraphs of the definition of **nuclear facility**.

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D. POLLUTION LIABILITY

1. Arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of pollutants at any time; or

2. Arising out of pollution cost or expense.

However, if insurance for bodily injury or property damage for such discharge, dispersal, seepage, migration, release or escape of pollutants, or pollution cost or expense, is provided by the **Underlying Policies:**

1. This exclusion shall not apply; and

2. The insurance provided by this Policy will not be broader than the insurance coverage provided by the **Underlying Policies.**

E. WAR

Bodily injury, personal injury or property damage that results from, or any condition that is incidental to, any of the following: **(a)** war, whether or not declared; **(b)** civil war; **(c)** insurrection; **(d)** rebellion; **(e)** revolution; **(f)** warlike operations.

SECTION V. - DEFINITIONS

The following Definitions apply to this Policy:

A. Executive Officer means the Chairman of the Board, President, Chief Executive, Operating, Financial and Administrative Officers, Managing Directors, or any Executive or Senior Vice President of the Insured. Where such title is inapplicable, the equivalent level of personnel shall be substituted.

B. Followed Policy means the policy listed in **Item 7.** of the Declarations of this Policy.

C. Responsible Insured means an **Executive Officer** of the Insured, or any manager or equivalent level employee in the Insured's Risk Management, Insurance or Law Department.

D. Underlying Policies means those policies that comprise the Total Limits of Underlying Policies scheduled in **Item 6.** of the Declarations of this Policy and any other applicable underlying insurance, including any self-insured retentions.

SECTION VI. – CONDITIONS

A. BANKRUPTCY OR INSOLVENCY

1. The bankruptcy, insolvency or inability to pay of any Insured, or of any Insured's estate, will not relieve us of our obligation to pay damages covered by this Policy.

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2. In the event of bankruptcy, insolvency or refusal or inability to pay, of any underlying insurer, the insurance afforded by this Policy will not replace such underlying insurance, but will apply as if all the limits of any underlying insurance is fully available and collectible.

B. CANCELLATION

1. You may cancel this Policy. You must mail or deliver advance written notice to us stating when the cancellation it to be effective.

2. We may cancel this Policy. If we cancel because of non-payment of premium, we will mail or deliver to you not less than fifteen (15) days advance written notice when the cancellation is to take effect. If we cancel for any other reason, we will mail or deliver to you not less than sixty (60) days advance written notice stating when the cancellation is to take effect. Mailing notice to you at your mailing address shown in **Item 1.** of the Declarations will be sufficient to prove notice.

3. The policy period will end on the day and hour stated in the cancellation notice.

4. If we cancel, final premium will be calculated pro rata based on the time this Policy was in force.

5. If you cancel, final premium will be more than pro rata; it will be based on the time this Policy was in force and our short rate cancellation table and procedure.

6. Premium adjustment may be made at the time of the cancellation or as soon as practicable thereafter, but the cancellation will be effective even if we have not made or offered any refund due you. Our check or our representative's check, mailed or delivered, will be sufficient tender of any refund due you.

C. CHANGES IN FOLLOWED POLICIES

If during the policy period of this Policy, the terms, conditions, exclusions or limitations of the **Followed Policy** are changed in any manner from those in effect on the inception date of this Policy, you will give us, as soon as practicable, written notice of the full particulars of such changes. This Policy shall become subject to any such changes upon the effective date of the changes in the **Followed Policy**, but only upon the condition that we agree to follow such changes in writing and you agree to any additional premium or amendment of the provisions of this Policy required by us relating to such changes. Such change in coverage is conditioned upon your payment when due of any additional premium required by us relating to such changes.

D. COVERAGE TERRITORY

The Coverage Territory shall be deemed to be anywhere in the world, with the exception of any country or jurisdiction which is subject to trade or other economic sanction or embargo by the United States of America, provided a claim or suit for damages within the Coverage Territory must be brought within the United States of America.

Payments under this Policy shall only be made in full compliance with all United States of America economic or trade sanction laws or regulations, including, but not limited to, sanctions, laws and regulations administered and enforced by the U. S. Treasury Department's Office of Foreign Assets Control ("OFAC").

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FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

E. MAINTENANCE OF UNDERLYING INSURANCE

During the period of this Policy, you agree:

1. To keep the policies making up the Total Limits of Underlying Policies in **Item 6.** of the Declarations in full force and effect;
2. That the limits of insurance of the **Underlying Policies** will be maintained except for any reduction or exhaustion of aggregate limits by payment of claims or suits for damages covered by **Underlying Policies;**
3. **Underlying Policies** may not be canceled or not renewed by you without notifying us, and you agree to notify us in the event an insurance company cancels or declines to renew any **Underlying Policies;**
4. Renewals or replacements of the **Followed Policy** will not be materially changed without our agreement.

Your failure to comply with these requirements will not invalidate this Policy, but in the event of such failure, we will only be liable to the same extent as if there had been full compliance with these requirements.

F. PAYMENT OF PREMIUM

The first Named Insured listed in **Item 1.** of the Declarations of this Policy shall be responsible for and act on behalf of all Insureds with respect to the payment of any premiums due under this Policy, and for the receipt of any premium refund that may become payable under this Policy.

G. REQUIRED NOTICES TO INSURER BY INSURED

1. Notice of Occurrence, Offense, Claim or Loss

a. You or an Insured shall give written notice as soon as practicable to us of any occurrence, offense, claim or suit likely to involve this Policy.

b. Without limiting the requirements of paragraph **a.** above, you or an Insured shall separately, and as soon as practicable, give written notice to us when a payment is made or reserve established for any occurrence, offense, claim or suit which has brought the total of all payments and reserves by you or an Insured or Underlying Insurers to a level of fifty percent (50%) or more of the Underlying Aggregate Limit.

2. Notice Regarding Material Change

You shall give written notice to us of the following events as soon as practicable but in no event later than thirty (30) days after an Insured has become aware of the event: that the Named Insured is consolidating with or merging with or into, or transferring all or substantially all of its assets to, or acquiring or being acquired by any natural person or entity or group of natural persons and/or entities acting in concert.

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FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

With respect to the Notice required in Paragraphs **1.** and **2.** of this Condition **G.**, notice to an Underlying Insurer shall not constitute notice to us. Notice under this Policy shall be given to us at the appropriate address set forth in **Item 9.** of the Declarations of this Policy.

H. RESTRICTIVE AS UNDERLYING

Notwithstanding any provision to the contrary in this Policy, including, without limitation, **SECTION I. – COVERAGE** of this Policy, if any **Underlying Policy** with limits in excess of the **Followed Policy** but underlying to this Policy (the "Intervening Policy") contains warranties, terms, conditions, exclusions or limitations more restrictive than the **Followed Policy**, whether on the effective date of this Policy or at any time during the Policy Period of this Policy, then this Policy shall be deemed to follow those more restrictive warranties, terms, conditions, exclusions or limitations of the Intervening Policy.

I. SERVICE OF SUIT

Pursuant to any statute of any state, territory or District of the United States which makes provision therefore, we hereby designate the Superintendent, Commissioner or Director of Insurance or other officer specified for that purpose in the statute, or his successor or successors in office, as our true and lawful attorney upon whom may be served any lawful process in any action, suit or proceeding instituted by or on behalf of you or any beneficiary hereunder, arising out of this Policy.

IN WITNESS WHEREOF, the Insurer has caused this Policy to be signed by its Authorized Representative and countersigned on the Declarations Page by a dully authorized agent of the Insurer.

President

Secretary

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	1
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

SCHEDULE OF ENDORSEMENTS

FORM NO.:	ENDORSEMENT NAME:
SSNEXS0183CW	AUTO COVERAGE - EXCLUSION OF TERRORISM
SSNEXS0028CA	CANCELLATION AND NONRENEWAL - CALIFORNIA CHANGES
SSNML0002CW	DISCLOSURE PURSUANT TO TERRORISM RISK INSURANCE ACT
SSNEXS0067CW	EMPLOYMENT DISCRIMINATION AND EMPLOYMENT – RELATED PRACTICES EXCLUSION
SSNEXS0187CW	EXCLUSION OF OTHER ACTS OF TERRORISM COMMITTED OUTSIDE THE UNITED STATES; CAP ON LOSSES FROM CERTIFIED ACTS OF TERRORISM
SSNEXS0188CW	EXCLUSION OF PUNITIVE DAMAGES RELATED TO A CERTIFIED ACT OF TERRORISM
SSNEXS0080CW	FUNGI OR BACTERIA EXCLUSION
SSNEXS0122CW	PENDING AND PRIOR LITIGATION AND KNOWN LOSSES EXCLUSION
SSNEXS0166CW	SILICA EXCLUSION

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	2
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

SCHEDULE OF FOLLOWED POLICIES AND TOTAL LIMITS OF UNDERLYING POLICIES

ITEM 6.TOTAL LIMITS OF UNDERLYING POLICIES and **ITEM 7.** FOLLOWED POLICY of the DECLARATIONS are amended to read as follows:

ITEM 6. TOTAL LIMITS OF UNDERLYING POLICIES:

$1,000,000	Per Occurrence
$2,000,000	Other Aggregate
Excluded	Products/Completed Operations Aggregate
$1,000,000	Personal and Advertising Injury

ITEM 7. FOLLOWED POLICIES:

Company:	RSUI
Policy Number:	VBA342387 00
Coverage:	COMMERCIAL GENERAL LIABILITY
Policy Period:	01/31/2017 to 01/31/2018
Limits of Liability:	
$1,000,000	Per Occurrence
$2,000,000	Other Aggregate
Excluded	Products/Completed Operations Aggregate
$1,000,000	Personal and Advertising Injury

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	3
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

AUTO COVERAGE – EXCLUSION OF TERRORISM

The Policy is amended as follows:

Any endorsement addressing acts of terrorism (however defined) in any **Followed Policy** does not apply to this excess insurance. The following provisions addressing acts of terrorism apply with respect to this excess insurance:

A. The provisions of this endorsement:

1. Apply only to liability, damage, loss, cost or expense arising out of the ownership, maintenance or use of any auto that is a covered auto under this Policy; and
2. Supersede the provisions of any other endorsement addressing terrorism attached to this Policy only with respect to liability, damage, loss, cost or expense arising out of the ownership, maintenance or use of any auto that is a covered auto.

B. The following definition is added and applies under this endorsement wherever the term terrorism is in bold text:

1. **Terrorism** means activities against persons, organizations or property of any nature:
   - **a.** That involve the following or preparation for the following:
     - **(1)** Use or threat of force or violence; or
     - **(2)** Commission or threat of a dangerous act; or
     - **(3)** Commission or threat of an act that interferes with or disrupts an electronic, communication, information, or mechanical system; and
   - **b.** When one or both of the following applies:
     - **(1)** The effect is to intimidate or coerce a government or the civilian population or any segment thereof, or to disrupt any segment of the economy; or
     - **(2)** It appears that the intent is to intimidate or coerce a government, or to further political, ideological, religious, social or economic objectives or to express (or express opposition to) a philosophy or ideology.

C. The following exclusion is added:

EXCLUSION OF TERRORISM

We will not pay for liability, damage, loss, cost or expense caused directly or indirectly by **Terrorism**, including action in hindering or defending against an actual or expected incident of **Terrorism.** Any liability, damage, loss, cost or expense is excluded regardless of any other cause or event that contributes concurrently or in any sequence to such injury or damage. ***But this exclusion applies only when one or more of the following are attributed to an incident of Terrorism:***

1. The **Terrorism** is carried out by means of the dispersal or application of radioactive material, or through the use of a nuclear weapon or device that involves or produces a nuclear reaction, nuclear radiation or radioactive contamination; or
2. Radioactive material is released, and it appears that one purpose of the **Terrorism** was to release such material; or
3. The **Terrorism** is carried out by means of the dispersal or application of pathogenic or poisonous biological or chemical materials; or
4. Pathogenic or poisonous biological or chemical materials are released, and it appears that one purpose of the **Terrorism** was to release such materials; or
5. The total of insured damage to all types of property exceeds $25,000,000. In determining whether the $25,000,000 threshold is exceeded, we will include all insured damage sustained by property of all persons and entities affected by the **Terrorism** and business interruption losses sustained by owners or occupants of the damaged property. For the purpose of this provision, insured damage means damage that is covered by any insurance plus damage that would be covered by any insurance but for the application of any terrorism exclusions; or
6. Fifty or more persons sustain death or serious physical injury. For the purposes of this provision, serious physical injury means:
   a. Physical injury that involves a substantial risk of death; or
   b. Protracted and obvious physical disfigurement; or
   c. Protracted loss of or impairment of the function of a bodily member or organ.

Multiple incidents of **Terrorism** which occur within a 72-hour period and appear to be carried out in concert or to have a related purpose or common leadership will be deemed to be one incident, for the purpose of determining whether the thresholds in Paragraph **C.5.** or **C.6.** are exceeded.

With respect to this Exclusion, Paragraphs **C.5.** and **C.6.** describe the threshold used to measure the magnitude of an incident of **Terrorism** and the circumstances in which the threshold will apply, for the purpose of determining whether this Exclusion will apply to that incident. When the Exclusion applies to an incident of **Terrorism,** there is no coverage under this Policy.

In the event of any incident of **Terrorism** that is not subject to this Exclusion, coverage does not apply to any liability, damage, loss, cost or expense that is otherwise excluded under this Policy.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	4
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

CANCELLATION AND NONRENEWAL - CALIFORNIA CHANGES

The Policy is amended as follows:

A. Paragraph **B. 2. CANCELLATION** of **SECTION VI. - CONDITIONS** is deleted and replaced by the following:

2. a. All Policies In Effect For 60 Days Or Less

If this Policy has been in effect for 60 days or less, and is not a renewal of a policy we have previously issued, we may cancel this Policy by mailing or delivering to the first Named Insured at the mailing address shown in the Policy and to the producer of record, advance written notice of cancellation, stating the reason for cancellation, at least:

(1) 10 days before the effective date of cancellation if we cancel for:

(a) Nonpayment of premium; or

(b) Discovery of fraud by:

(i) Any insured or his or her representative in obtaining this insurance; or

(ii) You or your representative in pursuing a claim under this Policy.

(2) 30 days before the effective date of cancellation if we cancel for any other reason.

b. All Policies In Effect For More Than 60 Days

(1) If this Policy has been in effect for more than 60 days, or is a renewal of a policy we issued, we may cancel this Policy only upon the occurrence, after the effective date of the Policy, of one or more of the following:

(a) Nonpayment of premium, including payment due on a prior policy we issued and due during the current policy term covering the same risks.

(b) Discovery of fraud or material misrepresentation by:

(i) Any insured or his or her representative in obtaining this insurance; or

(ii) You or your representative in pursuing a claim under this Policy.

(c) A judgment by a court or an administrative tribunal that you have violated a California or Federal law, having as one of its necessary elements an act which materially increases any of the risks insured against.

(d) Discovery of willful or grossly negligent acts or omissions, or of any violations of state laws or regulations establishing safety standards, by you or your representative, which materially increase any of the risks insured against.

(e) Failure by you or your representative to implement reasonable loss control requirements, agreed to by you as a condition of policy issuance, or which were conditions precedent to our use of a particular rate or rating plan, if that failure materially increases any of the risks insured against.

(f) A determination by the Commissioner of Insurance that the:

(i) Loss of, or changes in, our reinsurance covering all or part of the risk would threaten our financial integrity or solvency; or

(ii) Continuation of the policy coverage would:

i. Place us in violation of California law or the laws of the state where we are domiciled; or

ii. Threaten our solvency.

(g) A change by you or your representative in the activities or property of the commercial or industrial enterprise, which results in a materially added, increased or changed risk, unless the added, increased or changed risk is included in the Policy.

(h) A material change in limits, type or scope of coverage, or exclusions in one or more of the underlying policies.

(i) Cancellation or nonrenewal of one or more of the underlying policies where such policies are not replaced without lapse.

(j) A reduction in financial rating or grade of one or more insurers, insuring one or more underlying policies based on an evaluation obtained from a recognized financial rating organization.

(2) We will mail or deliver advance written notice of cancellation, stating the reason for cancellation, to the first Named Insured, at the mailing address shown in the Policy, and to the producer of record, at least:

(a) 10 days before the effective date of cancellation if we cancel for nonpayment of premium or discovery of fraud; or

(b) 30 days before the effective date of cancellation if we cancel for any other reason listed in Paragraph **b.(1).**

B. SECTION VI. – CONDITIONS is amended to include the following condition:

NONRENEWAL

If we elect not to renew this Policy, we will mail or deliver written notice stating the reason for nonrenewal to the first Named Insured shown in the Declarations and to the producer of record, at least 60 days, but not more than 120 days, before the expiration or anniversary date.

We will mail or deliver our notice to the first Named Insured, and to the producer of record, at the mailing address shown in the Policy.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

THIS ENDORSEMENT IS ATTACHED TO AND MADE PART OF YOUR POLICY IN RESPONSE TO THE DISCLOSURE REQUIREMENTS OF THE TERRORISM RISK INSURANCE ACT. THIS ENDORSEMENT DOES NOT GRANT ANY COVERAGE OR CHANGE THE TERMS AND CONDITIONS OF ANY COVERAGE UNDER THE POLICY.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	5
Endorsement Effective Date:	01/31/2017

DISCLOSURE PURSUANT TO TERRORISM RISK INSURANCE ACT

SCHEDULE

Terrorism Premium (Certified Acts) $ 34 **This premium is the total Certified Acts premium attributable to the following Coverage Part(s), Coverage Form(s) and/or Policy(s):** **Following Form Excess Liability Insurance Policy** **Additional information, if any, concerning the terrorism premium:**
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. Disclosure Of Premium

In accordance with the federal Terrorism Risk Insurance Act, we are required to provide you with a notice disclosing the portion of your premium, if any, attributable to coverage for terrorist acts certified under the Terrorism Risk Insurance Act. The portion of your premium attributable to such coverage is shown in the Schedule of this endorsement or in the policy Declarations.

B. Disclosure Of Federal Participation In Payment Of Terrorism Losses

The United States Government, Department of the Treasury, will pay a share of terrorism losses insured under the federal program. The federal share equals 85% of that portion of the amount of such insured losses that exceeds the applicable insurer retention. However, if aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed $100 billion in a Program Year (January 1 through December 31), the Treasury shall not make any payment for any portion of the amount of such losses that exceeds $100 billion.

C. Cap On Insurer Participation In Payment Of Terrorism Losses

If aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed $100 billion in a Program Year (January 1 through December 31) and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds $100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	6
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

EMPLOYMENT DISCRIMINATION AND EMPLOYMENT – RELATED PRACTICES EXCLUSION

The Policy is amended as follows:

SECTION IV. –EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to any liability, defense costs, fines or damages which arise out of any:

1. Refusal to employ;

2. Termination of employment;

3. Coercion, demotion, evaluation, reassignment, discipline, defamation, harassment, humiliation, discrimination, or other employment-related practices, policies, acts or omissions;

4. Consequential bodily injury or personal injury as a result of **1.** through **3.** above.

This exclusion applies whether the Insured may be held liable as an employer or in another capacity and to any obligation of the Insured to share damages with or to repay someone else who must pay damages because of the injury.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	7
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

EXCLUSION OF OTHER ACTS OF TERRORISM COMMITTED OUTSIDE THE UNITED STATES; CAP ON LOSSES FROM CERTIFIED ACTS OF TERRORISM

The Policy is amended as follows:

Any endorsement addressing acts of terrorism (however defined) in any **Followed Policy** does not apply to this excess insurance. The following provisions addressing acts of terrorism apply with respect to this excess insurance:

SCHEDULE

Certified Acts of Terrorism Retained Amount	

A. Coverage provided by this Policy for damages arising out of a **Certified Act of Terrorism** applies in excess of the Certified Acts of Terrorism Retained Amount described in Paragraph **B.** below.

B. SECTION II. – LIMITS OF LIABILITY, is amended to include the following:

The Certified Acts of Terrorism Retained amount refers to the amount stated in the SCHEDULE of this endorsement. This amount may consist of a self-insured retention, **Underlying Policies,** or a combination thereof.

The Certified Acts of Terrorism Retained Amount applies:

1. Only to damages arising out of a **Certified Act of Terrorism** covered under this Policy: and
2. Separately to each **Certified Act of Terrorism.**

We will pay those sums covered under this Policy only after your Certified Acts of Terrorism Retained amount has been exhausted by means of payments for judgments or settlements. Defense expenses shall not erode the Certified Acts of Terrorism Retained Amount.

C. SECTION IV. – EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to any liability, damage, loss, cost or expense:

TERRORISM

Arising, directly or indirectly, out of an **Other Act of Terrorism** that is committed outside of the United States (including its territories and possessions and Puerto Rico), but within the coverage territory. However, this exclusion applies only when one or more of the following are attributed to such act:

1. The total of insured damage to all types of property exceeds $25,000,000 (valued in US dollars). In determining whether the $25,000,000 threshold is exceeded, we will include all insured damage sustained by property of all persons and entities affected by the terrorism and business interruption losses sustained by owners or occupants of the damaged property. For the purpose of this provision, insured damage means damage that is covered by any insurance plus damage that would be covered by any insurance but for the application of any terrorism exclusions; or
2. Fifty or more persons sustain death or serious physical injury. For the purposes of this provision, serious physical injury means:
   a. Physical injury that involves a substantial risk of death; or
   b. Protracted and obvious physical disfigurement; or
   c. Protracted loss of or impairment of the function of a bodily member or organ; or
3. The terrorism involves the use, release or escape of nuclear materials, or directly or indirectly results in nuclear reaction or radiation or radioactive contamination; or
4. The terrorism is carried out by means of the dispersal or application of pathogenic or poisonous biological or chemical materials; or
5. Pathogenic or poisonous biological or chemical materials are released, and it appears that one purpose of the terrorism was to release such materials.

With respect to this exclusion, Paragraphs **1.** and **2.** describe the thresholds used to measure the magnitude of an incident of an **Other Act of Terrorism** and the circumstances in which the threshold will apply for the purpose of determining whether this exclusion will apply to that incident.

D. **SECTION V. – DEFINITIONS,** is amended to include the following definitions:

1. **Certified Act of Terrorism** means an act that is certified by the Secretary of the Treasury, in concurrence with the Secretary of State and the Attorney General of the United States, to be an act of terrorism pursuant to the federal Terrorism Risk Insurance Act. The criteria contained in the Terrorism Risk Insurance Act for a **Certified Act of Terrorism** include the following:
   a. The act resulted in insured losses in excess of $5 million in the aggregate, attributable to all types of insurance subject to the Terrorism Risk Insurance Act;
   b. The act resulted in damage:
      (1) Within the United States (including its territories and possessions and Puerto Rico); or
      (2) Outside of the United States in the case of:
         (a) An air carrier (as defined in Section 40102 of title 49, United States Code) or United States flag vessel (or a vessel based principally in the United States, on which United States income tax is paid and whose insurance coverage is subject to regulation in the United States), regardless of where the loss occurs; or
         (b) The premises of any United States mission; and
   c. The act is a violent act or an act that is dangerous to human life, property or infrastructure and is committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.
2. **Other Act of Terrorism** means a violent act or an act that is dangerous to human life, property or infrastructure that is committed by an individual or individuals and that appears to be part of an effort to coerce a civilian population or to influence the policy or affect the conduct of any government by coercion, and the act is not a **Certified Act of Terrorism**.

   Multiple incidents of an **Other Act of Terrorism** which occur within a seventy-two hour period and appear to be carried out in concert or to have a related purpose or common leadership shall be considered to be one incident.

E. In the event of an **Other Act of Terrorism** that is not subject to this exclusion, coverage does not apply to any liability, damage, loss, cost or expense that is otherwise excluded under this Policy.

F. If aggregate insured losses attributable to terrorist acts certified under the federal Terrorism Risk Insurance Act exceed $100 billion in a Program Year (January 1 through December 31) and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds $100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	8
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

EXCLUSION OF PUNITIVE DAMAGES RELATED TO A CERTIFIED ACT OF TERRORISM

The Policy is amended as follows:

Any endorsement addressing acts of terrorism (however defined) in any **Followed Policy** does not apply to this excess insurance. The following provisions addressing acts of terrorism apply with respect to this excess insurance:

A. SECTION IV. – EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to:

TERRORISM PUNITIVE DAMAGES

Damages arising, directly or indirectly, out of a **Certified Act of Terrorism** that are awarded as punitive damages.

B. SECTION V. – DEFINITIONS, is amended to include the following definition:

Certified Act of Terrorism means an act that is certified by the Secretary of the Treasury, in concurrence with the Secretary of State and the Attorney General of the United States, to be an act of terrorism pursuant to the federal Terrorism Risk Insurance Act. The criteria contained in the Terrorism Risk Insurance Act for a **Certified Act of Terrorism** include the following:

1. The act resulted in insured losses in excess of $5 million in the aggregate, attributable to all types of insurance subject to the Terrorism Risk Insurance Act; and
2. The act is a violent act or an act that is dangerous to human life, property or infrastructure and is committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	9
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

FUNGI OR BACTERIA EXCLUSION

The Policy is amended as follows:

A. SECTION IV. – EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to:

1. Any liability, damage, loss, cost or expense which would not have occurred, in whole or in part, but for the actual, alleged or threatened inhalation of, ingestion of, contact with, exposure to, existence of, or presence of, any **fungi** or bacteria on or within a building or structure, including its contents, regardless of whether any other cause, event, material or product contributed concurrently or in any sequence to such injury or damage.

2. Any loss, cost or expenses arising out of the testing for, monitoring, cleaning up, removing, containing, treating, detoxifying, neutralizing, remediating or disposing of, or in any way responding to, or assessing the effect of, **fungi** or bacteria, by any Insured or by any other person or entity.

   This exclusion does not apply to any **fungi** or bacteria that are, are on, or are contained in, a food product intended for consumption.

B. SECTION V. – DEFINITIONS, is amended to include the following definition:

Fungi means any type or form of fungus, including mold or mildew and any mycotoxins, spores, scents or byproducts produced or released by fungi.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	10
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

PENDING AND PRIOR LITIGATION AND KNOWN LOSSES EXCLUSION

The Policy is amended as follows:

SECTION IV. – EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to:

1. Any liability, damage, loss, cost or expense arising out of any claim, suit, litigation, arbitration, alternative dispute resolution or other judicial or administrative proceeding which has commenced or is pending prior to the effective date of this Policy, as well as all future liability, damage, loss, cost or expense arising out of said pending or prior litigation; or

2. Any bodily injury, property damage, personal injury, advertising injury, or any other injury or damage of which any Insured had knowledge prior to the effective date of this Policy.

   This exclusion applies whether or not:

   a. Damages continue or progress during this policy period; or

   b. Ultimate liability for the final amount of damages, loss, cost or expense has been established.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Named Insured:	Klamath River Renewal Corporation (KRRC)
Policy No:	85128T171ALI
Endorsement No:	11
Endorsement Effective Date:	01/31/2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

FOLLOWING FORM EXCESS LIABILITY INSURANCE POLICY

SILICA EXCLUSION

The Policy is amended as follows:

SECTION IV. – EXCLUSIONS, is amended to include the following exclusion:

This Policy does not apply to:

1. Any liability, damage, loss, cost or expense arising out of or in any way related to the actual, alleged or threatened discharge, dispersal, emission, release, escape, handling, contact with, exposure to or inhalation, ingestion or respiration of silica or products or substances containing silica or silicon dioxide in any form including, but not limited to, silica dust, sand or otherwise, or work involving the use of or handling of silica or silicon dioxide in any form, even if other causes are alleged to contribute to or aggravate such loss, claim or occurrence.

2. Any liability, damage, loss, cost or expense arising from or related to:

   a. Any supervision, instruction, recommendations, warnings or advice given or which should have been given in connection with the events described in Paragraph **1.** above;

   b. Any obligation to indemnify, defend, share damages with or repay someone else who must pay damages because of events described in Paragraph **1.** above; and

   c. Any fines or penalties imposed because of events described in Paragraph **1.** above.

ALL OTHER TERMS, CONDITIONS AND EXCLUSIONS SHALL REMAIN THE SAME.

Item A

Policy Number: ANV109585A

Renewal of Policy Number: ANV109585A

ANV GLOBAL SERVICES INC
ON BEHALF OF
AMTRUST AT LLOYD'S SYNDICATE 1861 - 50%
NOVAE SYNDICATE 2007 AT LLOYD'S - 25%
RENAISSANCE RE SYNDICATE 1458 AT LLOYD'S - 25%
UMR: B0875ISA2215031
POLICY N°: ANV109585A

Item B

Named Insured:
Klamath River Renewal Corporation
Mailing Address:
600 Wilshire Blvd Suite 980
Los Angeles, CA 90014

Broker Name:
RT Specialty
Mailing Address:
500 W. Monroe, 30th Floor,
Chicago, IL 60661

Item C
Policy Period:
From **January 31, 2017 to January 31, 2018** at 12:01 A.M. Standard Time at your mailing address shown above.

Item D

LIMITS OF LIABILITY*	**Shared Limit**	**Separate Limit**	**Aggregate Limit**
Aggregate Limit for all **Loss** under all Coverages combined:			$1,000,000
Limit for all **Loss** for all **Claims** other than **Employment Practices Claims**	$1,000,000	N/A	
Limit for all **Loss** for all **Claims** for **Employment Practices Wrongful Acts**	Not Covered	Not Covered	
Limit for all **Loss** for all **Claims** for **Third Party Discrimination**	Not Covered		
SUBLIMITS OF LIABILITY*			
Sublimit for all **Excess Benefit Transaction Excise Taxes**	$125,000		
Sublimit for all **Loss** for all **Crisis Management Expenses**	Not Covered		

**Includes Costs of Defense*

EMPLOYMENT PRACTICES LIABILITY (EPL HOTLINE)

ANV is pleased to offer its Employment Practices Liability policyholders with a Hotline providing access to the employment law firm of Genova Burns LLC, a preeminent employment law and litigation firm with over twenty-five years experience representing employers in all regions of the United States. The firm's practice spans all industries, including but not limited to technology, healthcare, financial services, construction, manufacturing, transportation and hospitality. Genova Burns provides business owners, managers, and human resource professionals with strategy, advice and counseling on all employment-related issues.

Through the use of the Genova Burns dedicated team, we now offer policyholders up to two (2) hours of calls to the Hotline at no additional charge. The Hotline is designed to provide quick, practical guidance on day-to-day workplace issues. To utilize the hotline, simply call 844-206-4626 or e-mail anvhotline@genovaburns.com.

From reviewing the proper steps for a sexual harassment investigation to discussing the appropriate factors to consider before you make day-to-day employment decisions, Genova Burns LLC's attorneys are available to assist policyholders in managing their workplace risk and minimizing employment related claims. As part of this program, policyholders are also eligible to receive a discount on Genova Burns LLC's regular fees for matters beyond the scope of the Hotline. Matters beyond the scope of the Hotline would include those dealing with specific employees or employment decisions, or determinations on legal compliance.

Please note that the Hotline cannot be used to report a claim or for a determination of policy coverage regardless of any disclosure made to Genova Burns LLC.

We encourage policyholders to take advantage of this Hotline. For further information about the Hotline, please visit http://anv.us.com/eplhotline/

Section	Contents
I.	Insuring Agreement
II.	Definitions
III.	Exclusions
IV.	Limit of Liability
V.	Retention
VI.	Costs of Defense and Settlements
VII.	Notice of Claim
VIII.	Discovery Period
IX.	General Conditions:

THIS IS A CLAIMS MADE AND REPORTED POLICY WITH COSTS OF DEFENSE INCLUDED IN THE LIMIT OF LIABILITY. COVERAGE APPLIES ONLY TO THOSE CLAIMS THAT ARE FIRST MADE AND REPORTED DURING THE POLICY PERIOD OR ANY DISCOVERY PERIOD, IF APPLICABLE. WORDS PRINTED IN BOLD FACE, OTHER THAN CAPTIONS, ARE DEFINED IN THE POLICY. VARIOUS PROVISIONS IN THIS POLICY RESTRICT COVERAGE. PLEASE READ THE ENTIRE POLICY CAREFULLY.

NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY

INCLUDING EMPLOYMENT PRACTICES CLAIMS COVERAGE

In consideration of the payment of the premium and in reliance upon all statements made and information furnished to the **Insurer** shown in the Declarations, including those furnished in the **Application,** and subject to all terms, conditions and limitations of this Policy, it is agreed:

Section I. Insuring Agreements

A. The **Insurer** shall pay on behalf of an **Insured Person** all **Loss** for which such **Insured Person** is not indemnified by the **Organization** and which the **Insured Person** is legally obligated to pay as a result of a **Claim** for a **Wrongful Act** first made against the **Insured Person** during the **Policy Period,** or the applicable Discovery Period pursuant to Section VIII, and reported to the **Insurer** in compliance with Section VII.

B. The **Insurer** shall pay on behalf of the **Organization** all **Loss** for which the **Organization** grants indemnification to an **Insured Person**, and for which the **Insured Person** has become legally obligated to pay on account of a **Claim** for a **Wrongful Act** first made against the **Insured Person** during the **Policy Period,** or the applicable Discovery Period pursuant to Section VIII, and reported to the **Insurer** in compliance with Section VII.

C. The **Insurer** shall pay on behalf of the **Organization** all **Loss** that the **Organization** shall be legally obligated to pay as a result of a **Claim** for a **Wrongful Act** first made against the **Organization** during the **Policy Period,** or the applicable Discovery Period pursuant to Section VIII, and reported to the **Insurer** in compliance with Section VII.

D. The **Insurer** shall pay on behalf of the **Organization** all **Crisis Management Expenses** incurred with the **Insurer's** written consent, which the **Organization** shall become legally obligated to pay as a result of a **Crisis Event** first occurring during the **Policy Period** and reported to the **Insurer** in compliance with Section VII. This Insuring Agreement D. shall be subject to the Sublimit for **Crisis Management Expenses** set forth in the Declarations. The Sublimit for **Crisis Management Expenses** shall be the maximum amount that the **Insurer** shall pay under this Insuring Agreement for all **Crisis Management Expenses** from all **Crisis Events** covered under this Insuring Agreement. Such Sublimit shall be subject to, part of, and not in addition to, the Aggregate Limit of this Policy set forth in the Declarations. No Retention shall apply to this Insuring Agreement D.

Section II. Definitions

A. **"Affiliate"** shall mean (i) any person or entity that directly, or indirectly through one or more intermediaries, controls or is controlled by, or is in common control with, an **Insured**; or (ii) any person or entity that directly, or indirectly through one or more intermediaries, is a successor in interest to an **Insured**.

B. "**Application**" shall mean each and every application submitted to the **Insurer** for consideration of this insurance together with any attachments to such applications, other materials submitted therewith or incorporated therein, and any other documents submitted in connection with the underwriting of this Policy. **Application** shall also mean any warranties submitted over the last three (3) years relating to any coverage for which this Policy is a renewal or replacement.

C. **"Claim"** shall mean

1) a written demand for monetary or other legal relief made against any **Insured** (including any request to toll or waive any statute of limitations);

2) a civil, administrative, regulatory or arbitration proceeding, against any **Insured Person** or the **Organization** seeking monetary or non-monetary relief, including any proceeding or investigation by or before the U.S. Equal Employment Opportunity Commission ("EEOC") or any other federal, state or local governmental body, commenced by: a) the service of a complaint or similar pleading; or b) the filing of a notice of charges, investigative order or similar document;

3) a criminal investigation or proceeding initiated against any **Insured Person**, in their capacity as such, commenced by the return of an indictment, information or similar pleading in a criminal proceeding against such **Insured Person;**

4) except with respect to an **Employment Practices Claim**, any civil, criminal, administrative or regulatory investigation of an **Insured Person**, once such **Insured Person** is identified in writing by such investigating authority as the subject of an investigation that may lead to a criminal, civil, administrative, regulatory or other enforcement proceeding;

5) solely with respect to Insuring Agreement A, and solely with respect to **Costs of Defense**, any written request or subpoena to interview or depose an **Insured Person** in his or her capacity as such or to produce documents by an **Insured Person**, provided such request or subpoena is not part of a regular examination, audit or inspection or part of a general oversight or compliance activity of the **Insured**;

6) in the context of an audit conducted by the Office of Federal Contract Compliance Programs, a Notice of Violation or Order to Show Cause;

However, in no event shall the term "**Claim**" include any labor or grievance proceeding which is subject to a collective bargaining agreement, any government or regulatory audits or inspections or other routine compliance activities.

A **Claim** shall be deemed "made" at the time it is received by an **Insured**.

D. "**Costs of Defense**" shall mean reasonable and necessary legal fees, costs and expenses incurred subject to Section VI, resulting solely from the investigation, defense or appeal of any **Claim** against an **Insured**, (including the costs of an appeal bond, attachment bond or similar bond but will not include the obligation to apply for or furnish such bonds). **Costs of Defense** shall not include any salaries, wages, overhead, benefits or benefit expenses associated with any **Insured**. **Costs of Defense** shall not include any fees, costs or expenses incurred prior to the date that a **Claim** is first reported to the **Insurer**. **Costs of Defense** will, however, include legal fees necessary to respond to a potential **Claim** identified under Section VII. B. if incurred at the **Insurer's** request and direction.

E. **"Crisis Event"** shall mean one of the following events which, in the good faith opinion of the Chief Financial Officer or Chief Executive Officer, of the **Organization**, did cause or is reasonably likely to cause damage to the public confidence in the **Organization**:

1) *Personal reputation attack*

   A negative statement that is included in any press release or published by any print or electronic media outlet regarding an **Executive Officer** of the **Organization** made during the **Policy Period** by any individual authorized to speak on behalf of an Enforcement Body.

2) *Loss of a patent, trade mark or copyright or major customer or contract*

   The public announcement of an unforeseen loss of: (i) the **Organization's** intellectual property rights for a patent, trademark or copyright, other than by expiration; (ii) a major customer or client of the **Organization**; or (iii) a major contract with the **Organization**.

3) *Mass tort*

   The public announcement or accusation that the **Organization** has caused the bodily injury, sickness, disease, death or emotional distress of a group of persons, or damage to or destruction of any tangible group of properties, including the loss of use thereof. However, the term **Crisis Event** shall not include any actual, alleged or threatened discharge, dispersal, release or escape of **Pollutants** or any event relating to the hazardous properties of nuclear materials.

4) *Employee layoffs or loss of key executive officer(s)*

   The public announcement of employee layoffs, or the death or resignation of one or more key executive officer(s) of the **Organization**.

5) *Write-off of assets*

   The public announcement that the **Organization** intends to write off a material amount of its assets.

6) *Debt restructuring or default*

   The public announcement that the **Organization** has defaulted or intends to default on its debt or intends to engage in a debt restructuring.

7) *Bankruptcy*

The public announcement that the **Organization** intends to file for bankruptcy protection or that a third party is seeking to file for involuntary bankruptcy on behalf of the **Organization**; or the imminence of bankruptcy proceedings, whether voluntary or involuntary.

8) *Governmental or regulatory litigation*

The public announcement of the commencement or threat of commencement of litigation or governmental or regulatory proceedings against the **Organization**.

9) *Other*

Any other event specifically scheduled by written endorsement to the Policy.

It is a condition for coverage to apply to such **Crisis Event** that such specific event, circumstances or **Wrongful Act** has led, or in the absence of the incurring of **Crisis Management Expenses** might reasonably be expected to lead, to the publication of materially unfavorable information in a newspaper, magazine, or other written media of general circulation, or in a radio or television broadcast specifically regarding the **Organization**.

A **Crisis Event** shall first commence when the **Organization** or any of its **Executive Officers** shall first become aware of such **Crisis Event.** A **Crisis Event** shall conclude once a **Crisis Management Firm** advises the **Organization** that such **Crisis Event** no longer exists or when the Sublimit for **Crisis Management Expenses** set forth in Item D. of the Declarations has been exhausted.

F. **"Crisis Management Expenses"** shall mean the following reasonable and necessary expenses first incurred by the **Organization** with the **Insurer's** consent during a **Crisis Event**, or within sixty (60) days prior to and in anticipation of adverse publication relating to the **Crisis Event,** but in no event later than 12 months after the **Crisis Event** first begins:

1) the fees and expenses of a **Crisis Management Firm** to advise the **Organization** on minimizing potential financial damage to the **Organization** arising out of the actual or anticipated **Crisis Event**, including, but not limited to, maintaining and restoring public confidence in the **Organization**; and

2) those costs incurred pursuant to the instructions of a **Crisis Management Firm** for printing, advertising (including television, print or other media) and mailing of materials specifically intended to inform or educate the general public about the **Crisis Event**.

G. **"Crisis Management Firm"** shall mean any public relations firm, crisis management firm or law firm listed in the Crisis Management Firm Panel List attached to this Policy or approved by the **Insurer**, to advise the **Organization** on minimizing the potential financial damage to the **Organization arising** out of the actual or anticipated **Crisis Event**.

H. **"Directors and Officers"** shall mean all persons who were, now are, or shall be duly elected or appointed directors, officers, trustees or members of the board of managers of the **Organization** and all persons serving in a functionally equivalent role for the **Organization** if serving in such a position outside the United States.

I. "**Domestic Partner**" shall mean any natural person qualifying as a domestic partner under the provisions of any applicable federal, state or local law or under the provisions of any formal program established by the **Organization**.

J. **"Employee"** shall mean any past, present or future employee of the **Organization** including any part-time, seasonal or temporary employee or any applicant for employment, solely in his or her capacity as such. Any person leased to the **Organization** and any person hired by written contract to perform work for the **Organization**, or who is an independent contractor for the **Organization**, shall also be an **Employee**, but only if the **Organization** indemnifies the person in the same manner as is provided to the **Organization's** employees.

K. "**Employment Practices Claim**" shall mean any **Claim** brought by or on behalf of any **Employee** alleging an **Employment Practices Wrongful Act** or, if coverage is purchased as stated in Item D of the Declarations, any **Claim** alleging **Third Party Discrimination**.

L. "**Employment Practices Wrongful Act**" shall mean:

1) wrongful, excessive or unfair discipline of an **Employee**;

2) wrongful failure or refusal to hire or promote or wrongful demotion;

3) abusive or hostile work environment;

4) violation of any federal, state or local law concerning discrimination in employment, including but not limited to the Americans with Disabilities Act of 1992; the Civil Rights Act of 1991, the Age Discrimination in Employment Act of 1967, Title VII of the Civil Rights Act of 1964, the Pregnancy Discrimination Act of 1978, the Civil Rights Act of 1866, the Family and Medical Leave Act of 1993, the Older Workers Benefit Protection Act of 1990, the Equal Pay Act, the Lilly Ledbetter Fair Pay Restoration Act of 2009, or any rule or regulation promulgated thereunder, or any amendments thereto;

5) employment-related misrepresentations or omissions;

6) employment-related libel, slander, or defamation;

7) wrongful failure to grant tenure;

8) wrongful failure to provide an adequate employment policy or grievance procedure for **Employees**;

9) wrongful failure to provide training, mentoring, or advancement opportunities to an **Employee**;

10) negligent evaluation of an **Employee**;

11) **Retaliation** against an **Employee**;

12) harassment, including any type of sexual or gender harassment as well as racial, religious, sexual orientation, pregnancy, disability, age or national origin-based harassment;

13) wrongful deprivation of career opportunity of an **Employee**, including defamatory statements made in connection with an **Employee** reference;

14) wrongful dismissal, discharge or termination of employment, whether actual or constructive;

15) negligent hiring, discipline, supervision or retention;

16) breach of any implied employment contract of an **Employee** who is not an **Executive Officer**;

17) wrongful infliction of emotional distress, mental anguish or humiliation;

18) wrongful failure or refusal to provide equal treatment or opportunities;

19) wrongful failure to promote, transfer or employ or wrongful demotion;

20) violation of the Uniformed Services Employment and Reemployment Rights Act;

21) violation of an **Employee's** civil rights relating to any of the above;

but only if employment-related and claimed by or on behalf of an **Employee** in their capacity as such and only if committed or allegedly committed by any of the **Insureds** in their capacity as such.

M. "**Excess Benefit Transaction**" means an "excess benefit transaction" as that term is defined in Section 4958(c) of the Internal Revenue Code, 26 U.S.C. §4958(c)

N. "**Excess Benefit Transaction Excise Tax**" means any excise tax imposed by the Internal Revenue Service, pursuant to 4958(a) (2) of the Internal Revenue Code, 26 U.S.C. §4958(a) (2), on an **Insured Person** who is an "organization manager" as that term is defined by §4958(f) of the Internal Revenue Code, 26 U.S.C. §4958(f), as a result of such **Insured Person's** participation in an **Excess Benefit Transaction.**

O. "**Executive Officer**" shall mean any director of the **Organization** as well as the chief executive officer, chief financial officer, general counsel or director of human resources, or equivalent position of any of the foregoing.

P. "**Financial Insolvency**" shall mean the **Organization** becoming a debtor in possession, or the appointment of a receiver, conservator, liquidator, trustee, rehabilitator or similar official to control, supervise, manage or liquidate the **Organization**. **Financial Insolvency** shall also mean the filing of a bankruptcy petition by or against the **Organization** under the bankruptcy laws of the United States of America or any equivalent event outside the United States.

Q. "**Insured**" shall mean any **Insured Person** and the **Organization**.

R. "**Insured Person**" shall mean:

1) **Directors** and **Officers**;

2) **Employees** of the **Organization,** other than those identified in S. 1) above, for whom the **Organization** requests coverage at the time the **Claim** is made;

3) any managing member or manager of any **Organization** organized as a limited liability **Organization**;

4) those persons serving in a functionally equivalent role as above for the **Organization** or any **Subsidiary** operating or incorporated outside the United States;

5) any individual identified above who, at the specific written request of the **Organization**, is serving as a director, officer, trustee, regent or governor, or in an equivalent executive position, of an **Outside Entity** in their capacity as such; or

6) volunteers, committee members of a duly constituted committee of the **Organization**, department heads, and salaried and non-salaried staff or faculty members for whom the **Organization** requests coverage at the time the **Claim** is made.

S. "**Insurer**" shall refer to the Underwriters providing this insurance.

T. "**Loss**" shall mean compensatory damages, statutory attorneys' fees, pre- and post-judgment interest and **Costs of Defense**, in excess of the Retention. **Loss** shall also include, subject to the other terms, conditions and exclusions of this Policy, punitive or exemplary damages and the multiple portions of any multiplied damage award, judgments or settlements to the extent insurable under the law of any applicable jurisdiction most favorable to insurability. **Loss** shall also include **Excess Benefit Transaction Excise Taxes** in an amount not to exceed the sublimit set forth in Item D of the Declarations, but only if and to the extent that indemnification by the **Organization** for **Excess Benefit Taxes** is not expressly prohibited in the bylaws, certificate of incorporation or other organizational documents of the **Organization**.

Loss shall not include: (1) civil or criminal fines or penalties imposed by law; (2) taxes, except as provided above with respect to **Excess Benefit Transaction Excise Taxes**; (3) any amount for which an **Insured** is not financially liable or which is without legal recourse to the **Insured**; (4) employment-related benefits of any kind, including, but not limited to, stock, stock options, commissions, profit sharing, termination payments, severance, perquisites, deferred compensation or any other type of compensation other than back pay or front pay; (5) any liability or costs incurred by any **Insured** to modify any buildings or property in order to make a building or property more accessible or accommodating to any disabled person, or any liability or costs incurred in connection with any educational, sensitivity or other corporate program, policy, seminar or monitoring (including, but not limited to any consulting fees paid to any law firm) relating to or arising out of an **Employment Practices Claim**; (6) any portion of damages, judgments or settlements arising out of any **Claim** alleging that the **Organization** paid an inadequate price or consideration for the purchase of securities or other ownership interest; (7) contractually owed amounts; (8) any disgorgement or restitution of ill-gotten gain or recessionary damages; or (9) matters which are uninsurable under the law pursuant to which this Policy shall be construed.

U. "**Management Control**" shall mean that the **Organization** has either:

1) an ownership or voting interest of more than fifty percent (50%) that entitles the **Organization**; or

2) the right, pursuant to written contract or the by-laws, charter, operating agreement or similar documents of an organization

to elect, appoint or designate a majority of the Board of Directors of a corporation, the management committee of a partnership or the management board of a limited liability **Organization**.

V. "**Organization**" shall mean the entity or organization identified as the Named Insured in the Declarations and any **Subsidiary**, and in the event of a bankruptcy, shall include the **Organization** and any **Subsidiary** as a debtor in possession, if any, as such term is used in Chapter 11 of the United States Bankruptcy Code.

W. **"Outside Entity"** shall mean any not-for-profit entity classified as such by the Internal Revenue Code, community chest, fund or foundation that is not included in the definition of the **Organization**..

X. "**Policy Period**" shall mean the policy period as set forth in the Declarations, or its earlier termination if applicable.

Y. **"Pollutant"** means any solid, liquid, gaseous or thermal irritant or contaminant, including but not limited to:

1) smoke, vapor, soot, fumes, acids, alkalis, chemicals, metals, lead or materials containing lead, silica, radon, mold or asbestos;

2) hazardous, toxic or radioactive matter or nuclear radiation;

3) waste, which includes material to be recycled, reconditioned or reclaimed; or

4) any other pollutant as defined by applicable federal, state or local statutes, regulations, rulings or ordinances.

Z. "**Pollution**" shall mean the actual, alleged or threatened discharge, release, migration, escape or disposal of **Pollutants** into or on real or personal property, water or the atmosphere. **Pollution** also means any direction request, demand, order, or state regulatory requirement that the **Insured** or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize **Pollutants**, or any voluntary decision to do so.

AA. "**Related Wrongful Acts**" shall mean **Wrongful Acts** that arise from a common nucleus of facts, circumstances, situations, events or transactions, regardless of whether such **Wrongful Acts** are alleged by way of a single or multiple **Claim(s)** under this Policy or any other policy in effect prior to the inception of this **Policy Period**.

BB. "**Retaliation**" shall mean a **Wrongful Act** relating to or alleged to be in response to any of the following activities:

1) the disclosure or threat of disclosure by an **Employee** to a superior or to any governmental agency of any act by an **Insured** which act is alleged to be a violation of any federal, state, local or foreign law, common or statutory, or any rule or regulation promulgated thereunder;

2) the actual or attempted exercise by an **Employee** of any right that such **Employee** has under law, including rights under worker's compensation laws, the Family and Medical Leave Act, the Americans with Disabilities Act, Employee Retirement Income Security Act of 1974, the Fair Labor Standards Act, the Occupational Safety and Health Act, or any other law relating to employee rights;

3) the filing of any claim under the Federal False Claims Act, the Sarbanes-Oxley Act of 2002 or any other federal, state, local or foreign "whistleblower" law; or

4) **Employee** strikes.

CC. "**Subsidiary**" shall mean:

1) any not-for-profit organization under the **Management Control** of the **Organization**, either directly or indirectly, on or before the inception of the **Policy Period;**

2) automatically, any not-for-profit organization that comes under the **Management Control** of the **Organization,** either directly or

indirectly, during the **Policy Period,** provided that (1) the organization is a not-for-profit organization, 2) the number of employees of the organization is less than 25% of those of the **Organization** (3) the assets of the organization are less than 25% of those of the **Organization** and (4) the **Organization** provides the **Insurer** with full particulars of the new **Subsidiary** before the end of the **Policy Period;**

3) any not-for-profit organization, other than those described in paragraph (2) above, that comes under the **Management Control** of the **Organization,** either directly or indirectly, during the **Policy Period,** provided that the **Organization** provides the **Insurer** with the full particulars of the new **Subsidiary** within 90 days of it becoming a **Subsidiary** and the **Organization** pays such additional premium and accepts such policy amendments as the **Insurer** may reasonably require.

An organization shall become a **Subsidiary** only when the **Organization** has acquired **Management Control**, either directly or indirectly, and shall cease to be a **Subsidiary** when the **Organization** ceases to have **Management Control**. In all events, coverage as may be afforded under this Policy with respect to any **Subsidiary** or any **Insured Person**, in their capacity as such with a **Subsidiary**, shall only apply for **Wrongful Acts** that occur while the organization is a **Subsidiary**.

DD. **"Third Party Discrimination"** shall mean any actual or alleged discrimination, including harassment, or civil rights violation by an **Insured** against any non-**Employee**. However, **Third Party Discrimination** shall not include any actual or alleged price discrimination or violation of any anti-trust law or any similar law designed to protect competition or prevent unfair trade practices.

EE. "**Wrongful Act**" shall mean:

1) any actual or alleged act, omission, error, misstatement, misleading statement, neglect, or breach of duty, by any **Insured Person** in their capacity as such with the **Organization**, including, if coverage is purchased as stated in the Declarations, any **Employment Practices Wrongful Act** or **Third Party Discrimination**;

2) any matter claimed against any **Insured Person** solely by reason of their capacity as such with the **Organization**;

3) any matter claimed against any **Insured Person** arising out of their service as a director, officer, trustee or governor of an **Outside Entity**, but only if such service is at the specific request or direction of the **Organization**; or

4) solely with respect to Insuring Agreement C., any actual or alleged act, omission, error, misstatement, misleading statement, neglect or breach of duty, or, if coverage is purchased as stated in the Declarations, any **Employment Practices Wrongful Act** and or **Third Party Discrimination**; by the **Organization**.

Section III. Exclusions

The **Insurer** shall not be liable to make any payment for **Loss** in connection with any **Claim** made against any **Insured**:

A. alleging, arising out of, based upon, relating to, or attributable to:

1) an **Insured** gaining any profit, advantage, remuneration or financial advantage to which they were not legally entitled; provided however, this exclusion shall only apply if it is finally adjudicated that such conduct occurred or such **Insured** agrees to repay to the **Organization** any such profit, remuneration or financial advantage;

2) any deliberate fraudulent or dishonest act or any willful violation of any statute, rule or law, or deliberate criminal acts of an **Insured**; provided however, this exclusion shall only apply if it is finally adjudicated that such conduct occurred;

For the purpose of determining the applicability of Exclusion A. 1), and 2), it is understood and agreed that:

(i) as respects coverage afforded under Sections I. A. and B, the **Wrongful Act** of an **Insured Person** shall not be imputed to any other **Insured Person**; and

(ii) as respects coverage afforded under Section I. C., only the **Wrongful Act** of any past, present or future chief executive officer, chief operating officer, chairman, president or chief financial officer of the **Organization** shall be imputed to the **Organization**.

B. alleging, arising out of, based upon, relating to, attributable to, directly or indirectly resulting from or in consequence of, or in any way involving any **Wrongful Act** or **Related Wrongful Act** or any fact, circumstance or situation which has been the subject of any **Claim** or notice of circumstance reported under any other policy of which this Policy is a renewal, replacement, or which this Policy may succeed in time.

C. alleging, arising out of, based upon, relating to, or attributable to any pending or prior written demand for monetary relief, civil, criminal, or administrative or investigative proceeding, or notice of charge of any kind, including any EEOC Charge, involving the **Organization** and/or any **Insured Person** as of the Prior and Pending Litigation Date stated in Item G. of the Declarations, or any **Wrongful Act** or **Related Wrongful Acts** or any fact, circumstance or situation underlying or alleged in such proceeding or notice of charge.

D. for any actual or alleged:

1) bodily injury, sickness, disease, or death of any person;

2) damage to or destruction of any property, including the loss of use thereof; or

3) mental anguish, emotional distress, invasion of privacy, wrongful entry, eviction, false arrest, false imprisonment, malicious prosecution, libel or slander, however, this subsection D.3) does not apply to an **Employment Practices Claim**.

E. for any alleged violation of any of the responsibilities, obligations or duties imposed by the Employee Retirement Income Security Act of 1974, the Fair Labor Standards Act, the National Labor Relations Act, the Worker Adjustment and Retraining Notification Act, the Consolidated Omnibus Budget Reconciliation Act, the Occupational Safety and Health Act, and any rules or regulations of the foregoing promulgated thereunder, and amendments thereto or any similar federal, state, local or foreign statutory law or common law; provided, however, this exclusion shall not apply to a **Claim** for **Retaliation** or an alleged violation of the Equal Pay Act.

F. for any alleged violation of any federal, state or local wage and hour law, including but not limited to: the refusal, failure or inability of any **Insured** to pay wages or overtime pay (or amounts representing such wages or overtime pay) for services rendered or time spent in connection with work related activities (herein, "Earned Wages") (as opposed to tort-based or statutory back pay or front pay damages for discrimination), failure to provide or enforce legally required meal or rest break periods, for improper payroll deductions taken by any **Insured** from any **Employee** or purported **Employee**, the failure to pay minimum wage or other underpayment of wages, any unfair business practice claim or any tort arising out of the failure to pay Earned Wages, or any **Claim** seeking Earned Wages because any **Employee** or purported **Employee** was improperly classified or mislabeled as "exempt".

G. alleging, arising out of, based upon, relating to, or attributable to a **Wrongful Act** of any **Insured Person** serving in any capacity for any entity other than the **Organization** or an **Outside Entity**, even if such service is at the direction of the **Organization**, unless otherwise specifically added by written endorsement to this Policy.

H. for any **Wrongful Act** of any **Insured Person** serving as a director, officer, trustee or governor of an **Outside Entity** if such **Claim** is brought by the **Outside Entity** or by any director, officer, trustee or governor thereof; provided, however, this exclusion shall not apply to any **Employment Practices Claim**.

I. which is brought by or on behalf of the **Organization** or by any **Insured Person**; or which is brought by any security holder or member of the **Organization**, an attorney general or any other such representative party whether directly or derivatively, unless such security holder's, member's, attorney general's or representative party's **Claim** is instigated and continued totally independent of, and totally without solicitation of, or assistance of, or active participation of, or intervention of any **Insured Person**; provided however, this exclusion shall not apply to:

1) any **Employment Practices Claim** brought by or on behalf of an **Insured Person;**

2) any **Claim** brought by an **Insured Person** in the form of a cross-claim or third-party claim for contribution or indemnity which is part of and results directly from a **Claim** that is covered by this Policy;

3) any **Claim** brought by the examiner, trustee, receiver, liquidator, rehabilitator or creditors' committee (or any assignee thereof) of the **Organization**, in any bankruptcy proceeding by or against the **Organization**;

4) any **Claim** brought by any past director or officer of the **Organization** who has not served as a duly elected or appointed director, officer, trustee, governor, management committee member, member of the management board, General Counsel or Risk Manager (or equivalent position) of, or consultant for, the **Organization** for at least three (3) years prior to such **Claim** being first made;

5) any **Claim** brought by a director or officer (or equivalent position) of a **Organization** formed and operating in a foreign jurisdiction against such **Organization** or any director or officer thereof, provided that such **Claim** is brought by the supervisory or any such similar board of a parent **Organization** chartered in such foreign jurisdiction; or

6) any **Claim** brought against an **Insured Person** for **Retaliation**.

J. alleging, arising out of, based upon, relating to, attributable to, directly or indirectly resulting from, or in consequence of, or in any way involving, **Pollution**, including but not limited to, any **Claim** for financial loss to the **Organization**, its members, owners or its creditors; provided, however, this exclusion shall not apply to **a Claim** otherwise covered under Section I. A. of this Policy and brought by the **Organization's** members or owners;

K. for any **Wrongful Act** of a **Subsidiary** or an **Insured Person** of such **Subsidiary** or any entity that merges with the **Organization** or an **Insured Person** of such entity that merges with the **Organization** first occurring:

1) prior to the date such entity becomes a **Subsidiary** or is merged with the **Organization**;

2) subsequent to the date such entity became a **Subsidiary** or was merged with the **Organization** which, together with a **Wrongful Act** occurring prior to the date such entity became a **Subsidiary** or was merged with the **Organization**, would constitute **Related Wrongful Acts**; or

3) subsequent to the date the **Organization** ceased to have, directly or indirectly, **Management Control** of such **Subsidiary**.

L. alleging, arising out of, or in any way relating to any purchase or sale of securities by the **Organization**, a **Subsidiary** or an **Affiliate** or **Claims** brought by securities holders of the **Organization** in their capacity as such; provided, however, this exclusion shall not apply to the issuance by the **Organization** of tax exempt bond debt or **Claims** brought by tax exempt bond debt holders;

M. alleging, arising out of, based upon, relating to, or attributable to emotional distress, mental anguish, or injury from libel, slander, defamation, or disparagement, or for injury from a violation of a person's right of privacy by the **Organization** or any intentional or unintentional release of confidential information via a computer system data security breach; provided, however, this exclusion shall not apply to injuries arising from an **Employment Practices Claim** brought by an **Employee**.

N. alleging, arising out of, based upon, or attributable to any:

1) payment, commission, gratuity, benefit or any other favor to or for the benefit of any full or part-time domestic or foreign government or any armed services official, agent, representative, employee or any member of their family or any entity with which they are affiliated; or

2) payment, commission, gratuity, benefit or any other favor to or for the benefit of any full or part-time official, director, agent, partner, representative, principal shareholder, or owner or employee, or "affiliate" (as that term is defined in The Securities Exchange Act of 1934, including any officer, director, agent, owner, partner, representative, principal shareholder or employee of such affiliate) of any customer of the **Organization** or any member of their family or any entity with which they are affiliated; or

3) political contribution, whether domestic or foreign.

O. alleging, arising out of, based upon, relating to, or attributable to, or directly or indirectly resulting from, or in consequence of, or in any way involving, any obligation pursuant to any worker's compensation, medical benefits, disability benefits, unemployment compensation, unemployment insurance, retirement benefits, social security benefits or similar law, including any medical or

insurance benefits to which an **Employee** allegedly was entitled or would have been entitled had the **Organization** provided the **Employee** with a continuation or conversion of insurance, provided however, this exclusion shall not apply to a **Claim** for **Retaliation**.

P. for any civil or criminal fines imposed by law and any taxes (whether imposed by federal, state, local, or other governmental authority) except with respect to **Excess Benefit Transaction Excise Taxes**.

Q. Solely with respect to Insuring Agreement C:

1) for any actual or alleged plagiarism, misappropriation, infringement or violation of copyright, patent, trademark, trade secret or any other intellectual property rights;

2) for the rendering or failure to render any service to a customer or client of the **Insured**; provided, however, that this exclusion shall not apply to any:

   (i) **Claim** alleging **Third Party Discrimination;**

   (ii) **Claim** for the rendering or failure to render any professional service to the extent such professional services errors and omissions coverage has been added to this **Policy** by written endorsement attached hereto;

3) based upon, arising out of, directly or indirectly resulting from or in consequence of, or in any way involving amounts actually or allegedly owed under any written or express contract with the **Organization,** including any severance obligation of the **Organization**; provided, however, this exclusion shall not apply if and to the extent that liability would have attached to the **Insureds** in the absence of a contract or obligation of the **Organization**;

4) alleging, arising out of, based upon, or attributable to any price fixing, restraint of trade, monopolization, unfair trade practices or any violation of the Federal Trade Commission Act, Sherman Antitrust Act, Clayton Act, or any similar law regulating antitrust, monopoly, price fixing, price discrimination, predatory pricing or restraint of trade activities;

5) based upon, arising out of or in any way involving the actual or alleged malfunction, defect or failure of any goods or products manufactured, distributed, sold, installed, marketed, developed or processed by the **Organization**; provided this exclusion shall not apply to any **Employment Practices Claim**;

6) for any fines, penalties or other legal relief or any taxes owed; or

7) alleging, arising out of, based upon or attributable to the ownership, management, maintenance or control by the **Organization** of any captive insurance **Organization** or entity, or self insured program, including, but not limited, to any **Claim** alleging the insolvency or bankruptcy of the **Organization** as a result of such ownership, operation, management or control or the failure to procure any insurance coverage.

Section IV. Limit of Liability

A. The **Insurer** shall be liable to pay **Loss** resulting from a covered **Claim** in excess of the applicable Retention amount stated in Item E. of the Declarations, up to the applicable Limit of Liability stated in Item D. of the Declarations. The **Insurer's** maximum liability for all **Loss** on account of all **Claims** combined, including **Costs of Defense**, shall be the Aggregate Limit set forth in the Declarations. Under no circumstances shall the **Insurer** be responsible to pay any **Loss**, including **Costs of Defense**, in excess of the Aggregate Limit.

B. If Separate Limits of Liability or Sublimits are stated in the Declarations, then each such Separate Limit or Sublimit shall be the maximum amount of the **Insurer's** liability for all **Loss** arising out of all **Claims** first made against the **Insureds** during the Policy Period, or the Discovery Period (if applicable), with respect to the type of **Loss** to which the Separate Limit or Sublimit applies. Each Separate Limit or Sublimit shall be part of, and not in addition to, the Aggregate Limit for all **Loss** under this Policy and shall in no way serve to increase the Aggregate Limit for all **Loss**.

If Shared Limits are stated in the Declarations, then each such Shared Limit shall be the maximum amount of the **Insurer's** liability for all **Loss** arising out of all **Claims** first made against the **Insureds** during the **Policy Period**, or the Discovery Period if applicable, with respect to all **Loss** to which such Shared Limit of Liability applies. Each Shared Limit shall be part of, and not in addition to, the Aggregate Limit.

If a single **Claim** is covered in whole or in part under more than one Shared Limit, Separate Limit or Sublimit, the maximum amount of the **Insurer's** liability for all **Loss,** combined, on account of such **Claim** shall not exceed the larger(est) of such applicable Shared Limit, Separate Limit or Sublimit, subject to reduction through any prior payments of **Loss** under such applicable Limit or Sublimit. Under no circumstance shall the **Insurer** be responsible to pay any Loss, including **Costs of Defense**, in excess of the Aggregate Limit.

All **Related Wrongful Acts** that, pursuant to Section VII of this Policy, are considered made or received during the Policy Period or Discovery Period (if applicable), shall also be subject to the applicable Limits of Liability set forth in this Policy. Each of the Limits of Liability for the Discovery Period (if applicable) shall be part of, and not in addition to, each of the corresponding Limits of Liability for the **Policy Period**.

C. **Costs of Defense** shall be part of, and not in addition to, the Limit of Liability stated in Item D. of the Declarations, including but not limited to the Limits of Liability described as Shared, Separate or Sublimits. Such **Costs of Defense** shall serve to reduce and may totally exhaust the Limit of Liability. If the applicable Limit of Liability is exhausted by payment of **Loss**, the **Insurer's** obligations, including without limitation any duty to defend, shall be completely fulfilled and extinguished.

Section V. Retention

A. The applicable Retention specified in Item E. of the Declarations shall be a condition precedent, and must be paid by the **Organization**, before the **Insurer** has any payment obligation, and shall apply to all covered **Loss**, including **Costs of Defense**.

B. The Retention specified in Item E. of the Declarations shall apply as follows:

1) The Each **Claim** Retention is applicable to **Loss** as a result of **Claims** other than an **Employment Practices Claim**.

2) The Each **Claim** alleging an **Employment Practices Wrongful Act** Retention is applicable to **Loss** resulting from each **Claim** for **Employment Practices Wrongful Act**.

3) The Each **Claim** alleging **Third Party Discrimination** Retention is applicable to **Loss** resulting from each **Claim** alleging **Third Party Discrimination**.

5) Except as provided hereinafter, no Retention shall apply to **Loss**, including **Costs of Defense,** under Insuring Agreements I A, or D.

6) In the event a **Claim** triggers more than one Retention specified in Item E. of the Declarations, the applicable Retention to such **Claim** shall be the single highest Retention applicable to such **Loss.**

C. One Retention shall apply to **Loss** arising from each **Claim** alleging the same **Wrongful Act** or **Related Wrongful Acts**. The **Organization** shall be responsible for any amount within the Retention.

D. More than one **Claim** involving the same **Wrongful Act** or **Related Wrongful Acts** of one or more **Insureds** shall be considered a single **Claim**, and only one Retention and one Limit of Liability shall be applicable to such single **Claim**. All such **Claims** constituting a single **Claim** shall be deemed to have been made on the earlier of the following dates: (1) the earliest date on which any such **Claim** was first made; or (2) the earliest date on which the notice of circumstance involving any such **Wrongful Act** or **Related Wrongful Acts** was reported under this Policy or any other policy providing similar coverage.

E. For the purposes of the application of the Retention, the Retention applicable to Insuring Agreement 1.B shall apply to **Loss** applicable to Insuring Agreement I.A. with respect to any **Claim** for which indemnification is legally permissible under the broadest interpretation of the applicable law and the **Organization's** bylaws. The certificate of incorporation, charter or other organization documents of the **Organization**, including by-laws and resolutions, shall be deemed to require indemnification and advancement of **Loss** of an **Insured Person** to the fullest extent permitted by law. Notwithstanding the foregoing, in the event the **Organization** is unable to indemnify an **Insured Person** solely by reason of its **Financial Insolvency**, the **Insurer** shall, pursuant to the terms and conditions of Section VI.F., advance **Costs of Defense** incurred by an **Insured Person** without first requiring payment of the Retention applicable to **Claims** for which the Retention of Insuring Agreement I.B applies. In the event the **Organization** is otherwise permitted or required to indemnify an **Insured Person**, the **Insurer** may in its sole discretion, but is not required to, advance **Costs of Defense,** pursuant to the terms and conditions of Section VI.F, incurred by an **Insured Person** without first requiring payment of the Retention applicable to **Claims** for which the Retention applicable to Insuring Agreement I.B applies.

Section VI. Costs of Defense and Settlements

A. The **Insured** shall not incur **Costs of Defense**, or admit liability, offer to settle, or agree to any settlement in connection with any **Claim** without the

express prior written consent of the **Insurer**, which consent shall not be unreasonably withheld. The **Insured** shall provide the **Insurer** with all information, documents, reports and particulars it may reasonably request in order to reach a decision as to such consent. Any **Loss** resulting from any admission of liability, agreement to settle, default judgment, or **Costs of Defense** incurred without the consent of the **Insurer**, shall not be covered hereunder.

B. Notwithstanding Section VI.A. above, if all **Insureds** are able to settle all **Claims** that are subject to an applicable Retention for an amount that, together with the **Costs of Defense**, does not exceed the applicable Retention, the **Insured** may agree to such a settlement without the prior written consent of the **Insurer**, provided, however, nothing in this paragraph shall relieve any **Insured** of its obligation to report a **Claim** in compliance with Section VII.

C. The **Insured**, and not the **Insurer**, shall have the duty to defend all **Claims**, provided that the **Insured** shall only retain **Defense Counsel** as is mutually agreed in writing with the **Insurer**. **Costs of Defense** will only be paid if the written consent of the **Insurer** is obtained prior to the **Organization** incurring such **Costs of Defense.**

"**Defense Counsel**" shall mean an attorney approved by the **Insurer** in writing from the jurisdiction in which the **Claim** is brought, or alternatively, counsel, who will be paid at rates regularly paid by the **Insurer** to attorneys retained by it in the ordinary course of business in the jurisdiction where the **Claim** is being defended. If the **Insured** does not obtain the written consent of the **Insurer** as to its selected counsel, then the fees incurred will be at the **Organization's** expense.

With the express prior written consent of the **Insurer**, an **Insured** may select (in the case of the **Insured** defending the **Claim**), or cause the **Insurer** to select (in the case of the **Insurer** defending the **Claim**), **Defense Counsel** different from that selected by other **Insured** defendants if such selection is required due to an actual conflict of interest or is otherwise reasonable and necessary.

D. The **Organization** may at its option tender to the **Insurer** the defense of a **Claim**; however in no event shall such tender of the defense relieve the **Organization** of its obligation to pay the applicable Retention in connection with the **Claim**. Upon such a tender of the defense of a **Claim**, the **Insurer** shall assume the duty to defend. Such a tender of the defense of a **Claim** may not be made more than 30 days following notice of the **Claim,** or if greater than 30 days, solely at the discretion of the **Insurer**.

E. The **Insurer** shall advance covered **Costs of Defense** on a current basis. Any advancement of **Costs of Defense** shall be repaid to the **Insurer** by the **Insureds** severally according to their respective interests if and to the extent the **Insureds** shall not be entitled under the terms and conditions of this Policy for such **Costs of Defense**. Any payment shall be on the condition that:

1) the appropriate Retention has been satisfied by covered **Loss** under the Policy, provided, however, this condition shall not apply in the event of the **Financial Insolvency** of the **Organization**;

2) any amounts paid by the **Insurer** shall serve to reduce the Limit of Liability stated in Item D of the Declarations to the extent they are not in fact repaid;

3) the **Insured** and the **Insurer** have agreed upon the portion of the **Costs of Defense** attributable to covered **Claims** against the **Insureds**; provided, however, if no agreement, the **Insurer** shall pay **Costs of Defense** as specified in Section VI. G.

F. The **Insurer** shall at all times have the right, but not the duty, to fully and effectively associate with the **Insured** in the investigation, defense or settlement of any **Claim** to which coverage under this Policy may apply. The **Insured** shall cooperate with the **Insurer** and provide the **Insurer** such information as it may reasonably require in the investigation, defense or settlement of any **Claim**. In addition, the **Insured** shall not take any action, without the **Insurer's** written consent, which prejudices the **Insurer's** rights under this Policy.

G. If a **Claim** made against an **Insured** includes both covered and uncovered matters, or is made against an **Insured** and others not insured, the **Insured** and the **Insurer** recognize that there must be an allocation between covered and uncovered **Loss**. The **Insured** and the **Insurer** shall use their best efforts to agree upon a fair and proper allocation between covered and uncovered **Loss**, taking into account the relative legal and financial exposures, and the relative benefits obtained by each **Insured** as a result of the covered and uncovered matters and/or such benefits to an uninsured party using the same measure. If the **Insured** and the **Insurer** are unable to agree on the amount of the allocation, then the **Insurer** shall pay only those amounts (excess of the Retention amount) which the **Insurer** deems to be fair and equitable until a different amount shall be agreed upon or determined pursuant to the terms of this Policy and the above stated standards.

H. The **Insurer** will have no obligation to pay **Loss**, including **Costs of Defense**, or to defend or continue to defend any **Claim** under any Insuring Agreement or endorsement after the applicable Limit or the Aggregate Limit set forth in Item D. of the Declarations is exhausted by the payment of **Loss**, including **Costs of Defense**.

Section VII. Notice of Claim

A. The **Insured** shall, as a condition precedent to their rights under this Policy, give the **Insurer** notice in writing of any **Claim** which is made during the **Policy Period** or Discovery Period. Such notice shall be given as soon as practicable upon knowledge of the chief executive officer, chief financial officer, general counsel, director of human resources, risk manager, or equivalent position of any of the foregoing, but in no event later than 1) sixty (60) days after the end of the **Policy Period** or 2) the expiration date of the Discovery Period, if applicable. If notice is provided pursuant to this Section, any **Claim** subsequently made against an **Insured** and reported to the **Insurer** alleging, arising out of, based upon or attributable to the prior noticed **Claim** or alleging any **Related Wrongful Acts**, shall be considered related to the prior **Claim** and made at the time notice of the prior **Claim** was first provided.

B. If during the **Policy Period** the **Organization** or any **Insured** becomes aware of any circumstances which may reasonably be expected to give rise to a **Claim** being made against an **Insured** and shall give written notice to the **Insurer** of the circumstances, the **Wrongful Act** allegations anticipated and the reasons for anticipating such a **Claim**, with full particulars as to dates, persons and entities involved, then a **Claim** which is subsequently made against such **Insured** and reported to the **Insurer** alleging, arising out of, based upon or attributable to such circumstances or alleging any **Related Wrongful Acts**, shall be considered made at the time notice of such

circumstances was given. Notice of any such subsequent **Claim** shall be given to the **Insurer** as soon as practicable.

C. In addition to furnishing the notice as provided in Section VII, the **Insured** shall, as soon as practicable, furnish the **Insurer** with copies of reports, investigations, pleadings and other papers in connection therewith.

D. Notice to the **Insurer** as provided in Section VII shall be given to the **Insurer's** representative identified in, and at the address set forth in Item H. of the Declarations, Notices to Insurer.

Section VIII. Discovery Period

A. In the event the **Insurer** or the **Organization** refuses to renew this Policy, the **Organization** shall have the right, upon payment of one hundred percent (100%) of the annual premium, (or if the **Policy Period** is other than annual, one hundred percent (100%) of the annualized premium), to an extension of the coverage provided by this Policy with respect to any **Claim** first made against any **Insured** during the period of twelve (12) months after the end of the **Policy Period** and reported to the **Insurer** pursuant to the provisions of this Policy, but only with respect to any **Wrongful Act** committed or alleged to have been committed before the end of the **Policy Period**. This twelve (12) month period shall be referred to in this Policy as the Discovery Period.

B. As a condition precedent to the right to purchase the Discovery Period, the total premium for this Policy, including any additional premiums for changes or additions to the Policy, must have been paid and a written request, together with payment of the appropriate premium for the Discovery Period, must be provided to the **Insurer** no later than thirty (30) days after the end of the **Policy Period**, at which time the premium shall be deemed fully earned.

C. The fact that the coverage provided by this Policy may be extended by virtue of the purchase of the Discovery Period shall not in any way increase the Aggregate Limit of Liability stated in Item D of the Declarations. For purposes of the Limit of Liability, the Discovery Period is considered to be part of, and not in addition to, the **Policy Period**.

Section IX. General Conditions

A. Cancellation

1) This Policy may be cancelled by the **Organization** at any time by written notice to the **Insurer**. Upon cancellation by the **Organization**, the **Insurer** shall retain the customary short rate portion of the premium, unless this Policy is converted to Run-Off pursuant to Section IX.D. wherein the entire premium for this Policy shall be deemed earned.

2) This Policy may only be cancelled by the **Insurer** if the **Organization** does not pay the premium when due.

B. Application

It is agreed by the **Organization** and the **Directors and Officers** that the particulars and statements contained in the **Application** and any information provided therewith (which shall be on file with the **Insurer** and be deemed attached hereto as if physically attached hereto) are true, accurate and complete and that such particulars and statements are the basis of this Policy and are to be considered as incorporated in and constituting a part of this Policy. It is further agreed by the **Organization** and the **Insured Person(s)**

that the statements in the **Application** or in any information provided therewith are their representations, that they are material and that this Policy is issued in reliance upon the truth of such representations. Knowledge of any **Insured Person** of a misstatement or omission in the **Application** shall not be imputed to any other **Insured Person** for purposes of determining the validity of this Policy as to such other **Insured Person,** against whom this Policy shall not be rescinded. Only knowledge of the chairman of the board, chief executive officer, chief operating officer, president, chief financial officer, general counsel, director of human resources or equivalent position or risk manager of a misstatement or omission in the **Application** shall be imputed to the **Organization** for purposes of determining coverage under this Policy as respects Section I. C.

C. Action Against the Insurer

1) No action shall be taken against the **Insurer** unless, as a condition precedent thereto, there shall have been full compliance with all the terms of this Policy, and until the obligation of the **Insured** to pay shall have been finally determined by an adjudication against the **Insured** or by written agreement of the **Insured**, claimant and the **Insurer**.

2) No person or organization shall have any right under this Policy to join the **Insurer** as a party to any **Claim** against an **Insured** nor shall the **Insurer** be impleaded by any **Insured** or their legal representative in any such **Claim**.

D. Conversion to Run-Off Coverage

If, during the **Policy Period**, a transaction occurs wherein another entity gains control of the **Organization** identified as the Named Insured in the Declarations through the ownership of more than fifty percent (50%) of the voting stock of the **Organization**, or the **Organization** merges into another entity or consolidates with another entity such that the **Organization** is not the surviving entity, then:

1) this Policy shall only apply to **Wrongful Acts** actually or allegedly committed on or before the effective date of such transaction; and

2) this Policy shall be non-cancellable except for non-payment of premium, and

3) the entire premium for this Policy shall be deemed earned as of the date of such transaction.

E. Outside Entity and Joint Venture Provision

In the event a **Claim** is made against any **Insured Person** arising out of their service as a director, officer, trustee or governor of an **Outside Entity** or **Joint Venture**, coverage as may be afforded under this Policy shall be excess of any indemnification provided by the **Outside Entity** or **Joint Venture** and any insurance provided to the **Outside Entity** or **Joint Venture** which covers its directors, officers, trustees or governors.

F. Other Insurance

All amounts payable under this Policy will be specifically excess of, and will not contribute with, any other valid and collectible insurance, including but not limited to any insurance under which there is a duty to defend, unless such other insurance is specifically excess of this Policy. This Policy will not be subject to the terms of any other insurance policy.

G. Coverage Extensions

1) Lawful Spouse or **Domestic Partner** Provision

The coverage provided by this Policy shall also apply to the lawful spouse or **Domestic Partner** of an **Insured Person**, but only for a **Claim** arising out of any actual or alleged **Wrongful Acts** of such **Insured Person**.

2) Worldwide Provision

The coverage provided under this Policy shall apply worldwide. The term **Directors and Officers** is deemed to include individuals who serve in equivalent positions in foreign **Subsidiaries**.

3) Estates and Legal Representatives

a) The coverage provided by this Policy shall also apply to the estates, heirs, legal representatives or assigns of any **Insured Person** in the event of their death, incapacity or bankruptcy, but only for **Claims** arising out of any actual or alleged **Wrongful Acts** of any **Insured Person**.

b) In the event a bankruptcy proceeding shall be instituted by or against the **Organization**, the resulting debtor-in-possession (or equivalent status outside the United States of America) shall be deemed to be the **Organization**, but only with respect to coverage provided under Insuring Agreements I. B. and C.

H. Priority of Payments

1) In the event of **Loss** arising from one or more covered **Claims or Crisis Events** for which payment is due under this Policy, the **Insurer** shall:

a) first pay such **Loss** for which coverage is provided under Section I. A of this Policy; then

b) with respect to whatever remaining amount of the Limit of Liability is available after payment of Section I.A. above, pay such **Loss** for which coverage is provided under any other Insuring Agreements of this Policy.

2) Subject to the provisions of paragraph 1) above, the **Insurer** shall, at the request of the **Organization**, delay payment of **Loss** for which coverage is provided under any Insuring Agreement other than Section I.A. until such time as the **Organization** designates; provided the liability of the **Insurer** with respect to such delayed payment shall not be increased, and shall not include any interest as a result of such delay. The **Organization** shall provide written notice to the **Insurer** when such delayed payment shall be made. Such written notice shall be deemed consent from all **Insureds**, including all **Insured Person(s)**, to release such payment and the **Insurer** shall have no further obligation under this Policy with respect to such funds.

I. Subrogation

In the event of any payment under this Policy, the **Insurer** shall be subrogated to the extent of such payment to all the **Organization's** and any other **Insured's** rights of recovery thereof, and the **Organization** and the **Insured** shall execute all papers required and shall do everything that may be

reasonably necessary to secure such rights, including the execution of such documents necessary to enable the **Insurer** to effectively bring suit in the name of the **Organization** or any other **Insured.** In no event, however, shall the **Insurer** exercise its rights of subrogation against an **Insured Person** under this Policy unless a final adjudication or binding arbitration adverse to the **Insured Person** in the underlying proceeding establishes that such **Insured Person** committed a deliberate criminal or deliberate fraudulent act, or such **Insured Person** has been determined, upon a final adjudication or binding arbitration adverse to the **Insured Person**, to have obtained any profit or advantage to which such **Insured Person** was not legally entitled.

J. Choice of Law

All matters arising hereunder including questions related to the validity interpretation, performance and enforcement of this Policy shall be determined in accordance with the law and practice of the State of New York notwithstanding New York's conflicts of law rules.

K. Assignment

This Policy and any and all rights hereunder are not assignable without the prior written consent of the **Insurer**, which consent shall be in the sole and absolute discretion of the **Insurer**.

L. Organization Represents Insureds

By acceptance of this Policy, the **Insureds** agree that the **Organization** identified as the Named Insured in the Declarations shall be designated to act on behalf of all **Insureds** for all purposes including, but not limited to, the giving and receiving of all notices and correspondence, the election or failure to elect a Discovery Period, the cancellation or non-renewal of this Policy, the payment of premiums, and the receipt of any return premiums that may be due under this Policy.

M. Representative of the Insurer

ANV Global Services, Inc., (101 Hudson Street , Suite 3606, Jersey City, NJ 07302) shall act on behalf of the **Insurer** for all purposes including, but not limited to, the giving and receiving of all notices and correspondence, provided, however, notice of **Claims** shall be given pursuant to Section VII of the Policy.

N. Bankruptcy

Bankruptcy or insolvency of the **Organization,** or any **Insured Person** shall not relieve the **Insurer** of any of its obligations under this Policy.

O. Conformity to Statute

Any terms of this Policy which are in conflict with the terms of any applicable laws are hereby amended to conform to such laws.

P. Headings

The descriptions in the headings of this Policy form no part of the terms and conditions of the coverage under this Policy.

Q. Entire Agreement

By acceptance of this Policy, all **Insureds** and the **Insurer** agree that this Policy (including the Declarations, **Application** submitted to the **Insurer** and any information provided therewith) and any written endorsements attached hereto constitute the entire agreement between the parties. The terms, conditions and limitations of this Policy can be waived or changed only by written endorsement.

R. Dispute Resolution

In the event any dispute between the **Insured** and the **Insurer** arises in connection with this Policy that cannot be resolved by agreement, prior to commencing a judicial proceeding or arbitration, the **Insured** may submit the dispute to non-binding mediation. The parties shall select a mediator from the JAMS Panel of Neutrals, unless otherwise agreed upon. The **Insurer** and the **Insured** shall attempt in good faith to resolve such dispute in accordance with the American Arbitration Association's ("AAA") then-prevailing Commercial Mediation Rules. In the event the **Insured** does not elect to engage in non-binding mediation or such non-binding mediation does not result in a settlement of the subject dispute or difference, either the **Insured** or the **Insurer** shall have the right to commence a judicial proceeding or, if the parties agree, a binding arbitration under the then-prevailing AAA Commercial Arbitration Rules, to resolve such dispute no earlier than sixty (60) days after such mediation concludes unsuccessfully. The **Organization** shall act on behalf of each and every **Insured** in deciding whether to proceed with either a judicial proceeding or binding arbitration. The costs and expenses of mediation, or arbitration, shall be split equally by the parties.

S. Service of Suit

The **Insurer's** representatives designated in Section IX, (M) are authorized and directed to accept service of process on behalf of the **Insurer** in any suit on the Policy against the **Insurer**. The service of process in any **Claim** or suit on the Policy against the **Insurer** may also be made upon the highest one in authority bearing the title "Commissioner", "Director" or "Superintendent" of Insurance of the state or commonwealth wherein the Policy is issued. The one in authority bearing the title "Commissioner", "Director" or "Superintendent" of Insurance of the state or commonwealth wherein the Policy is issued is hereby authorized and directed to accept service of process on our behalf in any such **Claim** or suit. Said officer is authorized to mail such process or a true copy thereof to the **Insurer's** representatives designated in Section IX (M).

Insured Education Document

Representative of the Insurer

ANV Global Services, Inc., (101 Hudson Street , Suite 3606, Jersey City, NJ 07302) shall act on behalf of the Insurer for all purposes including, but not limited to, the giving and receiving of all notices and correspondence, provided, however, notice of Claims shall be given pursuant to Section VII of the Policy.

Insurer

This Policy is underwritten by Certain Underwriters at Lloyd's led by Syndicate ANV 1861 (ANV) whose registered office is at 47 Mark Lane, London, EC3R 7QQ, United Kingdom.

Law

All matters arising hereunder including questions related to the validity interpretation, performance and enforcement of this Policy shall be determined in accordance with the law and practice of the State of New York notwithstanding New York's conflicts of law rules.

Queries

Any query or question about this Policy or any claim under it should be addressed in the first instance to your broker.

Complaints

ANV aims to provide a professional service to its customers. Should you have any questions or concerns about your Policy or the handling of a Claim you should, in the first instance, contact your broker. If your broker does not provide you with a satisfactory response, please contact ANV Global Services, Inc., at 101 Hudson Street, Suite 3606, Jersey City, NJ 07302, email: PLUnderwriting@anv.us.com or for any Claims matters, Attn: Claims Department at the same address. The Claims Department email is: MGAClaims@anv.us.com. In the event that you remain dissatisfied and wish to make a complaint, please contact ANV´s compliance department at anvcomplaintsMGU@anv.eu.com. It is also possible for you to refer the matter to the Policyholder and Market Assistance team at Lloyd's. Their address is:

Policyholder & Market Assistance
Market Services
Lloyd's
One Lime Street
London EC3M 7HA
Tel No: 00 44 207 327 5693
Fax No: 00 44 207 327 5225
E-mail: complaints@lloyds.com

Details of Lloyd's complaints procedures are set out in a leaflet "Your Complaint - How We Can Help" available at www.lloyds.com/complaints and are also available from the above address. If you remain dissatisfied after Lloyd's has considered your complaint, you may have the right to refer your complaint to the United Kingdom Financial Ombudsman Service.

Endorsement No: 1 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

CAP ON LOSSES FROM CERTIFIED ACTS OF TERRORISM

This endorsement modifies insurance provided under the following:

EMPLOYMENT PRACTICES LIABILITY INSURANCE POLICY
EXCESS PROFESSIONAL LIABILITY INSURANCE POLICY
NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
SIDE-A DIRECTORS AND OFFICERS LIABILITY INSURANCE POLICY

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that this policy is amended as follows:

If aggregate insured losses attributable to terrorist acts certified under the federal Terrorism Risk Insurance Act exceed $100 billion in a Program Year (January 1 through December 31) and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds $100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

"**Certified Act Of Terrorism**" means an act that is certified by the Secretary of the Treasury, in concurrence with the Secretary of State and the Attorney General of the United States, to be an act of terrorism pursuant to the federal Terrorism Risk Insurance Act. The criteria contained in the Terrorism Risk Insurance Act for a **Certified Act of Terrorism** include the following:

1. The act resulted in insured losses in excess of $5 million in the aggregate, attributable to all types of insurance subject to the Terrorism Risk Insurance Act; and
2. The act is a violent act or an act that is dangerous to human life, property or infrastructure and is committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

Endorsement No: 2 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

U.S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL ("OFAC") ADVISORY NOTICE TO POLICYHOLDERS

No coverage is provided by this Policyholder Notice nor can it be construed to replace any provisions of your policy. You should read your policy and review your Declarations page for complete information on the coverages you are provided. This Notice provides information concerning possible impact on your insurance coverage due to directives issued by OFAC. **Please read this Notice carefully.**

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous:

- Foreign agents;
- Front organizations;
- Terrorists;
- Terrorist organizations; and
- Narcotics traffickers;

as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's web site — http//www.treas.gov/ofac.

In accordance with OFAC regulations, if it is determined that you or any other insured, or any person or entity claiming the benefits of this insurance has violated U.S. sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, this insurance will be considered a blocked or frozen contract and all provisions of this insurance are immediately subject to OFAC. When an insurance policy is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments also apply.

Endorsement No: 3 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ACCREDITATION AND RELATED ACTIVITIES EXCLUSION

This endorsement modifies insurance provided under the following:

NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that the **Insurer** shall not be liable to make any payment for **Loss**, including **Costs of Defense**, in connection with any **Claim(s)** made against an **Insured Person** and/or the **Organization** based upon, attributable to, arising out of accreditation, certification, credentialing, peer review, professional assessment, sponsoring or standard setting activities conducted by or on behalf of any **Insured Person** and/or the **Organization**, including, but not limited to, any **Claim** arising out of any actual or alleged errors or omissions with respect to accreditation, certification, credentialing, peer review, professional assessment, sponsoring or standard setting activities.

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

Endorsement No: 4 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

GENERAL CHANGE ENDORSEMENT

This endorsement modifies insurance provided under the following:

EMPLOYEE BENEFIT PLAN FIDUCIARY INSURANCE POLICY
EMPLOYMENT PRACTICES LIABILITY INSURANCE POLICY
EXCESS PROFESSIONAL LIABILITY INSURANCE POLICY
NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
SIDE-A DIRECTORS AND OFFICERS LIABILITY INSURANCE POLICY

Unless specifically designated herein, this Endorsement shall not serve to increase our limits of insurance, as described in the LIMITS OF LIABILITY section of the policy.

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that the following changes are incorporated into the policy:

Any **Claim** brought by Doug LaMalf and/or Hoopa Valley Tribe, or the Klamath Tribe will be subject to a $25,000 Retention

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

Endorsement No: 5 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ABSOLUTE BODILY INJURY AND PROPERTY DAMAGE EXCLUSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that **Section III. EXCLUSIONS, D.** is deleted in its entirety and replaced with the following:

alleging, arising out of, based upon, attributable to, or in any way involving, directly or indirectly,

1) bodily injury, sickness, disease, or death of any person;
2) damage to or destruction of any property, including the loss of use thereof; or
3) mental anguish, emotional distress, invasion of privacy, wrongful entry, eviction, false arrest, false imprisonment, malicious prosecution, libel or slander, however, this subsection D.3) does not apply to an **Employment Practices Claim.**

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

Endorsement No: 6 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

Deceptive Business Practices Exclusion

This endorsement modifies insurance provided under the following:

EMPLOYEE BENEFIT PLAN FIDUCIARY INSURANCE POLICY
EMPLOYMENT PRACTICES LIABILITY INSURANCE POLICY
EXCESS PROFESSIONAL LIABILITY INSURANCE POLICY
NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
SIDE-A DIRECTORS AND OFFICERS LIABILITY INSURANCE POLICY
MISCELLANEOUS PROFESSIONAL LIABILITY POLICY

FALSE ADVERSTING EXCLUSION

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that the **Insurer** shall not be liable to make any payment for **Loss** in connection with any **Claim**(s) directly or indirectly related to, based upon, attributable to or arising out of, in whole or in part, including the prosecution, settlement, disposition, resolution or defense of any actual or alleged **Wrongful Act**(s) to any false advertising, misrepresentation in advertising or unfair or deceptive trade practices, with respects to the advertising or marketing of the **Insured**'s own goods, products, publication or services, including but not limited to the violation of any consumer protection laws governing any unsolicited faxes, unsolicited electronic mail, unsolicited telephone calls or any other unsolicited communications, including but not limited to any actual or alleged violations of FCC regulations governing the transmission of communications, the Telephone Consumer Protection Act of 1991, any local, state or federal law, including non-U.S. laws, any amendment to such laws or violation of any order, ruling or regulation issued pursuant to such laws that regulate such communications.

Endorsement No: 7 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BROADCASTING, ADVERTISING & PUBLISHING LIABILITY EXCLUSION

This endorsement modifies insurance provided under the following:

EXCESS PROFESSIONAL LIABILITY INSURANCE POLICY
NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that the **Insurer** shall not be liable to make payment for any **Loss** under this policy in connection with any **Claim(s)** based upon, attributable to, or directly or indirectly arising out of:

a. publishing or re-publishing;

b. advertising;

c. broadcasting or re-broadcasting;

d. telecasting or re-telecasting;

e. any actual or alleged piracy;

f. any actual or alleged idea misappropriation under implied contract;

g. any actual or alleged libel, slander, or other defamation or invasion of privacy in connection with any advertisement, publicity, article, broadcast or telecast; or

h. any actual or alleged false arrest, false imprisonment, wrongful entry or eviction or other wrongful invasion of the right to private occupancy, wrongful detention, malicious prosecution, humiliation, defamation of character or invasion of rights of privacy claimed by any non-**Employee**.

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

Endorsement No: 8 Policy Number: ANV109585A

Named Insured: Klamath River Renewal Corporation

Endorsement Effective Date: January 31, 2017

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

AMENDED SERVICE OF SUIT CLAUSE - CALIFORNIA

This endorsement modifies insurance provided under the following:

EMPLOYEE BENEFIT PLAN FIDUCIARY INSURANCE POLICY
EMPLOYMENT PRACTICES LIABILITY INSURANCE POLICY
EXCESS PROFESSIONAL LIABILITY INSURANCE POLICY
NOT FOR PROFIT ORGANIZATION MANAGEMENT LIABILITY INSURANCE POLICY
PRIVATE COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
PUBLIC COMPANY MANAGEMENT LIABILITY INSURANCE POLICY
SIDE-A DIRECTORS AND OFFICERS LIABILITY INSURANCE POLICY
MISCELLANEOUS PROFESSIONAL LIABILITY POLICY

In consideration of the premium charged, it is agreed by the **Insured** and **Insurer** that Section IX. General Conditions paragraph S. Service of Suit is deleted in its entirety and replaced by the following:

S. Service of Suit

The **Insurer's** representatives designated in Section IX, (M) are authorized and directed to accept service of process on behalf of the **Insurer** in any suit on the Policy against the **Insurer**. The service of process in any **Claim** or suit on the Policy against the **Insurer** may also be made upon the following service of suit nominee:

Wilson, Elser, Moskowitz, Edelman & Dicker
555 S. Flower Street, Suite 2900
Los Angeles, California 90071

Said service of suit nominee is authorized to mail such process or a true copy thereof to the **Insurer's** representatives designated in Section IX (M).

All other terms, conditions and exclusions under the policy are applicable to this endorsement and remain unchanged.

ATTACHMENT F
Amended KHSA (November 16, 2016)

KLAMATH HYDROELECTRIC SETTLEMENT AGREEMENT

February 18, 2010
as amended April 6, 2016
& November 30, 2016

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The KLAMATH HYDROELECTRIC SETTLEMENT AGREEMENT was made and entered into by and among the following entities:

Ady District Improvement Company;
American Rivers;
Bradley S. Luscombe;
California Department of Fish and Game ("CDFG");
California Natural Resources Agency ("CNRA");
California Trout;
Collins Products, LLC;
Don Johnston & Son;
Enterprise Irrigation District;
Humboldt County, California;
Institute for Fisheries Resources;
Inter-County Properties Co., which acquired title as Inter-County Title Co.;
Karuk Tribe;
Klamath Basin Improvement District;
Klamath County, Oregon;
Klamath Drainage District;
Klamath Irrigation District;
Klamath Tribes;
Klamath Water and Power Agency ("KWAPA");
Klamath Water Users Association ("KWUA");
Malin Irrigation District;
Midland District Improvement Company;
Northern California Council, Federation of Fly Fishers;
Oregon Department of Environmental Quality ("ODEQ");
Oregon Department of Fish and Wildlife ("ODFW");
Oregon Water Resources Department ("OWRD");
Pacific Coast Federation of Fishermen's Associations;
PacifiCorp;
Pioneer District Improvement Company;
Plevna District Improvement Company;
Randolph Walthall and Jane Walthall as trustees under declaration of trust dated November 28, 1995 (the "Randolph and Jane Walthall 1995 trust");
Reames Golf and Country Club;
Salmon River Restoration Council;
Shasta View Irrigation District;
Sunnyside Irrigation District;
Trout Unlimited;
Tulelake Irrigation District;
United States Department of Commerce's National Marine Fisheries Service ("NMFS");
United States Department of the Interior ("Interior");
Upper Klamath Water Users Association ("UKWUA");
Van Brimmer Ditch Company;
Westside Improvement District #4;

Winema Hunting Lodge, Inc.; and
Yurok Tribe;

This Klamath Hydroelectric Settlement Agreement, as amended, is entered into by and among the entities who sign the Settlement.

1. Introduction

1.1 Recitals

WHEREAS, the States, the United States and PacifiCorp entered into the 2008 Agreement in Principle that addressed issues pertaining to the resolution of certain litigation and other controversies in the Klamath Basin, including a path forward for possible Facilities Removal; and

WHEREAS, the 2008 AIP provided that the parties to the 2008 AIP would continue good-faith negotiations to reach a final settlement agreement in order to minimize adverse impacts of dam removal on affected communities, local property values and businesses and to specify substantive rights, obligations, procedures, timetables, agency and legislative actions, and other steps for Facilities Removal; and

WHEREAS, the other Parties to this Settlement desired to participate in the negotiations of a final settlement agreement in order to ensure that the interests of Indian tribes, environmental organizations, fishermen, water users, and local communities were addressed; and

WHEREAS, the Parties view this Settlement as an important part of the resolution of long-standing, complex, and intractable conflicts over resources in the Klamath Basin; and

WHEREAS, the 2008 AIP established a "commitment to negotiate" a settlement "based on existing information and the preliminary view of the governmental Parties (the United States, Oregon, and California) that the potential benefits for fisheries, water and other resources of removing the Facilities outweigh the potential costs, risks, liabilities or other adverse consequences of such removal"; and

WHEREAS, certain Parties believe that decommissioning and removal of the Facilities will help restore Basin natural resources, including anadromous fish, fisheries and water quality; and

WHEREAS, the Parties understand that the Project dams are currently the property of PacifiCorp, and that they are currently operated subject to applicable state and federal law and regulations. The other Parties understand that the decision before PacifiCorp is whether the decommissioning and removal of certain Facilities is appropriate and in the best interests of PacifiCorp and its customers. PacifiCorp asserts that prudent and reasonable long-term utility rates and protection from any liability for damages caused by Facilities Removal are central to its willingness to voluntarily transfer the dams and the low-carbon renewable energy they produce and to concur in the removal of the dams by the DRE; and

WHEREAS, the United States has devoted considerable funds and resources toresource enhancements, management actions, and compensation in the Klamath Basin, and various Parties believe that a broader and integrated approach is appropriate to realize Basin-wide objectives; and

WHEREAS, this Settlement contemplates a substantial non-federal contribution in support of said approach; and

WHEREAS, the Tribes and the Federal Parties agree that this Settlement advances the trust obligation of the United States to protect Basin Tribes' federally reserved fishing and water rights in the Klamath and Trinity River Basins; and

WHEREAS, in 2016, PacifiCorp, the United States, and the States signed the 2016 Agreement in Principle to signify their intent to negotiate an amended KHSA that would facilitate Facilities Removal through the existing authority of FERC under the Federal Power Act; and

WHEREAS, all of the Parties agree that this Settlement is in the public interest.

NOW, THEREFORE, the Parties agree as follows:

1.2 Purpose of Settlement

The Parties have entered into this Settlement for the purpose of resolving among them the pending FERC relicensing proceeding by establishing a process for potential Facilities Removal and operation of the Project until that time.

1.3 Parties Bound by Settlement

The Parties shall be bound by this Settlement for the term stated in Section 8.1 herein, unless terminated pursuant to Section 8.11.

1.4 Definitions

"2008 Agreement in Principle" or **"2008 AIP"** refers to the Agreement in Principle executed on November 13, 2008, by the states of Oregon and California, Interior, and PacifiCorp setting forth a framework for potential Facilities Removal.

"2016 Agreement in Principle" or **"2016 AIP"** refers to the Agreement in Principle executed on February 2, 2016, by the states of Oregon and California, Interior, the U.S. Department of Commerce, and PacifiCorp signifying their intent to negotiate an amended KHSA that would achieve Facilities Removal through the existing authority of FERC under the Federal Power Act.

"Amendment Effective Date" is defined in Section 8.2.

"Applicable Law" means general law that (1) exists outside of this Settlement, including, but not limited to a Constitution, statute, regulation, court decision, or common law, and (2) applies to obligations or activities of Parties contemplated by this Settlement. The use of this term is not intended to create a contractual obligation to comply with any law that would not otherwise apply.

"Authorizing Legislation" refers to the statutes enacted by the Oregon and California Legislatures, respectively, to authorize and implement certain aspects of this Settlement, if necessary.

"**CEQA**" refers to the California Environmental Quality Act, Cal. Pub. Res. Code § 21000 *et seq*.

"**CWA**" refers to the Clean Water Act, 33 U.S.C. § 1251 *et seq.*

"Coordination Process" for the Studies Supporting the Secretarial Determination means the process contained in Appendix A by which the United States will obtain input and assistance from the Parties to this Settlement, as governed by Applicable Law, regarding the studies and environmental compliance actions needed to inform and support the Secretarial Determination.

"**Counties**" refers to the counties that sign this Settlement.

"**Dam Removal Entity**" or "**DRE**" is the Klamath River Renewal Corporation, which will be the entity responsible for Facilities Removal under this Settlement.

"**Decommissioning**" means PacifiCorp's physical removal from a facility of any equipment and personal property that PacifiCorp determines has salvage value, and physical disconnection of the facility from PacifiCorp's transmission grid.

"**Definite Plan**" means a plan and timetable for Facilities Removal submitted by the DRE or any of its contractors or assigns under Section 7.2.1.

"**Detailed Plan**" means the plan dated July 2012 that includes elements described in Section 7.2.2.

"Dispute Resolution Procedures" means the procedures established by Section 8.6.

"Due Diligence" means a Party's taking all reasonable steps to implement its obligations under this Settlement.

"**Effective Date**" is defined in Section 8.2.

"**EPAct**" refers to the Energy Policy Act of 2005, Section 241, codified at 16 U.S.C. § 823d and amendments to 16 U.S.C. §§ 797(e) and 811.

"ESA" refers to the federal Endangered Species Act, 16 U.S.C. §§ 1531 *et seq*.

"**Facilities**" or "**Facility**" means the following specific 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.

"**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.

"**Federal Parties**" refers to Interior, including the component agencies and bureaus of Interior, and the NMFS.

"**FERC**" refers to the Federal Energy Regulatory Commission.

"**Interim Conservation Plan**" or "**ICP**" refers to the plan developed by PacifiCorp through technical discussions with NMFS and the U.S. Fish and Wildlife Service ("USFWS") regarding voluntary interim measures for the enhancement of coho salmon and suckers listed under the ESA, filed with FERC on November 25, 2008, or such plan as subsequently modified.

"**Interim Measures**" refers to those measures described in Appendices C and D to this Settlement.

"**Interim Period**" refers to the period between the Effective Date and Decommissioning.

"**Keno facility**" means Keno Dam, lands underlying Keno Dam, appurtenant works and PacifiCorp-owned property described as Klamath County Map Tax Lot R-3907-03600-00200-000 located in Klamath County, Oregon.

"Klamath Hydroelectric Settlement Agreement" or **"KHSA"** means the Klamath Hydroelectric Settlement Agreement executed February 18, 2010.

"**Meet and Confer**" procedures mean the procedures established by Section 8.7 of this Settlement.

"**NEPA**" refers to the National Environmental Policy Act, 42 U.S.C. §§ 4321 *et seq.*

"**Nominal dollars**" means dollars that are not adjusted for inflation at the time they are collected.

"**Non-bypassable surcharge**" means a monetary surcharge authorized by the appropriate state utility commission through a tariff schedule that applies to all retail customers who rely on PacifiCorp's transmission and distribution system for the delivery of electricity.

"Notice" means written notice pursuant to the requirements and procedures of Section 8.5.

"**Oregon Surcharge Act**" is defined in Section 2.2.

"**PacifiCorp's Economic Analysis**" means the primary economic analysis prepared by PacifiCorp and relied upon by PacifiCorp to compare the present value revenue requirement impact of the KHSA against the present value revenue requirement of relicensing of the Facilities under defined prescriptions generally based on the FERC Final Environmental Impact Statement dated November 2007, which analysis PacifiCorp filed with the Public Utility Commission of Oregon ("Oregon PUC") pursuant to Section 4(1) of the Oregon Surcharge Act and with the California Public Utilities Commission ("California PUC") in accordance with Section 4 of the KHSA. This analysis was used to compare the relative cost of relicensing with the relative cost of the KHSA.

"**Parties**" or "**Party**" means the signatories to this Amended KHSA collectively or a signatory individually.

"**Project**" refers to the Klamath Hydroelectric Project as licensed by FERC under Project No. 2082.

"Public Agency Party" means each Tribe, the Federal Parties, the agencies of each of the States, the Counties, and each other Party that is a public agency established under Applicable Law.

"Regulatory Approval" means each permit or other approval under a statute or regulation necessary or appropriate to implement any of the obligations or activities of Parties contemplated under this Settlement.

"Regulatory Obligation" means each of those obligations or activities of Parties contemplated by this Settlement that are subject to Regulatory Approval and, upon such approval, are enforceable under regulatory authority.

"**Secretarial Determination**" means the determination contemplated in Section 3.3 of the KHSA.

"**Secretary**" refers to the Secretary of the Interior.

"**Services**" means the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

"**Settlement**" means the entirety of the KHSA and Appendices A through L, as amended and applicable. "Settlement" does not include Exhibits 1 through 4, which are related documents attached for informational purposes.

"**States**" refers to the State of Oregon by and through the Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, and Oregon Water Resources

Department, and the State of California by and through the California Department of Fish and Wildlife ("CDFW") and the California Natural Resources Agency.

"**State Cost Cap**" means the collective maximum monetary contribution from the states of California and Oregon as described in Section 4.1.3 of this Settlement.

"Timely" or **"Timeliness"** means performance of an obligation by the deadline established in the applicable provision of this Settlement or otherwise in a manner reasonably calculated to achieve the bargained-for benefits of this Settlement.

"**Tribes**" means the Yurok Tribe, the Karuk Tribe, the Hoopa Valley Tribe, and the Klamath Tribes, so long as such tribe is a signatory to the Settlement.

"**Value to Customers**" means potential cost reductions described in Section 7.3.8. These cost reductions would (1) decrease the Customer Contribution defined in Section 4.1.1.C, (2) decrease the costs of ongoing operations, or (3) decrease the costs of replacement power, as compared against the assumptions contained in PacifiCorp's Economic Analysis.

1.5 Compliance with Legal Responsibilities

In the implementation of this Settlement, Public Agency Parties shall comply with Applicable Law, including but not limited to the Authorizing Legislation, NEPA, ESA, CWA, the Wild and Scenic Rivers Act, and CEQA.

1.6 Reservations

1.6.1 Generally

Nothing in this Settlement is intended or shall be construed to affect or limit the authority or obligation of any Party to fulfill its constitutional, statutory, and regulatory responsibilities or comply with any judicial decision. Nothing in this Settlement shall be interpreted to require the Federal Parties, the States, or any other Party to implement any action which is not authorized by Applicable Law or where sufficient funds have not been appropriated for that purpose by Congress or the States. The Parties expressly reserve all rights not granted, recognized, or relinquished in this Settlement.

1.6.2 Reservations Regarding Federal Appropriations

All actions required of the Federal Parties in implementing this Settlement are subject to appropriations for that purpose by Congress. Nothing in this Settlement shall be interpreted as or constitute a commitment or requirement that any Federal agency obligate or pay funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341, or other Applicable Law. Nothing in this Settlement is intended or shall be construed to commit a federal official to expend federal funds not appropriated

for that purpose by Congress. Nothing in this Settlement is intended to or shall be construed to require any official of the executive branch to seek or request appropriations from Congress to implement any provision of this Settlement.

1.6.3 Availability of Public Funds

Funding by any Public Agency Party under this Settlement is subject to the requirements of Applicable Law. Nothing in this Settlement is intended or shall be construed to require the obligation, appropriation, or expenditure of any funds by the States or a Public Agency Party except as otherwise permitted by Applicable Law.

1.6.4 Reservations Regarding Legislative Proposals

Nothing in this Settlement shall be deemed to limit the authority of the executive branch of the United States government to make recommendations to Congress on any particular proposed legislation.

1.6.5 Reservations Regarding Regulations

Nothing in this Settlement is intended or shall be construed to deprive any public official of the authority to revise, amend, or promulgate regulations.

1.6.6 No Pre-Decisional Commitment

Nothing in this Settlement is intended or shall be construed to be a pre-decisional commitment of funds or resources by a Public Agency Party. Nothing in this Settlement is intended or shall be construed to predetermine the outcome of any Regulatory Approval or other action by a Public Agency Party necessary under Applicable Law in order to implement this Settlement.

1.6.7 No Waiver of Sovereign Immunity

Nothing in this Settlement is intended or shall be construed as a waiver of sovereign immunity by the United States, the State of Oregon, the State of California, any other Public Agency Party, or the Tribes. This Settlement does not obligate the United States or any Federal Party to affirmatively support this Settlement regarding any state or local legislative, administrative, or judicial action before a state administrative agency or court.

1.6.8 No Argument, Admission, or Precedent

This Settlement shall not be offered for or against a Party as argument, admission, or precedent regarding any issue of fact or law in any mediation, arbitration, litigation, or other administrative or legal proceeding, except that this Settlement may be used in any future proceeding to interpret or enforce the terms of this

Settlement, consistent with Applicable Law. This Settlement may also be used by any Party in litigation by or against non-Parties to implement or defend this Settlement. This section shall survive any termination of this Settlement.

1.6.9 Protection of Interests

Each Party may, in a manner consistent with this Settlement, protect, defend, and discharge its interests and duties in any administrative, regulatory, legislative or judicial proceeding, including but not limited to the Secretarial Determination, FERC relicensing process, CWA 401 proceedings, or other proceedings related to potential Project relicensing, surrender, or Facilities Removal.

1.7 Trinity River

The Parties intend that this Settlement shall not adversely affect the Trinity River Restoration Program.

To reach that conclusion, the Tribes reaffirm and rely upon their view of the existing fishery restoration goals and principles for the Trinity River Fishery Restoration Program, as follows:

A. Restoration of the Trinity River fish populations to pre-Trinity Dam construction levels;

B. Fishery restoration shall be measured not only by returning anadromous fish spawners but also by the ability of dependent tribal and non-tribal fishers to participate fully in the benefits of restoration through meaningful subsistence and commercial harvest opportunities;

C. An appropriate balance between stocks of natural and hatchery origins shall be maintained to minimize negative interactions upon naturally produced fish by hatchery mitigation releases;

D. A collaborative working relationship between federal agencies and the above mentioned Tribes;

E. Portions of federal activities that are associated with fishery restoration programs are Indian Programs for the purposes of the Indian Self-Determination Act; and

F. The Tribes support full funding implementation of the Trinity River Record of Decision from funding sources outside of this Settlement.

Nothing in this section binds any Party to any particular interpretation of the law or requires any Party to take particular actions, including performance of Interim Measures, or excuses any action otherwise required by Applicable Law or this Settlement.

1.8 Tribal Water Rights

This Settlement does not waive or in any way limit any treaty right, federally reserved right, or other right of the Tribes, or any federally recognized tribe, including any water or fishing right.

1.9 Klamath Basin Agreement

The States, the Federal Parties, and other entities are concurrently entering into the 2016 Klamath Power and Facilities Agreement. Each Party, other than PacifiCorp, shall support and defend the 2016 Klamath Power and Facilities Agreement, in its current form as of April 6, 2016, and its objectives in each applicable venue or forum in which it participates, including any administrative or judicial action. For purposes of this Section 1.9 only, the terms "support and defend" mean that the Party will advocate for the 2016 Klamath Power and Facilities Agreement or refrain from taking any action or making any statement in opposition to the 2016 Klamath Power and Facilities Agreement. More broadly, the Parties are committed to engage in good faith efforts to develop and enter into a subsequent agreement or agreements pertaining to other water, fisheries, land, agriculture, refuge and economic sustainability issues in the Klamath Basin with the goal to complete such agreement or agreements within the next year.

2. Implementation of Settlement

2.1 General Duty to Support Implementation

The Parties shall fully support this Settlement and its implementation. The form, manner, and timing of each Party's support are reserved to the discretion of each Party. Each Party agrees to refrain from any action that does not support or further cooperative efforts in support of the goals of this Settlement and its effective implementation.

2.1.1 Legislation

A. The Parties understand and agree that federal legislation is not necessary to carry out this Settlement.

B. Within 60 days of the Amendment Effective Date, the CDFW will provide draft California legislation to the Parties regarding a limited authorization for incidental take of Lost River Suckers, Shortnose Sucker, Golden Eagles, southern Bald Eagles, Greater Sandhill Cranes, or American Peregrine Falcon contingent upon the fulfillment of certain conditions, if such authorization is necessary for implementation of this Settlement. After reasonable opportunity for Parties to provide comments on the draft legislation, the State of California shall Timely recommend the legislation.

2.1.2 Regulatory Approvals

Subject to Sections 1.6.1, 2.1, and 7.1.5, each Party shall support the application for and granting of Regulatory Approvals consistent with this Settlement. The preceding sentence shall not apply to the Public Agency Party exercising the regulatory approval or to a Public Agency Party not participating in the proceeding.

2.1.3 Defense of Settlement

If an administrative or judicial action is brought against any Party to challenge the validity of this Settlement or its implementation consistent with the Settlement, each other Party shall endeavor to intervene or otherwise participate in such action, subject to its discretion, necessary funding, and Section 1.6. Any such participating Party will defend the Settlement. The form of such defense, including what litigation positions to support or recommend in such action, shall be left to the discretion of each participating Party in the action.

Each Party may comment on the consistency of any plan, other document, or data arising during the implementation of this Settlement and not otherwise set forth in an Appendix or Exhibit to this Settlement. The Parties acknowledge that their comments may conflict due to differing good-faith interpretations of the applicable obligations under this Settlement.

2.1.4 Obligation to Implement

A. General

Each Party shall implement each of its obligations under this Settlement in good faith and with Due Diligence. Any obligation identified as an obligation of all of the Parties does not obligate any individual Party to take any action itself or itself make any specific commitment other than to participate in the applicable procedures.

B. Cooperation Among the Parties

Each Party shall cooperate in the implementation of this Settlement. A Party shall not act in a manner that results in an action or requirement that is inconsistent with the Settlement unless necessary to comply with statutory, regulatory, or other legal responsibility.

C. Covenant Not to Sue with Respect to Permitting and Performance of Definite Plan

(1) No Party shall directly or indirectly through other entities oppose the DRE's securing all permits and entering all contracts necessary

for Facilities Removal consistent with the Definite Plan or any Regulatory Approval, provided this clause does not apply to a Public Agency Party exercising a Regulatory Approval;

(2) After transfer of the Facilities to the DRE, each Party covenants not to sue any other Party for monetary or non-monetary relief for harm arising from removal of any of the Facilities, provided this covenant does not apply to claims against the DRE arising from the negligence, recklessness, or willful misconduct of the DRE or any of its contractors, subcontractors, or assigns, or from the actions or omissions of the DRE or any of its contractors, subcontractors, or assigns inconsistent with the Definite Plan or in violation of a Regulatory Approval. This provision does not apply to rights under the indemnifications established in Section 7.1.3 or the States' agreements with the DRE required in Section 4.12.

2.1.5 Timeliness

Exhibit 4 describes the sequence of performance of specific obligations necessary to achieve the bargained-for benefits of this Settlement. Exhibit 4 is subject to change and modification as needed and is provided for guidance only. The Parties shall undertake to implement this Settlement in a manner consistent with this sequence. If any Party requires more time than permitted by this Settlement to perform an obligation, that Party shall provide Notice to other Parties 30 days before the applicable deadline, unless the applicable provision in this Settlement establishes a different period. The Notice shall explain: (1) the obligation that the Party is attempting to perform; (2) the reason that performance is or may be delayed; and (3) the steps the Party has taken or proposes to take to Timely complete performance.

2.1.6 Force Majeure

A. Definition of Force Majeure

The term "Force Majeure" means any event reasonably beyond a Party's control that prevents or materially interferes with the performance of an obligation of that Party, that could not be avoided with the exercise of due care, and that occurs without the fault or negligence of that Party. Force Majeure events may be unforeseen, foreseen, foreseeable, or unforeseeable, including without limitation: natural events; labor or civil disruption; breakdown or failure of Project works not caused by failure to properly design, construct, operate, or maintain; or new regulations or laws that are applicable to the Project (other than the Authorizing Legislation). Force Majeure is presumed not to include normal inclement weather, which presumption can be overcome by a preponderance of the evidence provided by the non-performing Party.

B. Suspension of Obligation

During a Force Majeure event, and except as otherwise provided in this Settlement, a Party shall be relieved of any specific obligation directly precluded by the event, as well as those other obligations performance of which is materially impaired, but only for the duration of such event. The non-performing Party bears the burden of proving by a preponderance of the evidence the existence of Force Majeure, including the absence of negligence and fault.

C. Remedies

If a Force Majeure event occurs, and except as otherwise provided in this Settlement:

(1) A Party that believes it is excused from performance pursuant to Section 2.1.6.B shall provide Notice within 10 days of the onset of the event. Such Notice shall describe the occurrence, nature, and expected duration of such event and describe the steps the Party has taken or proposes to be taken to prevent or minimize the interference with the performance of any affected obligation under this Settlement;

(2) A Party shall thereafter provide periodic Notice to the other Parties of the efforts to address and resolve a Force Majeure event; and

(3) If any other Party disputes the Party's claim of a Force Majeure event, or the adequacy of the efforts to address and resolve such event, such Party shall initiate the Dispute Resolution Procedures stated in Section 8.6.

2.2 Ratemaking Legislation and Proceedings

Each Party shall support implementation of the Oregon Surcharge Act enacted as Senate Bill 76, 2009 Or. Session Laws Chapter 690 in 2009 and authorizing the collection of a customer surcharge for the costs of Facilities Removal, which was codified as ORS 757.732 through 757.744. The Oregon Surcharge Act as codified is attached to this Settlement as Appendix F.

The Parties understand and agree that the costs of Facilities Removal shall be funded as specified in Section 4 of this Settlement. The Parties further understand and agree that funds allocated for Facilities Removal shall be managed and disbursed as specified in Section 4 of this Settlement. In the event that (1) the California Legislature does not adopt legislation by the time of the Secretarial Determination to place a ballot measure before California voters that contains a provision to fund up to $250,000,000 (in nominal dollars) of the costs of Facilities Removal, or (2) the California voters do not adopt such

ballot measure by the time of the Secretarial Determination, or (3) the California PUC does not adopt a California Klamath Surcharge, as defined herein and specified in Section 4, or (4) the Oregon PUC does not adopt an Oregon Klamath Surcharge, as defined in the Oregon Surcharge Act and specified herein, the Parties shall Meet and Confer to attempt, in good faith, to identify substitute funding and/or other alternatives to cover the costs of Facilities Removal.

2.3 Project Water Rights; Klamath Basin Adjudication

2.3.1 Project Water Rights

PacifiCorp's Oregon water rights will be processed and adjusted in accordance with the principles of Oregon law and the *Water Rights Agreement between PacifiCorp and the State of Oregon* attached to this Settlement as Exhibit 1.

2.3.2 Klamath Basin Adjudication

The Parties support the efforts by PacifiCorp, the Klamath Tribes, Bureau of Indian Affairs, and OWRD to develop a Klamath Basin Adjudication ("KBA") Settlement Agreement of cases 282 and 286 in the KBA.

2.4 Lease of State-Owned Beds and Banks

Within 60 days of the Effective Date, PacifiCorp shall apply to the Oregon Department of State Lands in accordance with state law for leases authorizing occupancy of submerged and submersible lands by the J.C. Boyle Dam, J.C. Boyle Powerhouse, and Keno Dam. No Party shall be deemed to have admitted, adjudicated, or otherwise agreed to the State of Oregon's claim to ownership of submerged and submersible lands by virtue of this Settlement.

3. Secretarial Designation and Statement of Support

3.1 Statement of Support

In cooperation with the Secretary of Commerce and other federal agencies as appropriate, the Secretary may make an affirmative statement of support for Facilities Removal if, in the Secretary's judgment, Facilities Removal (1) will advance restoration of the salmonid fisheries of the Klamath Basin, and (2) is in the public interest, which includes but is not limited to consideration of potential impacts on affected local communities and Tribes.

3.2 Secretarial Designation

The Secretary, through execution of Amendment No. 1, agrees that the DRE will act as the entity with authority under ORS 757.738(3) to request transfer of funds held in the appropriate trust account established under ORS 757.738. The DRE, its assigns, or successors, shall expend funds in the amounts necessary and as consistent with the Settlement to pay "the costs of removing the Klamath River dams" as that phrase is used in ORS 757.736(11).

successor, in accordance with a funding agreement as specified in Section 4.12.2, in the amounts necessary to pay "the costs of removing the Klamath River dams" as that phrase is used in ORS 757.736(11).

4. Costs

4.1 Funds for the Purpose of Facilities Removal

The Parties agree to pursue arrangements for the creation of the funding sources described below for the purpose of Facilities Removal.

4.1.1 The Customer Contribution

A. Within 30 days of the Effective Date, PacifiCorp shall request that the Oregon PUC, pursuant to the Oregon Surcharge Act, establish two non-bypassable customer surcharges, the Oregon J.C. Boyle Dam Surcharge and the Oregon Copco I and II/Iron Gate Dams Surcharge (together, the "Oregon Klamath Surcharges"), for PacifiCorp's Oregon customers to generate funds for the purpose of Facilities Removal. PacifiCorp shall request that the Oregon PUC set the Oregon Klamath Surcharges so that to the extent practicable the total annual collections of the surcharges remain approximately the same during the collection period.

B. Within 30 days of the Effective Date, PacifiCorp shall request that the California PUC establish a non-bypassable customer surcharge (the "California Klamath Surcharge") for PacifiCorp's California customers to generate funds for the purpose of Facilities Removal. PacifiCorp shall request that the California PUC establish the California Klamath Surcharge so that it will collect an approximately equal amount each year that it is to be collected. PacifiCorp shall request that such surcharge assigns responsibility among the customer classes in an equitable manner. PacifiCorp shall also request that the California PUC set the California Klamath Surcharge so that it at no time exceeds two percent of the revenue requirements set by the California PUC for PacifiCorp as of January 1, 2010.

C. The Parties agree that the total amount of funds to be collected pursuant to the Oregon Klamath Surcharges and the California Klamath Surcharge shall not exceed $200,000,000 (in nominal dollars); these funds shall be referred to as the "Customer Contribution."

D. PacifiCorp shall request that the Oregon PUC establish a surcharge so that the amount collected under the Oregon Klamath Surcharges is 92% (a maximum of approximately $184,000,000) of the total

Customer Contribution, and with 75% of the total Oregon Klamath Surcharges amount collected through the Oregon Copco I and II/Iron Gate Dams Surcharge and 25% collected through the Oregon J.C. Boyle Dam Surcharge.

E. PacifiCorp shall request that the California PUC establish a surcharge so that the amount collected under the California Klamath Surcharge is 8% (a maximum of approximately $16,000,000) of the Total Customer Contribution. The trustee of the California Klamath Surcharge shall apply 75% of the total California Klamath Surcharge amount collected to the California Copco I and II/Iron Gate Dams Trust Account and 25% of the total California Klamath Surcharge amount collected to the California J.C. Boyle Dam Trust Account.

F. PacifiCorp shall collect and remit the surcharges collected pursuant to this section to the trustee(s) described in Section 4.2, below, to be deposited into the appropriate California Klamath Trust Accounts and Oregon Klamath Trust Accounts.

G. Consistent with Section 2.1 of this Settlement, each non-Federal Party shall support the California Klamath Surcharge and the Oregon Klamath Surcharges in the proceedings conducted by the California PUC and the Oregon PUC, respectively, to the extent the proposed Surcharges are consistent with this Settlement.

4.1.2 The California Bond Funding

A. The California Legislature has approved a general obligation bond ("Bond Measure") containing a provision authorizing the issuance of bonds for the amount necessary to fund the difference between the Customer Contribution and the actual cost to complete Facilities Removal, which bond funding in any event shall not exceed $250,000,000 (in nominal dollars). The bond language is set forth in Appendix G-1. At its sole discretion, the State of California may also consider other appropriate financing mechanisms to assist in funding the difference between the Customer Contribution and the actual cost of complete Facilities Removal, not to exceed $250,000,000 (in nominal dollars).

B. Consistent with Applicable Law and Section 2.1, each non-federal Party shall support the Klamath bond language in Appendix G-1; provided that nothing in this Settlement is intended or shall be construed to require a Party to support a Bond Measure that includes authorizations unrelated to the implementation of this Settlement.

4.1.3 State Cost Cap

The Customer Contribution and the California Bond Funding shall be the total state contribution and shall be referred to together as the "State Cost Cap."

4.2 Establishment and Management of Trust Accounts and California Bond Funding

4.2.1 The Oregon Klamath Trust Accounts

A. In accordance with the Oregon Surcharge Act, the Oregon PUC will establish two interest-bearing accounts where funds collected by PacifiCorp pursuant to the Oregon Klamath Surcharges shall be deposited until needed for Facilities Removal purposes. The Oregon J.C. Boyle Dam Account shall be established to hold funds collected pursuant to the Oregon J.C. Boyle Dam Surcharge. The Oregon Copco I and II/Iron Gate Dams Account shall be established to hold funds collected pursuant to the Oregon Copco I and II/Iron Gate Dams Surcharge. The Oregon J.C. Boyle Dam Account and the Oregon Copco I and II/Iron Gate Dams Account may be referred to together as the "Oregon Klamath Trust Accounts."

B. In accordance with the Oregon Surcharge Act, the Oregon PUC will select a trustee to manage the Oregon Klamath Trust Accounts. The Parties may recommend a trustee for consideration by the Oregon PUC.

4.2.2 The California Klamath Trust Accounts

A. Upon execution of this Settlement, California shall request, and each non-Federal Party shall support the request, that the California PUC establish two interest-bearing trust accounts where funds collected by PacifiCorp pursuant to the California Klamath Surcharge for the purpose of Facilities Removal shall be deposited until needed for Facilities Removal purposes. The non-Federal Parties shall also request that California and the California PUC establish the trust accounts in a manner that ensures that the surcharge funds will not be taxable revenues to PacifiCorp. The California J.C. Boyle Dam Trust Account shall be established to hold 25% of the funds collected pursuant to the California Klamath Surcharge. The California Copco I and II/Iron Gate Dams Trust Account shall be established to hold 75% of the funds collected pursuant to the California Klamath Surcharge. The California J.C. Boyle Dam Trust Account and the California Copco I and II/Iron Gate Dams Trust Account may be referred to together as the "California Klamath Trust Accounts."

B. California shall request, and each non-Federal Party shall support the request, that the California PUC select a trustee to accept surcharge

funds from PacifiCorp and manage the California Klamath Trust Accounts. The Parties may recommend a trustee for consideration by the California PUC.

4.2.3 The California Bond Funding

In the event that the Bond Measure is placed on the ballot and approved by voters, bond funds available from the Bond Measure shall be managed pursuant to California bond law; however, the State of California agrees that, to the extent permitted by law, the California Bond Funding shall be managed and disbursed in a manner consistent with and complementary to the management and disbursement of the Customer Contribution.

4.2.4 Management of the Trust Accounts

A. Within six months of the Effective Date, the States in consultation with the Federal Parties shall prepare draft trustee instructions for submission to the respective PUCs. The States shall then request that the California PUC or another designated agency of the State of California, and the Oregon PUC work cooperatively to prepare joint instructions to the trustee(s) of the Oregon Klamath Trust Accounts and California Klamath Trust Accounts, consistent with the draft instructions, as to the following:

(1) Whether and when to disburse funds from the Oregon Klamath Trust Accounts and California Klamath Trust Accounts to the DRE;

(2) The methodology to be used by the trustee(s) to determine which account or accounts to draw funds from for the purpose of disbursing funds to the DRE;

(3) A protocol for the trustee(s) to use to ensure that the management of the Customer Contribution is consistent with and complementary to the management of the California Bond Funding;

(4) Disbursement of funds under the circumstances described in Section 4.4 below;

(5) A protocol for reallocating between Trust Accounts monies that have already been deposited into the Trust Accounts, to be used by the trustees, at the request of the States, for removal of specific facilities; and

(6) If the trustee is a federal agency, provisions ensuring that Trust Account monies are not used for any other purpose than Facilities Removal consistent with the trustee instructions and do not become part of any federal agency's or bureau's budget.

B. As necessary, the States, in consultation with PacifiCorp and the DRE, will prepare draft trustee instructions revised as appropriate and request that the California PUC or another designated agency of the state of California, and the Oregon PUC work cooperatively to prepare revised joint instructions to the trustee(s) of the Oregon Klamath Trust Accounts and California Klamath Trust Accounts consistent with the draft revised instructions. The States and PacifiCorp will take such other actions as may be reasonably necessary to facilitate the distribution of the Customer Contribution.

4.3 Adjustment to Surcharges

As appropriate, the States shall consult with each other, PacifiCorp, and the Federal Parties regarding adjustments to the California Klamath Surcharge or Oregon Klamath Surcharges necessitated by or appropriate considering the circumstances. Following such consultation, PacifiCorp will request that the California PUC and Oregon PUC adjust the Klamath Surcharges to be consistent with the recommendations developed through the consultation. Any adjustment shall not alter the maximum level of the Customer Contribution or State Cost Cap.

4.4 Disposition of Unnecessary or Unused Funds from the Oregon and/or California Klamath Trust Accounts

4.4.1 If, as described in Section 4(5) of the Oregon Surcharge Act, the Oregon Klamath Surcharges are finally determined to result in rates that are not fair, just, and reasonable, the surcharges shall be refunded to customers in accordance with the Oregon Surcharge Act and the trustee instructions.

4.4.2 In the event that the Oregon PUC finds that the Oregon Klamath Trust Accounts contain funds in excess of actual costs necessary for Facilities Removal, those excess amounts shall be refunded to customers or otherwise used for the benefit of customers as set forth in Section 4(9) of the Oregon Surcharge Act and the trustee instructions.

4.4.3 In the event that, following Facilities Removal, the trustee of the California Klamath Trust Account determines that the California Klamath Trust Account contains funds in excess of actual costs necessary for Facilities Removal, the non-Federal Parties shall request that the California PUC order those excess amounts to be refunded to customers or otherwise used for the benefit of customers.

4.4.4 If, as a result of the termination of this Settlement, or other cause, one or more Project dams will not be removed:

A. All or part of the Oregon Klamath Surcharges shall be terminated and the Oregon Klamath Trust Accounts disposed as set forth in Section 4(10) of the Oregon Surcharge Act and the trustee instructions; and

B. PacifiCorp shall request that the California PUC direct PacifiCorp to terminate all or part of the surcharge, that the California PUC direct the trustee to apply any excess balances in the California Klamath Trust Account to California's allocated share of prudently incurred costs to implement FERC relicensing requirements, and that, if any excess amount remains in the trust accounts after that application, that the California PUC order that the excess amounts be refunded to customers or otherwise be used for the benefit of customers.

4.5 Recovery of Net Investment in Facilities

4.5.1 Consistent with Section 3 of the Oregon Surcharge Act, PacifiCorp shall request, and each non-Federal Party shall support the request, that the Oregon PUC allow recovery of PacifiCorp's net investment in the Facilities.

4.5.2 PacifiCorp shall request, and each non-Federal Party shall support the request, that the California PUC conduct one or more proceedings to implement the following:

A. That the California PUC determine a depreciation schedule for each Facility based on the assumption that the Facility will be removed in 2020, and change that depreciation schedule at any time if removal of the Facility will occur in a year other than 2020; and

B. That the California PUC use the depreciation schedules adopted consistent with Section 4.5.2.A above to establish rates and tariffs for the recovery of California's allocated share of undepreciated amounts prudently invested by PacifiCorp in the Facilities, with amounts recoverable including but not limited to:

(1) Return on investment and return of investment;

(2) Capital improvements required by the Federal Parties or any agency of the United States or any agency of the States for the continued operation of the Facility until Facility removal;

(3) Amounts spent by PacifiCorp in seeking relicensing of the Project before the Effective Date of this Settlement;

(4) Amounts spent by PacifiCorp for settlement of issues relating to relicensing or removal of the Facilities; and

(5) Amounts spent by PacifiCorp for the Decommissioning of the Facilities in anticipation of Facilities Removal.

C. If any amount has not been recovered by PacifiCorp before a Facility is removed, PacifiCorp shall request, and each non-Federal Party shall support the request, that the California PUC allow recovery of that amount by PacifiCorp in PacifiCorp's rates and tariffs.

4.5.3 Rates and tariffs proposed pursuant to this Section 4.5 shall be separate from, and shall not diminish the funds collected by, the Oregon and California Klamath Surcharges.

4.6 Recovery of Costs of Ongoing Operations and Replacement Power

4.6.1 Consistent with Section 6 of the Oregon Surcharge Act, PacifiCorp shall request, and each non-Federal Party shall support the request, that the Oregon PUC allow recovery of other costs incurred by PacifiCorp.

4.6.2 Subject to Section 2.1.2, each non-Federal Party shall support PacifiCorp's request to the California PUC for PacifiCorp to include in rates and tariffs California's allocated share of any costs that are prudently incurred by PacifiCorp from changes in operation of Facilities, including reductions to generation from the Facilities before removal of the Facilities and for replacement power after the dams are removed.

4.6.3 Rates and tariffs proposed pursuant to this Section 4.6 shall be separate from, and shall not diminish the funds collected by, the Oregon and California Klamath Surcharges.

4.7 Treatment of Costs Related to Future Portfolio Standards and Climate Change Legislation

The Parties agree to Meet and Confer at PacifiCorp's request regarding provisions to address potential customer impacts from renewable portfolio standards and climate change emissions requirements.

4.8 Acknowledgment of Independence of Oregon PUC and California PUC

The Parties acknowledge that the Oregon PUC and California PUC each is a separate state agency that is not bound by this Settlement. Nothing in this Settlement expands,

limits, or otherwise affects any authority of the respective commissions regarding the customer surcharges and trust accounts, recovery of net investment, or recovery of costs of ongoing operations or replacement power. Because the Parties cannot provide assurance that either commission will decide to or be allowed to implement any of the provisions for funding Facilities Removal, failure of a commission to do so is not a breach of this Settlement by any Party.

4.9 Consultation

Before filing the requests to the California PUC and Oregon PUC described in Sections 4.5 and 4.6, above, PacifiCorp shall undertake to consult with the Parties, pursuant to a confidentiality agreement among the Parties or a protective order issued by the relevant PUC, so that the requested rates can be explained and the basis for such rates can be provided. Further, before any request to the California PUC or the Oregon PUC to reduce or increase a surcharge in the event the amount needed for Customer Contribution is determined to be less or more than the level of Customer Contribution specified in Section 7.3.2.A, the States and PacifiCorp shall undertake to consult with all Parties.

4.10 United States Not Responsible for Costs of Facilities Removal

The United States shall not be liable or responsible for costs of Facilities Removal.

4.11 Parties' Costs Related to Facilities Removal

Subject to Section 4.4, the funds accumulated pursuant to Section 4 are solely for use in accomplishing Facilities Removal, including but not limited to development of the Definite Plan, all necessary permitting and environmental compliance actions, and construction/project management for Facilities Removal. Nothing in this section shall be interpreted as a limitation on the State of California's use of California Bond Funding, or funds collected pursuant to the California Klamath Surcharge and deposited into the California Copco 1 and 2 and Iron Gate Dams Trust Account, for environmental review; provided the use of any funds from California Copco 1 and 2 and Iron Gate Dams Trust Account may be offset by California Bond Funds to achieve the target dates set forth in Section 7.3.

4.12 Funding and Grant Agreements

4.12.1 On or around June 15, 2016, CNRA will enter into an agreement with the DRE pertaining to the use of funds from the Customer Contribution and California Bond Funding.

4.12.2 On or around June 15, 2016, and as is necessary at any time thereafter, the DRE will enter into an agreement with the Oregon PUC pertaining to the use of funds from the Customer Contribution in a manner not inconsistent with the Settlement and ORS 757.738(3).

4.12.3 On or around June 15, 2016, CNRA will enter into a funding agreement with the DRE and any other entity as appropriate. The funding agreement will include conditions not inconsistent with the Settlement pertaining to the use of the California Klamath Trust Accounts.

4.12.4 Following appropriation by the California legislature and consistent with the agreement in Section 4.12.1, CNRA will enter into a grant agreement(s) with the DRE. The grant agreement(s) shall include conditions not inconsistent with the Settlement pertaining to the use of the California Bond Funding.

5. Local Community Power

5.1 Power Development

5.1.1 PacifiCorp and the irrigation-related Parties will in good faith cooperate in the investigation or consideration of joint development and ownership of renewable generation resources and the purchase by PacifiCorp of power from renewable energy projects developed by KWAPA or other parties related to the Klamath Reclamation Project or off-project irrigators. PacifiCorp and interested Public Agency Parties will in good faith cooperate in the investigation or consideration of joint development and ownership of potential renewable generation resources and the purchase by PacifiCorp of power from renewable energy projects developed by interested Public Agency Parties. Nothing in this Settlement requires any Party to enter into a specific transaction related to such development, ownership or purchase, but PacifiCorp, interested Public Agency Parties and the irrigation-related Parties desire to take actions in their mutual beneficial interest where opportunities arise.

5.1.2 Pursuant to that certain Memorandum of Understanding dated October 15, 2001 among the Western Governors Association and various federal agencies, the Secretary and the State of California shall seek to designate Siskiyou County as a Western Renewable Energy Zone and the Secretary and the State of Oregon shall seek to designate Klamath County as a Western Renewable Energy Zone. The Federal Parties will work with the Counties and other Parties to explore and identify potential ways to expand transmission capacity for renewable resources within the Counties.

5.2 [Section deleted]

5.3 Transmission and Distribution of Energy

Interior, KWAPA, KWUA and UKWUA agree that federal power can contribute to meeting power cost targets for irrigation in the Upper Klamath Basin. To that end, and consistent with applicable standards of service and the Pacific Northwest Power Planning and Conservation Act, 16 U.S.C. § 839 *et seq*., Interior will acquire power from the Bonneville Power Administration ("Bonneville") to serve all "eligible loads" located within Bonneville's authorized geographic area. Interior and Bonneville will engage in an open and transparent process that will provide for public review and comment on any proposed agreement. For purposes of the acquisition of federal power, Interior defines Klamath eligible loads to include both on and off-project loads. Such acquisitions are subject to Bonneville's then effective marketing policies, contracts, and applicable priority firm power rate.

For an additional, standard transmission charge, Bonneville will deliver power to PacifiCorp at the Captain Jack or Malin substations or other points as may be mutually agreed to by Bonneville and PacifiCorp ("Points of Delivery") and PacifiCorp will deliver the energy to eligible loads under applicable tariffs.

Interior, KWAPA, KWUA, UKWUA and PacifiCorp agree to continue to work in good faith to identify and implement a mutually agreeable approach for delivering acquired federal power to eligible loads. PacifiCorp agrees to receive any federal power at the Points of Delivery and to deliver such power to the eligible loads pursuant and subject to the following terms and conditions:

5.3.1 The terms and conditions related to accessing PacifiCorp's transmission system, to the extent that it is necessary, will be consistent with PacifiCorp's Open Access Transmission Tariff ("OATT").

5.3.2 The terms and conditions related to accessing PacifiCorp's distribution system will remain subject to the jurisdiction of the California Public Utilities Commission for distribution facilities located in California and the Oregon Public Utility Commission for distribution facilities located in Oregon. In California and Oregon, the respective PUCs have approved unbundled delivery service tariffs for PacifiCorp to implement direct access legislation. The Parties agree that these unbundled delivery service tariffs can enable the delivery of federal power. For power acquired by Interior from Bonneville, PacifiCorp will charge an unbundled distribution rate that is based on the Oregon Commission-approved tariff applicable to the delivery of Bonneville power to eligible loads in Oregon.

To the extent that PacifiCorp's existing tariffs require revision in order to allow PacifiCorp to implement the mutually agreeable approach, PacifiCorp shall request such revision by the Commission having jurisdiction.

The Parties understand and agree that PacifiCorp shall recover its costs incurred in providing the delivery services required under the mutually agreeable approach and that such services will not be subsidized by PacifiCorp's other retail customers. PacifiCorp, Interior, KWUA, KWAPA, and UKWUA agree to work cooperatively to identify and analyze, as necessary, PacifiCorp's costs for delivery services as part of identification of any such mutually agreeable approach. The Parties further agree that the costs of providing delivery services will be recovered pursuant to a tariff or tariffs established by the respective PUC based on cost-of-service principles and a finding by the PUC that the rates charged under the tariff[s] are fair, just, reasonable and sufficient.

5.3.3 PacifiCorp agrees to work in good faith to develop mutually agreeable revisions to existing provisions of state or federal law, if necessary to implement the mutually agreeable approach.

5.3.4 PacifiCorp agrees to work in good faith with Bonneville, Interior, KWAPA, KWUA and UKWUA and other Parties as the case may be, to resolve, on a mutually agreeable basis, any technical and administrative issues (such as billing and metering) that may arise with respect to PacifiCorp's delivery of power to the eligible loads.

5.3.5 It is the Parties' intent that this Agreement will not require PacifiCorp to modify its existing transmission or distribution facilities. PacifiCorp may elect to do so at the sole cost and expense of the Party or entity requesting such modification.

5.3.6 At such time as the eligible loads are prepared to and technically able to receive federal power, PacifiCorp, Interior, KWAPA, KWUA and UKWUA agree to work cooperatively with each other to transition the eligible loads from full retail service on a mutually agreeable basis. The Parties acknowledge that for any eligible load that has received federal power pursuant to this section, PacifiCorp will no longer have the obligation to plan for or meet the generation requirements for these loads in the future, provided, however, that PacifiCorp agrees to work cooperatively to provide generation services to eligible loads in a manner that is cost-neutral to other PacifiCorp customers in the event that a contract for federal power is no longer available. Interior, KWAPA, KWUA and UKWUA agree to provide notice to PacifiCorp as soon as practicable after becoming aware that federal power will no longer be available to serve any eligible loads.

5.3.7 Interior, in consultation with KWAPA, KWUA and UKWUA, shall Timely develop a preliminary identification of the eligible loads for purposes of Section 5.3. Interior, in consultation with KWAPA, KWUA and UKWUA, shall provide notification to PacifiCorp identifying the final

eligible loads for purposes of Section 5.3, not later than 120 days before delivery of federal power to any such eligible loads is to begin. The mutually agreeable approach will address the manner by which Interior provides notification to PacifiCorp of any changes to eligible loads.

5.3.8 Interior agrees to work cooperatively to assign or delegate or transition functions of Interior to KWAPA or another appropriate entity subject to the terms of this Section.

5.3.9 If Interior or KWAPA or UKWUA are able to acquire power from any entity other than Bonneville for eligible loads in either Oregon or California, PacifiCorp, KWAPA, UKWUA, Interior, and KWUA, as applicable, will work cooperatively to agree on a method for transmission and delivery.

5.3.10 Upon termination of this Settlement, PacifiCorp agrees to provide service under the terms of its approved delivery tariff until or unless the respective PUC determines that the applicable tariff should no longer be in place. It is the intention of PacifiCorp, Interior, KWUA, KWAPA, and UKWUA that the general principles of cooperation expressed in Section 5 continue beyond the term of this Settlement.

5.4 Irrigator Rates

In consultation with Klamath Basin irrigators, PacifiCorp will continue to explore alternative rate structures and programs, such as time-of-use rates or demand control programs.

6. Interim Operations

6.1 General

Interim Measures under this Settlement consist of: (1) Interim Measures included as part of PacifiCorp's Interim Conservation Plan ("ICP Interim Measures") (Appendix C); and (2) Interim Measures not included in the Interim Conservation Plan ("Non-ICP Measures") (Appendix D). In addition, PacifiCorp's Interim Conservation Plan includes certain measures for protection of listed sucker species not included as part of this Settlement.

6.1.1 PacifiCorp Performance

PacifiCorp shall perform the Interim Measures in accordance with the terms and schedule set forth in Appendices C and D as long as this Settlement is in effect during the Interim Period. However, if this Settlement terminates, PacifiCorp shall continue performance of the Iron Gate Turbine Venting until the time FERC issues an order in the relicensing proceeding. PacifiCorp shall have no obligation

under this Settlement to perform any other of the Interim Measures if this Settlement terminates, but may implement certain ICP and Non-ICP Interim Measures for ESA or CWA purposes or for any other reason. PacifiCorp reserves its right to initiate termination pursuant to Section 8.11.1.C, if the Services fail to provide incidental take authorization in a Timely way.

6.1.2 Duty to Support

Subject to the reservations in Sections 1.6, 6.2, and 6.3.4, each Party shall support the Interim Measures set forth in Appendices C and D, and will not advocate additional or alternative measures for the protection of environmental resources affected by the Project during the Interim Period.

6.1.3 Permitting

A. PacifiCorp or the DRE (as applicable) shall comply with all federal, state, and local laws and obtain all federal, state, and local permits related to Interim Measures, to the extent such laws and permits are applicable.

B. FERC Enforcement and Jurisdiction

(1) The Parties agree that enforcement of the terms of the current license, as extended through annual licenses, shall be exclusively through FERC. If the annual license is amended to incorporate any of the Interim Measures, a Party may seek compliance pursuant to any remedies it may have under Applicable Law.

(2) Subject to the reservations in Section 6.3.4, PacifiCorp will implement Interim Measures and the Klamath River TMDLs, subject to any necessary FERC or other Regulatory Approvals.

6.1.4 Interim Power Operations

Consistent with the operation and maintenance agreement contemplated in Section 7.1.6, PacifiCorp shall continue to operate the Facilities for the benefit of customers and retain all rights to the power from the Facilities until each Facility is transferred and Decommissioned, including all rights to any power generated during the time between transfer of the Facility to the DRE and Decommissioning of the Facility by PacifiCorp.

6.1.5 Adjustment for Inflation

For any funding obligation under a Non-ICP Interim Measure in Appendix D expressly made subject to adjustment for inflation, the following formula shall be applied at the time of payment:

$$AD = D \times (CPI\text{-}U_t) / (CPI\text{-}U_o))$$

WHERE:

AD = Adjusted dollar amount payable.
D = Dollar amount prescribed in the Interim Measure.
$CPI\text{-}U_t$ = the value of the published version of the Consumer Price Index-Urban for the month of September in the year prior to the date a dollar amount is payable. (The CPI-U is published monthly by the Bureau of Labor Statistics of the federal 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 of the Parties.)
$CPI\text{-}U_o$ = the value of the Consumer Price Index-Urban for the month and year corresponding to the Effective Date of this Settlement.

6.2 Interim Conservation Plan

6.2.1 Application by PacifiCorp

PacifiCorp shall apply to the Services pursuant to ESA Section 10 and applicable implementing regulations to incorporate the Interim Conservation Plan measures, including both Appendix C (ICP Interim Measures) and the Interim Conservation Plan measures for protection of listed sucker species not included in Appendix C, into an incidental take permit. PacifiCorp also may apply in the future to FERC to incorporate some or all of the Interim Conservation Plan measures as an amendment to the current annual license for the Project.

6.2.2 Applicable Actions by the Services under the ESA

The Services shall review PacifiCorp's application to incorporate the Interim Conservation Plan measures into an incidental take permit pursuant to ESA Section 10 and applicable implementing regulations. Subject to Section 2.1.2, each Party shall support PacifiCorp's request for a license amendment or incidental take permit to incorporate the Interim Conservation Plan measures. Provided, however, the Services reserve their right to reassess these interim measures, as applicable, in: (1) developing a biological opinion pursuant to ESA Section 7 or reviewing an application for an incidental take permit pursuant to ESA Section 10 and applicable implementing regulations; (2) reinitiating consultation on any final biological opinion pursuant to applicable implementing regulations; or (3) revoking any final incidental take permit pursuant to the ESA, applicable implementing regulations, or the terms of the permit. Provided further, other Parties reserve any applicable right to oppose any such actions by the Services.

6.2.3 Potential Modifications of Measures

The Services shall provide the Parties Notice upon issuance of any final biological opinion or incidental take permit issued by the Services pursuant to the ESA regarding the ICP Interim Measures (Appendix C). If the terms of any such final biological opinion or incidental take permit include revisions to the ICP Interim Measures, those measures in the Settlement shall be deemed modified to conform to the provisions of the biological opinion or incidental take permit if PacifiCorp agrees to such modifications. If PacifiCorp does not agree to such modifications, PacifiCorp reserves the right to withdraw its application for license amendment or refuse to accept an incidental take permit regarding the ICP Interim Measures.

6.3 TMDLs

6.3.1 PacifiCorp Implementation

Subject to the provisions of this Section 6.3.1, PacifiCorp agrees to implement load allocations and targets assigned the Project under the States' respective Klamath River TMDLs, in accordance with OAR chapter 340, Division 42, and California Water Code Division 7, Chapter 4, Article 3. It is the expectation of the Parties that the implementation of the commitments in this Settlement, coupled with Facilities Removal by the DRE, will meet each State's applicable TMDL requirements. PacifiCorp's commitment to develop and carry out TMDL implementation plans in accordance with this Settlement is not an endorsement by any Party of the TMDLs or load allocations therein.

6.3.2 TMDL Implementation Plans

A. No later than 60 days after ODEQ's and the North Coast Regional Water Quality Control Board's (NCRWQCB's) approval, respectively, of a TMDL for the Klamath River, PacifiCorp shall submit to ODEQ and NCRWQCB, as applicable, proposed TMDL implementation plans for agency approval. The TMDL implementation plans shall be developed in consultation with ODEQ and NCRWQCB.

B. To the extent consistent with this Settlement, PacifiCorp shall prepare the TMDL implementation plans in accordance with OAR 340-042-0080(3) and California Water Code section 13242, respectively. The plans shall include a timeline for implementing management strategies and shall incorporate water quality-related measures in the Non-ICP Interim Measures set forth in Appendix D. Facilities Removal by the DRE shall be the final measure in the timeline. At PacifiCorp's discretion, the proposed plans may further include other planned activities and management strategies developed individually or cooperatively with other sources or designated management agencies. ODEQ and NCRWQCB may authorize PacifiCorp's use of offsite

pollutant reduction measures, subject to an iterative evaluation and approval process; provided, any ODEQ authorization of such offsite measures conducted in Oregon solely to facilitate attainment of load allocations in California waters shall not create an ODEQ obligation to administer or enforce the measures.

6.3.3 Keno Load Allocation

Subject to Section 6.3.4, in addition to other Project facilities and affected waters, PacifiCorp's TMDL implementation plan under Section 6.3.2 shall include water quality-related measures in the Non-ICP Interim Measures set forth in Appendix D that are relevant to the Keno facility and affected waters for which the Project is assigned a load allocation. PacifiCorp shall implement Keno load allocations in accordance with the approved TMDL implementation plan under Section 6.3 up until the time of transfer of title to the Keno facility to Interior. Upon transfer of title to the Keno facility as set forth in Section 7.5 of this Settlement, the load allocations shall no longer be PacifiCorp's responsibility. Funding, if necessary, for post-transfer Keno load allocation implementation requirements will be provided by other non-PacifiCorp sources.

6.3.4 TMDL Reservations

A. PacifiCorp's TMDL implementation obligations under this Settlement are limited to the water quality-related measures in the Interim Measures set forth in Appendices C and D and any additional or different measures agreed to by PacifiCorp and incorporated into an approved TMDL implementation plan. If a TMDL implementation plan for PacifiCorp as finally approved, or a final discharge permit or other regulatory decision intended to implement a TMDL or water quality standard or regulation, requires measures that have not been agreed to by PacifiCorp and that are materially inconsistent with the Interim Measures, PacifiCorp may initiate termination under Section 8.11.1.C.

B. PacifiCorp reserves the right to seek modification of a TMDL implementation plan in the event this Settlement terminates. The States reserve their authorities under the CWA and state law to revise or require submission of new TMDL implementation plans in the event this Settlement terminates or an implementation plan measure or Facilities Removal does not occur in accordance with the timeline in the approved implementation plans. Other Parties reserve whatever rights they may have under existing law to challenge the TMDLs or TMDL implementation plans in the event this Settlement terminates.

C. To the extent it possesses rights outside of this Settlement, no Party waives any right to contest: a Klamath River TMDL; specific TMDL

load allocation; decision on a PacifiCorp TMDL implementation plan; or final discharge permit or other regulatory decision intended to implement a TMDL or water quality standard or regulation, if materially inconsistent with this Settlement.

6.4 Other Project Works

6.4.1 East Side/West Side Facilities

A. PacifiCorp will apply to FERC for an order approving partial surrender of the Project license for the purpose of decommissioning the East Side/West Side generating facilities unless PacifiCorp, in consultation with the state of Oregon, the Federal Parties, and the Tribes, agrees to an alternative disposition of these facilities. PacifiCorp will file the application consistent with applicable FERC regulations, and after consultation with the Parties. Notwithstanding Section 2.1.2, the Parties reserve their rights to submit comments and otherwise participate in the FERC proceeding regarding the conditions under which decommissioning should occur. PacifiCorp reserves the right to withdraw its surrender application for these facilities if any FERC order or other Regulatory Approval in connection with the surrender application would impose unreasonable conditions on that surrender.

B. Upon FERC approval, and in coordination with Reclamation and pursuant to Section 7.5.2, PacifiCorp shall decommission the East Side/West Side facilities in accordance with the FERC order approving the decommissioning, with the costs of such decommissioning to be recovered by PacifiCorp through standard ratemaking proceedings.

C. Upon completion of decommissioning and subject to FERC's and state requirements, PacifiCorp and Interior shall discuss possible transfer of the following lands to Interior: Klamath County Map Tax Lots R-3809-00000-05800-000, R-3809-00000-05900-000, and R-3809-00000-05700-000, or any other mutually-agreeable lands associated with the East Side and West Side Facilities on terms and conditions acceptable to PacifiCorp and Interior.

6.4.2 Fall Creek Hydroelectric Facility

PacifiCorp will continue to operate the Fall Creek hydroelectric facility under FERC's jurisdiction unless and until such time as it transfers the facility to another entity or the facility is otherwise disposed of in compliance with Applicable Law.

6.5 Abeyance of Relicensing Proceeding

6.5.1 Within 30 days of the Amendment Effective Date, PacifiCorp will file the Settlement with FERC and an expedited motion asking FERC to hold PacifiCorp's Project relicensing proceeding in abeyance. Each Party agrees to refrain from any action that does not support PacifiCorp's request to abate the FERC relicensing docket for the Project. The motion will specify that the abeyance should remain in effect while the DRE's surrender application is pending and until after FERC takes action on the DRE's surrender application as provided in Section 7.1.7.A.

6.5.2 Within 15 days after FERC issues an abeyance order for the Project relicensing proceeding, PacifiCorp will withdraw its CWA Section 401 certification applications currently pending before the California State Water Resources Control Board and ODEQ.

6.5.3 If FERC denies PacifiCorp's motion to abate or fails to rule on the motion before July 1, 2016, PacifiCorp will ask the California State Water Resources Control Board and the ODEQ to abate permitting and environmental review for PacifiCorp's FERC Project No. 2082 licensing activities, including but not limited to water quality certifications under Section 401 of the CWA and review under CEQA, during the Interim Period. If FERC does not hold the Project relicensing proceeding in abeyance, PacifiCorp will withdraw and re-file its relicensing applications for Section 401 certifications as necessary to avoid the certifications being deemed waived under the CWA during the Interim Period.

6.5.4 If no abeyance of relicensing proceedings is approved by FERC or, as applicable, the California State Water Resources Control Board or the ODEQ, or an abeyance is ordered then later lifted, then the Parties are excused from their duty to support this Settlement to the extent necessary to maintain their rights and arguments in the Project relicensing proceedings, and any Party may initiate the Meet and Confer procedures described in Section 8.7.

7. DRE, Transfer, Surrender, and Facilities Removal

This section describes the measures, schedule, and regulatory compliance during transfer, surrender, and removal of Facilities under this Settlement.

7.1 DRE

7.1.1 Execution of Settlement

The Parties expect that the DRE will become a Party by executing the Settlement on or around July 1, 2016, as provided in Section 9.4.

7.1.2 Capabilities

A. The Parties agree that the DRE must possess the legal, technical, and financial capacity to:

(1) Accept and expend non-federal funds consistent with Section 4.2.4;

(2) Accept transfer of the FERC license and title for the Facilities from PacifiCorp;

(3) Seek and obtain necessary permits and other authorizations to implement Facilities Removal;

(4) Enter into appropriate contracts and grant agreements for effectuating Facilities Removal;

(5) Perform, directly or by oversight, Facilities Removal;

(6) Prevent, mitigate, and respond to damages the DRE or any of its contractors, subcontractors, or assigns cause during the course of Facilities Removal, and, consistent with Applicable Law, respond to and defend associated liability claims against the DRE or any of its contractors, subcontractors, or assigns, including costs thereof and any judgments or awards resulting therefrom;

(7) Carry the required insurance and bonding set forth in Appendix L to respond to liability and damages claims associated with Facilities Removal against the DRE or any of its contractors, subcontractors, or assigns;

(8) Meet the deadlines set forth in Exhibit 4; and

(9) Perform such other tasks as are reasonable and necessary for Facilities Removal.

B. Before the DRE and PacifiCorp file the joint application to transfer the license for the Facilities, the DRE will Timely demonstrate to the reasonable satisfaction of the States and PacifiCorp that it possesses the legal, technical, and financial capacity to accomplish the tasks in Sections 7.1.2.A(1) through (5), (8), and (9). PacifiCorp and the States will consult if the DRE fails to make the demonstration required in this subsection.

C. Within six months of the DRE's execution of the Settlement, the DRE will include in an informational filing in the FERC license transfer

proceeding proof that it possesses the legal, technical, and financial capacity to accomplish the tasks in Sections 7.1.2.A(6) and (7). This filing will include documentation that the DRE meets the requirements of Parts II, III, and IV of Appendix L and is capable of fulfilling its obligations under Section 7.1.3. The DRE will not provide the filing if either of the States or PacifiCorp objects to the filing after a reasonable opportunity to review before submission to FERC. The six-month deadline may be changed by agreement of the DRE, the States, and PacifiCorp. The Parties will Meet and Confer if the DRE fails to provide the informational filing to FERC.

7.1.3 Liability Protection

A. By executing this Settlement, the DRE agrees, on its behalf and on behalf of the DRE's employees, contractors, subcontractors, and authorized agents or assigns to indemnify, hold harmless, and defend PacifiCorp, the state of California, and the state of Oregon for, from, and against any and all claims, actions, proceedings, damages, liabilities, monetary or non-monetary harms or expense arising from, relating to, or triggered by Facilities Removal, including but not limited to:

(1) Harm, injury, or damage to persons, real property, tangible property, natural resources, biota, or the environment;

(2) Harm, injury, or damage caused by the release, migration, movement, or exacerbation of any material, object, or substance, including without limitation hazardous substances; and

(3) Breaches or violations of any Applicable Law, Regulatory Approval, authorization, agreement, license, permit, or other legal requirement of any kind.

B. If the DRE partially assigns its responsibilities under this Settlement, the DRE and its assign will be jointly and severally obligated under this section.

7.1.4 License Transfer Conditions and Timing

Before the FERC license transfer to the DRE will become effective, the DRE must demonstrate to PacifiCorp's and the States' reasonable satisfaction that the DRE has met the obligations in Appendix L and the following conditions:

A. The DRE has provided Notices required under Section 7.2.1.B;

B. The DRE has met the requirements of Section 7.1.3 and Appendix L;

C. PacifiCorp and the States agree that the DRE has made sufficient and Timely progress in obtaining necessary permits and approvals to effectuate Facilities Removal;

D. The DRE, the States, and PacifiCorp are assured that sufficient funding is available to carry out Facilities Removal;

E. The DRE, the States, and PacifiCorp are each assured that their respective risks associated with Facilities Removal have been sufficiently mitigated consistent with Appendix L;

F. The DRE, the States, and PacifiCorp agree that no order of a court or FERC is in effect that would prevent Facilities Removal;

G. The DRE and PacifiCorp have executed documents conveying the property and rights necessary to carry out Facilities Removal; and

H. The DRE accepts license transfer under the conditions specified by FERC in its order approving transfer.

7.1.5 FERC Application for Transfer

A. On or around July 1, 2016, PacifiCorp and the DRE will jointly file an application to remove the Facilities from the Project license, redesignate the Facilities with a new project number, and transfer the redesignated FERC license for the Facilities to the DRE.

B. The application for transfer may include proposals to decommission the East Side and West Side facilities, subject to Section 6.4.1 of this Settlement; remove the Keno facilities from the Project license under Section 7.5 of this Settlement; and transfer the Fall Creek development to a third party for purposes of relicensing.

C. PacifiCorp and the DRE will file the joint application for transfer at FERC concurrent with the DRE's application for surrender and removal of the Facilities, retaining the 2020 target date for Facilities Removal.

D. The joint application for transfer will request that FERC incorporate the conditions in Section 7.1.4 into the transfer order and require that transfer will not become effective until the DRE, or PacifiCorp and the DRE jointly (as appropriate), file notice with FERC when those conditions have been satisfied.

7.1.6 Operation and Maintenance Agreement

On or around July 1, 2016, the DRE and PacifiCorp will enter into an operation and maintenance agreement allowing PacifiCorp to continue operating the Facilities for the benefit of its customers following transfer of the FERC Facilities license to the DRE. The conditions of operation under this agreement will be consistent with interim operations described in Section 6 and Appendices B, C, and D, and will include requirements that PacifiCorp pay all costs associated with operating the Facilities and indemnify, defend, and hold harmless the DRE with respect to those operations. The DRE and PacifiCorp will obtain the concurrence of the States for any such agreement.

7.1.7 FERC Application for Surrender

A. 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 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.

B. Concurrently with the joint application for license transfer and the DRE's application to FERC for surrender, the DRE will file applications seeking state water quality 401 certifications for Facilities Removal with the California State Water Resources Control Board and the ODEQ.

7.1.8 Performance of Facilities Removal

The DRE will perform Facilities Removal in accordance with the Definite Plan, as approved and as may be modified by the FERC surrender order and other applicable Regulatory Approvals. The DRE will complete final design and cost estimates before initiating Facilities Removal.

7.1.9 Other Regulatory Approvals for Facilities Removal

The DRE will take any action necessary to obtain other Regulatory Approvals necessary to effectuate Facilities Removal in accordance with this Settlement, except that PacifiCorp will file and support applications to obtain the necessary

state commission approvals for the transfer of assets to the DRE in accordance with this Settlement.

7.1.10 Assignment

The DRE may assign to another entity any of its responsibilities under this Settlement, including the DRE responsibilities described in this section. This assignment is subject to any necessary Regulatory Approvals. The DRE may not assign its responsibilities under this Settlement without the prior written consent of the States and PacifiCorp.

7.2 Definite Plan and Detailed Plan

7.2.1 Development and Use of Definite Plan

The DRE will develop a Definite Plan for Facilities Removal that, once completed, may be included as a part of any applications for permits or other authorizations. The Definite Plan must be consistent with this Settlement.

A. Elements of Definite Plan

The Definite Plan may be based on all elements of the Detailed Plan described in Section 7.2.2 and will be consistent with FERC requirements for surrender. Such elements shall be in the form required for physical performance, such as engineering specifications for a construction activity, and shall also include consideration of prudent cost overrun management tools such as performance bonds. The Definite Plan shall also include:

(1) A detailed estimate of the actual or foreseeable costs associated with: the physical performance of Facilities Removal consistent with the Detailed Plan; each of the tasks associated with the performance of the DRE's obligations as stated in Section 7.1; seeking and securing permits and other authorizations; and insurance, performance bond, or similar measures, as set forth in Appendix L to this Settlement;

(2) The DRE's analysis demonstrating that the total cost of Facilities Removal is likely to be less than the State Cost Cap, which is the total of Customer Contribution and California Bond Funding as specified in Section 4;

(3) Appropriate procedures consistent with state law to provide for cost-effective expenditures within the cost estimates stated in (1);

(4) Accounting procedures that will result in the earliest practicable disclosure of any actual or foreseeable overrun of cost of any task relative to the detailed estimate stated in (1); and

(5) Appropriate mechanisms to modify or suspend performance of any task subject to such overrun. Upon receipt of Notice from the DRE of any actual or foreseeable cost overrun pursuant to (2), the Parties shall use the Meet and Confer procedures to modify the task (to the extent permitted by the FERC surrender order, an applicable permit, or other authorization) or to modify this Settlement as appropriate to permit Facilities Removal to proceed.

B. Notice of Completion

The DRE shall provide Notice to the Parties upon completion of the Definite Plan.

C. Use of Definite Plan

The DRE must incorporate the Definite Plan, once completed, into any FERC application to surrender the Facilities license. After FERC issues an order on the FERC Facilities license surrender application, the Parties will review the consistency of the Definite Plan, FERC's surrender order, and this Settlement. If either of the States or the DRE finds that the FERC surrender order is materially inconsistent (as defined in Section 8.11.2) with the Definite Plan or this Settlement, either the DRE or the States may initiate Meet and Confer proceedings.

7.2.2 Detailed Plan for Facilities Removal

The Secretary developed the Detailed Plan, which may serve as a basis for the Definite Plan described in Section 7.2.1.A. The Detailed Plan includes A through F below; G is addressed in Appendix L and will be fully developed in the Definite Plan; H will be addressed during solicitation and selection of engineering and construction contract(s) for development of a Definite Plan and for Facilities Removal.

A. The physical methods to be undertaken to effect Facilities Removal, including but not limited to a timetable for Facilities Removal, which is removal of all or part of each Facility as necessary to effect a free-flowing condition and volitional fish passage as defined in Section 1.4;

B. As necessary and appropriate, plans for management, removal, and/or disposal of sediment, debris, and other materials;

C. A plan for site remediation and restoration;

D. A plan for measures to avoid or minimize adverse downstream impacts;

E. A plan for compliance with all Applicable Laws, including anticipated permits and permit conditions;

F. A detailed statement of the estimated costs of Facilities Removal;

G. A statement of measures to reduce risks of cost overruns, delays, or other impediments to Facilities Removal; and

H. The qualifications, management, and oversight of a non-federal DRE.

7.2.3 Assessment and Mitigation of Potential Impacts to the City of Yreka

The Parties understand that actions related to this Settlement may affect the City of Yreka. In recognition of this potential, the Parties agree to the following provisions, which shall remain in effect so long as this Settlement remains in effect.

A. The Parties collectively and each Party individually shall agree not to oppose the City of Yreka's continued use of California State Water Right Permit 15379, which provides for the diversion of up to 15 cfs for municipal uses by the City of Yreka.

B. As part of implementation of this Settlement, an engineering assessment to study the potential risks to the City of Yreka's water supply facilities as a result of implementation of Facilities Removal shall be funded and conducted by the Secretary. Actions identified in the engineering assessment necessary to assure continued use of the existing, or equivalent replacement, water supply facilities by the City of Yreka shall be funded from the California Bond Measure and implemented. Actions that may be required as a result of the engineering assessment and in consultation with the City of Yreka include, but are not limited to:

(1) Relocation, replacement, and/or burial of the existing 24-inch diameter water line and transmission facilities from the City of Yreka's Fall Creek diversion;

(2) Assessment, mitigation, and/or funding to address potential damage to the City of Yreka's facilities located along the Klamath River, including mitigation of potential impacts that may occur as a result of a dam breach. Such assessment, mitigation, and/or funding shall include consideration of the cathodic protection field located near the north bank of the Iron Gate crossing and the facilities that house the City's diversion and pump station; and

(3) Assessment, mitigation, and/or funding to address any impacts resulting from implementation of the Settlement, on the ability of the City to divert water consistent with its Water Right Permit 15379.

C. As part of implementation of this Settlement, an assessment of the potential need for fish screens on the City of Yreka's Fall Creek diversion facilities was completed in the Detailed Plan and it identified the need for fish screens on Dam A and Dam B. As a result of implementation of this Settlement, in order to meet regulatory requirements and screening criteria, construction of the required fish screens, including, but not limited to, necessary costs to preserve City facilities with additional species protection, shall be funded through the California Bond Measure pursuant to Section 4.2.3, or through other appropriate sources.

7.3 Schedule for Facilities Removal

7.3.1 The Parties agree that the target date to begin Facilities Removal is January 1, 2020. The Parties agree that preparatory work for Facilities Removal may be undertaken by the DRE before January 1, 2020, consistent with the Definite Plan, applicable permits, and Section 6 of this Settlement; provided such preparatory work shall not have any negative impact on PacifiCorp's generation operations at the Facilities. The Parties further agree to a target date of December 31, 2020 for completion of Facilities Removal at least to a degree sufficient to enable a free-flowing Klamath River allowing volitional fish passage.

7.3.2 The Parties acknowledge and agree that the schedule to accomplish Facilities Removal will be determined by the DRE in accordance with Section 7.3.4. The Parties intend to implement this Settlement based on the following approach to achieve the target dates for Decommissioning and Facilities Removal set forth in Section 7.3.1:

A. Collect $172 million of the total Customer Contribution by December 31, 2019, consistent with Section 4;

B. Earn approximately $28 million in interest on the Klamath Trust Accounts to provide Value to Customers, which results in a total of $200 million in the accounts available for Facilities Removal costs as illustrated in Appendix H to this Settlement;

C. Implement Decommissioning and Facilities Removal in a manner that permits PacifiCorp to generate sufficient electricity at the Facilities to achieve the economic results included in PacifiCorp's Economic Analysis; and

D. Implement the ICP and Non-ICP Interim Measures set forth in Appendices C and D to this Settlement.

7.3.3 The Parties agree that PacifiCorp may continuously operate the Facilities subject to the ICP and Non-ICP Interim Measures identified in Appendices C and D to this Settlement and generate electricity at the Facilities through December 31, 2019. Based upon PacifiCorp's representation of its Economic Analysis, the Parties agree that the following additional Value to Customers, in addition to the $28 million in interest described in Section 7.3.2.B, is necessary to achieve the corresponding date for commencement of Facility Decommissioning:

Date of Facilities Decommissioning	Required Additional Value to Customers
January 1, 2020	$27 million
July 1, 2020	$13 million
December 31, 2020	$0

If Decommissioning begins on December 31, 2020, no additional funding is required. The Parties acknowledge that, in order to complete Facilities Removal to the degree described in the last sentence of Section 7.3.1 by December 31, 2020, Decommissioning will need to begin prior to that date. As described in the table above, Decommissioning may begin on July 1, 2020 if $13 million in additional Value to Customers is identified, or on January 1, 2020, if $27 million in additional Value to Customers is identified.

7.3.4 Within 90 days of the DRE's execution of the Settlement, or at such additional time as may be necessary, the Parties shall Meet and Confer to: (1) review progress in implementing the Settlement based upon the approach described in Section 7.3.2; (2) review the DRE's schedule to procure contractor(s) to prepare a Definite Plan based on the Detailed Plan and to provide required liability protection and risk mitigation in accordance with Appendix L; and (3) identify the Value to Customers necessary to implement the schedule, the mechanisms as described in Section 7.3.8 that will be used, and the estimated cost reduction from each mechanism through December 2019. The Parties will subsequently Meet and Confer if the estimated additional Value to Customers has not been timely secured, a Regulatory Approval is inconsistent with that schedule, or the Definite Plan or final designs are inconsistent with the schedule.

If the Parties determine that the identified Value to Customers is less than the amount required to achieve the schedule, then the Parties at that time will consider additional actions to address the funding deficiency, including but not limited to extending the schedule and securing additional funding to protect PacifiCorp customers. The Parties may thereafter Meet

and Confer if additional Value to Customers is secured in excess of what was previously estimated.

7.3.5 PacifiCorp, in its sole and absolute discretion, may determine that Facilities Removal may begin earlier than January 1, 2020.

7.3.6 If the Parties determine that the schedule for Facilities Removal must extend beyond December 31, 2020, then the Parties shall also consider whether (1) modification of Interim Measures is necessary to appropriately balance costs to customers and protection of natural resources, and (2) continuation of the collection of the customer surcharges up to the maximum Customer Contribution is warranted.

7.3.7 The Parties agree that if Decommissioning and Facilities Removal occurs in a staged manner, J.C. Boyle is intended to be the last Facility decommissioned. If, however, the Definite Plan or FERC's surrender order directs a different sequence for Decommissioning and Facilities Removal, then the Parties shall Meet and Confer to identify adjustments necessary to implement Facilities Removal in a manner that is consistent with PacifiCorp's Economic Analysis.

7.3.8 The Parties have identified the following potential mechanisms for creating Value to Customers:

A. Interest on the Klamath Trust Accounts

The Parties acknowledge above that the surcharges from the Customer Contributions will be placed in interest-bearing accounts and that the interest that accrues in the accounts may be used to reduce the amount collected through the surcharges so that the total Customer Contribution, including accrued interest through December 31, 2019, totals $200,000,000. The Parties further acknowledge that it is not possible to precisely estimate the amount of interest that will accrue in the Klamath Trust Accounts. To the extent the interest in the accounts exceeds $28,000,000, the additional earnings may be used as a Value to Customers unless the funds are required for Facilities Removal. Nothing in this paragraph will limit the Customer Contribution to less than $200,000,000.

B. Third-Party Funding

The Parties agree to work jointly to identify potential partnerships to supplement funds generated pursuant to this Settlement. Such third-party funds may be employed to acquire generation facilities that can be used to replace the output of the Facilities, to fund aspects of Facilities Removal, or for other purposes to achieve the benefits of this Settlement.

C. Other

The Parties acknowledge that other mechanisms for Value to Customers may be identified, provided that they create sufficiently quantifiable benefits for customers.

7.3.9 PacifiCorp's Economic Analysis that will be used to implement this section was filed by PacifiCorp with the Oregon PUC pursuant to Section 4(1) of the Oregon Surcharge Act and with the California PUC in accordance with Section 4 of this Settlement. The Parties may seek to intervene in these state proceedings before the Commissions, and may request to view PacifiCorp's Economic Analysis consistent with the limitations imposed by Section 4(6) of the Oregon Surcharge Act, applicable PUC protective orders, and general PUC discovery practices and legal requirements. PacifiCorp shall not oppose either request. PacifiCorp reserves the right to request that the PUCs restrict Parties' access to commercially sensitive material, other than PacifiCorp's Economic Analysis, consistent with Section 4(6) of the Oregon Surcharge Act, applicable PUC protective orders, and general PUC discovery practices and legal requirements.

7.4 Transfer, Decommissioning, and Facilities Removal

7.4.1 DRE Notice

The DRE will notify the Parties and FERC when the necessary permits and approvals have been obtained for removal of a Facility or Facilities, all contracts necessary for removal have been finalized, and Facility Removal is ready to commence.

7.4.2 Decommissioning and Transfer

PacifiCorp will transfer ownership of each Facility, including the underlying land for each Facility in accordance with Section 7.6.4 (except for the Keno Development, which shall be disposed in accordance with Section 7.5). Once the DRE fulfills all of the conditions and obligations in Section 7.1.4, Appendix L, and the FERC license transfer order, and PacifiCorp concurs, PacifiCorp will transfer ownership of the Facilities to the DRE. PacifiCorp will continue to operate and maintain the Facilities in accordance with Section 7.1.6 until the DRE is ready to begin removal of a Facility and requests that PacifiCorp discontinue operation of that Facility.

7.5 Keno Facility

7.5.1 Study

Resolution of issues surrounding Keno facility are an important part of achieving the overall goals of this Settlement. Accordingly, the Secretary, in consultation with affected Parties, shall study issues specific to the Keno facility, with specific focus on addressing water quality, fish passage, transfer of title to the Keno facility from PacifiCorp to Interior, future operations and maintenance, and landowner agreements. The study of the Keno facility will be designed with the goals of addressing these issues and maintaining the benefits the dam currently provides.

7.5.2 Keno Facility Determination

In 2012, the Bureau of Reclamation and PacifiCorp entered into an agreement in principle for transfer of title to the Keno facility from PacifiCorp to Interior. Within 60 days of the Amendment Effective Date, Interior and PacifiCorp shall commence negotiations on Keno transfer informed by the analyses described in Section 7.5.1. Every six months or as necessary after the Amendment Effective Date, and subject to Section 8.17, Interior and PacifiCorp shall report to the Parties on the status of Keno negotiations, including as appropriate, drafts of a proposed Keno transfer agreement, a summary of negotiations and issues in dispute, and supporting documents. Interior and PacifiCorp shall use their best efforts to complete a final Keno transfer agreement within 180 days of the Amendment Effective Date. The Secretary will accept transfer of title to the Keno facility when the DRE notifies the Parties and FERC pursuant to Section 7.4.1 that J.C. Boyle Facility Removal is ready to commence.

The transfer of title to the Keno facility shall be subject to completion of any necessary improvements to the Keno facility to meet Department of the Interior Directives and Standards criteria for dam safety identified by Interior through its Safety of Dams inspection of the Keno facility. To facilitate this inspection, PacifiCorp agrees to grant access to the federal government and its contractors for study and assessment of the Keno facility. The terms and conditions of the transfer of title to the Keno facility, including coordination of operations between Link River dam, Keno dam, and any remaining facilities operated by PacifiCorp, ingress and egress agreements and easements required for operation and maintenance of the Klamath Reclamation Project, including but not necessarily limited to Lake Ewauna, Link River Dam, and Keno Dam will be negotiated between Interior and PacifiCorp prior to transfer. Costs associated with any improvements necessary to meet Department of Interior's Directives and Standards criteria for dam safety shall be funded by other non-PacifiCorp sources.

7.5.3 PacifiCorp Operations Prior to Transfer

Prior to and until transfer of title to the Keno Facility, PacifiCorp shall operate Keno in compliance with Contract #14-06-200-3579A, subject to any Applicable Law including the CWA and the provisions of Section 6.3 of this Settlement.

7.5.4 Operations After Transfer

Following transfer of title to the Keno facility from PacifiCorp to Interior, Interior shall operate Keno in compliance with Applicable Law and to provide water levels upstream of Keno Dam for diversion and canal maintenance consistent with Contract #14-06-200-3579A executed on January 4, 1968, between Reclamation and PacifiCorp (then COPCO) and historic practice.

7.5.5 Landowner Agreements

Based on the analysis under Section 7.5.1, the Secretary, upon acquisition of the Keno facility, will execute new agreements with landowners who currently have agreements in the Lake Ewauna to Keno reach, as the Secretary determines are necessary to avoid adverse impacts to the landowners resulting from the transfer, consistent with Applicable Law, operational requirements, and hydrologic conditions.

7.6 Dispositions of PacifiCorp Interests in Lands and other Rights

7.6.1 Lands Owned by PacifiCorp

PacifiCorp is the fee owner of approximately 11,000 acres of real property located in Klamath County, Oregon and Siskiyou County, California that are not directly associated with the Klamath Hydroelectric Project, and generally not included within the existing FERC project boundary. This property is more particularly described on Page 3 of the PacifiCorp Land Maps, attached as Exhibit 3, and referenced as Parcel A. This Settlement shall have no effect as to disposition of Parcel A lands, which shall continue to be subject to applicable taxes unless and until disposed of by PacifiCorp subject to applicable PUC approval requirements.

PacifiCorp is the fee owner of approximately 8,000 acres of real property located in Klamath County, Oregon and Siskiyou County, California that is associated with the Klamath Hydroelectric Project and/or included within the FERC project boundary. This property is more particularly described on Page 3 of the PacifiCorp Land Maps, Exhibit 3, and referenced as Parcel B. It is the intent of the Parties that Parcel B property be disposed in accordance with Section 7.6.4, except for the Keno Development which shall be disposed in accordance with Section 7.5. In addition to Exhibit 3, PacifiCorp owns significant electric transmission and distribution facilities which will remain under its ownership and subject to applicable taxes.

7.6.2 Potential Non-Project Land Exchanges

Interior and PacifiCorp have identified in Parcel A the potential for the exchange of certain non-Project PacifiCorp-owned lands in the Klamath Basin. Should an exchange of these lands to a state or Federal entity take place, the terms of the exchange agreement shall be revenue-neutral to County governments.

7.6.3 BLM Easements and Rights of Way

The Parties agree that before Facilities Removal, the FERC license for the Facilities shall control the ingress and egress to the Facilities within the FERC project boundary. Access by PacifiCorp outside of the project boundary to BLM-administered lands may require a separate Right Of Way agreement.

The Parties agree that the DRE's obligations for operation, maintenance, remediation and restoration costs of BLM-administered, transportation-related structures affected by Facilities Removal will be addressed as part of the Definite Plan.

A proposed disposition of PacifiCorp's easements and right-of-ways across BLM-administered lands within the FERC Project boundary will be included as a part of the DRE's Definite Plan for Facility Removal. To the extent necessary, reciprocal Right Of Way agreements may be executed across PacifiCorp-owned lands and BLM-administered lands to provide continued access for public and BLM administration needs. During the implementation of the Definite Plan, the DRE will be required to obtain authorization for any access across PacifiCorp and BLM-administered lands necessary for every phase of action.

7.6.4 PacifiCorp Klamath Hydroelectric Project Lands

A. It is the intent of the Parties that ownership of PacifiCorp lands associated with the Klamath Hydroelectric Project and/or included within the FERC Project boundary, identified as Parcel B in Exhibit 3, shall be transferred to the DRE before Facilities Removal begins. It is the intent of the Parties that, once the DRE has completed Facilities Removal and all surrender conditions have been satisfied, ownership of these lands will be transferred to the respective States, as applicable, or to a designated third-party transferee, upon Notice by the relevant State that it has completed to its satisfaction a final property (land and facilities) inspection in accordance with Applicable Law and in accordance with the indemnification(s) provided in Section 7.1.3 and Appendix L. It is also the intent of the Parties that transferred lands shall thereafter be managed for public interest purposes such as fish and wildlife habitat restoration and enhancement, public education, and public recreational access.

B. Each State shall undertake inspection and preliminary due diligence regarding the nature and condition of Parcel B lands located within its state boundaries, in anticipation of transfer of those lands from the DRE to the relevant State. PacifiCorp and the DRE shall provide each State all cooperation and access to the lands and pertinent records necessary to the inspection and due diligence. The DRE, each State, and PacifiCorp shall identify and provide to the Parties, for each specific property in Parcel B: (1) the proposed transferee for the property; and (2) the proposed terms of transfer for the property. The States, the DRE, and PacifiCorp shall consult with the Parties and other stakeholders before identifying the proposed transfer of a specific Parcel B property. Following such evaluation, the State of Oregon and the State of California may, each in its sole and absolute discretion, elect not to accept the transfer of all or any portion of Parcel B lands; provided, if a State, the DRE, or PacifiCorp believes that the proposed transfer for a property (or lack thereof) will not achieve the intent set forth in Section 7.6.4.A, those Parties shall Meet and Confer in accordance with Section 8.7.

C. Without predetermining the final terms of transfer for a specific property, proposed terms of transfer may include but are not limited to: (1) final property inspection; (2) specification of structures and improvements to remain on the property after Decommissioning and Facilities Removal; (3) liability protection for the State, or designated third party transferee, and the DRE, for any harm arising from post-transfer Decommissioning or power operations at the property; (4) liability protection for the State, or designated third party transferee, for any harm arising from post-transfer Facilities Removal by the DRE at the property; (5) easements or other property interests necessary for access to and continued operation of PacifiCorp transmission and distribution system assets that will remain on the property; and (6) notice or acknowledgement of the State's claim of ownership to beds and banks of the Klamath River. The DRE shall be a party to the transfer document as necessary and appropriate. The consideration required for transfer of a property to a State or third party transferee under this section shall be limited to the liability protections and other benefits conferred upon PacifiCorp and the DRE under this Settlement. Transfer of Parcel B lands shall be subject to applicable regulatory approvals and the reservations set forth in Section 1.6.

D. PacifiCorp shall convey Parcel B lands to the DRE, after the DRE provides Notice to the Parties and FERC that all necessary permits and approvals have been obtained for Facility Removal, and all contracts necessary for Facility Removal have been finalized. PacifiCorp shall convey all right, title, and interest in a subset of the Parcel B lands

designated on Exhibit 3 as lands associated with each Facility to the State or third party transferee subject to the DRE's possessory interest, consistent with the terms of this Settlement, including the Facilities, underlying lands, and appurtenances as further described through surveys and land descriptions. The DRE shall hold the underlying land for each Facility in trust for the benefit of the State or third party transferee. This public trust possessory interest in the DRE shall be controlled by the terms of the Settlement, the Definite Plan, and the transfer document. At the conclusion of Facilities Removal, the DRE will release the underlying land to the State or third party transferee. Upon transfer of ownership of all Facilities, PacifiCorp shall convey to the State or third party transferee all right, title, and interest in all Parcel B lands not already transferred to the DRE in trust, as further described through surveys and land descriptions, without restriction of possessory interest for the DRE. If transfer of a specific property for any reason is not consummated in a manner achieving the intent set forth in Section 7.6.4.A, PacifiCorp, the applicable State, and the DRE shall Meet and Confer in accordance with Section 8.7.

E. Notwithstanding any provision hereof, in the event either State accepts title to any portion of Parcel B lands, the State of Oregon and the State of California retain the right to transfer their ownership to any third party for any purpose.

7.6.5 PacifiCorp Water Rights

A. PacifiCorp shall assign its revised hydroelectric water rights to the OWRD for conversion to an instream water right pursuant to ORS 543A.305, and OWRD shall take actions to effect such conversion, in accordance with the process and conditions set forth in *Water Right Agreement between PacifiCorp and Oregon* (Exhibit 1). Nothing in this Section 7.6.5 or Exhibit 1 is intended in any way to affect, diminish, impair, or determine any federally-reserved or state law-based water right that the United States or any other person or entity may have in the Klamath River.

B. Except as provided in this paragraph, within 90 days of completion of Facilities 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. Should ongoing operations of the Iron Gate Hatchery or other hatchery facilities necessitate

continued use of water under License No. 9457 (Application No. 17527) beyond 90 days after completion of Facilities Removal, PacifiCorp shall consult with the Department of Fish and Wildlife and the State Water Resources Control Board and shall take actions directed by such Department and Board as are necessary to ensure a sufficient water supply to the Iron Gate Hatchery or other hatchery facilities under License No. 9457.

7.6.6 PacifiCorp Hatchery Facilities

The PacifiCorp Hatchery Facilities within the State of California shall be transferred to the State of California at the time of transfer to the DRE of the Iron Gate Hydro Development or such other time agreed by the Parties, and thereafter operated by the California Department of Fish and Wildlife with funding from PacifiCorp as follows:

A. Hatchery Funding

PacifiCorp will fund 100 percent of hatchery operations and maintenance necessary to fulfill annual mitigation objectives developed by the California Department of Fish and Wildlife in consultation with the National Marine Fisheries Service. This includes funding the Iron Gate Hatchery facility as well as funding of other hatcheries necessary to meet ongoing mitigation objectives following Facilities Removal. Hatchery operations include development and implementation of a Hatchery Genetics Management Plan as well as a 25% constant fractional marking program. Funding will be provided for hatchery operations to meet mitigation requirements and will continue for eight years following the Decommissioning of Iron Gate Dam. PacifiCorp's eight-year funding obligation assumes that dam removal will occur within one year of cessation of power generation at Iron Gate Dam. If Facilities Removal occurs after one year of cessation of power generation at Iron Gate Dam, then the Parties will Meet and Confer to determine appropriate hatchery funding beyond the eight years.

B. Hatchery Production Continuity

PacifiCorp will fund a study to evaluate hatchery production options that do not rely on the current Iron Gate Hatchery water supply. The study will assess groundwater and surface water supply options and water reuse technologies that could support hatchery production in the absence of Iron Gate Dam. The study may include examination of local well records and increasing production potential at existing or new facilities in the Klamath Basin as well as development of a test well or groundwater supply well. Based on the study results and with the approval of the California Department of Fish and Wildlife and the National Marine Fisheries

Service, PacifiCorp will provide one-time funding to construct and implement the measures identified as necessary to continue to meet current mitigation production objectives for a period of eight years following the Decommissioning of Iron Gate Dam. PacifiCorp's eight-year funding obligation assumes that Facilities Removal will occur within one year of cessation of power generation at Iron Gate Dam. If dam removal occurs after one year of cessation of power generation at Iron Gate Dam, then the Parties will Meet and Confer to determine appropriate hatchery funding beyond the eight years. Production facilities capable of meeting current hatchery mitigation goals must be in place and operational upon removal of Iron Gate Dam. PacifiCorp shall not be responsible for funding hatchery programs, if any, necessary to reintroduce anadromous fish in the Klamath basin.

8. General Provisions

8.1 Term of Settlement

The term of this Settlement shall commence on the Effective Date and shall continue until Facilities Removal has been fully achieved and all conditions of this Settlement have been satisfied, unless terminated earlier pursuant to Section 8.11.

8.2 Effectiveness

The KHSA was effective upon execution on February 18, 2010 ("Effective Date"). The KHSA as amended will take effect when it is executed by the signatories to the 2016 AIP ("Amendment Effective Date").

8.3 Successors and Assigns

This Settlement shall apply to, be binding on, and inure to the benefit of the Parties and their successors and assigns, unless otherwise specified in this Settlement. Except as provided by Section 7.1.10, no assignment may take effect without the express written approval of the other Parties, which approval will not be unreasonably withheld.

8.4 Amendment

Except as otherwise expressly provided in Section 8.11.3, this Settlement may only be amended in writing by all Parties still in existence, including any successors or assigns. The Public Agency Parties may also obtain public input on any such modifications as required by Applicable Law. A Party may provide Notice of a proposed amendment at any time. The Parties agree to meet in person or by teleconference within 20 days of receipt of Notice to discuss the proposed amendment.

8.5 Notices

Any Notice required by this Settlement shall be written. Notice shall be provided by electronic mail, unless the sending Party determines that first-class mail or an alternative form of delivery is more appropriate in a given circumstance. A Notice shall be effective upon receipt, but if provided by U.S. Mail, seven days after the date on which it is mailed. For the purpose of Notice, the list of authorized representatives of the Parties as of the Effective Date is attached as Appendix K. The Parties shall provide Notice of any change in the authorized representatives designated in Appendix K, and PacifiCorp shall maintain the current distribution list of such representatives. The Parties agree that failure to provide PacifiCorp with current contact information will result in a waiver of that Party's right to Notice under this Settlement. The Party who has waived Notice may prospectively reinstate its right to Notice by providing current contact information to PacifiCorp.

8.6 Dispute Resolution

All disputes between Parties arising under this Settlement shall be subject to the Dispute Resolution Procedures stated herein. The Parties agree that each such dispute shall be brought and resolved in a Timely manner.

8.6.1 Cooperation

Disputing Parties shall devote such resources as are needed and as can be reasonably provided to resolve the dispute expeditiously. Disputing Parties shall cooperate in good faith to promptly schedule, attend, and participate in the dispute resolution.

8.6.2 Costs

Unless otherwise agreed among the Disputing Parties, each Disputing Party shall bear its own costs for its participation in these Dispute Resolution Procedures.

8.6.3 Non-Exclusive Remedy

These Dispute Resolution Procedures do not preclude any Party from Timely filing and pursuing an action to enforce an obligation under this Settlement, or to appeal a Regulatory Approval inconsistent with the Settlement, or to enforce a Regulatory Approval or Applicable Law; provided that such Party shall provide a Dispute Initiation Notice and, to the extent practicable, undertake and conclude these procedures, before such action.

8.6.4 Dispute Resolution Procedures

A. Dispute Initiation Notice

A Party claiming a dispute shall give Notice of the dispute within seven days of becoming aware of the dispute. Such Notice shall describe: (1) the matter(s) in dispute; (2) the identity of any other Party alleged to have not performed an obligation arising under this Settlement or Regulatory Obligation; and (3) the specific relief sought. Collectively, the Party initiating the procedure, the Party complained against, and any other Party which provides Notice of its intent to participate in these procedures, are "Disputing Parties."

B. Informal Meetings

Disputing Parties shall hold at least two informal meetings to resolve the dispute, commencing within 20 days after the Dispute Initiation Notice, and concluding within 45 days of the Dispute Initiation Notice unless extended upon mutual agreement of the Disputing Parties. If the Disputing Parties are unable to resolve the dispute, at least one meeting will be held within the 45 days at the management level to seek resolution.

C. Mediation

If the dispute is not resolved in the informal meetings, the Disputing Parties shall decide whether to use a neutral mediator. The decision whether to pursue mediation, and if affirmative the identity and allocation of costs for the mediator, shall be made within 75 days after the Dispute Initiation Notice. Mediation shall not occur if the Disputing Parties do not unanimously agree on use of a mediator, choice of mediator, and allocation of costs. The mediation process shall be concluded not later than 135 days after the Dispute Initiation Notice. The above time periods may be shortened or lengthened upon mutual agreement of the Disputing Parties.

D. Dispute Resolution Notice

The Disputing Parties shall provide Notice of the results of the Dispute Resolution Procedures. The Notice shall: (1) restate the disputed matter, as initially described in the Dispute Initiation Notice; (2) describe the alternatives which the Disputing Parties considered for resolution; and (3) state whether resolution was achieved, in whole or part, and state the specific relief, including timeline, agreed to as part of the resolution. Each Disputing Party shall promptly implement any agreed resolution of the dispute.

8.7 Meet and Confer

8.7.1 Applicability

The Meet and Confer procedures in this Section 8.7 shall apply upon the occurrence of certain events or failure to occur of certain events as specifically required in this Settlement.

8.7.2 Meet and Confer Procedures

A. Any Party may initiate the Meet and Confer procedures by sending Notice: (1) describing the event that requires the Parties to confer, and (2) scheduling a meeting or conference call.

B. The Parties will meet to discuss the problem and identify alternative solutions. The Parties agree to dedicate a reasonable amount of time sufficient to resolve the problem.

C. The Meet and Confer procedures will result in: (1) amendment pursuant to Section 8.4; (2) termination or other resolution pursuant to the procedures of Section 8.11; or (3) such other resolution as is appropriate under the applicable section.

8.8 Remedies

This Settlement does not create a cause of action in contract for monetary damages for any alleged breach by any Party of this Settlement. Neither does this Settlement create a cause of action in contract for monetary damages or other remedies for failure to perform a Regulatory Obligation. The Parties reserve all other existing remedies for material breach of the Settlement; provided that Section 8.11 shall constitute the exclusive procedures and means by which this Settlement can be terminated.

8.9 Entire Agreement

This Settlement contains the complete and exclusive agreement among all of the Parties with respect to the subject matter thereof, and supersedes all discussions, negotiations, representations, warranties, commitments, offers, agreements in principle, and other writings among the Parties, including the 2008 AIP and 2016 AIP, before the Amendment Effective Date of this Settlement, with respect to its subject matter. Appendices B, C, D, F, H, K, and L are hereby incorporated by reference into this Settlement as if fully restated herein. Exhibits 1 through 4 are attached to this Settlement for informational purposes only and are not incorporated by reference except as otherwise noted herein.

8.10 Severability

This Settlement is made on the understanding that each provision is a necessary part of the entire Settlement. However, if any provision of this Settlement is held by a Regulatory Agency or a court of competent jurisdiction to be invalid, illegal, or unenforceable: (1) the validity, legality, and enforceability of the remaining provisions of this Settlement are not affected or impaired in any way; and (2) the Parties shall negotiate in good faith in an attempt to agree to another provision (instead of the provision held to be invalid, illegal, or unenforceable) that is valid, legal, and enforceable and carries out the Parties' intention to the greatest lawful extent under this Settlement.

8.11 Termination

8.11.1 Potential Termination Events

This Settlement shall be terminable if one of the following events occurs and a cure for that event is not achieved pursuant to Section 8.11.3:

A. A condition precedent to license transfer set forth in Section 7.1.4 is not met;

B. The Oregon PUC or California PUC do not implement the funding provisions set forth in Sections 4.1 through 4.6;

C. Conditions of any Regulatory Approval of Interim Measures, denial of Regulatory Approval of Interim Measures including the failure Timely to approve ESA incidental take authorization, or results of any litigation related to this Settlement are materially inconsistent with the provisions of Section 6.1 through 6.3 and Appendices C and D;

D. Conditions or denial of any Regulatory Approval of Facilities Removal or the results of any litigation about such removal, are materially inconsistent with the Settlement;

E. The DRE notifies the Parties that it cannot proceed with Facilities Removal because it cannot obtain all permits and contracts necessary for Facilities Removal despite its good faith efforts; or

F. California, Oregon, the Federal Parties, or PacifiCorp is materially adversely affected by another Party's breach of this Settlement.

8.11.2 Definitions for Section 8.11

A. For purposes of this section and Section 7.2.1.C, "materially inconsistent" means diverging from the Settlement or part thereof in a manner that: (1) fundamentally changes the economics or

liability protection such that a Party no longer receives the benefit of the bargain provided by this Settlement; or (2) frustrates the fundamental purpose of this Settlement such that Facilities Removal or the underlying purposes of Interim Measures cannot be accomplished. Events occurring independent of this Settlement, other than those identified in Section 8.11.1, shall not be construed to create a material inconsistency or materially adverse effect.

B. For purposes of this section, "materially adversely affected" means that a Party no longer receives the benefit of the bargain due to: (1) fundamental changes in the economics or liability protection; or (2) frustration of the fundamental purpose of this Settlement such that Facilities Removal or the underlying purposes of Interim Measures cannot be accomplished.

C. For purposes of this section, a "result of any litigation" is materially inconsistent with this Settlement or a part thereof if a Party is materially adversely affected by: (1) costs to defend the litigation; or (2) a final order or judgment.

8.11.3 Cure for Potential Termination Event

A. A Party that believes that a potential termination event specified in Section 8.11.1 has occurred shall provide Notice.

(1) The Parties shall use the Meet and Confer Procedures specified in Section 8.7 to consider whether to deem the event to conform to the Settlement, or adopt a mutually agreeable amendment to this Settlement. These procedures shall conclude within 90 days of Notice.

(2) If these procedures do not resolve the potential termination event, the Federal Parties, the States, the DRE if a Party, and PacifiCorp may, within 90 days thereafter, agree to an amendment, or deem the event to conform to the Settlement; otherwise, this Settlement shall terminate. In no event shall any amendment under this subsection provide for Facilities Removal with respect to fewer than four Facilities.

B. If the Federal Parties, the States, the DRE if a Party, and PacifiCorp disagree whether a potential termination event specified in Section 8.11.1 has occurred, these Parties shall follow the Dispute Resolution Procedures in Section 8.6 to attempt to resolve that dispute. If such a Notice of Dispute is filed while the Meet and Confer Procedures referenced in 8.11.3.A are ongoing, those Meet and Confer Procedures are deemed concluded, subject to being recommenced in accordance

with the remainder of this subsection. Upon conclusion of the Dispute Resolution Procedures in Section 8.6, the Federal Parties, the States, the DRE if a Party, and PacifiCorp shall issue a Notice of Dispute Resolution.

(1) If, in the Notice of Dispute Resolution, the Federal Parties, the States, and PacifiCorp agree that a potential termination event has occurred, or agree to consider whether a cure could be achieved, the further procedures stated in Section 8.11.3.A(1) and (2) above shall apply.

(2) If, in the Notice of Dispute Resolution, the Federal Parties, the States, the DRE if a Party, and PacifiCorp disagree whether a potential termination event has occurred, this Settlement shall terminate unless a Party seeks and obtains a remedy preserving the Settlement under Applicable Law.

C. A Party may reasonably suspend performance of its otherwise applicable obligations under this Settlement, upon receipt of Notice and pending a resolution of the potential termination event as provided in Section 8.11.3.A or B.

D. If the Federal Parties, the States, the DRE if a Party, and PacifiCorp, pursuant to the procedures in Section 8.11.3.A, agree to an amendment or other cure to resolve a potential termination event absent agreement by all other Parties pursuant to Section 8.4, any other Party may accept the amendment by Notice. If it objects, such other Party: (1) may seek a remedy regarding the potential termination event that resulted in the disputed amendment, to the extent provided by Section 8.8; (2) may continue to suspend performance of its obligations under this Settlement; and (3) in either event shall not be liable in any manner as a result of its objection or the suspension of its performance of its obligations under this Settlement.

E. The Parties shall undertake to complete the applicable procedures under this section within six months of a potential termination event.

8.11.4 Obligations Surviving Termination

A. Upon termination, all documents and communications related to the development, execution, or submittal of this Settlement to any agency, court, or other entity, shall not be used as evidence, admission, or argument in any forum or proceeding for any purpose to the fullest extent allowed by Applicable Law, including 18 C.F.R. § 385.606. This provision does not apply to the results of studies or other technical information developed for use by a Public Agency Party.

This provision does not apply to any information that was in the public domain prior to the development of this Settlement or that became part of the public domain at some later time through no unauthorized act or omission by any Party. Notwithstanding the termination of this Settlement, all Parties shall continue to maintain the confidentiality of all settlement communications.

This provision does not prohibit the disclosure of: (1) any information held by a federal agency that is not protected from disclosure pursuant to the Freedom of Information Act or other applicable law; (2) any information held by a state or local agency that is not protected from disclosure pursuant to the California Public Records Act, the Oregon Public Records Law, or other applicable state or federal law; or (3) disclosure pursuant to Section 1.6.8.

B. The prohibitions in Section 1.6.8 survive termination of this Settlement.

8.12 No Third-Party Beneficiaries

This Settlement is not intended to and shall not confer any right or interest in the public, or any member thereof, or on any persons or entities that are not Parties hereto, as intended or expected third-party beneficiaries hereof, and shall not authorize any non-Party to maintain a suit at law or equity based on a cause of action deriving from this Settlement. The duties, obligations, and responsibilities of the Parties with respect to third parties shall remain as imposed under Applicable Law.

8.13 Elected Officials Not to Benefit

No Member of or Delegate to Congress, Resident Commissioner, or elected official shall personally benefit from this Settlement or from any benefit that may arise from it.

8.14 No Partnership

Except as otherwise expressly set forth herein, nothing contained in this Settlement is intended or shall be construed to create an association, trust, partnership, or joint venture, or impose any trust or partnership duty, obligation, or liability on any Party, or create an agency relationship between or among the Parties or between any Party and any employee of any other Party.

8.15 Governing Law

8.15.1 Contractual Obligation

A Party's performance of an obligation arising under this Settlement shall be governed by (1) applicable provisions of this Settlement, and (2) Applicable Law for obligations of that type.

8.15.2 Regulatory Obligation

A Party's performance of a Regulatory Obligation, once approved as proposed by this Settlement, shall be governed by Applicable Law for obligations of that type.

8.15.3 Reference to Applicable Law

Any reference in this Settlement to an Applicable Law shall be deemed to be a reference to such law in existence as of the date of the action in question.

8.16 Federal Appropriations

To the extent that the expenditure or advance of any money or the performance of any obligation of the Federal Parties under this Settlement is to be funded by appropriations of funds by Congress, the expenditure, advance, or performance shall be contingent upon the appropriation of funds by Congress that are available for this purpose and the apportionment of such funds by the Office of Management and Budget. No breach of this Settlement shall result and no liability shall accrue to the United States in the event such funds are not appropriated or apportioned.

8.17 Confidentiality

The confidentiality provisions of the *Agreement for Confidentiality of Settlement Communications and Negotiations Protocol Related to the Klamath Hydroelectric Project*, as it may be amended, shall continue as long as this Settlement is in effect.

9. Execution of Settlement

9.1 Signatory Authority

Each signatory to this Settlement certifies that he or she is authorized to execute this Settlement and to legally bind the entity he or she represents, and that such entity shall be fully bound by the terms hereof upon such signature without any further act, approval, or authorization by such entity.

9.2 Signing in Counterparts

This Settlement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as if all signatory Parties had signed the same instrument. The signature pages of counterparts of this Settlement may be compiled without impairing the legal effect of any signatures thereon.

9.3 New Parties

Except as provided in Section 9.4 any entity listed on pages 1 through 2 of this Settlement that signs this Settlement on or before December 31, 2016, will become a Party to this Settlement. After December 31, 2016, any entity listed on pages 1 through 2 of this Settlement may become a Party through an amendment of this Settlement in accordance with Section 8.4. After 90 days from the Amendment Effective Date, an entity not listed on pages 1 through 2 of this Settlement may become a Party through an amendment of this Settlement in accordance with Section 8.4.

9.4 DRE and Liability Transfer Corp. as Parties

The Parties expect that the DRE will become a Party by executing this Settlement within 90 days of the Amendment Effective Date. No action by any other Party is necessary for the DRE to become a Party. If the DRE assigns any of its responsibilities to a Liability Transfer Corp. as described in Section 7.1.10 and Appendix L, the Liability Transfer Corp. shall become a Party by executing this Settlement. No action by any other Party is necessary for the Liability Transfer Corp. to become a Party.

[REMAINDER OF PAGE INTENTIONALLY BLANK—SIGNATURES BEGIN ON FOLLOWING PAGE]

IN WITNESS THEREOF,

the Parties, through their duly authorized representatives, have caused this Settlement to be executed as of the date set forth in this Settlement.

United States Department of the Interior

Sally Jewell

By: Sally Jewell, Secretary of the Interior

Date: April 6, 2016

United States Department of Commerce's National Marine Fisheries Service

By: Dr. Kathryn D. Sullivan
Under Secretary of Commerce for
Oceans and Atmosphere

Date: April 6, 2016

PacifiCorp d/b/a Pacific Power

By: Stefan A. Bird, President and CEO

Date: 4/6/16

State of California

Edmund G. Brown

By: Edmund G. Brown, Jr., Governor

Date: 4/6/2016

State of Oregon

Kate Brown

By: Kate Brown, Governor

Date: 4/6/16

California Department of Fish and Wildlife

By: Chuck Bonham, Director

Date: 4/6/16

California Natural Resources Agency

John Laird

By: John Laird, Secretary

Date: 4/6/16

Oregon Department of Environmental Quality

By: Peter Shepherd, Director

Date: _____

Oregon Department of Fish and Wildlife

By: Curt Melcher, Director

Date: _____

Oregon Water Resources Department

By: Thomas Byler, Director

Date: _____

California Natural Resources Agency

_____ Date: _____

By: John Laird, Secretary

Oregon Department of Environmental Quality

_____ Date: 4-26-2016

By: Peter Shepherd, Director

Oregon Department of Fish and Wildlife

_____ Date: _____

By: Curt Melcher, Director

Oregon Water Resources Department

_____ Date: _____

By: Thomas Byler, Director

California Natural Resources Agency

_____ Date: _____

By: John Laird, Secretary

Oregon Department of Environmental Quality

_____ Date: _____

By: Peter Shepherd, Director

Oregon Department of Fish and Wildlife

Curtis E Melcher Date: 4/27/16

By: Curt Melcher, Director

Oregon Water Resources Department

_____ Date: _____

By: Thomas Byler, Director

California Natural Resources Agency

_____ Date: _____

By: John Laird, Secretary

Oregon Department of Environmental Quality

_____ Date: _____

By: Peter Shepherd, Director

Oregon Department of Fish and Wildlife

_____ Date: _____

By: Curt Melcher, Director

Oregon Water Resources Department

Date: 4/27/16

By: Thomas Byler, Director

Klamath River Renewal Corporation

Date: August 30, 2016

By: Lester Snow

Title: Vice President

Yurok Tribe

Date: 4-6-16

By: Thomas P. O'Rourke, Sr.,
Chairperson

Karuk Tribe

Russell G. Attebery

By: Russell Attebery, Chairman

Date: 4-6-16

Klamath Tribes

_____ Date: _____

By: Chairman

Humboldt County, California

Date: 5-31-16

By: Mark Lovelace
Chairman, Board of Supervisors

Ady District Improvement Company

_____ Date: _____

By: Jason Flowers

Collins Products, LLC

_____ Date: _____

By: Eric Schooler
President and Chief Executive Officer

Enterprise Irrigation District

_____ Date: _____

By: Michael Beeson, President

Don Johnston & Son

_____ Date: _____

By: Donald Scott Johnston, Owner

Inter-County Properties Co., which acquired title as Inter-County Title Co.

_____ Date: _____

By: Darrel E. Pierce

Klamath Irrigation District

_____ Date: _____

By: Brent Cheyne, President

Klamath Drainage District

_____ Date: _____

By: Tim O'Connor, President

Klamath Basin Improvement District

_____ Date: _____

By: George Rajnus, Chairman

Klamath Water Users Association

_____ Date: _____

By: Brad Kirby, President

Bradley S. Luscombe

_____ Date: _____

By: Bradley S. Luscombe

Malin Irrigation District

_____ Date: _____

By: Ed Stastny, President

Midland District Improvement Company

_____ Date: _____

By: Frank Anderson, President

Pioneer District Improvement Company

_____ Date: _____

By: Lyle Logan, President

Plevna District Improvement Company

_____ Date: _____

By: Steve Metz, President

Reames Golf and Country Club

_____ Date: _____

By: L.H. Woodward, President

Shasta View Irrigation District

_____ Date: _____

By: Claude Hagerty, President

Sunnyside Irrigation District

_____ Date: _____

By: Pat Patterson, President

Tulelake Irrigation District

_____ Date: _____

By: Brad Kirby, President

Upper Klamath Water Users Association

Matthew Walter

By: Matthew Walter, President

Date: 12/29/16

Van Brimmer Ditch Company

_____ Date: _____

By: Gary Orem, President

Randolph Walthall and Jane Walthall as trustees under declaration of trust dated November 28, 1995

_____ Date: _____

By: Jane Walthall

Westside Improvement District #4

_____ Date: _____

By: Steven L. Kandra, President

Winema Hunting Lodge, Inc.

_____ Date: _____

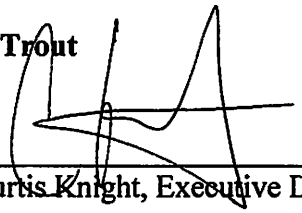
By: R. David Bolls, III

American Rivers

By: W. Robert Irvin, President

Date: 4/14/16

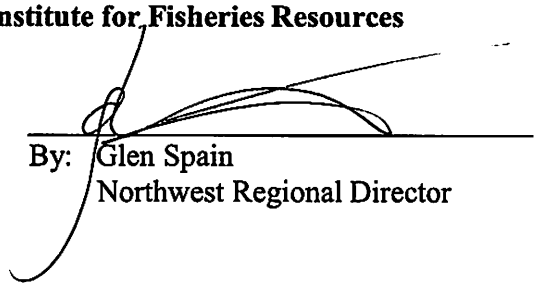
California Trout



By: Curtis Knight, Executive Director

Date: 4/13/2016

Institute for Fisheries Resources



By: Glen Spain
Northwest Regional Director

Date: 5/25/16

Northern California Council, Federation of Fly Fishers

Date: 5/3/2016

By: Lowell Ashbaugh
Vice-President, Conservation

Pacific Coast Federation of Fishermen's Associations

By: Glen Spain
Northwest Regional Director

Date: 5/25/16

Salmon River Restoration Council

Petey Brucker

By: Petey Brucker

Date: 12/29/2016

Trout Unlimited

Date: 4/6/16

By: Chris Wood
Chief Executive Officer

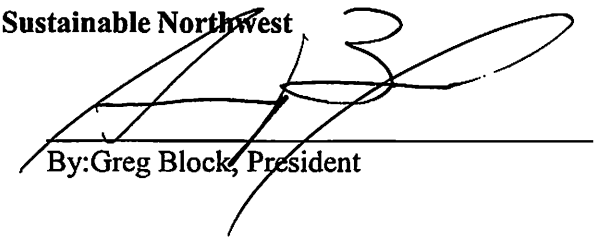
Brian Johnson
California Director

Klamath Riverkeeper

_____ Date: _____

By: Konrad Fisher, Exective Officer

Sustainable Northwest



By:Greg Block, President

Date: 4/25/16

Arthur G. Baggett, Jr.[1]

_____ Date: _____

By: Arthur G. Baggett, Jr.

[1] Mr. Baggett is signing this Agreement as a recommendation to the California State Water Resources Control Board, and not as a Party.

APPENDICES

ACTIONS IN APPENDIX A HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

APPENDIX A
Coordination Process for the Studies Supporting the Secretarial Determination

1. Introduction

While the proposed Secretarial Determination is an inherently governmental function that may not be delegated to others, the Federal Parties understand and recognize the unique nature of this task and are committed to participating in the development of the basis for the Secretarial Determination in a Timely, open, transparent manner and employing the highest standards of scientific integrity. As part of that process and as appropriate and governed by Applicable Law, the Secretary will:

A. seek the input from the other Parties and the public, on:

i. identification of data and analysis necessary to make the Secretarial Determination;

ii. identification of existing data and analysis and the protocols needed to assess its sufficiency;

iii. work plans to obtain and study new information necessary to fill material data gaps that may exist, which may include sediment contamination studies (including but not limited to dioxin); and

iv. any other process to gather, develop, and assess any additional data, existing data, or analysis determined necessary by the United States to support the Secretarial Determination,

B. utilize the expertise each of the Parties may have with regard to data and analysis that is necessary to support the Secretarial Determination; and

C. create the means by which the Parties can ensure Timely performance of the studies.

Further, the Federal Parties have expressed their commitment to ensuring that the studies, reports, and analyses utilized to inform the Secretarial Determination are supported by a complete and scientifically-sound record.

2. Purpose of the Coordination Process

The purpose of the Coordination Process is to seek, discuss, and consider the views of the Parties regarding the basis of the Secretarial Determination in a Timely manner in support of the Secretary's decision-making process. As described in Section 3 below, the Secretary will foster communication between the Federal agencies engaged in the Determination and the Parties to

this Settlement. This includes providing Timely notice to allow the Parties and the public to provide meaningful input to the items identified in Section 1 above.

3. The Process

A. To provide an opportunity for the non-federal Parties to provide input to the Secretary on the categories of data outlined in Section 1 above, there is established under the terms of this Settlement a Technical Coordination Committee (TCC) consisting of membership from all of the non-Federal Parties to this Settlement. The TCC will meet or hold conference calls on a monthly basis, at a minimum, and more often as deemed necessary. The TCC will also form sub-teams and hold separate workshops/meetings as necessary to address specific technical and scientific issues. The principal objective of the TCC will be to exchange information and data, as appropriate, among the non-federal Parties on technical aspects of the Secretarial Determination that may affect the resources of the non-federal Parties and provide input to the Federal Parties. The Federal Parties will hold public workshops or otherwise provide Timely information to the TCC and the public concerning the status of the Determination, the studies in support of the Determination and the environmental compliance actions. To the extent practicable and in accordance with Applicable Law, the Federal Parties will provide the information necessary for the non-federal Parties to have Timely and meaningful input consistent with the schedule for completing the Secretarial Determination. The TCC will provide its input in writing to the Federal Parties for their consideration, consistent with the Coordination Process.

B. The Parties may participate in the NEPA process as cooperating agencies, if eligible under the applicable Federal regulations and guidance, or as members of the public.

C. Nothing in this Settlement shall restrict the Department of the Interior or other Federal agency from providing funding through other agreements or memoranda of understanding.

4. Meet and Confer

This Coordination Process is intended to provide the Parties with the opportunity to provide Timely and meaningful input to the Federal Parties' actions in carrying out the terms of this Settlement. If the Parties find that their needs are not being met by this Coordination Process, then the Parties may engage in Meet and Confer Procedures to try to address the Parties' concerns.

5. Limitations

This Process is not intended to, nor does it, create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by any person or party against the United

States, its agencies, its officers, or any other person. The provisions of this Process are not intended to direct or bind any person.

6. Government-to-Government Relationship

In accordance with Applicable Law, nothing in this Coordination Process is intended to waive or supersede any obligation of the United States to fulfill its government-to-government relationship with any Indian Tribe, state, county, or local government concerning the Secretarial Determination or this Settlement.

APPENDIX B
Interim Measures Implementation Committee (Interim Measure 1)

1. Purpose and Goal of Committee

The purpose of the Interim Measures Implementation Committee (IMIC or Committee) is to collaborate with PacifiCorp on ecological and other issues related to the implementation of the Interim Measures set forth in Appendix D of the Settlement. The primary goals of the IMIC are: (a) to achieve consensus where possible; and (b) timely implementation of the matters within the scope of the IMIC's responsibilities under the Settlement.

2. Committee Functions and Responsibilities

2.1 The IMIC shall meet, discuss, and seek to reach consensus on implementation of the following Non-ICP Interim Measures as detailed in each Interim Measure:

2.1.1 *Interim Measure 7*. The IMIC will consult with PacifiCorp to approve gravel placement projects and approve third parties to implement the projects.

2.1.2 *Interim Measure 8*. The IMIC will consult with PacifiCorp on a plan to remove the sidecast rock barrier located upstream of the J.C. Boyle Powerhouse, and approve a schedule for the removal.

2.1.3 *Interim Measure 11*. The IMIC will consult with PacifiCorp to identify studies or pilot projects and to develop a priority list of projects to be carried out following the DRE's acceptance of the FERC surrender order, as approved by the agencies specified in Interim Measure 11.

2.1.4 *Interim Measure 13*. The IMIC will identify species specific habitat needs on which to base J.C. Boyle Dam instream flow releases in the event dam removal occurs in a staged manner and anadromous fish are naturally and volitionally present in the J.C. Boyle Bypass Reach.

2.1.5 *Interim Measure 15*. The IMIC will resolve significant disputes that may arise regarding the water quality monitoring plan content or funding.

2.2 The IMIC shall advise the Settlement Parties concerning any proposed amendments to the Interim Measures based on monitoring conducted under the Interim Measures and any other adaptive management considerations.

2.3 PacifiCorp will prepare and provide to the IMIC periodic reports, no less frequently than annually, on the status of implementation of the Interim Conservation Plan measures set forth in Appendix C of the Settlement.

3. Committee Membership and Meeting Participation

3.1 The IMIC shall be comprised of PacifiCorp and the following members, subject to their signing the Settlement:

A. State and Federal Members: One representative each from: U.S. Department of the Interior, National Marine Fisheries Service, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Water Resources Department, and the California Department of Fish and Wildlife.

B. Tribal Members: One representative each from the Tribes.

C. Other Members: One representative each from: conservation group Parties, fishing group Parties, signatory counties, and irrigation group Parties.

3.2 The California State Water Resources Control Board and the North Coast Regional Board may also be members of the IMIC even though they have not signed the Settlement.

3.3 Each member or category of members may designate a primary representative to the IMIC within 30 days after the Effective Date of the Settlement, or at any time thereafter with five days' notice. Designation shall be by Notice to the Parties in accordance with Section 8.5 of the Settlement. Each member or category of members may name alternative representatives to the IMIC. Failure to designate a representative shall not prevent the IMIC from convening or conducting its functions in accordance with the time schedules established in the Settlement.

3.4 The IMIC, by unanimous agreement not subject to Dispute Resolution, may grant any other Party to the Settlement membership status on the IMIC, provided that the entity seeking membership submits a proposal to the IMIC that requests membership and demonstrates: (1) reasons why its interests are not adequately represented by present IMIC membership; and (2) appropriate qualifications of the entity to participate in the IMIC.

3.5 Each member should select a representative who has relevant training or experience with natural resource management.

3.6 Participation by identified state and federal resource agencies complements their statutory responsibility and does not otherwise affect their authority. Issues involving the exercise of specific agency authority can be discussed, but decisions are not delegated to the Committee.

3.7 The IMIC may establish technical working groups to facilitate implementation of individual Interim Measures or categories of Interim Measures, such as a

Fisheries Technical Working Group and a Water Quality Technical Working Group. The role of the technical working groups would be to make recommendations to the IMIC.

4. Meeting Provisions

4.1 PacifiCorp shall convene the IMIC not later than three months after the Effective Date of the Settlement.

4.2 PacifiCorp will arrange, administer, and chair all meetings. A meeting facilitator may be used if necessary. PacifiCorp will provide no fewer than 10 days' prior notice of any meeting to the IMIC members, other Settlement Parties and agencies with jurisdictional authority, unless otherwise agreed to by the IMIC or required in order to meet a Settlement deadline or other emergency circumstance.

4.3 PacifiCorp, or the facilitator, will provide draft meeting summaries for concurrence by the IMIC prior to final distribution. Meeting summaries will note member concerns.

4.4 The IMIC will establish protocols for meetings such as agenda development, location and scheduling. Meetings will be fairly distributed between Portland, the Medford area, and Sacramento with teleconferencing provided between sites.

4.5 The meeting agenda will list specific Interim Measures and all other topics for action or discussion.

4.6 Meetings will be scheduled as required by the actions contained within specific Interim Measure provisions, but no less frequently than annually.

4.7 PacifiCorp will bear all costs associated with conducting meetings. Each member will bear its own cost of attendance.

4.8 PacifiCorp will circulate final meeting summaries and any other written comments.

4.9 The role of the IMIC will be evaluated at the end of five years after the Effective Date of the Settlement. The members will review the IMIC and determine if it should remain the same, be modified or discontinued.

5. Committee Deliberations

5.1 During meetings, prior to Committee deliberations, other Settlement Parties and agencies with jurisdictional authority may address the Committee and provide comments on each agenda topic being discussed.

5.2 Following Committee deliberation, the Committee shall seek to reach consensus of all members present. Committee decisions shall be based on a two-thirds majority vote of those participating.

5.2.1 PacifiCorp or the facilitator will provide the results of the vote to all IMIC members within three working days.

5.2.2 Decisions of the Committee will stand unless a Party provides Notice within seven working days that it will seek Dispute Resolution pursuant to Section 8.6 of the Settlement on the ground of inconsistency with the Settlement.

5.2.3 In the event that PacifiCorp believes a proposed action or failure Timely to propose an action: (1) is inconsistent with this Settlement or any other contract to which it is a party; (2) violates the terms of the FERC license or other regulatory requirement; (3) interferes with operations; or (4) subjects PacifiCorp to undue risk of litigation, cost overruns, or liability, PacifiCorp will consult with the IMIC to identify a modified or alternative action. In the event the IMIC does not approve PacifiCorp's modified or alternative action, PacifiCorp may implement its proposed action after obtaining approval by any agency specifically assigned that decision under the particular Interim Measure, and after obtaining any necessary regulatory approvals. An IMIC member who disagrees with the elements of PacifiCorp's proposed actions that are not specified in the Interim Measures may dispute those elements in applicable regulatory processes. The Parties agree that such disputes are beyond the scope of Settlement Section 2.1.

5.3 Any requirements for PacifiCorp to consult with a resource agency or other member under an Interim Measure that specifically references that agency or other member shall be deemed satisfied by consultation with that agency or other member through the IMIC, provided that the IMIC is in existence and that agency or other member has participated through the IMIC in consultation on the requisite items. To the extent agency consultation is not provided through Committee participation, PacifiCorp shall comply with all applicable regulatory consultation requirements including plan submission to appropriate agencies, including agencies specified in the Interim Measure. However, consultation with an agency representative participating in the Committee shall not be deemed to satisfy or predetermine any Regulatory Approval required under Applicable Law.

5.4 PacifiCorp will seek to resolve concerns expressed by the federal and state fish and wildlife agencies and the state water quality agencies on matters in which they have expertise prior to seeking consensus of the IMIC.

5.5 These provisions for Committee deliberations do not supersede a decision by an agency specifically assigned that responsibility under an Interim Measure.

6. Support for Committee Decisions

6.1 Committee members shall first use the Dispute Resolution process of Settlement Section 8.6 to resolve disputes arising from Committee deliberations.

6.2 If Dispute Resolution is unsuccessful and time allows, the IMIC may convene an independent science advisory panel. The IMIC may consider the recommendations of the independent science advisory panel to resolve the dispute.

6.3 All Committee members participating in a consensus decision will support PacifiCorp's defense of such decision in any forum where the decision is challenged and the member is participating, to the extent permitted by Applicable Law and consistent with Section 2.1.3 of the Settlement. For this purpose, participating means non-opposition and does not include absence.

APPENDIX C
Interim Conservation Plan (ICP) Interim Measures[2]

Interim Measure 2: California Klamath Restoration Fund / Coho Enhancement Fund

PacifiCorp shall establish a fund to be administered in consultation with the California Department of Fish and Wildlife (after providing notice and opportunity for comment to the State Water Resources Control Board and North Coast Regional Water Quality Control Board) and NMFS to fund actions within the Klamath Basin designed to enhance the survival and recovery of coho salmon, including, but not limited to, habitat restoration and acquisition. PacifiCorp has provided $510,000 to this fund in 2009 and shall continue to provide this amount of funding annually by January 31 of each subsequent year in which this funding obligation remains in effect. Subject to Section 6.1.1, this funding obligation shall remain in effect until the time of decommissioning of all of the Facilities in California.

Interim Measure 3: Iron Gate Turbine Venting

PacifiCorp shall implement turbine venting on an ongoing basis beginning in 2009 to improve dissolved oxygen concentrations downstream of Iron Gate dam. PacifiCorp shall monitor dissolved oxygen levels downstream of Iron Gate dam in 2009 and develop a standard operating procedure in consultation with NMFS for turbine venting operations and monitoring following turbine venting operations in 2009.

Interim Measure 4: Hatchery and Genetics Management Plan

Beginning in 2009, PacifiCorp shall fund the development and implementation of a Hatchery and Genetics Management Plan (HGMP) for the Iron Gate Hatchery. PacifiCorp, in consultation with the National Marine Fisheries Service and the California Department of Fish and Wildlife, will develop an HGMP for approval by NMFS in accordance with the applicable criteria and requirements of 50 C.F.R. § 223.203(b)(5). To implement the HGMP, PacifiCorp, in consultation with NMFS and CDFW, will develop and agree to fund an adequate budget. When completed, CDFW shall implement the terms of the HGMP at Iron Gate Hatchery in consultation with PacifiCorp and NMFS. Funding of this measure is in addition to the 100 percent funding described in Non-ICP Interim Measure 18.

Interim Measure 5: Iron Gate Flow Variability

In coordination with NMFS, USFWS, States and Tribes, PacifiCorp and Reclamation shall annually evaluate the feasibility of enhancing fall and early winter flow variability to benefit

[2] The complete ICP was filed at FERC on November 25, 2008 and includes some additional measures not reflected in this Appendix that are not part of this Settlement.

salmonids downstream of Iron Gate Dam, subject to both PacifiCorp's and Reclamation's legal and contractual obligations. In the event that fall and early winter flow variability can feasibly be accomplished, PacifiCorp, in coordination with NMFS, USFWS, and Reclamation will, upon a final Incidental Take Permit issued to PacifiCorp by NMFS becoming effective, annually develop fall and early winter flow variability plans and implement those plans. Any such plans shall have no adverse effect on the volume of water that would otherwise be available for the Klamath Reclamation Project or wildlife refuges.

Interim Measure 6: Fish Disease Relationship and Control Studies

PacifiCorp has established a fund in the amount of $500,000 in total funding to study fish disease relationships downstream of Iron Gate Dam. Research proposals will be solicited and agreed upon by PacifiCorp and NMFS for the purpose of determining that the projects are consistent with the criteria and requirements developed by PacifiCorp and NMFS in the ESA review process applicable under Settlement Section 6.2. PacifiCorp will consult with the Klamath River Fish Health Workgroup regarding selection, prioritization, and implementation of such studies, and such studies shall be consistent with the standards and guidelines contained in the Klamath River Fish Disease Research Plan and any applicable recovery plans.

APPENDIX D
Non-ICP Interim Measures[3]

Interim Measure 7: J.C. Boyle Gravel Placement and/or Habitat Enhancement

Beginning on the Effective Date and continuing through decommissioning of the J.C. Boyle Facility, PacifiCorp shall provide funding of $150,000 per year, subject to adjustment for inflation as set forth in Section 6.1.5 of the Settlement, for the planning, permitting, and implementation of gravel placement or habitat enhancement projects, including related monitoring, in the Klamath River above Copco Reservoir.

Within 90 days of the Effective Date, PacifiCorp, in consultation with the IMIC, shall establish and initiate a process for identifying such projects to the Committee, and, upon approval of a project by the Committee, issuing a contract or providing funding to a third party approved by the Committee for implementation of the project.

The objective of this Interim Measure is to place suitable gravels in the J.C. Boyle bypass and peaking reach using a passive approach before high flow periods, or to provide for other habitat enhancement providing equivalent fishery benefits in the Klamath River above Copco Reservoir.

Interim Measure 8: J.C. Boyle Bypass Barrier Removal

Within 90 days of the Effective Date, PacifiCorp, in consultation with the Committee, shall commence scoping and planning for the removal of the sidecast rock barrier located approximately three miles upstream of the J.C. Boyle Powerhouse in the J.C. Boyle bypass reach. In accordance with a schedule approved by the Committee, PacifiCorp shall obtain any permits required for the project under Applicable Law and implement removal of the barrier. If blasting will be used, PacifiCorp shall coordinate with ODFW to ensure the work occurs during the appropriate in-water work period. The objective of this Interim Measure is to provide for the safe, timely, and effective upstream passage of Chinook and coho salmon, steelhead trout, Pacific lamprey, and redband trout.

Interim Measure 9: J.C. Boyle Powerhouse Gage

Upon the Effective Date, PacifiCorp shall provide the U.S. Geological Survey (USGS) with continued funding for the operation of the existing gage below the J.C. Boyle Powerhouse (USGS Gage No. 11510700). Funding will provide for continued real-time reporting capability for half-hour interval readings of flow and gage height, accessible via the USGS website.

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[3] The Parties agree that PacifiCorp will implement the interim measures as provided in this Appendix. Pursuant to Section 7.3.6 of the Settlement, if the Parties determine that the schedule for Facilities Removal must extend beyond December 31, 2020, then the Parties shall consider whether modification of Interim Measures is necessary to appropriately balance costs to customers and protection of natural resources based on circumstances at that time.

PacifiCorp shall continue to provide funding for this gage until the time of decommissioning of the J.C. Boyle Facility.

Interim Measure 10: Water Quality Conference

PacifiCorp shall provide one-time funding of $100,000 to convene a basin-wide technical conference on water quality within one year from the Effective Date of this Settlement. The conference will inform participants on water quality conditions in the Klamath River basin and will inform decision-making for Interim Measure No. 11, with a focus on nutrient reduction in the basin including constructed wetlands and other treatment technologies and water quality accounting. PacifiCorp, the North Coast Regional Water Quality Control Board, and the Oregon Department of Environmental Quality, will convene a steering committee to develop the agenda and panels.

Interim Measure 11: Interim Water Quality Improvements

The purpose of this measure is to improve water quality in the Klamath River during the Interim Period leading up to dam removal. The emphasis of this measure shall be nutrient reduction projects in the watershed to provide water quality improvements in the mainstem Klamath River, while also addressing water quality, algal and public health issues in Project reservoirs and dissolved oxygen in J.C. Boyle Reservoir. Upon the Effective Date of the Settlement until the date of the DRE's acceptance of the FERC surrender order, PacifiCorp shall spend up to $250,000 per year to be used for studies or pilot projects developed in consultation with the Implementation Committee regarding the following:

- Development of a Water Quality Accounting Framework
- Constructed Treatment Wetlands Pilot Evaluation
- Assessment of In-Reservoir Water Quality Control Techniques
- Improvement of J.C. Boyle Reservoir Dissolved Oxygen

Within 60 days of the DRE's acceptance of the FERC surrender order, PacifiCorp shall develop a priority list of projects in consultation with the Implementation Committee. The priority list will be informed by, among other things, the information gained from the specific studies conducted before the DRE's acceptance of the FERC surrender order and the information generated at the water quality conference specified in Interim Measure 10. Following the DRE's acceptance of the FERC surrender order, PacifiCorp shall provide funding of up to $5.4 million for implementation of projects approved by the Oregon Department of Environmental Quality (ODEQ) and the State and Regional Water Boards, and up to $560,000 per year to cover project operation and maintenance expenses related to those projects, these amounts subject to adjustment for inflation as set forth in Section 6.1.5 of this Settlement. Recognizing the emphasis on nutrient reduction projects in the watershed while also seeking to improve water

quality conditions in and downstream of the Project during the Interim Period, the Parties agree that up to 25 percent of the funding in this measure for pre-surrender-order-acceptance studies and post-surrender-order-acceptance implementation may be directed towards in-reservoir water quality improvement measures, including but not limited to J.C. Boyle.

Interim Measure 12: J.C. Boyle Bypass Reach and Spencer Creek Gaging

PacifiCorp shall install and operate stream gages at the J.C. Boyle Bypass Reach and at Spencer Creek. The J.C. Boyle Bypass Reach gaging station will be located below the dam and fish ladder and fish bypass outflow, but above the springs in order to record flow releases from J.C. Boyle Dam. The Spencer Creek gage will utilize an existing Oregon Water Resources Department gaging location. It is assumed that the required measurement accuracy will be provided using stage gaging at existing channel cross-sections with no need for constructed weirs. The installed stream gages shall provide for real-time reporting capability for half-hour interval readings of flow and gage height, accessible via an agreed-upon website, until such time as it is accessible on the USGS website. The Spencer Creek gage shall be installed in time to provide flow indication for Iron Gate Flow Variability (ICP Interim Measure 5). Both gages shall be installed and functional prior to September 1, 2010. Installation of the bypass gage, and measurement and maintenance shall conform to USGS standards. The Spencer Creek gage will be maintained according to USGS standards, as applicable.

Interim Measure 13: Flow Releases and Ramp Rates

PacifiCorp will maintain current operations including instream flow releases of 100 cubic feet per second (cfs) from J.C. Boyle Dam to the J.C. Boyle bypass reach and a 9-inch per hour ramp rate below the J.C. Boyle powerhouse prior to transfer of the J.C. Boyle facility.

Provided that if anadromous fish have volitional passage[4] to the J.C. Boyle bypass reach after removal or partial removal of the lower dams and before J.C. Boyle is transferred, PacifiCorp will operate J.C. Boyle as a run of river facility with a targeted ramp rate not to exceed two inches per hour, and flows will be provided in the J.C. Boyle bypass reach to provide for the appropriate habitat needs of the anadromous fish species. The operation will also avoid and minimize take of any listed species present. Daily flows through the J.C. Boyle powerhouse will be informed by reservoir inflow gages below Keno Dam and at Spencer Creek. Provided further that if anadromous fish have volitional passage upstream of Iron Gate Dam before the Copco Facilities are transferred, PacifiCorp will operate the remaining Copco Facility that is furthest downstream as a run of the river facility with a targeted ramp rate not to exceed two inches per hour and coordinate with NMFS and FWS to determine if any other flow measures are necessary

[4] Volitional passage shall not be deemed to have occurred if presence of anadromous fish is the result of anthropogenic placement of such fish above, within or below the J.C. Boyle Bypass Reach, including as a result of scientific studies, experiments or investigations, prior to removal of Facilities downstream of the J.C. Boyle Bypass Reach to the extent sufficient to provide fish passage past those Facilities.

to avoid or minimize take of any listed species present. In either event, flows in the respective bypass reaches will be based on species-specific habitat needs identified by the IMIC. The Parties agree that if dam removal occurs in a staged manner, J.C. Boyle is intended to be the last dam decommissioned. If, however, the FERC surrender order or Definite Plan directs a different sequence for Decommissioning and Facilities Removal, then the Parties shall Meet and Confer to identify adjustments necessary to implement Facilities Removal in a manner that is consistent with PacifiCorp's Economic Analysis.

Interim Measure 14: 3,000 cfs Power Generation

Upon approval by OWRD in accordance with Exhibit 1, PacifiCorp may divert a maximum of 3,000 cfs from the Klamath River at J.C. Boyle dam for purposes of power generation at the J.C. Boyle Facility prior to decommissioning of the facility. Such diversions shall not reduce the minimum flow releases from J.C. Boyle dam required of PacifiCorp under Interim Measure 13. The implementation of this interim measure shall not: reduce or adversely affect the rights or claims of the Klamath Tribes or the Bureau of Indian Affairs for instream flows; affect the operation of Link River dam or Keno Dam or any facility of the Klamath Reclamation Project; or otherwise adversely affect lake levels at Upper Klamath Lake, flows in Link River, or Keno reservoir elevations.

Interim Measure 15: Water Quality Monitoring

PacifiCorp shall fund long-term baseline water quality monitoring to support dam removal, nutrient removal, and permitting studies, and also will fund blue-green algae (BGA) and BGA toxin monitoring as necessary to protect public health. Funding of $500,000 shall be provided per year. The funding shall be made available beginning on April 1, 2010 and annually on April 1 until the time the dams are removed. Annual coordination and planning of the monitoring program with stakeholders will be performed through the Klamath Basin Water Quality Group or an entity or entities agreed upon by the Parties and in coordination with the appropriate water quality agencies. The Regional Board and ODEQ will take responsibility for ensuring that the planning documents will be completed by April 1 of each year. Monitoring will be performed by the Parties within their areas of regulatory compliance or Tribal responsibility or, alternatively, by an entity or entities agreed upon by the Parties. Monitoring activities will be coordinated with appropriate water quality agencies and shall be conducted in an open and transparent manner, allowing for participation, as desired, among the Parties and water quality agencies.

Significant disputes that may arise between the Parties, or with the Regional Board, regarding the monitoring plan content or funding will be resolved by the Implementation Committee, acting on input and advice, as necessary, from the water quality agencies. Notwithstanding the forgoing, the Oregon Department of Environmental Quality and the California State Water Resources Control Board shall make final decisions regarding spending of up to $50,000 dedicated to BGA and BGA toxin monitoring as necessary to protect public health.

Interim Measure 16: Water Diversions

PacifiCorp shall seek to eliminate three screened diversions (the Lower Shovel Creek Diversion – 7.5 cfs, Claim # S015379; Upper Shovel Creek Diversion – 2.5 cfs, Claim # S015381; and Negro Creek Diversion – 5 cfs, Claim # S015380) from Shovel and Negro Creeks and shall seek to modify its water rights as listed above to move the points of diversion from Shovel and Negro Creeks to the mainstem Klamath River. Should modification of the water rights be feasible, and then successful, PacifiCorp shall remove the screened diversions from Shovel and Negro creeks associated with PacifiCorp's water rights prior to the time that anadromous fish are likely to be present upstream of Copco reservoir following the breach of Iron Gate and Copco dams. To continue use of the modified water rights, PacifiCorp will install screened irrigation pump intakes, as necessary, in the Klamath River. The intent of this measure is to provide additional water to Shovel and Negro creeks while not significantly diminishing the water rights or the value of ranch property owned by PacifiCorp. Should costs for elimination of the screened diversions and installation of a pumping system to provide continued use of the water rights exceed $75,000 then the Parties will Meet and Confer to resolve the inconsistency.

Interim Measure 17: Fall Creek Flow Releases

Within 90 days of the Effective Date and during the Interim Period for the duration of its ownership while this Settlement is in effect, PacifiCorp shall provide a continuous flow release to the Fall Creek bypass reach targeted at 5 cfs. Flow releases shall be provided by stoplog adjustment at the diversion dam and shall not require new facility construction or the installation of monitoring equipment for automated flow adjustment or flow telemetry.

Additionally, if anadromous fish have passage to the Fall Creek following removal of the California dams, flows will be provided in the Fall Creek bypass reach to provide for the appropriate habitat needs of the anadromous fish species of any kind that are naturally and volitionally present in the Fall Creek bypass reach. Flows will be based on species specific habitat needs identified by the IMIC. The operation will also avoid and minimize take of any listed species present.

Interim Measure 18: Hatchery Funding

Beginning in 2010, PacifiCorp shall fund 100 percent of Iron Gate Hatchery operations and maintenance necessary to fulfill annual mitigation objectives developed by the California Department of Fish and Wildlife in consultation with the National Marine Fisheries Service and consistent with existing FERC license requirements. PacifiCorp shall provide funding of up to $1.25 million dollars per year for operations and maintenance costs, subject to adjustment for inflation as set forth in Section 6.1.5 of the Settlement. These operations and maintenance costs shall include a program for 25 percent fractional marking of chinook at the Iron Gate Hatchery facilities as well as the current 100 percent marking program for coho and steelhead. Labor and materials costs associated with the 25 percent fractional marking program (fish marking, tags, tag recovery, processing, and data entry) shall be included within these operations and

maintenance costs. This operations and maintenance funding will continue until the removal of Iron Gate Dam.

PacifiCorp will provide one-time capital funding of $1.35 million for the 25 percent fractional marking program. This funding will include the purchase of necessary equipment (e.g. electrical upgrades, automatic fish marking trailer, tags and a wet lab modular building for processing fish heads). PacifiCorp will ensure the automatic fish marking trailer is available for use by April 2011. PacifiCorp is not responsible for funding the possible transition to a 100 percent Chinook marking program in the future.

Interim Measure 19: Hatchery Production Continuity

Within six months of the Effective Date of the Settlement, PacifiCorp will begin a study to evaluate hatchery production options that do not rely on the current Iron Gate Hatchery water supply. The study will assess groundwater and surface water supply options, water reuse technologies or operational changes that could support hatchery production in the absence of Iron Gate Dam. The study may include examination of local well records and the feasibility of increasing the production potential at existing or new hatchery facilities in the basin.

Based on the study results, and within six months following the DRE's acceptance of the FERC surrender order, PacifiCorp will propose a post-Iron Gate Dam Mitigation Hatchery Plan (Plan) to provide continued hatchery production for eight years after the removal of Iron Gate Dam. PacifiCorp's eight- year funding obligation assumes that dam removal will occur within one year of cessation of power generation at Iron Gate Dam. If dam removal occurs after one year of cessation of power generation at Iron Gate Dam, then the Parties will Meet and Confer to determine appropriate hatchery funding beyond the eight years. PacifiCorp's Plan shall propose the most cost effective means of meeting hatchery mitigation objectives for eight years following removal of Iron Gate Dam. Upon approval of the Plan by the California Department of Fish and Wildlife or Oregon Department of Fish and Wildlife (as appropriate) and the National Marine Fisheries Service, PacifiCorp will begin implementation of the Plan. Plan implementation may include PacifiCorp contracting with the owners or administrators of other identified hatchery facilities and/or funding the planning, design, permitting, and construction of measures identified in the Plan as necessary to continue to meet mitigation production objectives. Five years after the start of Plan implementation, or as otherwise agreed by PacifiCorp, the California Department of Fish and Wildlife or Oregon Department of Fish and Wildlife (as appropriate) and the National Marine Fisheries Service, the CDFW or ODFW (as appropriate) and the NMFS shall meet to review the progress of Plan implementation. The five-year status review will also provide for consideration of any new information relevant to Plan implementation. Plan implementation shall ultimately result in production capacity sufficient to meet hatchery mitigation goals for the eight-year period being in place and operational upon removal of Iron Gate Dam.

Interim Measure 20: Hatchery Funding After Removal of Iron Gate Dam

After removal of Iron Gate Dam and for a period of eight years, PacifiCorp shall fund 100 percent of hatchery operations and maintenance costs necessary to fulfill annual mitigation objectives developed by the California Department of Fish and Wildlife in consultation with the National Marine Fisheries Service. The hatchery mitigation goals will focus on chinook production, with consideration for steelhead and coho, and may be adjusted downward from current mitigation requirements by the California Department of Fish and Wildlife and National Marine Fisheries Service, in consultation with the other Klamath River fish managers, in response to monitoring trends.

Interim Measure 21: BLM Land Management Provisions

Beginning in 2010 and continuing until Decommissioning of the J.C. Boyle facility, PacifiCorp shall fund land management activities by the Bureau of Land Management as specified in this interim measure. BLM will provide PacifiCorp an annual Work Plan for the management measures described below for road maintenance, invasive weed management, cultural resource management, and recreation. The Work Plan will include the status of Work Plan tasks from the prior year, a description of the prioritized tasks for the upcoming year, and their estimated costs. PacifiCorp or BLM will mutually establish the annual delivery date of the Work Plan taking into consideration fiscal and maintenance calendars and may request a meeting to coordinate the content of the plan. PacifiCorp will provide funding within 60 days of concurring with the Work Plan. Administrative services, environmental review or permitting efforts, if necessary, to implement actions under the funds shall not require additional PacifiCorp funding beyond the amounts specified below.

A. PacifiCorp shall provide up to $15,000 per year to BLM towards projects identified through the coordination process described above for the purpose of road maintenance in the Klamath Canyon. This funding will be used to annually maintain the access road from State Highway 66 to the J.C. Boyle Powerhouse and terminate at the BLM Spring Island Boat Launch. Remaining funds will be used to do non-recurring road maintenance work on roads within the Canyon as mutually agreed upon in writing by BLM and PacifiCorp.

B. PacifiCorp shall provide up to $10,000 per year to BLM for use by the Oregon Department of Agriculture (ODA) towards projects identified through the coordination process described above for the purpose of integrated weed management of invasive weed species along the road system and river corridor within the Klamath Canyon. Noxious weed control projects will be coordinated with Siskiyou County to ensure that weeds are controlled along the river corridor from the Oregon-California boundary to the top of Copco Reservoir.

C. PacifiCorp shall provide up to $10,000 per year to BLM towards projects identified through the coordination process described above for the management of the following 5 BLM cultural sites which are within, or partially within, the T1

terrace of the J.C. Boyle full flow reach: 35KL21/786, 35KL22, 35KL24, 35KL558, and 35KL577. Management of additional sites with these funds can occur with mutual written agreement between PacifiCorp and BLM.

D. PacifiCorp shall provide up to, but no more than, $130,000 in funding for the development and implementation of a Road Management Plan to be implemented during the Interim Period. The Road Management Plan shall be developed by BLM and PacifiCorp and will determine priorities for operation and maintenance, including remediation or restoration of redundant or unnecessary facilities, of the shared BLM/PacifiCorp road system within the Klamath River Canyon from J.C. Boyle Dam to the slack water of Copco Reservoir.

ACTIONS IN APPENDIX E HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

APPENDIX E
Elements for the Proposed Federal Legislation

Elements Related to the Klamath Basin Restoration Agreement

A. Confirm, ratify or approve as necessary to ensure the effectiveness of the Klamath Basin Restoration Agreement (KBRA), including any amendments approved by the Parties prior to enactment. Authorize and direct the Secretary of the Interior, Secretary of Commerce, and the Secretary of Agriculture or their designees to execute and implement the KBRA.

B. Confirm that execution of the KBRA by the Secretary of the Interior, Secretary of Commerce, and the Secretary of Agriculture or their designees is not a major federal action for purposes of the National Environmental Policy Act, 42 U.S.C. § 4321, and direct all Federal Agency Parties to comply with all applicable environmental laws in consideration and approval of actions in implementation of the KBRA following its execution.

C. Authorize Federal Agency Parties to enter into contracts, cooperative agreements, and other agreements in implementation of the KBRA; and authorize the acceptance and expenditure of non-federal funds or in-kind services for KBRA implementation.

D. Notwithstanding any other provision of law, enactment of the KBRA title of this legislation and implementation of KBRA will not restrict the Tribes' or other Parties' eligibility for or receipt of funds, or be construed as an offset against any obligations or existing funds, under any federal or state laws.

E. Establish in the Treasury the type and number of funds necessary for the deposit of appropriations and other monies, including donated funds, for implementation of the KBRA. Management of funds shall be in accordance with the KBRA. Monies donated by non-federal entities for specific purposes to implement the KBRA shall be expended for those purposes only and shall not be subject to appropriation.

F. Authorize appropriation of such sums as are necessary to carry out the programs, projects, and plans of the KBRA. Costs associated with any actions taken pursuant to this Agreement shall be non-reimbursable to Reclamation Project contractors.

G. Provide that the purposes of the Klamath Reclamation Project include irrigation, reclamation, domestic, flood control, municipal, industrial, power (as necessary to implement the KBRA), National Wildlife Refuge, and fish and wildlife. Nothing in the project purposes section of the legislation shall be deemed to create a water right or affect existing water rights or water right claims. The fish and wildlife and National Wildlife Refuge purposes of the Klamath Reclamation Project shall

not adversely affect the irrigation purpose of the Project, *provided* that the provisions regarding water allocations and delivery to the National Wildlife Refuges agreed upon in Section 15.1.2, including any additional water made available under Sections 15.1.2.E.ii and 18.3.2.B.v, of the Klamath River Basin Restoration Agreement are hereby deemed not to constitute an adverse effect upon the Klamath Reclamation Project's irrigation purpose. For purposes of the determination of water rights in the KBA, the purpose or purposes of the Klamath Reclamation Project shall be as existed prior to the enactment of this legislation; this provision shall be inapplicable upon the filing of Appendix E-1 to the KBRA.

H. Provide that: notwithstanding any other provision of law, the disposition of net revenues from the leasing of refuge lands within the Tule Lake National Wildlife Refuge and Lower Klamath National Wildlife Refuge, under section 4 of Public Law 88-567, 78 Stat. 850 (Sept. 2, 1964) (Kuchel Act) shall hereafter be:

1. Ten percent of said net revenues to Tule Lake Irrigation District, as provided in article 4 of Contract No. 14-06-200-5954 and section 2(a) of the Act of August 1, 1956;

2. Payment to Counties in lieu of taxes as provided in section 3 of Public Law 88-567;

3. Twenty percent of said net revenues directly, without further authorization, to the U.S. Fish and Wildlife Service, Klamath Basin Refuges, for wildlife management purposes on the Tule Lake National Wildlife Refuge and Lower Klamath National Wildlife Refuge;

4. Ten percent of said net revenues directly, without further authorization to Klamath Drainage District for operation and maintenance responsibility for the Reclamation water delivery and drainage facilities within the boundaries of both Klamath Drainage District and Lower Klamath National Wildlife Refuge exclusive of the Klamath Straits Drain, subject to Klamath Drainage District's assuming the U.S. Bureau of Reclamation's Operation and Maintenance duties for Klamath Drainage District (Area K) lease lands; and

5. The remainder shall be covered to the Reclamation fund to be applied as follows:

   (a) to operation and maintenance costs of Link River and Keno Dams; and

   (b) in any year where the remainder exceeds the actual costs in (a), for the Renewable Power Program in Section 17.7 of the KBRA or future capital costs of the Klamath Reclamation Project, pursuant to an expenditure plan submitted to and approved by the Secretary.

ACTIONS IN APPENDIX E HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

I. As applicable for the United States and the signatory Tribes:

1. Confirm the commitments made in the KBRA, including the Assurances in Section 15.3 of the KBRA, and that such commitments are effective and binding according to their terms.

2. Authorize the Tribes to issue the voluntary relinquishment and release of claims against the United States as provided in Section 15.3 of the KBRA.

3. Establish terms limiting the effect of the commitments of the United States and Tribes to only those provided in the KBRA.

4. Authorize and direct the Secretary to publish the notice identified in KBRA Sections 15.3.4.A or 15.3.4.C as applicable.

J. Provide for judicial review of a decision by the Secretary affecting rights or obligations created in Sections 15.3.5.C, 15.3.6.B.iii, 15.3.7.B.iii, 15.3.8.B, and 15.3.9 under the Administrative Procedure Act, 5 U.S.C. §§ 701-706.

K. Authorize the United States and the Klamath Tribes to enter into agreements consistent with Section 16.2 of the KBRA.

L. Provide that nothing in the KBRA title of the legislation shall: determine existing water rights, affect existing water rights beyond what is stated in the KBRA, create any private cause of action, expand the jurisdiction of state courts to review federal agency actions or determine federal rights, provide any benefit to a federal official or member of Congress, amend or affect application or implementation of the Clean Water Act, Endangered Species Act, Federal Land Management Policy Act, Kuchel Act (Public Law 88-567), National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), or supersede otherwise applicable federal law, except as expressly provided in the federal legislation.

M. The KBRA title of the legislation shall provide that the provisions of the KBRA are deemed consistent with 43 U.S.C. § 666.

N. Require that if the KBRA terminates, any federal funds provided to Parties that are unexpended must be returned to the United States, and any federal funds expended for the benefit of a Party shall be treated as an offset against any claim for damages by such Party arising from the Agreement.

ACTIONS IN APPENDIX E HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

Elements Related to the Klamath Hydroelectric Settlement Agreement

A. Authorize and direct the Secretary of the Interior (Secretary), Secretary of Commerce, and Federal Energy Regulatory Commission (FERC) to implement the Klamath Hydroelectric Settlement Agreement (KHSA).

B. Authorize and direct the Secretary to make the determination by March 31, 2012 as set forth in Section 3 of the KHSA: whether facilities removal will advance restoration of the salmonid fisheries of the Klamath Basin and is in the public interest, which includes but is not limited to consideration of potential impacts on affected local communities and Tribes.

C. Prohibit the Secretary from making the determination set forth in Section 3 of the KHSA if the conditions specified in Section 3.3.4 of the KHSA have not been satisfied.

D. Authorize and direct the Secretary, if the Secretarial determination provides for facilities removal, to designate as part of that determination a dam removal entity (DRE) with the capabilities and responsibilities set forth in Section 7 of the KHSA; the Secretary may designate either the Department of the Interior or a non-federal entity as the DRE, consistent with the requirements of Section 3.3.4.E of the KHSA.

E. Direct the Secretary to publish notification of the Secretarial Determination in the Federal Register.

F. Provide jurisdiction for judicial review of the Secretarial determination in the U.S. Court of Appeals for the 9th Circuit or the D.C. Circuit.

G. Authorize the DRE: to accept, expend and manage non-federal funds for facilities removal; to enter into appropriate agreements with the States of California and Oregon, Tribes, other public agencies, or others to assist in implementation of the KHSA; to develop a definite plan for facilities removal; to accept from PacifiCorp all rights, title, and other interests in the facilities upon providing notice that it is ready to commence with facilities removal; and to perform such removal, all as provided in Sections 4 and 7 of the KHSA.

H. Authorize and direct the DRE to seek and obtain necessary permits, certifications, and other authorizations to implement facilities removal, including but not limited to a permit under 33 U.S.C. § 1344.

I. Provide that Facilities Removal shall be subject to applicable requirements of State and local laws respecting permits, certifications and other authorizations, to the extent such requirements are consistent with the Secretarial determination and the Definite Plan, including the schedules for Facilities Removal.

J. Direct the Department of the Interior or the Non-Federal DRE to enter into a contract with PacifiCorp that provides that: upon transfer of title to the facilities, and until notified by the DRE to cease generation of electric power, PacifiCorp shall continue such generation, retain title to any and all power so generated by the facilities, and continue to use the output for the benefit of its retail customers under the jurisdiction of relevant state public utility commissions.

K. Authorize and direct the Secretary of the Interior, upon notice that the DRE is ready to perform removal of the J.C. Boyle development, to accept transfer of the Keno Dam from PacifiCorp, to be managed as a part of the Klamath Reclamation Project, as provided in Section 3.3.4.B and Section 7.5 of the KHSA.

L. Provide PacifiCorp with protection from liability as follows: "Notwithstanding any other federal, state, local law or common law, PacifiCorp shall not be liable for any harm to persons, property, or the environment, or damages resulting from either Facilities Removal or Facility operation arising from, relating to, or triggered by actions associated with Facilities removal, including but not limited to any damage caused by the release of any material or substance, including but not limited to hazardous substances."

M. Further provide: "Notwithstanding any other federal, state, local law or common law, no person or entity contributing funds for facilities removal pursuant to the KHSA shall be held liable, solely by virtue of that funding, for any harm to persons, property, or the environment, or damages arising from either facilities removal or facility operation arising from, relating to, or triggered by actions associated with facilities removal, including any damage caused by the release of any material or substance, including hazardous substances."

N. Further provide that: "Notwithstanding Section 10(c) of the Federal Power Act, this protection from liability preempts the laws of any State to the extent such laws are inconsistent with this Act, except that this Act shall not be construed to limit any otherwise available immunity, privilege, or defense under any other provision of law."

O. Further provide that the liability protections in Paragraphs L through N, above, shall take effect as they relate to any particular facility only upon transfer of title to that facility from PacifiCorp to the DRE.

P. Direct FERC to issue annual licenses authorizing PacifiCorp to continue to operate Project No. 2082 until PacifiCorp transfers title to the DRE, and provide that FERC's jurisdiction under the Federal Power Act shall terminate with respect to a given facility upon PacifiCorp's transfer of title for such facility to the DRE; if the facilities are removed in a staged manner, annual FERC license conditions applying to the facility being removed shall no longer be in effect, and PacifiCorp shall continue to comply with license conditions pertaining to any facility still in

place to the extent such compliance is not prevented by the removal of any other facility.

Q. Direct FERC to stay its proceeding on PacifiCorp's pending license application for Project No. 2082 as long as the KHSA remains in effect, and resume such proceeding, and take final action on the license application, only if the KHSA terminates; except that FERC will resume timely consideration of the pending FERC license application for the Fall Creek development within 60 days of the transfer of the Iron Gate Facility to the DRE.

R. Provide that if the KHSA terminates, the Secretarial Determination and findings of fact shall not be admissible or otherwise relied upon in FERC's proceedings on the license application.

S. Provide that on PacifiCorp's filing of an application for surrender of the Eastside and Westside developments of Project No. 2082 pursuant to Section 6.4.1 of the KHSA, FERC shall issue an appropriate order regarding partial surrender of the license specific to the Eastside and Westside developments, including any reasonable and appropriate conditions.

T. Provide that nothing in the KHSA title of the legislation shall: modify existing water rights; affect the rights of any Tribe; or supersede otherwise applicable federal law, except as expressly provided in the legislation.

APPENDIX F
Oregon Surcharge Act (as codified)

757.732 Definitions for ORS 757.732 to 757.744.

As used in ORS 757.732 to 757.744:

(1) "Agreement in principle" means the agreement signed November 13, 2008, by the states of Oregon and California, by the United States Department of the Interior and by PacifiCorp.

(2) "Allocated share" means the portion of PacifiCorp's costs assigned to this state under the interjurisdictional cost allocation methodology used by the Public Utility Commission for the purpose of establishing rates for PacifiCorp.

(3) "Customers" means the Oregon retail electricity customers of PacifiCorp.

(4) "Final agreement" means a successor agreement to the agreement in principle.

(5) "Klamath River dam" means the J.C. Boyle Dam located in Oregon, the Copco 1 Dam located in California, the Copco 2 Dam located in California or the Iron Gate Dam located in California. [2009 c.690 §2]

757.734 Recovery of investment in Klamath River dams.

(1) Not more than six months after the execution of a final agreement, the Public Utility Commission shall determine a depreciation schedule under ORS 757.140 for each Klamath River dam based on the assumption that the dam will be removed in 2020. The commission may change a depreciation schedule determined under this section at any time if removal of a dam will occur during a year other than 2020.

(2) The commission shall use the depreciation schedules prepared under this section to establish rates and tariffs for the recovery of Oregon's allocated share of undepreciated amounts prudently invested by PacifiCorp in a Klamath River dam. Amounts recoverable under this section include, but are not limited to:

(a) Return of investment and return on investment;
(b) Capital improvements required by the United States or any state for continued operation of the dam until dam removal;
(c) Amounts spent by PacifiCorp in seeking relicensing of the dam before July 14, 2009;
(d) Amounts spent by PacifiCorp for settlement of the issues of relicensing or removal of the dam; and
(e) Amounts spent by PacifiCorp for the decommissioning of the dam in anticipation of the dam's removal.

(3) If any amount specified under subsection (2) of this section has not been recovered by PacifiCorp before a dam is removed, the Public Utility Commission shall allow recovery of that amount by PacifiCorp in PacifiCorp's rates and tariffs. The commission shall allow the recovery without an amortization schedule if the impact of the recovery does not exceed one-half of one percent of PacifiCorp's annual revenue requirement. If the impact exceeds one-half of one percent of PacifiCorp's annual revenue requirement, the commission may establish an amortization schedule that limits the annual impact to one-half of one percent of PacifiCorp's annual revenue requirement. [2009 c.690 §3]

757.736 Surcharges for funding costs of removing Klamath River dams; judicial review.

(1) Not more than 30 days after the execution of a final agreement, PacifiCorp must file a copy of the final agreement with the Public Utility Commission along with full and complete copies of all analyses or studies that relate to the rate-related costs, benefits and risks for customers of removing or relicensing Klamath River dams and that were reviewed by PacifiCorp during the decision-making process that led to PacifiCorp's entering into the final agreement.

(2) PacifiCorp must include with the filing made under subsection (1) of this section tariffs for the collection of two nonbypassable surcharges from its customers for the purpose of paying the costs of removing Klamath River dams as described in subsection (11) of this section. Notwithstanding the commission's findings and conclusions under subsection (4) of this section, the commission shall require PacifiCorp to begin collecting the surcharges on the date that the filing is made under subsection (1) of this section, or on January 1, 2010, whichever is later, and PacifiCorp shall continue to collect the surcharges pending a final decision on the commission's order under subsection (4) of this section. The surcharges imposed under this section shall be:

(a) A surcharge for the costs of removing the J.C. Boyle Dam; and
(b) A surcharge for the costs of removing the Copco 1 Dam, the Copco 2 Dam and the Iron Gate Dam.

(3) The surcharges imposed under this section may not exceed the amounts necessary to fund Oregon's share of the customer contribution of $200 million identified in the agreement in principle. In addition, the total amount collected in a calendar year under both surcharges may not exceed more than two percent of PacifiCorp's annual revenue requirement as determined in PacifiCorp's last case under ORS 757.210 decided by the commission before January 1, 2010.

(4) Not more than six months after a filing is made under subsection (1) of this section, the commission shall conduct a hearing under ORS 757.210 on the surcharges imposed under this section, and shall enter an order setting forth findings and conclusions as to whether the imposition of surcharges under the terms of the final agreement results in rates that are fair, just and reasonable.

(5) Notwithstanding ORS 183.482 (1), jurisdiction for judicial review of any appeal of an order entered under subsection (4) of this section is conferred on the Supreme Court, and a person seeking judicial review of the order must file a petition for review with the Supreme Court in the manner provided by ORS 183.482. ORS 183.482 (3) does not apply to an order entered under subsection (4) of this section. If a petition for review is filed, the surcharges imposed under the terms of the final agreement shall remain in effect pending a final decision on the petition, but shall be refunded if the rates resulting from the surcharges are finally determined not to be fair, just and reasonable. A petition filed under this subsection must indicate on its face that the petition is filed pursuant to this subsection.

(6) The commission may not use any commercially sensitive information provided to the commission in a filing made under subsection (1) of this section for any purpose other than determining whether the imposition of surcharges under the terms of the final agreement results in rates that are fair, just and reasonable. Notwithstanding ORS 192.410 to 192.505, the commission may not release commercially sensitive information provided to the commission under this section, and shall require any person participating in a proceeding relating to the

surcharge to sign a protective order prepared by the commission before allowing the participant to obtain and use the information.

(7) The surcharges imposed under this section must be of a specified amount per kilowatt hour billed to retail customers, as determined by the commission. The amount of each surcharge shall be calculated based on a collection schedule that will fund, by December 31, 2019, Oregon's share of the customer contribution of $200 million identified in the agreement in principle. To the extent practicable, the commission shall set the surcharges so that total annual collections of the surcharges remain approximately the same during the collection period, and, when setting the rate for the surcharges, the commission shall account for the actual and expected changes in energy usage over the collection period and account for the actual and expected changes in interest rates on the collected funds over the collection period. The commission may change the collection schedule if a Klamath River dam will be removed during a year other than 2020.

(8) Except as provided in ORS 757.738 (2), all amounts collected under the surcharges imposed under this section shall be paid into the appropriate trust account established under ORS 757.738.

(9) If the commission determines at any time that amounts have been collected under this section in excess of those needed, or in excess of those allowed, the commission must:

(a) Direct the trustee of the appropriate trust account under ORS 757.738 to refund these excess amounts to customers or to otherwise use these amounts for the benefit of customers; or

(b) Adjust future surcharge amounts as necessary to offset the excess amounts.

(10) If one or more Klamath River dams will not be removed, the commission shall direct PacifiCorp to terminate collection of all or part of the surcharges imposed under this section. In addition, the commission shall direct the trustee of the appropriate trust account under ORS 757.738 to apply any excess balances in the accounts to Oregon's allocated share of prudently incurred costs to implement Federal Energy Regulatory Commission relicensing requirements. If any excess amounts remain in the trust accounts after that application, the Public Utility Commission shall order that the excess amounts be refunded to customers or otherwise be used for the benefit of customers in accordance with Public Utility Commission rules and policies.

(11) For the purposes of subsection (2) of this section, "the costs of removing Klamath River dams" includes costs of:

(a) Physical removal of the dams;
(b) Site remediation and restoration;
(c) Avoiding downstream impacts of dam removal;
(d) Downstream impacts of dam removal;
(e) Permits that are required for the removal;
(f) Removal and disposal of sediment, debris and other materials, if necessary; and
(g) Compliance with environmental laws. [2009 c.690 §4; 2011 c.394 §1]

757.738 Surcharge trust accounts related to removal of Klamath River dams.

(1)(a) The Public Utility Commission shall establish a separate trust account for amounts generated by each of the two surcharges imposed under ORS 757.736. The commission shall establish the trust accounts as interest-bearing accounts:

(A) With an agency of the United States identified in the final agreement;

(B) In a depository that is qualified under ORS 295.001 to 295.108 to receive public funds; or

(C) With the State Treasurer, to be invested as provided in ORS 293.701 to 293.857.

(b) The commission may establish each of the two trust accounts with a different trustee among those listed in paragraph (a) of this subsection.

(c) The commission may authorize transfer of funds from one trust account to another as necessary to fund removal of the Klamath River dams.

(2) If an agreement is entered into under ORS 757.742 (2), the parties to the agreement may agree that a portion of the amounts collected under one surcharge may be deposited in the trust account established for amounts collected under the other surcharge.

(3) Upon request of an agency of the United States, or upon request of the designee of an agency of the United States, the commission shall require the trustee of the appropriate trust account established under this section to transfer to the agency or designee the amounts that are necessary to pay the costs of removing the Klamath River dams as described in ORS 757.736 (11).

(4) If any amounts remain in a trust account established under this section after the trustee makes all payments necessary for the costs of removing the Klamath River dams as described in ORS 757.736 (11), the commission shall direct the trustee of the account to refund those amounts to customers or to otherwise use the excess amounts for the benefit of customers. [2009 c.690 §5; 2011 c.394 §2]

757.740 Recovery of other costs incurred as result of changes in operation to or removal of Klamath River dams.

Pursuant to ORS 757.210, the Public Utility Commission shall allow PacifiCorp to include in its rates and tariffs this state's allocated share of any costs that are prudently incurred by PacifiCorp from changes in operation of Klamath River dams before removal of the dams, or that are prudently incurred for replacement power after the dams are removed, that are not otherwise recovered under ORS 757.734 and 757.736. [2009 c.690 §6]

757.742 Public Utility Commission authorization to enter agreement with California related to cost apportionment and trust fund.

(1) The State of Oregon may enter into an agreement with representatives of the State of California, either as part of a final agreement or by separate agreement, that establishes each state's share of the customer contribution of $200 million identified in the agreement in principle.

(2) The Public Utility Commission may enter into an agreement with representatives of the State of California to establish and administer the trust accounts authorized under ORS 757.738 and to ensure that trust account moneys are disbursed for dam removal costs that are necessary and appropriate. [2009 c.690 §7]

757.744 Disclaimers.

(1) ORS 757.732 to 757.744 do not authorize the expenditure of any public moneys for removal of Klamath River dams.

(2) ORS 757.732 to 757.744 do not create a cause of action against the State of Oregon or against any of the officers, employees or agents of the state and may not be used as the basis for an assertion of liability on the part of the State of Oregon or of any officers, employees or agents of the state. [2009 c.690 §8]

APPENDIX G-1
Water Bond Language (California)

CALIFORNIA BOND FUNDING APPROVED THROUGH VOTER APPROVAL OF THE WATER QUALITY, SUPPLY, AND INFRASTRUCTURE IMPROVEMENT ACT OF 2014 (PROPOSITION 1) IN NOVEMBER 2014.

ACTIONS IN APPENDIX G-2 HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

APPENDIX G-2
CEQA Legislation Language (California)

Uncodified Statute

Application of Division 13 of the Public Resources Code to activities and approvals related to the Klamath Basin, as more particularly described in two agreements between the United States, the State of California, the State of Oregon and other Klamath Basin Stakeholders, shall be limited as follows:

(a) The following activities related to restoration of the Klamath Basin are not a "project" as defined in Public Resources Code section 21065:

(1) Execution of the Klamath Hydroelectric Settlement Agreement;

(2) Execution of the Klamath Basin Restoration Agreement;

(3) A request to the California Public Utilities Commission to establish a surcharge to fund dam removal activities pursuant to the Klamath Hydroelectric Settlement Agreement, or the California Public Utilities Commission's action on such request.

(b) Division 13 of the Public Resources Code shall apply to the decision of whether to concur with the determination by the United States to remove any or all of the dams described in the Klamath Hydroelectric Settlement Agreement, whether to approve any projects that are proposed for approval pursuant to such determination and whether to approve any projects that are proposed pursuant to the Klamath Basin Restoration Agreement after its execution.

Environmental review prepared pursuant to this subdivision shall focus on the issues that are ripe for decision at the time of the concurrence and/or proposal, and from which later environmental review may tier. The Department of Fish and Game may be the lead agency for the environmental review of the decision of whether to concur in the determination by the United States described in this subdivision.

APPENDIX H
Calculation of Initial Customer Surcharge Target

APPENDIX H

Monthly Interest Estimator

Assumptions:

Green shaded cells drive table assumptions for Annual interest rate and Annual Spend Rate
After setting assumptions, adjust Total Target Collection to achieve $200M in cell G137

	Annual Collection	Total Target Collection
Annual Surcharge Collected Jan10 - Jun12	$ 17,200	$ 172,000
Annual Surcharge Collected Jul12 - Dec20	$ 17,200	
Annual Interest Rate	3.50%	

	Monthly Spend	Annual Spend
Cash Outflow10-12	0.00%	0.00%
Cash Outflow13-16	0.42%	5.00%
Cash Outflow17-19	0.83%	10.00%

Year	Beginning Balance	Cash Inflow	Cash Outflow	Interest Earned	Ending Balance	Collection Check	Interest Check
J-10	$ -	$ 1,433	$ -	$ 2	$ 1,435		
F-10	$ 1,435	$ 1,433	$ -	$ 6	$ 2,875		
M-10	$ 2,875	$ 1,433	$ -	$ 10	$ 4,319		
A-10	$ 4,319	$ 1,433	$ -	$ 15	$ 5,767		
M-10	$ 5,767	$ 1,433	$ -	$ 19	$ 7,219		
J-10	$ 7,219	$ 1,433	$ -	$ 23	$ 8,676		
J-10	$ 8,676	$ 1,433	$ -	$ 27	$ 10,136		
A-10	$ 10,136	$ 1,433	$ -	$ 32	$ 11,601		
S-10	$ 11,601	$ 1,433	$ -	$ 36	$ 13,071		
O-10	$ 13,071	$ 1,433	$ -	$ 40	$ 14,544		
N-10	$ 14,544	$ 1,433	$ -	$ 45	$ 16,022		
D-10	$ 16,022	$ 1,433	$ -	$ 49	$ 17,504	$ 17,200	$ 304
J-11	$ 17,504	$ 1,433	$ -	$ 53	$ 18,991		
F-11	$ 18,991	$ 1,433	$ -	$ 57	$ 20,481		
M-11	$ 20,481	$ 1,433	$ -	$ 62	$ 21,977		
A-11	$ 21,977	$ 1,433	$ -	$ 66	$ 23,476		
M-11	$ 23,476	$ 1,433	$ -	$ 71	$ 24,980		
J-11	$ 24,980	$ 1,433	$ -	$ 75	$ 26,488		
J-11	$ 26,488	$ 1,433	$ -	$ 79	$ 28,001		
A-11	$ 28,001	$ 1,433	$ -	$ 84	$ 29,518		
S-11	$ 29,518	$ 1,433	$ -	$ 88	$ 31,040		
O-11	$ 31,040	$ 1,433	$ -	$ 93	$ 32,566		
N-11	$ 32,566	$ 1,433	$ -	$ 97	$ 34,096		
D-11	$ 34,096	$ 1,433	$ -	$ 102	$ 35,631	$ 17,200	$ 927
J-12	$ 35,631	$ 1,433	$ -	$ 106	$ 37,170		
F-12	$ 37,170	$ 1,433	$ -	$ 111	$ 38,714		
M-12	$ 38,714	$ 1,433	$ -	$ 115	$ 40,262		
A-12	$ 40,262	$ 1,433	$ -	$ 120	$ 41,815		
M-12	$ 41,815	$ 1,433	$ -	$ 124	$ 43,373		
J-12	$ 43,373	$ 1,433	$ -	$ 129	$ 44,934		
J-12	$ 44,934	$ 1,433	$ 187	$ 133	$ 46,313		
A-12	$ 46,313	$ 1,433	$ 193	$ 137	$ 47,691		
S-12	$ 47,691	$ 1,433	$ 199	$ 141	$ 49,066		
O-12	$ 49,066	$ 1,433	$ 204	$ 145	$ 50,440		
N-12	$ 50,440	$ 1,433	$ 210	$ 149	$ 51,812		
D-12	$ 51,812	$ 1,433	$ 216	$ 153	$ 53,182	$ 17,200	$ 1,561
J-13	$ 53,182	$ 1,433	$ 222	$ 157	$ 54,551		
F-13	$ 54,551	$ 1,433	$ 227	$ 161	$ 55,918		
M-13	$ 55,918	$ 1,433	$ 233	$ 165	$ 57,283		
A-13	$ 57,283	$ 1,433	$ 239	$ 169	$ 58,647		
M-13	$ 58,647	$ 1,433	$ 244	$ 173	$ 60,008		
J-13	$ 60,008	$ 1,433	$ 250	$ 177	$ 61,368		
J-13	$ 61,368	$ 1,433	$ 256	$ 181	$ 62,727		
A-13	$ 62,727	$ 1,433	$ 261	$ 185	$ 64,083		
S-13	$ 64,083	$ 1,433	$ 267	$ 189	$ 65,438		
O-13	$ 65,438	$ 1,433	$ 273	$ 193	$ 66,792		
N-13	$ 66,792	$ 1,433	$ 278	$ 196	$ 68,143		
D-13	$ 68,143	$ 1,433	$ 284	$ 200	$ 69,493		
J-14	$ 69,493	$ 1,433	$ 290	$ 204	$ 70,841	$ 17,200	$ 2,192
F-14	$ 70,841	$ 1,433	$ 295	$ 208	$ 72,187		
M-14	$ 72,187	$ 1,433	$ 301	$ 212	$ 73,532		
A-14	$ 73,532	$ 1,433	$ 306	$ 216	$ 74,875		
M-14	$ 74,875	$ 1,433	$ 312	$ 220	$ 76,217		
J-14	$ 76,217	$ 1,433	$ 318	$ 224	$ 77,556		
J-14	$ 77,556	$ 1,433	$ 323	$ 228	$ 78,894		
A-14	$ 78,894	$ 1,433	$ 329	$ 232	$ 80,231		
S-14	$ 80,231	$ 1,433	$ 334	$ 236	$ 81,565		
O-14	$ 81,565	$ 1,433	$ 340	$ 239	$ 82,898		
N-14	$ 82,898	$ 1,433	$ 345	$ 243	$ 84,230		
D-14	$ 84,230	$ 1,433	$ 351	$ 247	$ 85,559	$ 17,200	$ 2,710
J-15	$ 85,559	$ 1,433	$ 356	$ 251	$ 86,887		
F-15	$ 86,887	$ 1,433	$ 362	$ 255	$ 88,213		
M-15	$ 88,213	$ 1,433	$ 368	$ 259	$ 89,538		
A-15	$ 89,538	$ 1,433	$ 373	$ 263	$ 90,861		
M-15	$ 90,861	$ 1,433	$ 379	$ 267	$ 92,182		
J-15	$ 92,182	$ 1,433	$ 384	$ 270	$ 93,502		
J-15	$ 93,502	$ 1,433	$ 390	$ 274	$ 94,820		
A-15	$ 94,820	$ 1,433	$ 395	$ 278	$ 96,136		
S-15	$ 96,136	$ 1,433	$ 401	$ 282	$ 97,451		
O-15	$ 97,451	$ 1,433	$ 406	$ 286	$ 98,764		
N-15	$ 98,764	$ 1,433	$ 412	$ 290	$ 100,075		

APPENDIX H

Year	Beginning Balance	Cash Inflow	Cash Outflow	Interest Earned	Ending Balance	Collection Check	Interest Check
D-15	$ 100,075	$ 1,433	$ 417	$ 293	$ 101,385	$ 17,200	$ 3,267
J-16	$ 101,385	$ 1,433	$ 422	$ 297	$ 102,693		
F-16	$ 102,693	$ 1,433	$ 428	$ 301	$ 104,000		
M-16	$ 104,000	$ 1,433	$ 433	$ 305	$ 105,304		
A-16	$ 105,304	$ 1,433	$ 439	$ 309	$ 106,608		
M-16	$ 106,608	$ 1,433	$ 444	$ 312	$ 107,909		
J-16	$ 107,909	$ 1,433	$ 450	$ 316	$ 109,209		
J-16	$ 109,209	$ 1,433	$ 455	$ 320	$ 110,507		
A-16	$ 110,507	$ 1,433	$ 460	$ 324	$ 111,804		
S-16	$ 111,804	$ 1,433	$ 466	$ 328	$ 113,099		
O-16	$ 113,099	$ 1,433	$ 471	$ 331	$ 114,392		
N-16	$ 114,392	$ 1,433	$ 477	$ 335	$ 115,684		
D-16	$ 115,684	$ 1,433	$ 482	$ 339	$ 116,974	$ 17,200	$ 3,816
J-17	$ 116,974	$ 1,433	$ 975	$ 342	$ 117,774		
F-17	$ 117,774	$ 1,433	$ 981	$ 344	$ 118,570		
M-17	$ 118,570	$ 1,433	$ 988	$ 346	$ 119,362		
A-17	$ 119,362	$ 1,433	$ 995	$ 349	$ 120,150		
M-17	$ 120,150	$ 1,433	$ 1,001	$ 351	$ 120,933		
J-17	$ 120,933	$ 1,433	$ 1,008	$ 353	$ 121,712		
J-17	$ 121,712	$ 1,433	$ 1,014	$ 356	$ 122,486		
A-17	$ 122,486	$ 1,433	$ 1,021	$ 358	$ 123,257		
S-17	$ 123,257	$ 1,433	$ 1,027	$ 360	$ 124,023		
O-17	$ 124,023	$ 1,433	$ 1,034	$ 362	$ 124,785		
N-17	$ 124,785	$ 1,433	$ 1,040	$ 365	$ 125,543		
D-17	$ 125,543	$ 1,433	$ 1,046	$ 367	$ 126,297	$ 17,200	$ 4,253
J-18	$ 126,297	$ 1,433	$ 1,052	$ 369	$ 127,047		
F-18	$ 127,047	$ 1,433	$ 1,059	$ 371	$ 127,793		
M-18	$ 127,793	$ 1,433	$ 1,065	$ 373	$ 128,534		
A-18	$ 128,534	$ 1,433	$ 1,071	$ 375	$ 129,272		
M-18	$ 129,272	$ 1,433	$ 1,077	$ 378	$ 130,005		
J-18	$ 130,005	$ 1,433	$ 1,083	$ 380	$ 130,735		
J-18	$ 130,735	$ 1,433	$ 1,089	$ 382	$ 131,461		
A-18	$ 131,461	$ 1,433	$ 1,096	$ 384	$ 132,183		
S-18	$ 132,183	$ 1,433	$ 1,102	$ 386	$ 132,900		
O-18	$ 132,900	$ 1,433	$ 1,108	$ 388	$ 133,614		
N-18	$ 133,614	$ 1,433	$ 1,113	$ 390	$ 134,324		
D-18	$ 134,324	$ 1,433	$ 1,119	$ 392	$ 135,031	$ 17,200	$ 4,568
J-19	$ 135,031	$ 1,433	$ 1,125	$ 394	$ 135,733		
F-19	$ 135,733	$ 1,433	$ 1,131	$ 396	$ 136,431		
M-19	$ 136,431	$ 1,433	$ 1,137	$ 398	$ 137,126		
A-19	$ 137,126	$ 1,433	$ 1,143	$ 400	$ 137,817		
M-19	$ 137,817	$ 1,433	$ 1,148	$ 402	$ 138,504		
J-19	$ 138,504	$ 1,433	$ 1,154	$ 404	$ 139,188		
J-19	$ 139,188	$ 1,433	$ 1,160	$ 406	$ 139,868		
A-19	$ 139,868	$ 1,433	$ 1,166	$ 408	$ 140,544		
S-19	$ 140,544	$ 1,433	$ 1,171	$ 410	$ 141,216		
O-19	$ 141,216	$ 1,433	$ 1,177	$ 412	$ 141,885		
N-19	$ 141,885	$ 1,433	$ 1,182	$ 414	$ 142,550		
D-19	$ 142,550	$ 1,433	$ 1,188	$ 416	$ 143,212	$ 17,200	$ 4,864
Ten-Year Totals		$ 172,000	$ 57,203	$ 28,415		$200,415	Total Surcharge Fund Collection

ACTIONS IN APPENDIX I HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

APPENDIX I
Study Process Guidelines

In providing the information to support the Secretarial Determination as set forth fully in Section 3 of the Settlement, the federal team will address three decisions to be made by the Secretary:

- Whether Facilities Removal can be completed within the State Cost Cap or an amount otherwise agreed to by the Parties,
- The "Secretarial Determination" of whether Facilities Removal will benefit the fisheries and will otherwise be in the public interest, and
- Whether Interior will be the Dam Removal Entity in the event of an Affirmative Determination.

Overall, the supporting analyses will, at a minimum, address the following:

- A cost estimate of Facilities Removal;
- Identification and management of risks and of foreseeable liabilities associated with Facilities Removal;
- The environmental effects of Facilities Removal;
- The impacts on local and Tribal communities; and
- An economic analysis.

This Appendix outlines the approach to complete the analyses needed to support the Secretarial Determination. The key discipline areas that need study and analysis for the Secretarial Determination fall into six categories, including:

- Engineering
- Sediment Composition, Fate and Transport
- Water Quality
- Fisheries
- Economics
- Liability and Risk Management

The study efforts will concentrate on these areas. However, if other key disciplines are identified in the process, they will be included. The Parties recognize that other studies and analyses are established in the existing record. The non-federal Parties agree to collaborate and provide recommendations for prioritized activities related to the Secretarial Determination for each of the six categories and shall communicate through the Technical Coordination Committee (TCC). See Appendix A. Such recommendations will include developing key questions or

objectives for the Secretarial Determination in order to provide context for the near-term priority studies and analyses. However, final decisions on studies and analyses remain at the Secretary's discretion.

ACTIONS IN APPENDIX J HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

APPENDIX J
Science Process

1. Introduction

The federal team agrees to an open and transparent science process for the 2012 Secretarial Determination and continuing through the subsequent phases, if there are any, leading up to Facilities Removal in the event of an Affirmative Determination. The goal of this science process is to provide for transparency and integrity in the preparation, identification, and use of scientific and technological information that supports the actions and decisions arising from the Settlement.

2. Description of Science in Settlement

For purposes of the Settlement,

Science Process means the essential technical studies undertaken that will support the Secretarial Determination and that will continue through subsequent phases up to Facilities Removal. Consistent with well-established scientific standards, the process shall seek to make reasonable, objective, accurate, technically appropriate use of data and analyses, including existing work, and not advocate or otherwise limit the analyses and conclusions of the studies to fit a predetermined outcome. The studies developed or used or the process used to review existing studies will be conducted in accordance with Memorandum on Scientific Integrity attached herein.

Sufficiency of Science means that all new studies and analyses undertaken, or any existing data sets or studies relied upon in whole or in part, shall be of high technical quality, scientifically defensible, and of sufficient depth and scope to support fully informed decision-making by the Secretary.

3. Application

The Secretary of the Interior will determine whether Facilities Removal should proceed.

Elements of the science process to be established to support the Secretarial Determination are described in the *Coordination Process for the Studies Supporting the Secretarial Determination (Appendix A)* and the peer review process outlined below. The Secretary and the federal team will also seek public input during the Secretarial Determination process.

For the Secretarial Determination there may be opportunities to include findings and raw data from previous studies conducted in the Klamath Basin that could reduce, minimize, or even eliminate the need for new data collection and studies. The federal team will coordinate with the Parties, through the TCC, to identify those important previous studies, current data gaps, and work plans as outlined in Section 1.A of Appendix A.

ACTIONS IN APPENDIX J HAVE BEEN COMPLETED OR ARE NO LONGER APPLICABLE

4. Peer Review Process

The federal parties will consider input from the Parties, through the TCC, and from the public regarding which studies should be peer reviewed. At the discretion of the Secretary, reports and data sets with the potential of having a major effect on the Secretarial Determination will be peer reviewed by subject-matter experts.

APPENDIX K
List of Authorized Representatives

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APPENDIX L
DRE and Contractor Qualifications, Insurance, Bonding, and Risk Mitigation Requirements

Part I: Contractor Qualifications

The DRE agrees to conduct a competitive procurement process, including price and qualifications, to select a contractor(s) to perform Facilities Removal and to provide risk mitigation as described below. The DRE further agrees that a contractor(s) must meet the following minimum qualifications:

1. Past performance in performing similar projects in scope, magnitude (complexity and size, such as but not limited to performance of work at multiple locations at the same time), and type (water way work; environmentally regulated);

2. Sufficient financial strength, including basic financial metrics such as corporate net worth and profitability;

3. Experience with federally-regulated permitting processes; and

4. Longevity in industry.

Part II: Insurance

The DRE agrees to follow, or to contract with a contractor(s) that will follow, the consolidated insurance program ("CIP") approach so the DRE, or the contractor(s) that it contracts with, will purchase the General Liability insurance and Worker's Compensation insurance for all the contractors involved in Facilities Removal. The DRE further agrees that it will obtain the support of a nationally established insurance advisor to assist with the design and implementation of the insurance program, and that as part of its best value evaluation and procurement of a contractor(s) that will perform Facilities Removal or provide liability protection or both, it will consider savings and other benefits obtained by selecting a contractor(s) that already has CIP infrastructure in place.

Unless the States and PacifiCorp agree otherwise, the DRE will obtain the following project-specific types of insurance policies, if applicable. The policy types and coverage limits ultimately obtained by the DRE to provide risk mitigation to the States and PacifiCorp are subject to the approval of the States and PacifiCorp in consultation with the Federal Parties:

1. Commercial General Liability ("CGL") policy to cover third-party property damage and third-party bodily injury that occurs from activity performed at the dam deconstruction site;

2. Workers Compensation / Employer's Liability / USL&H policy to provide coverage for injuries that occur on the dam deconstruction site to individual workers;

3. Builder's Risk / Inland Marine or Commercial Property policy to provide property coverage for damage to any equipment or components of the dam that will be restored or salvaged;

4. Automobile Liability policy to provide coverage for third-party property damage and third-party bodily injury for the auto fleet used related to the construction activities;

5. Umbrella Liability policy to provide excess coverage for General Liability and Automobile Liability;

6. Professional Liability policy to provide coverage to protect an insured if their client is financially harmed from the rendering of their professional services or advice (including lack thereof) and for which the insured is held legally liable;

7. Contractors Pollution Liability ("CPL") policy to provide third-party coverage for clean-up and remediation costs, bodily injury, property damage (including natural resource damages, loss of use and diminution in value) and legal defense expenses, as a result of pollution conditions arising from operations performed by or on behalf of the contractor; and

8. Fixed Site Pollution Liability ("PLL") policy to provide coverage for on-site & off-site clean-up/remediation costs, third-party claims for bodily injury and property damage (including natural resource damages, loss of use and diminution in value) and defense expenses and legal costs not otherwise addressed by the CPL (i.e. Pollution Conditions not caused or exacerbated by the contractors) and arising from Pollution Conditions on, at, under, migrating to and migrating from property owned or leased by the Insured.

The DRE further agrees that the insurance required above will include PacifiCorp, the State of Oregon, the State of California, and their respective officers, agents, employees, and members as additional insureds. As evidence of this required insurance coverage, the DRE will furnish a certificate or certificates of insurance including all of the foregoing coverage(s) to PacifiCorp and the States before any contract for Facilities Removal is effective and before Facilities Removal work begins. The following language shall be used for naming additional insureds:

> **ADDITIONAL INSURED: PacifiCorp, the State of Oregon, the State of California, and their respective officers, employees and agents are Additional Insureds for the CONTRACTOR's activities to be performed under this Contract. Coverage is primary and non-contributory with any other insurance and self-insurance.**

Part III: Bonding

The DRE agrees to provide, or to contract with entities that will provide, conventional performance and payment bonding, unless otherwise agreed to by the States, DRE, and

PacifiCorp, from a financially sound surety company to assure that Facilities Removal will be performed as required:

1. Bid Bond;

2. Performance Bond (in an amount equivalent to original contract value); and

3. Payment Bond (in an amount equivalent to original contract value).

The DRE agrees to include PacifiCorp and the States as Third Party Beneficiaries in any contract with a contractor(s) that will perform Facilities Removal or any activities associated with Facilities Removal.

Part IV: Risk Mitigation

A. Contractual Indemnification

The DRE agrees to contract with a specialty corporate indemnitor ("Liability Transfer Corp.") to protect the States and PacifiCorp against any harm to persons, property, or the environment, or damages resulting from either Facilities Removal or Facility operation arising from, relating to, or triggered by actions associated with Facilities Removal, including but not limited to any damage caused by the release of any material or substance, including but not limited to hazardous substances that is not covered contractually or by insurance. Without limiting the generality of the foregoing, this liability protection must include protection from third-party diminution in value land or property claims to the extent not already covered by contractor(s) insurance or mitigation funding.

The Parties agree that the approval of a Liability Transfer Corp. is not subject to the provisions of Section 8.3 of this Settlement; *provided, however,* that the Parties further agree that the selection of a Liability Transfer Corp. will be subject to the approval of the States and PacifiCorp, in consultation with the Federal Parties, whose approval may not be unreasonably withheld.

PacifiCorp and the States agree that, in the selection of a Liability Transfer Corp., the following parameters constitute the minimum indicia of sufficiency:

1. Appropriate corporate capitalization as agreed to by the States and PacifiCorp;

2. Past performance in performing similar projects in scope, magnitude (complexity and size, such as but not limited to performance of work at multiple locations at the same time), and type (water way work; environmentally regulated);

3. Experience with federally regulated permitting processes; and

4. Longevity in industry.

The Parties agree that the DRE may contract with a Liability Transfer Corp. to provide contractual indemnification for the above-described risks, and further agree that the DRE may also transfer its ownership of the Facilities and Parcel B Lands, in whole or in part, to that entity.

The Parties further agree that the Liability Transfer Corp. will become a party to this Settlement before ownership of the Facilities, in whole or in part, is transferred to the Liability Transfer Corp.

EXHIBITS

EXHIBIT 1
Water Rights Agreement between PacifiCorp and the State of Oregon

The purpose of this Water Rights Agreement (Agreement) is to establish a process for the reauthorization and resolution of water rights and claims related to the Klamath Hydroelectric Project and for participation of state agencies in such process, in a manner consistent with the Klamath Hydroelectric Settlement Agreement dated February 18, 2010 (Settlement). Parties to this Agreement are PacifiCorp (the Company), and the State of Oregon by and through the following agencies: Oregon Water Resources Department (WRD), Oregon Department of Environmental Quality (DEQ), Oregon Department of Fish and Wildlife (ODFW), and the Hydroelectric Application Review Team (HART).

This Agreement between PacifiCorp and the State of Oregon will be included as an exhibit to the Klamath Hydroelectric Settlement Agreement; however, this Agreement has force and effect independent of the viability of the Klamath Hydroelectric Settlement Agreement.

I. Reauthorization and Expansion of Use under HE 180

The Company has filed an application with WRD to reauthorize its right to use 2500 cfs of water under HE No. 180 at J.C. Boyle powerhouse. Pursuant to Section 6.1.1 of the Settlement, the Company will perform certain interim measures and may, subject to the terms described below, divert a maximum of 3,000 cubic feet per second ("cfs") of water, for purposes of power generation at J.C. Boyle hydroelectric plant prior to the decommissioning and removal of the J.C. Boyle facility. This section addresses agreements between the Company and WRD related to this request.

A. Reauthorization of HE No. 180: The Company seeks to enlarge its water right by an amount up to 500 cfs more than the 2,500 cfs currently authorized under HE No. 180, pursuant to ORS 543A.145. The Company will provide written notice to WRD expressing its intent to enlarge its water right. If a reauthorized water right is issued by WRD, the priority date for the additional 500 cfs, if approved, shall be the date the Company filed the notice of intent to reauthorize HE No. 180, as provided in ORS 543A.145(3). Any reauthorized water right shall provide that use of any amount additional to the currently authorized 2,500 cfs may not occur following termination of the Settlement as provided in Section 8 of the Settlement, unless extended by mutual agreement of the Company and WRD. WRD will extend the expiration date of HE No. 180 as necessary to allow for completion of the reauthorization process, pursuant to ORS 543A.150(2).

The Parties agree that any reauthorized water right issued by WRD shall have an expiration date of December 31, 2020. The expiration date may be extended in accordance with applicable law.

The Parties agree that any reauthorized water right issued by WRD shall incorporate and require compliance with protocols developed pursuant to the

Settlement for: quantifying any additional flows in the Klamath River made available through implementation of the Klamath River Basin Restoration Agreement dated February 18, 2010; and for coordinating with the Company on the timing and manner of release of such flows.

B. Limited License: The Company may apply for a limited license for use of 500 cfs for hydroelectric purposes in addition to uses currently permitted by HE No. 180. The purpose of the application for a limited license is to obtain permission for use of water that the Company intends to request as part of its reauthorization application while the reauthorization application is pending before WRD. The Company's application for a limited license, WRD's review of and determination on the Company's application, and the terms of use of any limited license issued are subject to ORS 537.143 and applicable administrative rules. In addition, any limited license issued as a result of the Company's application is subject to the limitations described herein.

The Parties agree that use of water under this limited license will not have priority over any other water right exercised according to a permit, certificate, or adjudicated right subject to regulation by the watermaster, and shall be subordinate to all other authorized uses that rely upon the same source. The Parties agree that any limited license issued by WRD shall incorporate protocols developed pursuant to the Settlement for: quantifying any additional flows in the Klamath River made available through implementation of the Klamath River Basin Restoration Agreement dated February 18, 2010; and for coordinating with the Company on the timing and manner of release of such flows. If OWRD determines to issue a limited license pursuant to the Agreement, and the protocols developed pursuant to the Settlement have not been completed, OWRD will include in the limited license a condition that the protocols will be incorporated by reference upon their completion. Any limited license subsequently issued pursuant to the Agreement shall incorporate the protocols. In addition, any limited license issued by OWRD shall provide that use under the limited license may not occur following termination of the Settlement as provided in Section 8 of the Settlement, unless such use is mutually agreed to by the Company and WRD.

The Parties further agree that WRD may reconsider or revoke the limited license if the use is determined by WRD in a legal or administrative proceeding to be inconsistent with applicable law or policy. WRD will revoke the limited license upon issuance of a final order on the application for reauthorization if the reauthorization order contains an enlargement of HE No. 180 in the amount of 500 cfs, or if the reauthorization order contains an enlargement of HE No. 180 by an amount less than 500 cfs, WRD will revoke the limited license to the extent of the enlargement. The limited license will have a duration of not more than one year. Prior to the expiration of any limited license term, the Company may request the issuance of a new license for the same use, but the total duration of licenses issued for this use may not exceed five years. The Company agrees to

pay fees and expenses provided for in Oregon law and associated with a request for a limited license, pursuant to ORS 537.143 and OAR 690-340-0030.

II. Assignment of the Company's Water Rights and Claims; Conversion to Instream Water Rights

A. Background: The Company holds rights for the use of water for hydroelectric purposes as provided by HE 180 and Certificate 24508. In addition, the Company maintains Claim Nos. 167, 168 and 218 for use for hydroelectric purposes in the ongoing Klamath Basin Water Rights Adjudication. ORS 543A.305 provides for the "conversion" of a hydroelectric water right to an instream water right when use of the water ceases for the hydroelectric project.

B. HE 180: Within 365 days of December 31, 2020, or, if the J.C. Boyle power plant is still operating on that date, within 365 days after use of water under HE No. 180 ceases, or as otherwise provided by ORS 543A.305, the Company shall assign HE 180, or any right resulting from reauthorization of HE 180, to WRD for conversion to an instream water right pursuant to ORS 543A.305. WRD shall accept HE 180 "AS IS"; the Company expressly disclaims any representation or warranty concerning HE 180 or its convertibility to an instream water right. Prior to the assignment, the Company shall use reasonable efforts to avoid allowing HE 180 to become subject to forfeiture for non-use, and shall not otherwise intentionally jeopardize the validity of HE 180, and in times of water shortage the Company and WRD may agree with other existing water users to prorate water shortages notwithstanding relative priority dates. If the Company's historic use of water under HE 180 becomes a matter of dispute in a legal proceeding the Company shall cooperate with WRD in defending the validity of HE 180 by making reasonable efforts to provide documentation regarding the history of the use of water pursuant to HE 180.

C. Certificate 24508: Within 120 days after use of water under Certificate 24508 ceases, or as otherwise provided by ORS 543A.305, the Company shall assign Certificate 24508 to WRD for conversion to an instream water right pursuant to ORS 543A.305. WRD shall accept Certificate 24508 "AS IS"; the Company expressly disclaims any representation or warranty concerning Certificate 24508 or its convertibility to an instream water right. Prior to the assignment, the Company shall use reasonable efforts to avoid allowing Certificate 24508 to be forfeited for non-use, and shall not otherwise intentionally jeopardize the validity of Certificate 24508, and in times of water shortage the Company and WRD may agree with other existing water users to prorate water shortages notwithstanding relative priority dates. If the Company's historic use of water under Certificate 24508 becomes a matter of dispute in a legal proceeding the Company shall cooperate with WRD in defending the validity of Certificate 24508 by making reasonable efforts to provide documentation regarding the history of the use of water pursuant to Certificate 24508.

D. Klamath Basin Water Right Adjudication Claims 167 and 168: Within 120 days after use of water under Claims 167 and 168 ceases, pursuant to a final FERC order amending the license for Project No. 2082 to remove the Eastside and Westside power plants and appurtenant facilities on the Link River from the license, or a final FERC order accepting surrender of the license for Project No. 2082 as it pertains to the Eastside and Westside power plants, or as otherwise provided by ORS 543A.305, the Company shall assign Claims 167 and 168 as described herein. If rights based on either Claim 167 or 168 are determined to exist, and all appeals pertaining to either claim have been exhausted, the Company shall assign such right(s) to WRD. If the Findings of Fact and Order of Determination ("FFOD") for Claims 167 and 168 has not yet been issued in the Adjudication pursuant to ORS 539.130, or if the portion of the FFOD pertaining to either of these claims is still subject to appeal, the Company shall assign such claim(s) to ODFW. If assignment is made to ODFW, WRD will proceed with conversion as appropriate pursuant to ORS 543A.305, but ODFW will be responsible for further prosecution of Claims 167 and 168 in the Adjudication, unless WRD and ODFW agree to another course of action.

Prior to the assignment of Claims 167 or 168, or any rights recognized under Claims 167 or 168, the Company shall use reasonable efforts to avoid allowing Claims 167 or 168 to be deemed abandoned for non-use prior to adjudication; or for any rights recognized under Claims 167 and 168 in the FFOD, to avoid becoming subject to forfeiture for non-use, and shall not otherwise intentionally jeopardize the validity of Claims 167 or 168, except to the extent that the FERC annual license or Settlement requires flow regimes inconsistent with Claims 167 or 168, and in times of water shortage the Company and ODFW may agree with other existing water users to prorate water shortages notwithstanding relative priority dates. If the Company's historic use of water under Claims 167 or 168 becomes a matter of dispute in a legal proceeding, the Company shall cooperate with ODFW in defending the validity of Claims 167 or 168 by making reasonable efforts to provide documentation regarding the history of the use of water pursuant to Claims 167 or 168 prior to assignment. If conversion occurs, at the time of conversion the right(s) will be held by WRD as provided by ORS 543A.305. The Company shall cooperate with WRD by making reasonable efforts to provide historic documentation in aid of the conversion.

E. Klamath Basin Water Right Adjudication Claim 218: In the event the Company decides to permanently cease power generation at Fall Creek hydroelectric power plant in California, or decides not to exercise Claim 218 for power generation, within 365 days of permanent cessation of power generation or water diversion, or as otherwise provided by ORS 543A.305, the Company shall assign Claim 218 as described herein.

If rights based on Claim 218 are determined to exist, and all appeals pertaining to the claim have been exhausted, the Company shall assign such right(s) to WRD. If the Findings of Fact and Order of Determination ("FFOD") for Claim 218 has

not yet been issued in the Adjudication pursuant to ORS 539.130, or if the portion of the FFOD pertaining to Claim 218 is still subject to appeal, the Company shall assign Claim 218 to ODFW. If assignment is made to ODFW, WRD will proceed with conversion as appropriate pursuant to ORS 543A.305, but ODFW will be responsible for further prosecution of Claim 218 in the Adjudication, unless WRD and ODFW agree to another course of action. For the purposes of this Agreement, transfer of the Fall Creek hydroelectric power plant, along with Claim 218, to another entity shall not constitute permanent cessation of power generation; provided, that any transfer of the Fall Creek hydroelectric power plant will be governed by applicable law.

Prior to the assignment of Claim 218, or any rights recognized under Claim 218, the Company shall use reasonable efforts to avoid allowing Claim 218 to be deemed abandoned for non-use prior to adjudication; or for any rights recognized under Claim 218 in the FFOD, to avoid becoming subject to forfeiture for non-use, and shall not otherwise intentionally jeopardize the validity of Claim 218, except to the extent that the FERC annual license or Settlement requires flow regimes inconsistent with Claim 218, and in times of water shortage the Company and ODFW may agree with other existing water users to prorate water shortages notwithstanding relative priority dates. If the Company's historic use of water under Claim 218 becomes a matter of dispute in a legal proceeding, the Company shall cooperate with ODFW in defending the validity of Claim 218 by making reasonable efforts to provide documentation regarding the history of the use of water pursuant to Claim 218 prior to assignment. If conversion occurs, at the time of conversion the right(s) will be held by WRD as provided by ORS 543A.305. The Company shall cooperate with WRD by making reasonable efforts to provide historic documentation in aid of the conversion.

WRD shall accept Claim 218 "AS IS"; the Company expressly disclaims any representation or warranty concerning Claim 218 or its convertibility to an instream water right.

Nothing in this Section E is intended in any way to limit the Company's use of water under Claim 218.

III. The Company's Protests to State Instream Water Right Applications

Within 90 days of the sooner of: (1) assignment of the water rights or claims pursuant to Sections II.B through II.D of this Agreement; or (2) issuance of a final order in the Klamath Basin Adjudication pursuant to ORS 539.140 and 539.150 and completion of all appeals pertaining to the Company's Claims 167 and 168, and the Company's contests in Cases 282 and 286 of the Klamath Basin Adjudication, the Company agrees to withdraw with prejudice its protests to Instream Water Right Application Numbers 70094, 70812 and 70813. The withdrawal must be in writing in a form subject to the approval, not to be unreasonably withheld, of OWRD.

IV. Agency Reauthorization Costs

Under ORS 543A.405, the Company, as applicant for reauthorization of a hydroelectric project, must pay all expenses related to the review and decision of the HART incurred by any state agency participating in the HART that are not otherwise covered by the reauthorization fee paid under ORS 543A.415. The Company's application is for water rights reauthorization for the Klamath Project (HE 180, J.C. Boyle), located near Klamath Falls, Oregon. WRD, ODFW and DEQ will incur costs in connection with review of the Company's reauthorization application and during participation in federal studies under the Settlement, which studies may also form a basis for the HART's decision whether reauthorization and enlargement of the Company's water rights are in the public interest.

Pursuant to ORS 543A.405, the Company has requested an estimate of the anticipated costs to be incurred in processing and reviewing these applications. The costs to be paid by the Company under this Agreement and their estimate are attached to and incorporated into this Agreement as Appendix 1. For the period of September 1, 2009, through September 1, 2012, the HART estimates the costs for these activities to be :

Estimated costs from September 1, 2009 through September 1, 2012: (See Appendix 1)	$ 216,371.00
25% payment due upon signing:	$ 54,093.00

Under terms of this Agreement, the Company will make four payments of 25% each of the estimated costs of review according to the following schedule: The initial payment of 25% is to be made within 45 days of the signing of this Agreement, with the remaining three payments of 25% each to be made on or before October 1, 2010, July 1, 2011, and January 30, 2012. Payment shall be made to: Oregon Water Resources Department, 725 Summer Street NE, Suite A, Salem, OR 97301.

During the course of this Agreement, the Company will receive from HART, coordinated by the WRD, a quarterly report indicating cost reimbursement funds received under this Agreement and expenses charged against the project. The reports will be provided to the Company according to the regular report generation schedule of the HART. The report will display the revenue and expenses for each agency receiving funds under the Agreement. In addition, participating agencies will provide a quarterly status report to the Company that includes a summary of work performed. The Company may, at its discretion, request additional revenue and expense information from any agency receiving funds under this Agreement. If requested by the Company, agency parties to this Agreement will work with the Company to provide additional information concerning revenues and activities associated with charged expenses. WRD will only provide additional information for project revenues and expenditures incurred by it and is not responsible, nor is it within its scope, to audit the expenditures of other agencies. If the HART quarterly reporting becomes more that six (6) months delinquent, the Company may withhold payments specified above until quarterly reporting is made current.

If the costs of evaluating the applications exceeds the estimate provided herein, the HART members receiving funds under this Agreement shall comply with the provisions of ORS 543A.405(5). Additionally, if the total amount paid by the Company exceeds costs actually incurred by the agencies, the excess payment shall be refunded to the Company according to ORS 543A.405(5).

Costs paid by the Company under this Agreement are in addition to any other fee required by applicable law, including but not limited to the annual fee established under ORS 543.088. The Company's payment of costs under this Agreement does not create an obligation to pay the project-specific fee required under ORS 543.080 for agency oversight of measures included in the reauthorized water right, which fee shall be established in and payable under the reauthorized water right.

V. Other Terms

A. Reservations: Nothing in this Agreement is intended or shall be construed to affect or limit the authority or obligation of any Party to fulfill its constitutional, statutory, and regulatory responsibilities or comply with any judicial decision. Nothing in this Agreement shall be interpreted to require any Party to implement any action which is not authorized by applicable law or where sufficient funds have not been appropriated for that purpose. The Parties expressly reserve all rights not granted, recognized, or relinquished in this Agreement.

B. No Argument, Admission, or Precedent: This Agreement shall not be offered for or against a Party as argument, admission, or precedent regarding any issue of fact or law in any mediation, arbitration, litigation, or other administrative or legal proceeding, except that this Agreement may be used in any future proceeding to interpret or enforce the terms of this Agreement, consistent with applicable law. This Agreement may also be used by any Party in litigation by or against non-Parties to implement or defend this Agreement. This section shall survive any termination of this Agreement.

C. Successors and Assigns: This Agreement shall apply to, be binding on, and inure to the benefit of the Parties and their successors and assigns, unless otherwise specified in this Agreement. No assignment may take effect without the express written approval of the other Parties, which approval will not be unreasonably withheld.

D. Amendment: This Agreement may be amended in writing by all Parties still in existence, including any successors or assigns.

E. Dispute Resolution: The Parties agree to devote such resources as are needed and as can be reasonably provided to resolve any disputes arising under this Agreement expeditiously. Each Party shall bear its own costs for its participation in dispute resolution. If a dispute cannot be timely resolved informally, the Parties may elect to use a neutral mediator. Mediation shall not occur if the

Parties do not unanimously agree on use of a mediator, choice of mediator, and allocation of costs.

F. Remedies: This Agreement does not create a cause of action in contract for monetary damages for any alleged breach by any Party of this Agreement. The Parties reserve all other existing remedies.

G. Entire Agreement: This Agreement contains the complete and exclusive agreement among the Parties with respect to the subject matter thereof, and supersedes all prior discussions, negotiations, representations, warranties, commitments, offers, agreements in principle, and other writings among the Parties, with respect to its subject matter.

H. Severability: This Agreement is made on the understanding that each provision is a necessary part of the entire Agreement. However, if any provision of this Agreement is held by a regulatory agency or a court of competent jurisdiction to be invalid, illegal, or unenforceable: (i) the validity, legality, and enforceability of the remaining provisions of this Agreement are not affected or impaired in any way; and (ii) the Parties shall negotiate in good faith in an attempt to agree to another provision (instead of the provision held to be invalid, illegal, or unenforceable) that is valid, legal, and enforceable and carries out the Parties' intention to the greatest lawful extent under this Agreement.

I. Confidentiality: Disclosure of settlement communications pertaining to this Agreement shall be governed by the "Agreement for Confidentiality of Settlement Communications and Negotiations Protocol Related to the Klamath Hydroelectric Project" dated December 3, 2008.

J. Termination: This Agreement may be terminated at the sole discretion either of: (i) PacifiCorp, or (ii) WRD, DEQ, ODFW, and the HART collectively, in the event of termination of the Settlement.

K. No Third Party Beneficiaries: This Agreement is not intended to and shall not confer any right or interest in the public, or any member thereof, or on any persons or entities that are not Parties hereto, as intended or expected third party beneficiaries hereof, and shall not authorize any non-Party to maintain a suit at law or equity based on a cause of action deriving from this Agreement. The duties, obligations, and responsibilities of the Parties with respect to third parties shall remain as imposed under applicable law.

L. Elected Officials Not to Benefit: No Member of or Delegate to Congress, Resident Commissioner, or elected official shall personally benefit from this Agreement or from any benefit that may arise from it.

M. No Partnership: Except as otherwise expressly set forth herein, nothing contained in this Agreement is intended or shall be construed to create an association, trust,

partnership, or joint venture, or impose any trust or partnership duty, obligation, or liability on any Party, or create an agency relationship between or among the Parties or between any Party and any employee of any other Party.

N. Governing Law: This Agreement shall be governed by the laws of the State of Oregon. Any reference in this Agreement to any applicable law shall be deemed to be a reference to a statute or regulation, or successor, in existence as of the date of the action in question.

VI. Signatures

PacifiCorp

_____ Date: _____

by: _____

Oregon Water Resources Department

_____ Date: _____

by: _____

Oregon Department of Environmental Quality

_____ Date: _____

by: _____

Oregon Department of Fish and Wildlife

_____ Date: _____

by: _____

Approved As To Legal Sufficiency in Accordance With ORS 291.047

By: _____ Date: _____
Jesse D. Ratcliffe
Assistant Attorney General
Oregon Department of Justice

Appendix 1
Tasks and Cost Estimate

PacifiCorp Klamath Hydroelectric Project
Oregon Water Resources Department

September 1, 2009 through September 1, 2012

PROJECT/NUMBER: Klamath HE 180, PC 34, PC 35, PC667Klamath/FERC #2082

OWRD PROJECT PERSONNEL: Cost reimbursement primarily for a Natural Resource Specialist 4 (NRS-4) Limited oversight supervision provided by a Division Administrator. Administrative support provided by an Office Specialist 2 position.

Facility Engineer- FE-3		
Salary	Includes salary for 20% of an NRS-4 for first year and 10% for second and third years at $5985/mo	$28,728.00
Benefits (at 34% of base salary)	Includes benefits for NRS-4 position at 34%	$9,767.52
Services & Supplies	Includes training, facility rentals, telecommunications, printing & copying, and office supplies.	$4,309.20
Travel	Includes hotel, meals, private vehicle mileage, and state motor pool rental vehicle fees	$4,000.00
Subtotal	Sum of Salary, Benefits, Services, Supplies and Travel	$46,804.72
Agency Indirect (at 15% of Subtotal)	Includes administrative support such as budget, personnel, accounting, and payroll services; data services; and management oversight.	$7,020.71
Attorney General's Fees		$15,036.00
	Subtotal plus Overhead	**$68,861.43**

ODEQ Cost Estimate for Klamath Hydroelectric Project Activities: September 2009 - September 2012

1.1 Salaries		Period	3	Years	Total
1.2	**NRS 4**	FTE Estimate:		0.125	

COMPONENT	Monthly (1.0 FTE)	Per Project
Salary	$ 5,985	$ 26,933
Benefits	$ 2,644	$ 11,899
Services & Supplies	$ 1,162	$ 5,230
Agency Indirect	$ 1,674	$ 7,533
Program Indirect (LQ only)	$ -	$ -
Total	$ 11,466	$ 51,595

1.2	**Principle Executive Manager E (Step 9)**	FTE Estimate:	0.025

COMPONENT	Monthly (1.0 FTE)	Per Project
Salary	$ 7,585	$ 6,827
Benefits	$ 3,351	$ 3,016
Services & Supplies	$ 1,473	$ 1,326
Agency Indirect	$ 2,122	$ 1,909
Program Indirect (LQ only)	$ -	$ -
Total	$ 14,531	$ 13,078

1.3	**Office Specialist 2 (Step 9)**	FTE Estimate:	0.025

COMPONENT	Monthly (1.0 FTE)	Per Project
Salary	$ 3,018	$ 2,716
Benefits	$ 1,333	$ 1,200
Services & Supplies	$ 586	$ 527
Agency Indirect	$ 844	$ 760
Program Indirect (LQ only)	$ -	$ -
Total	$ 5,782	$ 5,203

Subtotal SALARY:	$69,875.82	$69,875.82

2.0 Travel

Destination	Trips/Yr	Mileage & Per Diem		
PDX	1	$300.75	$902.25	
Southern Oregon	1	$274.13	$822.38	
Northern California	1	$658.00	$1,974.00	
			==========	
		Subtotal TRAVEL:	$3,698.63	3,698.63

3.0 Attorney General

	Per Year	Per Project	
DOJ Costs		10,000.00	
		==========	
	Subtotal DOJ:	$10,000.00	$10,000.00
			==========
			==========
		Grand TOTAL:	83,574.44

Lodging	Meals	Nights per trip	Mileage per Trip	Total Costs	Destination
87	44	1	350	$300.75	Southern Oregon
116	49	1	225	$274.13	Portland
114	59	2	500	$658.00	Northern California (2 nights per)
				========	
			Total:	$1,232.88	

0.485	Mileage Rate	

Salary & Benefit Schedule

Salaries	
NRS4 Step 9	$5,985
PEME Step 9	$7,585
OS2 Step 9	$3,018
Indirect Costs	
Benefits	0.4418
S&S	0.1942
Agency Indirect	0.2797

Appendix 1
Tasks and Cost Estimate

OREGON DEPARTMENT OF FISH AND WILDLIFE
COST ESTIMATE

PROJECT/NUMBER: Klamath, FERC# 2082
ODFW PROJECT PERSONNEL: Cost reimbursement for the following personnel costs: Engineer, Water Rights Coordinator, District Fish Biologist, consulting, and AG assistance. Personnel not included in cost reimbursement agreement: High Desert Region Hydropower Biologist, regional staff, and program leaders.
PERIOD OF AGREEMENT: September 1, 2009 through September 1, 2012

Facility Engineer- FE-3		
Salary	Includes salary for .5 months of a Facility Engineer	$3,294
Benefits (at 39.9% of base salary)	Includes benefits for FE-3 position	$1,315
Services & Supplies	Includes training, facility rentals, telecommunications, printing & copying, and office supplies.	$494
Travel	Includes hotel, meals, private vehicle mileage, and vehicle rental fees	$659
Subtotal	Sum of Salary, Benefits, Services, Supplies and Travel	$5,762
Agency Indirect (at 22.74% of Subtotal)	Includes administrative support such as budget, personnel, accounting, and payroll services; data services; and management oversight.	1,310
Facility Engineer- FE-3 Total	Subtotal plus indirect	**$7,072**
Water Rights Coordinator		
Salary	Includes salary for .5 months of a WR Coordinator	$3,139
Benefits (at 40.84% of base salary)	Includes benefits for FE-3 position	$1,282
Services & Supplies	Includes training, facility rentals, telecommunications, printing & copying, and office supplies.	$471
Travel	Includes hotel, meals, private vehicle mileage, and vehicle rental fees	$628
Subtotal	Sum of Salary, Benefits, Services, Supplies and Travel	$5,520
Agency Indirect(at 22.74% of Subtotal)	Includes administrative support such as budget, personnel, accounting, and payroll services; data services; and management oversight.	1,255
Water Rights Coordinator- Total	Subtotal plus indirect	**$6,775**

District Fish Biologist		
Salary	Includes salary for 1.5 months of a NRS 3 District Biologist or assistant position	$8,936
Benefits (at 41.91% of base salary)	Includes benefits for position	$3,745
Services & Supplies	Includes training, facility rentals, telecommunications, printing & copying, and office supplies.	$1,340
Travel	Includes hotel, meals, private vehicle mileage, and vehicle rental fees	$1,787
Subtotal	Sum of Salary, Benefits, Services, Supplies and Travel	$15,809
Agency Indirect(at 22.74% of Subtotal)	Includes administrative support such as budget, personnel, accounting, and payroll services; data services; and management oversight.	$3,595
District Fish Biologist Total	Subtotal plus indirect	**$19,403**
Consulting Costs	Attorney General legal assistance regarding federal studies, NEPA, water rights, and HART reauthorization (1/3 of $30,000)	$10,000
	Private Consulting to review Study Results	$15,000
Consulting Costs Subtotal		**$25,000**
Agency Indirect (at 22.74% of Subtotal)		$5,685
Consulting Costs Total		**$30,685**
Total Agency Specific Cost		**$63,935**

EXHIBIT 2
Sequence of Performance Chart—KHSA

Action	Actor	Target Date	Section Reference
Enactment of Oregon Legislation (SB 76)	Oregon Legislature and Governor	Passed and signed.	2.3
Release of Public Review Draft	All Parties	September 30, 2009	N/A
Execution of Settlement	All Parties	February 18, 2010	8.2
Execution of Water Right Agreement between PacifiCorp and State of Oregon	PacifiCorp and OWRD	February 18, 2010	2.4.1
PacifiCorp implement ICP Interim Measures 2-6	PacifiCorp	Ongoing or upon Effective Date	Appendix C
PacifiCorp implement Non-ICP Measures 7 (funding), 9, 11 (studies), 13, 17, 21	PacifiCorp	Upon Effective Date	Appendix D
Parties designate representative for IMIC	Each party or category of parties	Within 30 days of Effective Date of Settlement	Appendix B Section 3.3
Parties, except ODEQ, request to the California SWRCB and the ODEQ that permitting and environmental review for PacifiCorp's licensing activities be held in abeyance during the Interim Period	All Parties except ODEQ	Within 30 days of the Effective Date	6.5
PacifiCorp applies for leases authorizing occupancy of submerged and submersible lands by the J.C. Boyle Dam, J.C. Boyle Powerhouse, and Keno Dam	PacifiCorp	Within 60 days of Effective Date of Settlement	2.5
PacifiCorp and the Secretary enter into contract to permit entry onto PacifiCorp lands	PacifiCorp and Interior	Within 3 months of Effective Date of Settlement	3.3.3

Action	Actor	Target Date	Section Reference
PacifiCorp convene IMIC	PacifiCorp	Within 3 months of Effective Date	Appendix B 4.1
PacifiCorp implement Non-ICP Interim Measures 7 (impl.), 8 (planning)	PacifiCorp	Within 90 days of Effective Date	Appendix D
PacifiCorp files Economic Analysis and requests the Oregon PUC to establish customer surcharges	PacifiCorp	Within 30 days of Effective Date	4.1.1.A, 7.3.9
PacifiCorp files Economic Analysis and requests the California PUC to establish customer surcharge	PacifiCorp	Within 30 days of Effective Date	4.1.1.B, 7.3.9
Parties except ODEQ request California SWRCB and ODEQ to hold permitting and environmental review in abeyance during Interim Period	Parties except ODEQ	Within 30 days of Effective Date	6.5
Enactment of Federal legislation	United States Congress	Legislation to be proposed within 90 days of Effective Date	2.1.1.A
Enactment of California Bond Measure	California Legislature and Voters	Passed in November 2009, to be voted on before March 31, 2012	4.1.2.A
Enactment of California CEQA Legislation	California Legislature; Governor	At the beginning of the next legislative session	2.1.1.C
States submit draft trustee instructions to PUCs	States in consultation with Federal Parties	Within 6 months of Effective Date	4.2.4.A
PacifiCorp implement Non-ICP Interim Measure 19 (study)	PacifiCorp	Within 6 months of Effective Date	Appendix D
PacifiCorp and IMIC develop protocol regarding KBRA flows	PacifiCorp and IMIC	Within 9 months of Effective Date	Appendix D Interim Measure 14

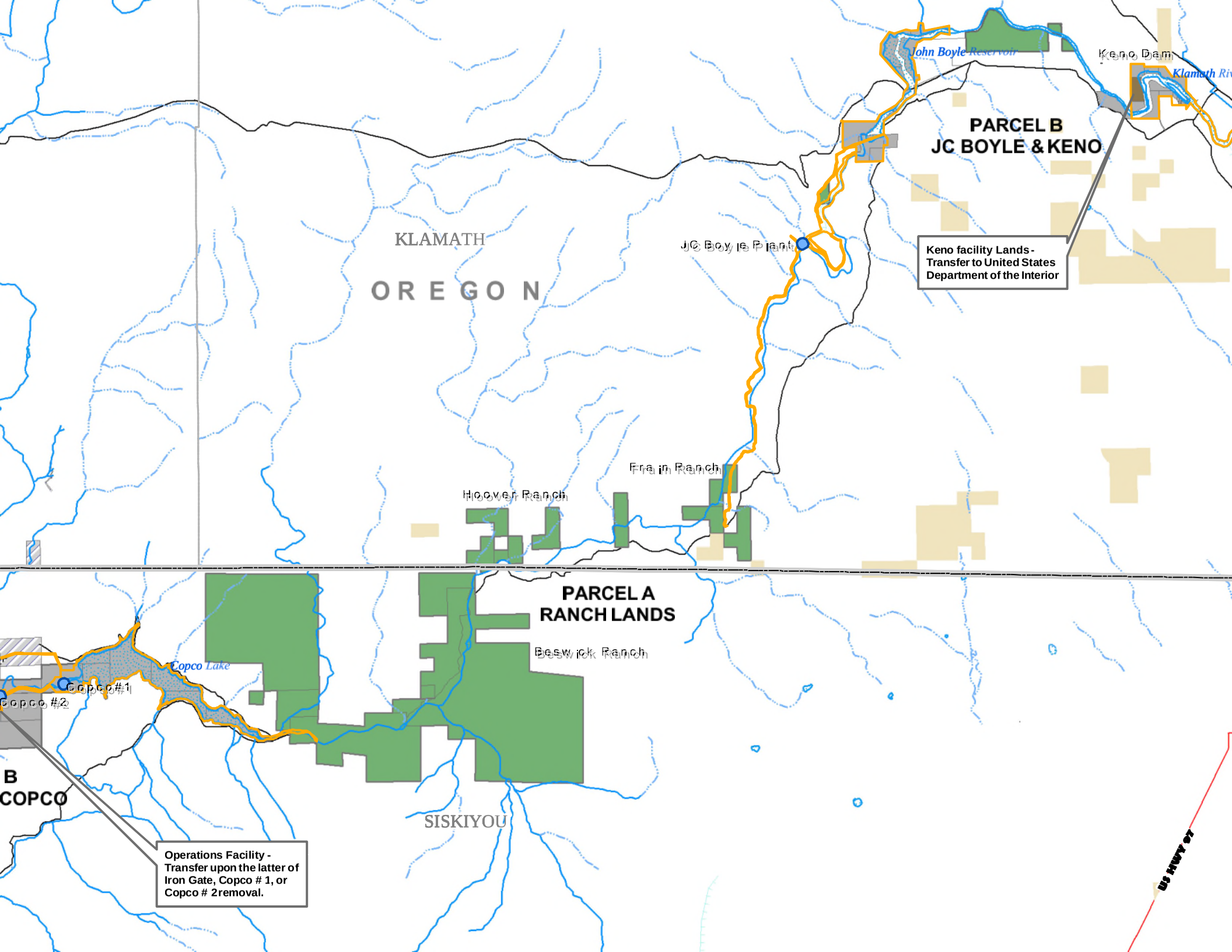
Action	Actor	Target Date	Section Reference
PacifiCorp implement Non-ICP Interim Measure 14	PacifiCorp	Upon OWRD approval	Appendix D
PacifiCorp submit TMDL Implementation Plans	PacifiCorp	Within 60 days of TMDL approval	6.3.2.A
PacifiCorp implement Non-ICP Interim Measure 18	PacifiCorp	Beginning in 2010	Appendix D
PacifiCorp implement Non-ICP Interim Measure 12	PacifiCorp	Before Sept.1, 2010	Appendix D
PacifiCorp implement Non-ICP Interim Measure 10	PacifiCorp	Within 1 year of Effective Date	Appendix D
PacifiCorp implement Non-ICP Interim Measure 15	PacifiCorp	Beginning Feb.1, 2010	Appendix D
PacifiCorp files Application for Partial Surrender of license to decommission East Side/West Side facilities	PacifiCorp	Within 6 months of enactment of federal legislation	6.4.1.A
Identify proposed transfer of Parcel B Lands	PacifiCorp and States	Before January 31, 2012	7.6.4.B
Identification of non-federal DRE, if applicable	Secretary of the Interior	Prior to issuance of the Secretarial Determination and DRE designation	3.3.4.E
California and Oregon Concurrence with non-federal DRE-designate, if any	California and Oregon	Prior to Secretarial Determination	3.3.5.A.iii
Secretarial Determination and DRE designation	Secretary of the Interior	March 31, 2012	3.2.5.A and 3.3.5.A
Release of Detailed Plan	Secretary of the Interior	On or before March 31, 2012	3.3.2
Oregon Concurrence with Affirmative Determination	State of Oregon	Within 60 days of publication of an Affirmative Determination in the Federal Register	3.3.5.A

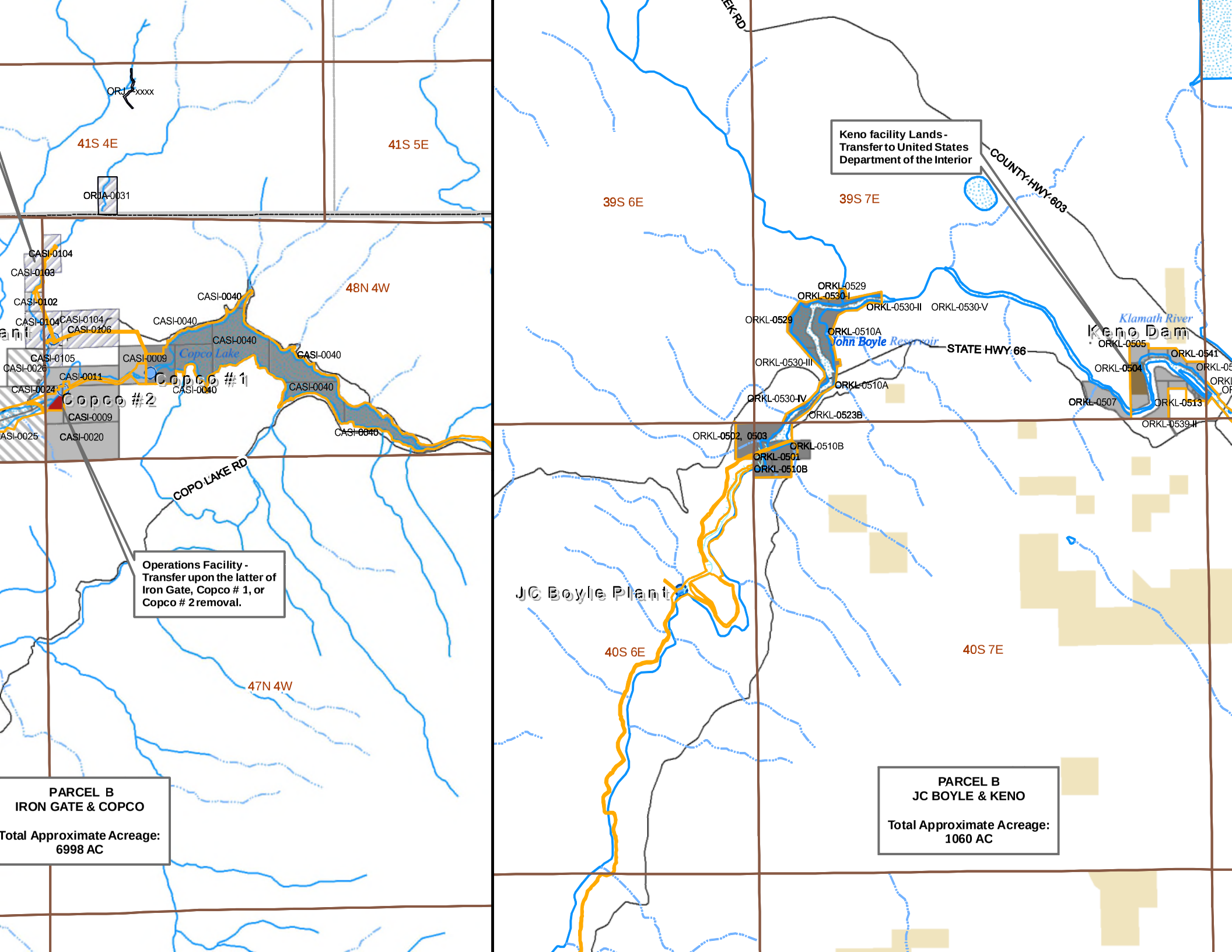
Action	Actor	Target Date	Section Reference
California Concurrence with Affirmative Determination	State of California	Within 60 days of publication of an Affirmative Determination in the Federal Register	3.3.5.A
States submit draft revised trustee instructions to PUCs	States in consultation with Federal Parties and DRE	Within 3 months of States' Concurrence on Affirmative Determination	4.2.4.B
PacifiCorp implement Non-ICP Interim Measure 8, 11	PacifiCorp	Upon Affirmative Determination	Appendix D
PacifiCorp implement Non-ICP Interim Measure 19	PacifiCorp	Within 6 months of Affirmative Determination	Appendix D
Parties Meet and Confer to establish schedule to implement Affirmative Determination and Detailed Plan and identify Value to Customers necessary to implement schedule	All Parties	Within 90 days of Affirmative Determination	7.3.4
DRE becomes Party to Settlement	DRE	Within 30 days of Notice from both States of their respective Concurrence with an Affirmative Determination	7.1.3
DRE and PacifiCorp enter into contract and permit of entry	DRE and PacifiCorp	After designation of a DRE	Legislation
DRE releases Definite Plan	DRE	Prior to applying for permits and authorizations for Facilities removal	7.2
Parties review the Definite Plan	All Parties	Within 60 days after the DRE provides Notice to the Parties of the completion of the Definite Plan	7.2.1.B and 2.1.4.C

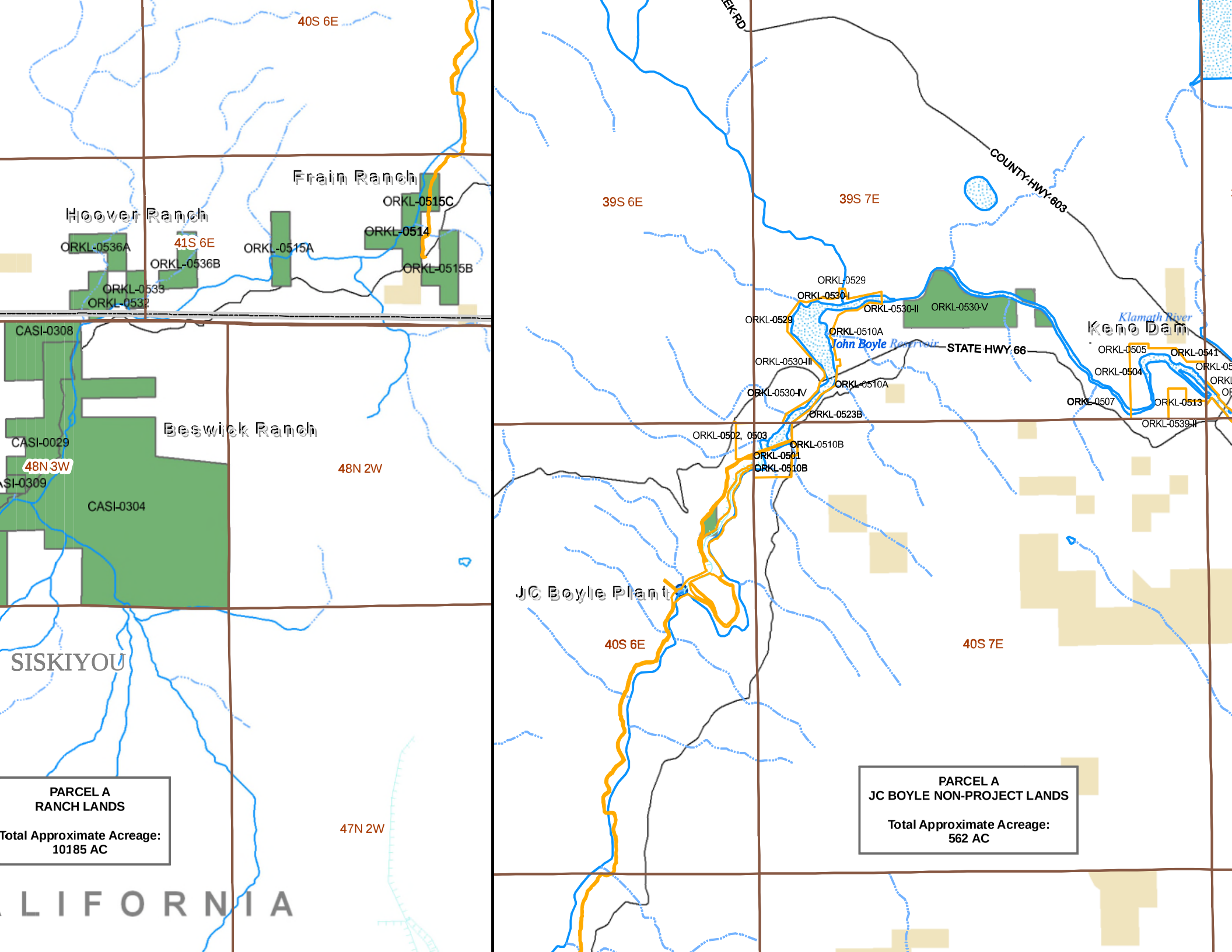
Action	Actor	Target Date	Section Reference
DRE provides Notice to Parties and FERC that Facilities Removal is ready to commence	DRE		7.4.1
PacifiCorp conveys Parcel B Lands	PacifiCorp	After DRE Notice that Facilities Removal is ready to commence	7.6.4.D
FERC issues Order approving transfer of the Iron Gate hatchery from PacifiCorp to CDFG	FERC	Within 60 days of transfer of Iron Gate Dam to DRE	Legislation
FERC resumes timely consideration of pending FERC licensing application for Fall Creek Development	FERC	Within 60 days of transfer of the Iron Gate Hatchery from PacifiCorp to CDFG	Legislation
PacifiCorp transfers title in the Facilities to the DRE	PacifiCorp	Per facility, upon receipt of DRE Notice that all permits and approvals have been obtained	7.4.2
Complete AIP for Keno transfer; complete Keno transfer agreement	Interior and PacifiCorp	June 11, 2011; March 31, 2012	7.5.2
PacifiCorp transfer Keno Development to the United States	PacifiCorp	At the time of transfer of J.C. Boyle	7.5.2
Commencement of Decommissioning	PacifiCorp	January 1, 2020	7.3.1
Completion of Facilities Removal	DRE	December 31, 2020	7.3.1
PacifiCorp assigns its hydroelectric water rights to OWRD for conversion to an instream water right	PacifiCorp	Per Exhibit 1	7.6.5.A
PacifiCorp submits a Revocation Request to California SWRCB and notification of intent to abandon its water rights	PacifiCorp	Within 90 days of completion of Facilities Removal at Copco No. 1, Copco No. 2 and Iron Gate Facilities	7.6.5.B
PacifiCorp implement Non-ICP Interim Measure 20	PacifiCorp	After removal of Iron Gate	Appendix D
PacifiCorp ceases hatchery funding	PacifiCorp	8 years following Decommissioning of Iron Gate Dam	7.6.6.A

Action	Actor	Target Date	Section Reference
PacifiCorp, KWAPA, and UKWUA enter into Billing Services Offset Agreement(s)	PacifiCorp, KWAPA, and UKWUA	Timely	5.2
Notify PacifiCorp of desire to commence billing credits	KWAPA / UKWUA	120 days before desired commencement	5.2.4
Provide PacifiCorp with names and other pertinent information re eligible customers	KWAPA / UKWUA	90 days before commencement of bill crediting system	5.2.4
File for any necessary regulatory approval of tariffs implementing bill crediting	PacifiCorp	Within 30 days of receiving names and eligible customers and other pertinent information	5.2.6
Enter agreements and provide notification re federal power	Interior, KWAPA, PacifiCorp	Timely	5.3

EXHIBIT 3
Maps


John Boyle Reservoir
Keno Dam
Klamath Ri
PARCEL B
JC BOYLE & KENO
KLAMATH
OREGON
JC Boyle Plant
Keno facility Lands - Transfer to United States Department of the Interior
Fremont Ranch
Hoover Ranch
PARCEL A
RANCH LANDS
Beswick Ranch
Copco Lake
Copco #1
Copco #2
B
COPCO
SISKIYOU
Operations Facility - Transfer upon the latter of Iron Gate, Copco # 1, or Copco # 2 removal.
US HWY 97


OR1-xxxx
41S 4E
41S 5E
OR1A-0031
CASI-0104
CASI-0103
CASI-0102
CASI-0104
CASI-0106
CASI-0105
CASI-0026
CASI-0011
CASI-0024
CASI-0025
CASI-0020
CASI-0009
CASI-0040
CASI-0009
Copco Lake
Copco #1
Copco #2
48N 4W
COPCO LAKE RD
Operations Facility - Transfer upon the latter of Iron Gate, Copco # 1, or Copco # 2 removal.
47N 4W
PARCEL B
IRON GATE & COPCO
Total Approximate Acreage:
6998 AC
39S 6E
39S 7E
Keno facility Lands - Transfer to United States Department of the Interior
COUNTY HWY 603
ORKL-0529
ORKL-0530-I
ORKL-0530-II
ORKL-0530-V
ORKL-0510A
John Boyle Reservoir
Klamath River
Keno Dam
STATE HWY 66
ORKL-0530-III
ORKL-0530-IV
ORKL-0523B
ORKL-0502, 0503
ORKL-0510B
ORKL-0501
ORKL-0505
ORKL-0504
ORKL-0507
ORKL-0513
ORKL-0541
ORKL-0539-II
JC Boyle Plant
40S 6E
40S 7E
PARCEL B
JC BOYLE & KENO
Total Approximate Acreage:
1060 AC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Frain Ranch
ORKL-0515C
Hoover Ranch
ORKL-0514
ORKL-0536A
41S 6E
ORKL-0515A
ORKL-0536B
ORKL-0515B
ORKL-0535
ORKL-0532
CASI-0308
CASI-0029
Beswick Ranch
48N 3W
48N 2W
CASI-0304
SISKIYOU
47N 2W
PARCEL A
RANCH LANDS
Total Approximate Acreage:
10185 AC
39S 6E
39S 7E
COUNTY-HWY-603
ORKL-0529
ORKL-0530-I
ORKL-0530-II
ORKL-0530-V
ORKL-0529
ORKL-0510A
John Boyle Reservoir
Klamath River
Keno Dam
STATE HWY 66
ORKL-0530-III
ORKL-0505
ORKL-0541
ORKL-0504
ORKL-0510A
ORKL-0530-IV
ORKL-0507
ORKL-0513
ORKL-0523B
ORKL-0539-II
ORKL-0502, 0503
ORKL-0510B
ORKL-0501
ORKL-0510B
JC Boyle Plant
40S 6E
40S 7E
PARCEL A
JC BOYLE NON-PROJECT LANDS
Total Approximate Acreage:
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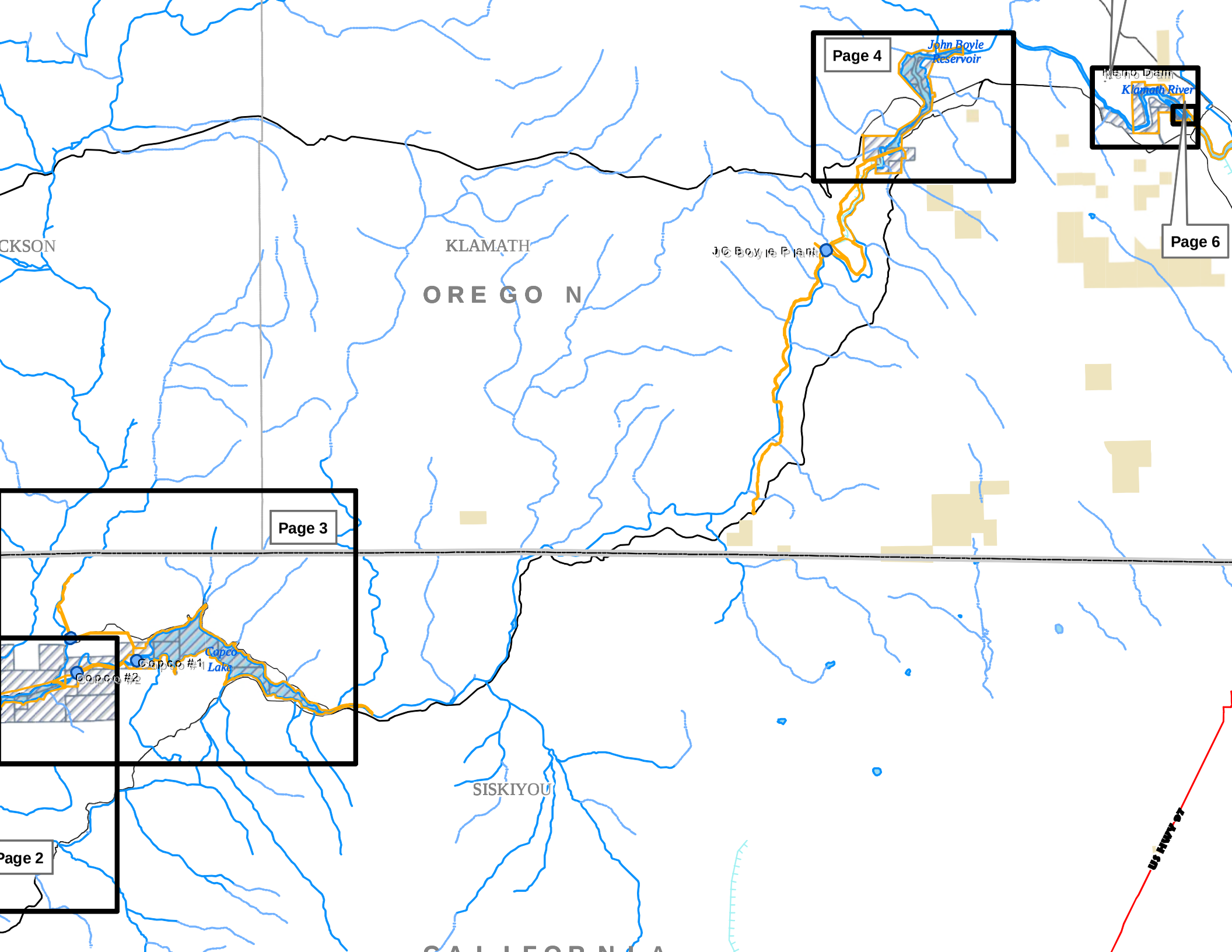
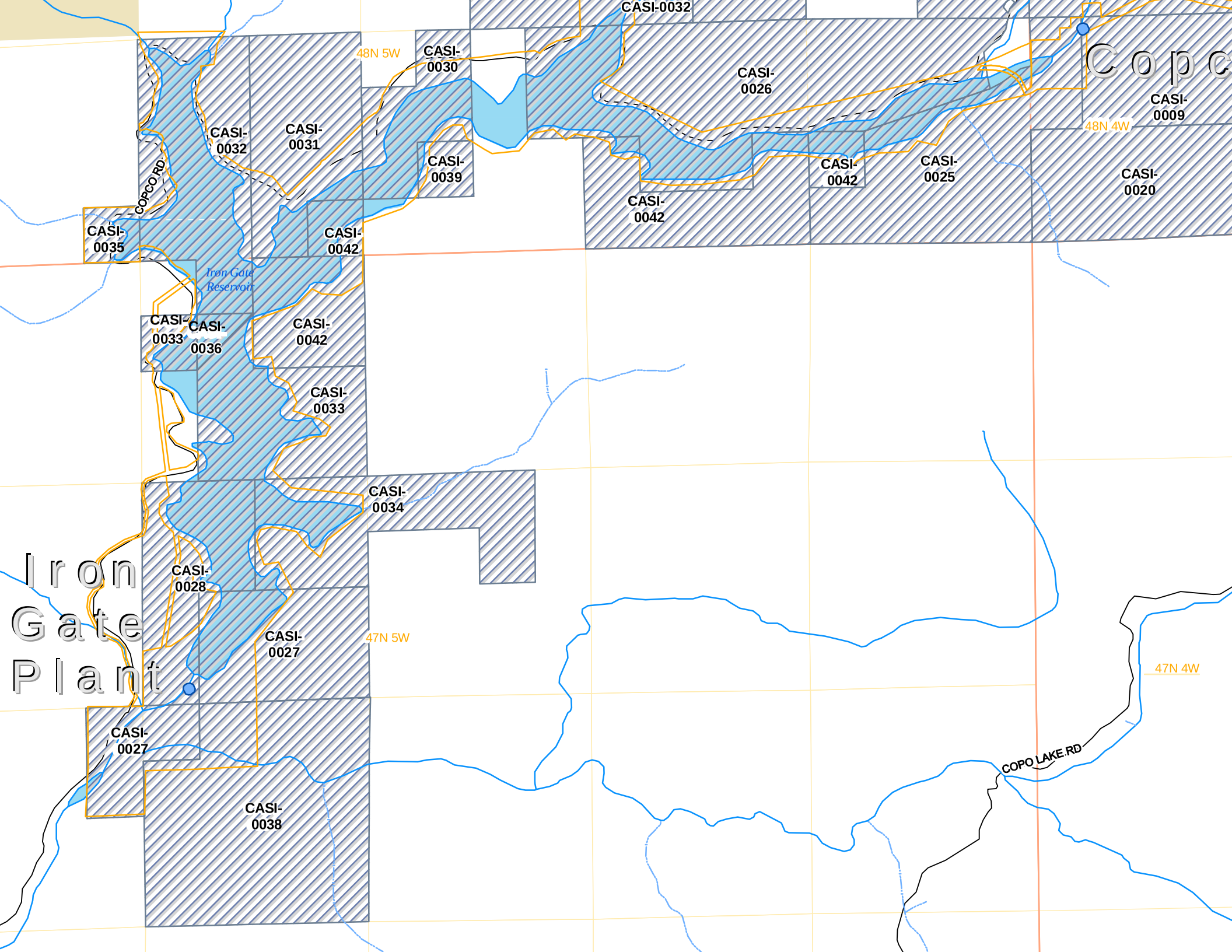

Page 4
John Boyle Reservoir
Iron Gate Dam
Klamath River
Page 6
CKSON
KLAMATH
OREGO N
JC Boyle Plant
Page 3
Copco #1
Copco #2
Copco Lake
Page 2
SISKIYOU
US HWY 97

as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. For complete validation, the source organization should be contacted or source documents consulted to verify the findings of this product.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CASI-0020
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CASI-0035
CASI-0042
Iron Gate Reservoir
CASI-0033
CASI-0036
CASI-0042
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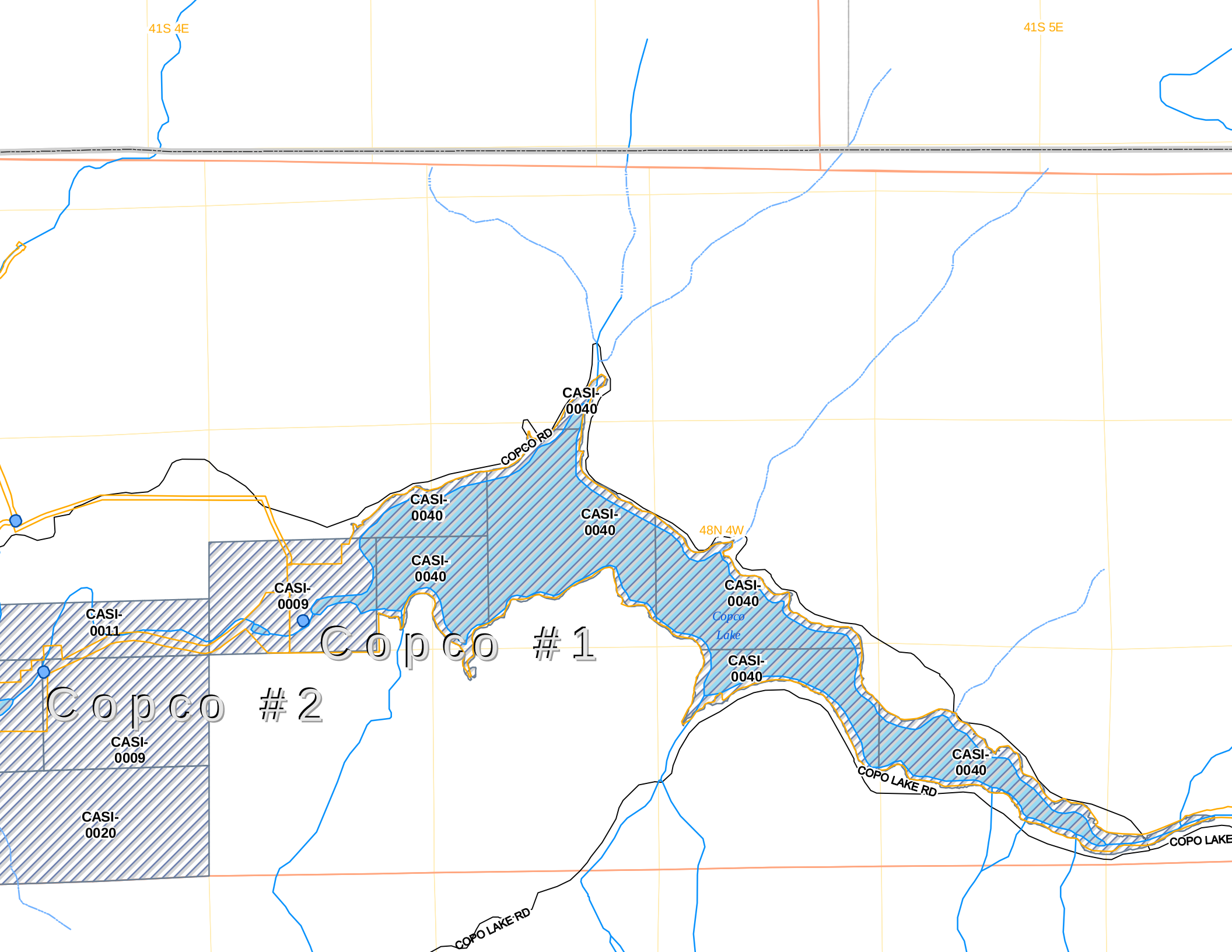
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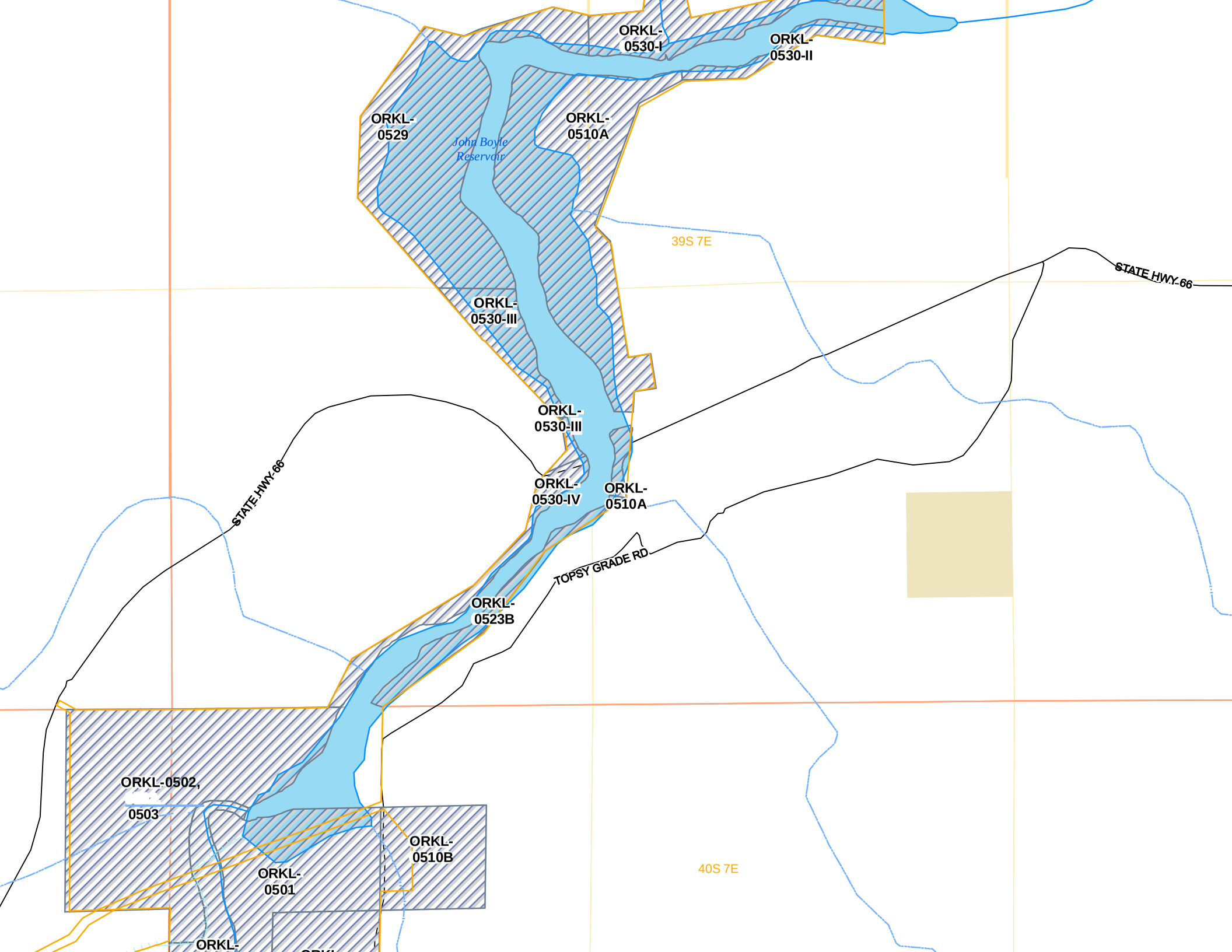
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ORKL-
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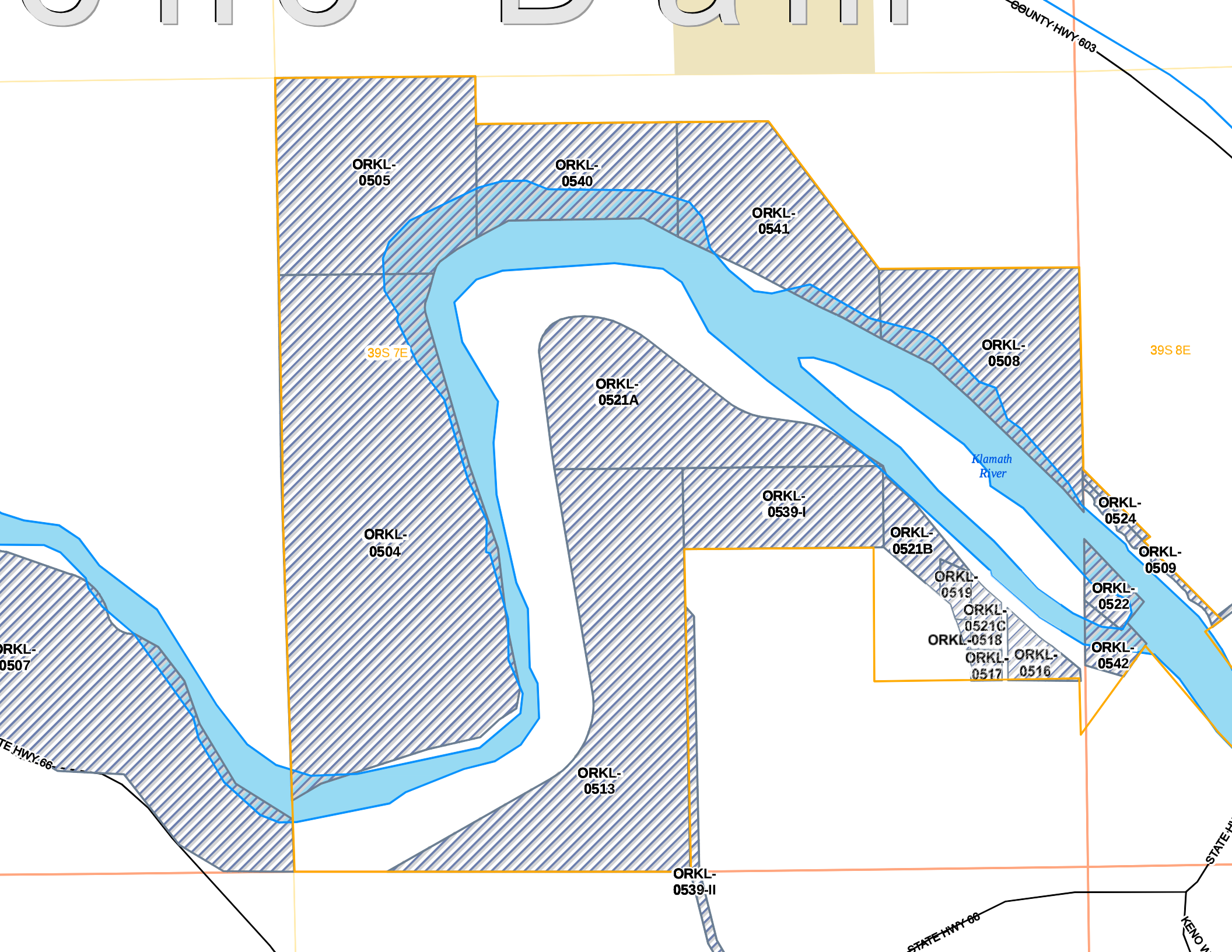
40S 7E
ORKL-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ORKL-0524
ORKL-0509
ORKL-0521B
ORKL-0519
ORKL-0522
ORKL-0521C
ORKL-0518
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ORKL-0542
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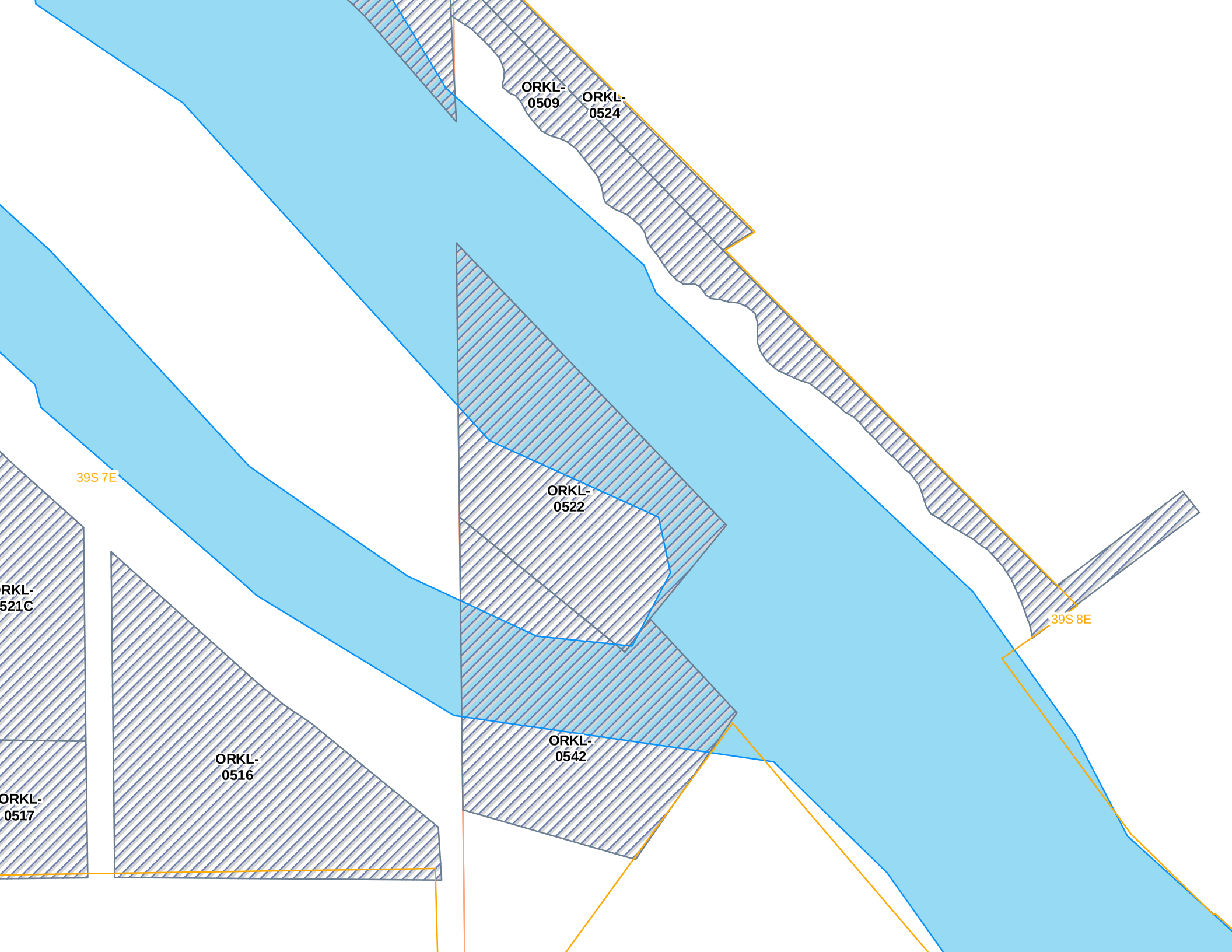
ORKL-0539-II
COUNTY HWY 603
STATE HWY 66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ORKL-
0542
ORKL-
0517

LEGAL DESCRIPTIONS OF PACIFICORP PARCEL B PROPERTIES

OREGON PARCELS

ORKL-0501

Lots five (5), six (6) and eight (8) of Section Six (6) in Township forty (40) South, range seven (7) east of the Willamette Meridian, containing eighty-five and 96/100 (85.96) acres;

ORKL-0502 and 0503

Lot one (1) and the southeast quarter of the northeast quarter of section one (1) in township forty (40) south, range six (6); and lots one (1), two (2), three (3) and four (4) of section six (6) in township forty (40) south, range seven (7) east of Willamette Meridian; excepting and reserving that certain railroad right of way heretofore sold to the Southern Pacific Railway Company, and fully set out and described in that certain deed dated September 27, 1909, recorded on October 4, 1909, at page 464 of volume 26 of the deed records of Klamath County, Oregon;

Also, all of the right, title and interest of the party of the first part in and to that certain instrument dated March 22, 1920, from Leon W. Anderson and Nellie L. Anderson, husband and wife, of Klamath County, State of Oregon, to Mercantile Trust Company, of San Francisco, California, which said document was recorded on April 1[illegible], 1920, in the office of the County Clerk of said Klamath County in Volume 52 of Deeds, page 327.

ORKL-0504

Lots One (1), Two (2) and Three (3) of Section Thirty-six (36), Township Thirty-nine (39) South, Range Seven (7) East, Willamette Meridian;

ORKL-0505

Government Lot 4 in Section 36, Township 39 South, Range 7 East of the Willamette Meridian, Klamath County, Oregon.

ORKL-0507

The SE1/4 SW1/4 and the SW1/4 SE1/4 and Government Lots 3, 4 and 5 in Section 35, Township 39 South, Range 7 East of the Willamette Meridian, Klamath County, Oregon; EXCEPTING THEREFROM that portion thereof described as Parcel 3 in that certain Warranty Deed from the California Oregon Power Company, a corporation, to Weyerhauser Timber Company, a corporation, recorded July 15, 1959 in Deed Volume 314, page 179, Deed Records of Klamath County, Oregon.

ORKL-0508

Government Lot 7 in Section 36, Township 39 South, Range 7 East of the Willamette Meridian, Klamath County, Oregon.

(road easement granted to Klamath County, 1-26-68)

ORKL-0509

The following described land being in Section 31, Township 39 South, Range 8 East, Willamette Meridian, Klamath County, Oregon.

Beginning at a point on the section line which bears South 111.4 feet from the quarter corner on the West boundary of Section 31, Township 39 South, Range 8 East, Willamette Meridian, Klamath County, Oregon; thence South 44°01' East 1316.7 feet to a point on the Northerly boundary line of Riverside Addition to the Town of Keno, Oregon; thence South 53°30 West 78.5 feet more or less, along the Northerly boundary of said Riverside Addition to the low water line on the North bank of the Klamath River; thence Northwesterly along the low water line of the North bank of the Klamath River down stream to a point on the West boundary line of said Section 31; thence 82.0 feet, more or less, North along said Section line to the point of beginning.

Together with a strip of land 40 feet wide extending along the Westerly line of Riverside Addition to Keno, Oregon, from the Northerly line of Broyles Avenue to the Northerly line of the above described premises.

Lot Eight (8),and Southwest quarter (SW¼) of section Twenty-nine (29),Township Thirty-nine (39) South,Range Seven (7) East of Willamette Meridian.

Lots Five (5) and Six (6) of section Thirty (30) Township Thirty-nine (39) South,Range Seven East of Willamette Meridian.

Lot Six (6) of section Thirty-one (31) Township Thirty-nine (39) South,Range Seven (7) East of Willamette Meridian.

Lots One (1) and Two (2),and Northeast quarter of Northwest quarter (NE¼NW¼),and North half of Northwest quarter (N½NE¼) section Thirty-two (32) in Township Thirty-nine (39) South,Range Seven (7) East of Willamette Meridian.also the following described parcels of land,to-wit:

(1) Commencing at a point Twenty (20) chains South of the corner of sections 28,29,32 and 33 marked by a stake marked ¼¼; thence West 45 links; thence South 34 degrees 65 minutes West 12.12 chains;thence South 56 degrees 30 minutes East 8.75 chains intersecting the North and south section line between sections 32, and 33; thence North 14.78 chains to point of beginning,containing 5.44 acres more or less.

(2) Beginning at a point twenty (20) chains South and Forty-five (45) links West of the corner of sections 28,29,32 and 33, thence West 19.55 chains to the Northwest corner of the Southeast quarter of Northeast quarter of section 32; thence South seven (7) chains; thence East parallel to the North line of said Southeast

quarter of Northeast quarter of section 32,14.81 chains; thence North 34,degrees 5,minutes East 8.45 chains to the place of beginning; all of said two parcels of land being in Section 32, Township Thirty nine (39) South, Range Seven (7) East of Willamette Meridian.

Northwest quarter of Northwest quarter (NW¼NW¼) and South half of Northwest quarter (S½NW¼) and North half of Southwest quarter (N½SW¼) of section Thirty-three (33) in Township Thirty-nine (39) South, Range Seven (7) East of Willamette Meridian.

Southwest quarter of Northeast quarter (SW¼NE¼), West half of Southeast quarter (W½SE¼), East half of Southwest quarter (E½SW¼), and Southwest quarter of Southwest quarter (SW¼SW¼) of section 6, in Township Forty (40) South, Range Seven (7) East Willamette Meridian,

Lots Three (3) and Four (4), Southeast quarter of Southwest quarter (SE¼SW¼), and Southwest quarter of Southeast quarter (SW¼SE¼) of section Seven (7) Township Forty South, Range Seven (7) East Willamette Meridian.

less property sold to the International Paper Company (all or a portion of Lot 2, Section 32, T39S, R7E, W.M.

less property sold to Ernest and Judy Smith 9/4/87 (a portion located in the N1/2 of Section 32, T39S, R7E, W.M. lying south of State Highway 66)

less property sold in Section 33 T39S, R7E, W.M.

ORKL-0513

Government Lots 11, 12 and 13 in Section 36, Township 39 South, Range 7 East of the Willamette Meridian, Klamath County, Oregon. EXCEPTING therefrom those portions conveyed to the United States of America.

ORKL-0516

Beginning at a point 1282.2 feet north of a point 308.7 feet west of the corner to Townships 39 and 40 South Ranges 7 and 8 East Willamette Meridian, Oregon thence North 263 feet; thence N. 47°41' W. 282.2 feet; thence South 452 feet; thence East 208.7 feet to the place of beginning, containing 1.71 acres, more or less.

ALSO beginning at a point 1282.2 feet north of a point 100 feet west of the corner to Townships 39 and 40 South Ranges 7 and 8 East Willamette Meridian, Oregon; thence North 116 feet; thence N. 54°56' West 253.5 feet; thence South 263 feet; thence East 208.7 feet to the place of beginning, all of said property being situate in Section 36, Township 39 South, Range 7 East Willamette Meridian.

ORKL-0518

PARCEL NO. 2. Beginning at a point 1490.9 feet north of a point 766.1 feet west of the corner to Townships 39 and 40 South, Ranges Seven (7) and Eight (8) East Willamette Meridian, Oregon; THENCE North 208.7 feet; THENCE West 208.7 feet; THENCE South 208.7 feet; THENCE East 208.7 feet to the place of beginning, containing one acre, more or less, all of said property being situate in Section 36, Township 39 S. R. 7 E. W. M.

less that part conveyed to Leo J. Brennan et al by deed dated February 7, 1967.

ORKL-0519

Beginning at a point 1699.6 feet north of a point 766.1 feet west of the corner to Townships 39 and 40 South, Ranges Seven (7) and Eight (8) East Willamette Meridian, Oregon; THENCE North 273.5 feet; THENCE N. 74° 28' W. 216.6 feet; THENCE South 331.6 feet; THENCE East 208.7 feet to the place of beginning, containing 1.45 acres, more or less, and being situate in Section 36, Township 39 South Range 7 East Willamette Meridian

less that part conveyed to Leo J. Brennan et al by deed dated February 7, 1967.

ORKL-0520

Beginning at a point 1282.2 feet north of a point 766.1 feet west of the corner to Townships 39 and 40 South Ranges Seven (7) and Eight (8) East of the Willamette Meridian, Oregon;

THENCE North 208.7 feet;
THENCE West 208.7 feet;
THENCE South 208.7 feet;
THENCE East 208.7 feet to the place of beginning,

excepting that part of the herein described land conveyed to Leo J. Brennan et al by deed dated February, 7, 1967 and recorded in Book M67 at Page 942 deed records of Klamath County, Oregon.

ORKL-0521
(A=Lots 9 and 10
B, C, D= Lot 8)

All of lots Eight (8), Nine (9) and Ten (10) of Section Thirty-six (36), Township Thirty-nine (39) South, Range Seven (7) East Willamette Meridian, EXCEPT the portions thereof already conveyed by Thomas McCormick and wife, as follows:-

1;- To the United States of America, by deed dated November 14, 1906, and recorded in Volume 21 of Deeds, page 466, records of Klamath County, Oregon.

2:- To the United States of America, by deed dated August 5, 1909, and recorded in Volume 27 of Deeds, page 294, records of said County.

3;- To Fred L. Rutledge, by deed dated _____ day of August, 1927, and recorded in Volume 81 of Deeds, Page 62, records of said County. K-519

4;- To George Crossen, by deed dated August 10, 1928, and recorded in Volume 89 of Deeds, page 348, Records of said County. K-518

5;- To Everett Hotchkiss, by deed dated December 6, 1928, and recorded in Volume 86 of Deeds, page 346, records of said County. K-520 (?)

6;- To Sam Harris and Ray Harris, by deed dated July 16, 1928, and recorded in Volume 86 of Deeds, page 505, records of said County. K-517

7;- To A. W. Reents, by deed dated May 15, 1926 and recorded in Volume 78 of Deeds, page 93, records of said County. K-516

ORKL-0522

Beginning at a point on the Range line between Section Thirty-One (31), Township Thirty-Nine (39), South Range Eight (8) East of the Willamette Meridian and Section Thirty-Six (36), Township Thirty-Nine (39), South Range Seven (7) East of the Willamette Meridian, which is Eight Hundred Thirty-One and Six-Tenths (831.6) feet South of the quarter corner between said Section 31 and 36; thence South on Range line Seventy-Eight and Two-Tenths (78.2) feet; thence South 50°05' East Three Hundred Twenty-One and One-Tenths (321.1) feet; thence North 39°55' East to the center line of the Klamath River; thence down stream along the center line of said stream along the center line of said stream to said Range line; thence South along said Range line to the point of beginning.

ORKL-0523-B

Lots Seven (7), Eight (8), and Nine (9) of Section Thirty-one (31) and Lot Three (3) of Section Thirty-two (32), Township Thirty-nine (39) South, Range Seven (7) East of W. M.

ORKL-0524

Also, beginning at a point on the Range line between Section 31, Township 39 South, Range 8 East, Willamette Meridian and Section 36, Township 39 South, Range 7 East, Willamette Meridian, 40.6 feet South of the quarter corner between Sections 31 and 36 on said range line; thence South along said range line 71.6 feet to a point which is the most Northerly point of the tract of land conveyed by the grantors to the grantee by deed dated May 29, 1930 and recorded in Volume 90, page 340, of the deed records of Klamath County, Oregon; thence South 44°00' East along the Northerly boundary of said tract 572.6 feet to a point; thence North 59°59' East 51.5 feet to a point; thence North 44°00' West 636.4 feet, more or less, to the point of beginning.

ORKL-0529

Beginning at the Northwest corner of said Section 29; thence South 0°08' West along the West line of said Section for a distance of 1812.82 feet to a point marked by a copper nickel pipe, 5/8 inch in diameter and 40 inches in length, set in a rock mound; thence North 86°17' East for a distance of 697.69 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated as LB 10, said iron pipe, as are all other iron pipes mentioned in this description, being referenced by a copper-nickel pipe, 5/8 inch in diameter and 40 inches in length, driven adjacent thereto until its top is 10 inches above the ground; thence North 7°03' East on a line which passes through a point 693.53 feet distant, marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated LB 11, to its intersection with the South line of said NW1/4 NW1/4, said point of intersection being the true point of beginning of this description; thence continuing North 7°03' East 250 feet, more or less, to said point designated LB 11; thence South 80°43' East for a distance of 382.27 feet to a point marked by an iron pipe, 3/4 inch in diameter, designated LB 12; thence South 11°24' East on a line which passes through a point 742.04 feet distant, marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated LB 13, for a distance of 193 feet, more or less, to its intersection with the South line of said NW1/4 NW1/4; thence Westerly along said South line to the true point of beginning of this description.

Also parts of Government Lots 2 and l, the El/2 SWl/4, Government Lots 3 and 4 of Section 30 and the NWl/4 NEl/4 of Section 31, Townsmp 39 South, Range 7 East, Willamette Meridian, Klamath County, Oregon, more particularly described as follows:

Beginning at the Northeast comer of said Section 30; thence South 0°08' West along the East line of said Section for a distance of 1812.82 feet to a point marked by a copper-nickel pipe, 5/8 inch in diameter and 40 inches in length set in a rock mound, said point being the true point of beginning of tms description; thence South 86°17' West for a distance of 0.92 feet to a point marked by an iron pipe 3/4 inch in diameter, driven flush with the ground and designated WT 8, said iron pipe, as are all other iron pipes mentioned in tms description, being referenced by a copper-nickel pipe, 5/8 inch in diameter and 40 inches in length, driven adjacent thereto until its top is 10 inches above the ground; thence North 75°46' West for a distance of 460.81 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated as WT 7; thence South 72°24' West for a distance of 1183.71 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated WT 6; thence North 75°06' West for a distance of 516.19 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated as WT 5; thence South 36°06' West for a distance of 1396.82 feet to a point marked by an iron pipe, 3/4 inch in diameter, and driven flush with the ground and designated WT 4; thence South 2°46' West for a distance of 1031.45 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated as WT 3; thence South 41°00' East (at a distance of 1540.84 feet crossing the South line of said Section 30 at a poiot which is 767.05 feet distant South 88°34' East from the South 1/4 comer thereof) for a distance of 1542.89 feet to a point marked by an iron pipe, 3/4 inch in diameter, driven flush with the ground and designated WT 2; thence South 39°59' East for a distance of 660.00 feet to a point marked by a copper-nickel pipe, 5/8 inch in diameter and 40 inches in length, driven in the ground until its top is 10 inches above the ground; thence continuing South 39°59' East for a distance of 195 feet, more or Jess, to a point on the East line of the NW I/4 NE l/4 of said Section 31; thence North along said East line for a distance of 640 feet, more or less, to the Northeast comer of said NW l/4 NE l/4; thence East along the South line of said Section 30 to the Southeast comer of said Lot 4; thence Northerly along the Easterly line of said Lot 4, the Easterly line of said Lot 3 and the Southeasterly line of said Lot 2 to the Southwest comer of said Lot I; thence Easterly along the South line of said Lot 1 to the Southeast comer thereof; thence North along the East line of said Section 30 to the true point of beginning.

Parcel I

Parts of Lots One (1), Two (2), and Three (3) of Section Twenty-nine (29), Township Thirty-nine (39) South, Range Seven (7) East, Willamette Meridian, Klamath County, Oregon, more particularly described as follows:

Beginning at the section corner common to Sections 19, 20, 30, and 29, Township 39 South, Range 7 East, Willamette Meridian; thence South 0° 02' 53" East, along the West line of Section 29, a distance of 1,805.49 feet to the TRUE POINT OF BEGINNING of this description; thence South 75° 57' 45" East, a distance of 48.18 feet to a point; thence North 84° 47' 58" East, a distance of 653.11 feet to a point; thence North 6° 51' 53" East to the intersection with the 1/16 Section line between the Northwest Quarter of the Northwest Quarter and Lot 1, a distance of 443.51 feet to an iron pin; thence East along the said 1/16 section line, a distance of 446.09 feet to an iron pin; thence South 11° 33' 51" East, a distance of 548.51 feet to an iron pin; thence North 78° 04' 23" East, a distance of 2,490.78 feet to a point in Lot 3 from which point the Northeast corner of said Section 29 bears North 48° 22' 12" East a distance of 2,082.39 feet; thence South 0° 24' 58" East, to the intersection with the Meander Line, along the right bank of the Klamath River, a distance of 365 feet, more or less; thence Westerly along the Meander lines of said Lots 1, 2, and 3 to the intersection with the West line of said Section 29; thence North along the West line of said Section 29 a distance of 485 feet, more or less, to the true point of beginning;

containing 34.50 acres, more or less, of which 21.90 acres, more or less, are in said Lot 1, 7.60 acres, more or less, in said Lot 2, and 5.00 acres, more or less, in said Lot 3.

Parcel II

Parts of Lots Six (6) and Seven (7) of Section Twenty-nine (29), Township Thirty-nine (39) South, Range Seven (7) East, Willamette Meridian, Klamath County, Oregon, more particularly described as follows:

Beginning at the section corner common to Sections 20, 21, 29, and 28, Township 39 South, Range 7 East, Willamette Meridian; thence South 48° 22' 12" West, a distance of 2,082.39 feet to a point marked by an iron pin and designated as "LB-14;" thence South 0° 24' 58" East, a distance of 868.91 feet to a point marked by an iron pin in Lot 6, said point being the TRUE POINT OF BEGINNING of this description; thence North 82° 03' 08" West, a distance of 876.03 feet to a point marked by an iron pin; thence South 58° 29' 02" West to the intersection with the South line of said Lot 7, a distance of 1,015 feet, more or less; thence West along the South Line of said Lot 7, a distance of 700 feet, more or less; thence North along the West line of said Lot 7 to the intersection with the Meander Line along said Lot 7, a distance of 130 feet, more or less; thence Easterly along the Meander Lines of said Lots 7 and 6 to the intersection with the line bearing South 0° 24' 58" East between said point "LB-14" and the true point of beginning; thence South 0° 24' 58" East along said line, a distance of 188.91 feet, more or less, to the true point of beginning; containing 11.75 acres, more or less, of which 5.95 acres, more or less, are in said Lot 6, and 5.80 acres, more or less, in said Lot 7.

Parcel III

Parts of Lots Four (4) and Five (5) of Section Thirty-one (31), Township Thirty-nine (39) South, Range Seven (7) East, Willamette Meridian, more particularly described as follows:

Beginning at the 1/4 section corner common to Sections 30 and 31, Township 39 South, Range 7 East, Willamette Meridian; thence South 88° 39' 29" East along the North line of Section 31 to the intersection with the West line of said Lot 5, a distance of 1,348.27 feet, more or less, to the TRUE POINT OF BEGINNING of this description; thence South along the West line of said Lot 5, a distance of 640.48 feet to a point; thence South 41° 11' 19" East, a distance of 240.29 feet to a point marked by an iron pin; thence South 42° 50' 07" East, a distance of 1,194.47 feet to a point marked by an iron pin; thence South 9° 13' 28" East, a distance of 386.02 feet to a point marked by an iron pin; thence South 41° 45' 43" West to the intersection with the North Boundary of the Right of Way of State Highway No. 21; thence Northeasterly along the said highway right of way to the intersection with the Meander Line along the East side of said Lot 4; thence Northerly along the Meander Line of said Lots 4 and 5 to the intersection with the North line of said Section 31; thence North 88° 39' 29" West along the North line of said Section 31, a distance of 383.93 feet to the true point of beginning; containing 19.25 acres, more or less, of which 5.40 acres, more or less, are in said Lot 4, and 13.85 acres, more or less, in said Lot 5.

Parcel IV

Parts of Lots One (1), Two (2), Three (3), and Four (4) of Section Thirty-one (31), Township Thirty-nine (39) South, Range Seven (7) East, Willamette Meridian, more particularly described as follows:

Beginning at the corner common to Sections 36, 31, 1, and 6, Township 39 and 40 South, Range 6 and 7 East, Willamette Meridian; thence South 89° 56' 42" East along the South line of said Section 31, a distance of 1,960.02 feet to a point marked by an iron pin and the TRUE POINT OF BEGINNING of this description thence North 27° 31' 03" East, a distance of 688.07 feet to a point marked by an iron pin; thence North 59° 46' 33" East, a distance of 1,781.22 feet to a point marked by an iron pin; thence North 44° 16' 57" East, a distance of 969.68 feet to a point marked by an iron pin; thence North 14° 50' 18" East, a distance of 629.93 feet to a point marked by an iron pin; thence North 41° 45' 43" East to the intersection with the South Boundary of the Right of Way of State Highway No. 21; thence Northeasterly along the said Highway right of way to the intersection with the Meander Line along the East side of said Lot 4; thence Southwesterly along the Meander Lines of said Lots 4, 3, 2, and 1 to the intersection with the South line of said Section 31; thence North 89° 56' 42" West along the South line of said Section 31, a distance of 165 feet, more or less, to the true point of beginning; containing 17.10 acres, more or less, of which 8.27 acres, more or less, are in said Lot 1, 1.33 acres, more or less, in said Lot 2, 3.57 acres, more or less, in said Lot 3, and 3.93 acres, more or less, in said Lot 4.

ORKL-0539 I and II

Parcel 1:

The North 550 feet of the West 1/2 of the Southeast 1/4 of Section 36, Township 39 South, Range 7 East, Willamette Meridian, Klamath County, Oregon.

EXCEPTING therefrom that portion conveyed to the United States of America by Deed recorded August 9, 1909 in Volume 27, page 294, Deed Records of Klamath County, Oregon.

Parcel 2:

A strip of land for road purposes 60 feet in width lying 30 feet on each side of the following described center line:

Commencing at a point on the Northerly right of way line of Oregon State Highway 66 at Station 1807+71; thence North 29°28'52" West, 800 feet; thence North 12°43'22" West, 498 feet to a point which is 30 feet East and 10 feet North of the South quarter corner of Section 36, Township 39 South, Range 7 East, Willamette Meridian, Klamath County, Oregon; thence Northerly along a line which is parallel to and 30 feet Easterly of the West line of the Southeast 1/4 of said Section 36, a distance of 1700 feet; thence North 40°48'41" West 50 feet, more or less, to a point on said West line of the Southeast 1/4.

ORKL-0540

All that portion of Lot 5, Section 36, Township 39 South, Range 7 East of the Willamette Meridian, EXCEPT the North 319 feet thereof and being more particularly described as follows:

Beginning at a point on the West line of Lot 5, Section 36, Township 39 South, Range 7 East of the Willamette Meridian from which the Northwest corner of said Lot 5 bears North 9°09'22" East 319.00 feet distant; thence along the said West line of said Lot 5, South 0°09'22" West 425.81 feet to the North bank of Klamath River; thence along Klamath River North 71°09'15" East 222.86 feet; thence South 76°39'45" East 380.77 feet; thence North 77°56'55" East 94.85 feet; thence South 82°02'05" East 203.00 feet; thence North 73°23'15" East 221.68 feet; thence South 62°13'45" East 198.60 feet; thence South 82°00'45" East 62.74 feet, more or less to the East line of said Lot 5, Section 36; thence along the said East line of said Lot 5, North 0°03'07" East 481.31 feet to a point from which the North quarter corner of said Section 36 bears North 0°03'07" East 319.00 feet distant; thence North 89°43'16" West 1342.12 feet more or less to the point of beginning.

ORKL-0541

Lot 6 except that portion thereof which lies northerly of the following described line: Commencing at a point located on the line between Govt. Lots 5 and 6, said point being located South 0° 03' 07" West, 319.0 feet from the north quarter corner of Section 36; thence South 89° 43' 16" East, 620.0 feet to a point; thence in a southeasterly direction to the northwest corner of Govt. Lot 7 of said Section 36.

subject to road easement granted to Klamath County 1-26-68

ORKL-0542

A tract of land in Lot 1, (SW1/4) of Section 31, Township 39 South, Range 8 East of the Willamette Meridian, described as follows:

Beginning at the intersection of the centerline of River Street and the Westerly boundary line of Brighton Avenue (Highway 66) in the town of Doten, (now Keno) Oregon, which point is marked with an iron pipe; thence North 57°08' West along the centerline of said River Street, projected, a distance of 1,194.6 feet; thence North 32°52' East 372.1 feet to the true point of beginning; thence continuing North 32°52' East 259.8 feet, more or less to the mean water line of the Klamath River; thence North 40°24' West 179.7 feet along said mean water line to the Easterly boundary of the tract of land described in Book 94 at page 36, Deed Records of Klamath County, Oregon; thence along the Easterly and Southerly boundaries of said parcel as follows: South 41°47' West 58.9 feet and North 50°05' West 321.1 feet to the Easterly boundary of the tract of land described in Volume 130 of page 412, Deed Records of Klamath County, Oregon; thence South 0°06' East along said boundary a distance of 434.0 feet; thence South 72°16' East 273.2 feet to the true point of beginning.

CALIFORNIA PARCELS

CASI-0009

The North West quarter of South East quarter (NW¼ of SE¼) South half of South East quarter (S½ of SE¼) and South West quarter (SW¼) of Section Twenty nine (29) East half of North West quarter (E½ of NW¼) and North East quarter (NE¼) of Section Thirty one (31), in Township Forty eight (48) North, Range Four (4) West, Mount Diablo Meridian, containing Five hundred and twenty (520) acres, according to the United States Surveys;

less property sold consisting of 31.85 acres of the SE ¼ of the SE ¼ lying south and east of the present reservoir.

CASI-0011

Lot Four (4) and the South East quarter of the South West quarter (SE¼ of SW¼) and the South half of the South East quarter (S½ of SE¼) of Section Thirty (30), Township Forty-eight (48) North Range Four (4) West, Mount Diablo Meridian;

CASI-0020

South Half (S½)

of Section Thirty-one (31), Township Forty-eight (48) North, Range Four (4) West Mount Diablo Base and Meridian, containing Three Hundred Fifteen and 17/100 (315.17) Acres, according to the United States Public Surveys;

CASI-0021

The northwest quarter of the south-west quarter (NW¼ of SW¼) of Section thirty-six (36), Township forty-eight (48) North, Range five (5) West, Mount Diablo Base and Meridian.

That certain fractional portion of the NE¼ of Section thirty-six (36) TWP forty-eight (48) North of Range five (5) West M.D.M., bounded by a line described as beginning at the Northeast corner of said Section 36 and extending westerly four nundred sixty one and nine-tenths(461.9) feet along the section line between said Section 36 and Section 25 of the same Township and Range to the center line of Fall Creek; thence southwesterly along the center line of Fall Creek to the point of intersection of the center lines of Fall Creek and the Klamath River, thence northeasterly along the center line of the Klamath River to the east line of said Section 36, thence northerly along said east line of Section 36, ten hundred ninety (1090) feet to the point of beginning, said tract containing 25.93 acres, more or less: also, a right of way 60 feet wide for a railroad and wagon road across the remaining portion of the N.E.¼ of Section 36, Township 48 North, Range 5 West, the center line of said right of way being more particularly described as follows

Beginning at a point on the quarter sections line running north and south in Section 36 T. 48 N. Range 5 West, which is seventeen hundred two and seven-tenths (1702.7) feet south of the quarter section corner on the north line of said section 36, thence north fifty two degrees, eighteen and one half minutes (52° 18½') east twenty five and three-tenths (25.3) feet to the beginning of a curve whose total deflection angle is thirty degrees and thirty four minutes (30° 34') to the right tangen length is one hundred twenty and three-tenths (120 feet, radius is four hundred forty and eighty four hundredths (440.84) feet and length is two hundred thirty five and one-tenth (235.1) feet. thence nort

eighty two degrees, fifty two and one-half minutes (82° 52½') east, two hundred twenty three and four-tenths (223.4) feet to the beginning of a curve whose total deflection angle is seventeen degrees eighteen minutes (17° 18') to the right, tangent length is forty three and six-tenths (43.6) feet, radius is two hundred eighty six and fifty seven hundredths (286.57) feet and length is eighty six and five-tenths (86.5) feet; thence south seventy nine degrees forty nine and one half minutes (79° 49½') east, one hundred ninety four and eight-tenths (194.8) feet to the beginning of a curve whose total deflection angle is four degrees and eight minutes (4° 8') to the left, tangent length is twenty and seven-tenths (20.7) feet, radius is five hundred seventy three and thirteen one hundredths (573.13) feet and length is forty one and three-tenths (41.3) feet, thence south eighty three degrees fifty seven and one half minutes (83° 57½') east, sixty seven and six tenths (67.6) feet to the beginning of a curve whose total deflection angle is fifteen degrees fifty three minutes (15° 53') to the left, tangent length is forty (40) feet, radius is two hundred eighty six and fifty seven one-hundredths (286.57) feet and length is seventy nine and four-tenths (79.4) feet, thence north eighty degrees nine and one-half minutes (80° 09½') east, fifty two and four-tenths (52.4) feet to the beginning of a curve whose total deflection is fourteen degrees, seventeen minutes (14° 17') to the left, tangent length is forty four and eight-tenths (44.8) feet, radius is three hundred fifty eight and seventeen one-hundredth (358.17) feet and length is eighty nine and three-tenths (89.3) feet, thence, north sixty five degrees fifty two and one half minutes (65° 52½') east, five hundred eighty four (584) feet to the center line of Fall Creek, said right of way containing two and thirty two hundredths (2.32) acres, more or less.

CASI-0025

(also described as Lots One and Two of the Northwest quarter)

The West Half of the Northwest quarter (W½NW¼) of Section Thirty one (31) in Township Forty eight (48) North of Range Four (4) West, Mount Diablo Meridian; also all of that portion of Section Thirty Six (36) Township Forty Eight (48) North of Range Five (5) West, Mount Diablo Meridian, lying South of the Klamath River, saving and excepting the Northwest quarter of the Southwest quarter (NW¼SW¼) of said Section Thirty Six (36).

CAISI-0026

The Southeast quarter (SE¼) of Section 25; the East half of the Northeast quarter (E½ NE¼) of Section 34; the Northeast quarter(NE¼) and the Northwest quarter of the Southeast quarter NW¼ SE¼) and the Northeast quarter of the Southwest quarter (NE¼ SW¼) and the Northwest quarter (NW¼) of Section 35; the North half of the Northwest quarter (N½ NW¼) and the Northwest quarter of the Northeast quarter (NW¼ NE¼) and the Northeast quarter of the Northeast quarter (NE¼ NE¼) and that fractional portion of the Southehalf of the North half (S½ N½), lying North of the Klamath River, of Section 36; all in Township Forty-eight (48) North of Range Five (5) West M.D.M.; together with the appurtenances thereunto belonging; save and excepting therefrom that certain fractional portion of the Northeast quarter (NE¼) of Section Thirty-six (36), Township Forty-eight (48) North of Range Five (5) West M.D.M., bounded by a line described as beginning at the Northeast corner of said Section 36, thence extending westerly four hundred sixty one and nine tenths feet (461.9) along the section line between said Section 36 and Section 25 of the same Township

and range to a point on the Center line of Fall Creek; thence, Southwesterly along the Center line of Fall Creek, to the point of intersection of the Center line of Fall Creek and the Klamath River; thence Northeasterly along the Center line of the Klamath River to the East line of the said Section 36; thence northerly along said East line of said Section 36, 1190.0 feet to the point of beginning.

LESS THE FOLLOWING:

A fractional portion of the Southeast quarter of the Southeast quarter of Section 25, Township 48 North, Range 5 West, Mount Diablo Meridian, being more particularly described as follows:

Beginning at a point 30.00 feet southwesterly of the centerline of the Pacific Power & Light Company Transmission Line No. 19, from which point the southeast corner of said Section 25 bears South 40° 51' 31" East, 506.61 feet; thence South 38° 31' 10" West, 166.98 feet; thence South 28° 14' 58" West, 132.47 feet; thence North 36° 15' 00" West, 184.77 feet; thence North 30° 54' 15" East, 141.54 feet; thence North 53° 45' 00" East, 134.36 feet; thence South 42° 46' 42" East, 139.73 feet parallel to said Transmission Line No. 19 to the point of beginning.

and subject to a telephone line easement to PT&T 9/28/81 and subject to a 30' pipeline easement to the City of Yreka 8/30/68.

CASI-0027

The East half of the Southwest quarter ($E\frac{1}{2}$ of $SW\frac{1}{4}$) and the Southeast quarter ($SE\frac{1}{4}$) of Section Nine (9); the Northwest quarter of the Northwest quarter ($NW\frac{1}{4}$ of $NW\frac{1}{4}$) of Section Sixteen (16), and the East half of the Northeast quarter ($E\frac{1}{2}$ of $NE\frac{1}{4}$) of Section Seventeen (17) in Township Forty-seven (47) North (N) of Range Five (5) West, Mount Diablo Base and Meridian; saving and excepting that portion thereof heretofore conveyed to the Klamath Lake Railroad Company;

and subject to a telephone line easement to PT&T 10/13/80 and a 20' road easement to James Liskey.

CASI-0028

The West Half of the East Half of the Northwest Quarter ($W\frac{1}{2}$ $E\frac{1}{2}$ $NW\frac{1}{4}$) and the West Half of the West Half ($W\frac{1}{2}$ $W\frac{1}{2}$), and also that portion of the East Half of East Half of Northwest Quarter ($E\frac{1}{2}$ $E\frac{1}{2}$ $NW\frac{1}{4}$) of Section Nine (9) in Township Forty-seven (47) North of Range Five (5) West, Mount Diablo Meridian, which lies on the westerly side of the center line of the Klamath River, where said river flows through said sub-division; subject, however, to right of way one hundred (100) feet wide, across said section, heretofore conveyed to Klamath Lake Railroad Company by Central Pacific Railway Company and United States Trust Company of New York, by deed numbered 213-C, dated August 16, 1905.

CASI-0030

The East half of the Northwest quarter, the Southwest quarter of the Northwest quarter and the Northwest quarter of the Southwest quarter of Section 34, Township 48 North, range 5 West, M.D.M. California, less the Klamath Lake Railroad Company right of way.

subject to a 20 road easement to H.J. Rhodes 6/12/64

CASI-0031

All of Section Twenty-seven (27); Northeast Quarter (NE¼), North Half of Southeast Quarter (N½ of SE¼) and Southwest Quarter of Southeast Quarter (SW¼ of SE¼) of Section Thirty-three (33), Township Forty-eight (48) North, Range Five (5) West, Mount Diablo Base and Meridian, containing Nine Hundred Twenty and 00/100 (920.00) Acres, more or less; together with all rights, privileges and appurtenances thereunto belonging or in any wise appertaining; subject however, to any rights, liens or encumbrances created or permitted, by any other person than the said first party, since March 16, 1931; also subject to the condition that first party shall not be held liable for any encroachments on said premises by existing ditch and telephone line.

EXCEPTING from the foregoing conveyance a right of way of lawful width for any and all existing and lawfully established County Roads.

less the following sold to Rhodes and Roberts 4/13/64:
the N ½ and the SW ¼ of Section 27, Township 48N, Range 5W, MDM.

CASI-0032

The South half of the South half of the South West Quarter of Section Twenty-six, and the West half of Section Thirty-three, Township Forty-eight, North, Range Five West, and the North East quarter of the North West quarter of Section Four, Township Forty-seven North, Range Five West, Mount Diablo Meridian, subject to the rights of the Lowood School District.

Together with all water rights, water ditches and water privileges thereunto belonging or in anywise appertaining.

CASI-0033

The Southeast quarter; the East half of the Southwest quarter and the South half of the Northwest quarter of Section Four, Township Forty-seven North, Range Five West, Mount Diablo Meridian, saving and excepting that portion of the Southeast quarter of the Northwest quarter of said Section Four lying northerly and westerly of the center line of the Klamath River containing 310 acres, more or less

CASI-0034

All that portion of the East half ($E\frac{1}{2}$) of the East half, ($E\frac{1}{2}$), of the North West quarter ($NW\frac{1}{4}$) of Section Nine (9), lying on the East side of the Klamath River where it flows through said land; The North East quarter ($NE\frac{1}{4}$) of Section Nine (9); the North half ($N\frac{1}{2}$) of the North West quarter ($NW\frac{1}{4}$) and the West half ($W\frac{1}{2}$) of the North East quarter ($NE\frac{1}{4}$) of Section Ten (10); all in Township Forty-seven (47), North of Range Five (5) West, Mt. Diablo Meridian, containing in all 340 acres, more or less; together with all water rights, water ditches and water privileges used or enjoyed on the above described property , or in connection therewith, particularly including all rights of said first party in the waters of Bogus Creek.

CASI-0035

The South East Quarter of the South East quarter of Section Thirty-two, Township Forty-eight North, Range Five West, Mount Diablo Meridian.

Together with all water rights, water ditches and water privileges thereunto belonging or in anywise appertaining.

CASI-0036

All that portion of the South East Quarter of the North West Quarter (SE¼ of NW¼) of Section Four (4) Township Forty-seven (47) North of Range Five (5) West, Mount Diablo Meridian, lying on the North and West side of the center of the Klamath River.

CASI-0038

The East half; the South West quarter, the East half of the North West Quarter and the South West Quarter of the North West Quarter of Section Sixteen in Township Forty-seven North, Range Five West, Mount Diablo Meridian,

CASI-0039

The Northeast quarter (NE¼) of the Southwest quarter (SW¼) of Section Thirty-four (34), Township Forty-eight (48) North of Range Five (5) West, Mount Diablo Meridian, containing forty acres of land.

CASI-0040

Those portions of the Southeast 1/4 of Section 29 and the Southwest 1/4 of Section 28, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004050390;

Those portions of the Northeast 1/4 of Section 29 and the Northwest 1/4 of Section 28, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004050380;

That portion of Section 28, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004050060;

That portion of the Northwest 1/4 of Section 33, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004040010;

That portion of the Southeast 1/4 of Section 21, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004360040;

That portion of the South 1/2 of Section 27, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004300020;

That portion of the North 1/2 of Section 34, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004040060;

Those portions of Section 35 and Section 36, Township 48 North Range 4 West, M.D.M., known as Siskiyou County, California Tax Lot 004030070;

CASI-0042

The southeast quarter of the southeast quarter of Section 33, Township 48 North, Range 5 West and the northeast quarter of Section 4, Township 47 North, Range 5 West, M.D.M., and northwest quarter of southwest quarter, south half of south half and northeast quarter of southeast quarter of Section 35, Township 48 North, Range 5 West, M.D.M.

CASI-0043

The South Half (S 1/2) except the south half of the south half of the southwest quarter (S 1/2 S 1/2 SW 1/4) of Section 26, Township 48 North, Range 5 West, Mount Diablo Meridian, Siskiyou County, California, containing 280 acres, more or less,

EXHIBIT 4
Estimated Timeline—KHSA as Amended

TARGET DATE	ACTION	ACTOR
4/6/2016	2016 AIP Signatories and others execute Amended KHSA ("Amendment Effective Date").	2016 AIP Signatories
By 5/6/2016	PacifiCorp files Amended KHSA with FERC; files expedited motion asking FERC to hold in abeyance relicensing proceeding for Project No. 2082.	PacifiCorp
Within 15 days of FERC's relicensing abeyance order	PacifiCorp withdraws pending 401 applications in Oregon and California.	PacifiCorp
By July 1, 2016	If FERC denies PacifiCorp's motion to abate or fails to rule on the motion before July 1, 2016, PacifiCorp will ask the SWRCB and the ODEQ to abate 401 certification and other environmental reviews related to PacifiCorp's relicensing activities	PacifiCorp
4/2016–6/2016	DRE conducts due diligence review of Amended KHSA, draft funding agreements, and draft FERC filings.	DRE
6/15/2016	Oregon-DRE and California-DRE funding agreements executed.	States, DRE
On or around 7/1/2016	DRE executes Amended KHSA.	DRE
On or around 7/1/2016	File FERC application for license transfer.	PacifiCorp, DRE
On or around 7/1/2016	DRE and PacifiCorp will enter into an operation and maintenance agreement	PacifiCorp, DRE
On or around 7/1/2016	File FERC application for surrender and decommissioning, retaining 2020 target date for removal.	DRE
On or around 7/1/2016	File applications for 401 certifications regarding decommissioning with California Water Resources Control Board and Oregon Department of Environmental Quality.	DRE

TARGET DATE	ACTION	ACTOR
7/2016–1/2017	DRE develops and files non-FERC regulatory permits, including: • 404 application for Facilities Removal with U.S. Army Corps, biological assessments for associated ESA Section 7 consultations, and associated Section 106 historic preservation reviews • 402 construction storm water permit applications • Oregon removal-fill permit with Oregon Department of State Lands • Other regulatory approvals as necessary	DRE, with technical assistance from Federal Parties, States, and PacifiCorp
By 12/31/19	FERC approves license transfer.	FERC
By 12/31/2019	FERC approves decommissioning and surrender.	FERC
1/1/2020	DRE begins Facilities Removal in accordance with Definite Plan.	DRE

ATTACHMENT G
Letter from State of California

EDMUND G. BROWN JR., Governor
JOHN LAIRD, Secretary for Natural Resources

June 22, 2017

Michael Carrier
President, Board of Directors
Klamath River Renewal Corporation
423 Washington Street, 4th Floor
San Francisco, CA 94111

Re: Bond funding for KHSA implementation

Dear Mr. Carrier:

As a signatory to the Klamath Hydroelectric Settlement Agreement ("KHSA") and the grantor of bond funding to the Klamath River Renewal Corporation ("KRRC"), we are writing to express the continued support of the California Natural Resources Agency ("Agency") for the successful implementation of the KHSA. To that end, the Agency remains willing and available to assist the KRRC as it progresses through the process to implement the KHSA. In the event it becomes necessary, that assistance could include securing an extension of the bond funding appropriation.

The Agency is satisfied that the KRRC is in compliance with all of its obligations in the grant agreement between the Agency and KRRC. We look forward to KRRC's future progress under the grant agreement with the ultimate goal of realizing implementation of the KHSA.

Sincerely,

Thomas Gibson
Undersecretary
California Natural Resources Agency