KLAMATH RIVER RENEWAL CORPORATION

October 4, 2022

VIA ELECTRONIC FILING

REQUEST FOR CEII TREATMENT

David E. Capka, P.E.
Office of Energy Projects
Director, Division of Dam Safety and Inspections (D2SI)
Federal Energy Regulatory Commission
888 First Street, N.E., Routing Code: PJ-13
Washington, D.C. 20426

RE: FERC Nos. P-14803-001 and P-2082-063; NATDAM-OR00559, CA00323, CA00234, CA00325; Letter Report, Lower Klamath Project Independent Board of Consultants Meeting No. 4

Dear Director Capka:

The Klamath River Renewal Corporation (Renewal Corporation) accepts and proposes the following plan and schedule to implement recommendations of the Lower Klamath Project Independent Board of Consultants (BOC). The BOC's recommendations are set forth in its *Letter Report: Board of Consultants Mtg. No. 4* (Report No. 4), attached hereto as Attachment A.

Formal Meeting No. 4

Formal Meeting No. 4 was called for the purpose of obtaining the BOC's final review comments and recommendations with respect to the Renewal Corporation's June 22 Final Construction Documents (Final Construction Documents) submitted to the Federal Energy Regulatory Commission (FERC or Commission) on June 29, 2022.[1] Formal Meeting No.4 was convened via video conference on September 16, 2022. On September 20, 2022, the BOC provided the Renewal Corporation and PacifiCorp with Report No.4. The BOC also requested and was provided additional information at Formal Meeting No. 4; this information is now provided to FERC as an update to the data package for Formal Meeting No. 4 as Attachments B, C and D.

[1] Please see FERC accession nos. 20220630-5018 (Public); FERC accession nos. 20220718-0019, 20220719-4000, 20220719-4003, 20220719-4004, 20220719-4005, 20220719-4006, 20220719-4007, 20220719-4009, 20220719-4010, 20220719-4011, 20220720-4000, 20220720-4001, 20220720-4002, 20220720-4003, 20220720-4004, 20220720-4005, 20220720-4008, 20220720-4009, 20220720-4010, 20220720-4011, 20220720-4013, 20220720-4014 (CEII); FERC accession no. 20220725-5078 (errata).

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Report No. 4

Report No. 4 contains nine recommendations. The Renewal Corporation accepts these recommendations and respectfully requests FERC's review and approval of the following plan and schedule to comply with the BOC's recommendations. As noted below, the Final Construction Documents will be updated prior to the commencement of construction, as necessary, to reflect these recommendations.

Recommendation Number 1: Site-Specific Risk Reduction Measures in Temporary Construction Surveillance and Monitoring Plan (TCSMP)

The TCSMP discusses various risk reduction measures and related surveillance and monitoring. The BOC acknowledges the TCSMP is not meant to contain action plans associated with risk reduction; however, the BOC recommends that all risks identified in the TCSMP be addressed in site-specific work plans and contingency plans prior to the start of construction.

Renewal Corporation Response

The Renewal Corporation will address all risks identified in the TCSMP in site-specific work plans and contingency plans. The Renewal Corporation will complete and include these plans in the Final Construction Documents prior to commencing construction.

Recommendation Number 2: Erosion and Sediment Control

The BOC recommends that the drawings and specifications also reflect that surface water management may require field adjustment to the design if potential problem areas are observed during construction. The BOC also recommends that an experienced civil site engineer field-review fill areas and slopes to achieve proper grading and permanent erosion protection to mitigate the potential for gullying and erosion after project completion.

Renewal Corporation Response

The Renewal Corporation agrees that surface water management may require field adjustment to the design if potential problem areas are observed during construction. An experienced civil site engineer will field-review fill areas and slopes during construction to achieve proper grading and permanent erosion protection to mitigate the potential for gullying and erosion after project completion. Any field modifications to the Final Construction Documents will be captured in the as-constructed plans and specifications.

Recommendation Number 3: Subsurface Investigations and Placement of Fill in J.C. Boyle Scour Hole

If the explorations at the toe of the scour hole fill are deferred, the BOC highly recommends that geotechnical engineering expertise be included in any field investigation and engineering assessment of the slope stability of the scour hole fill. Also, materials-types to be placed in lifts, maximum lift thickness, placement and chinking of larger materials and concrete rubble, and compaction effort for the scour hole fill should be specified in the project specifications and/or drawings.

Renewal Corporation Response

The Renewal Corporation will include geotechnical engineering expertise in any field investigation and engineering assessment of the slope stability of the scour hole fill. Prior to construction, the Renewal Corporation will update the Final Construction Documents to include the information developed during the site inspection to specify materials-types to be placed in lifts, maximum lift thickness, placement and chinking of larger materials and concrete rubble, and compaction effort for the scour hole fill.

Recommendation Number 4: Considerations for Temporary Construction Emergency Action Plan (TCEAP)

Contacts Listed in Section 3, "Notification Procedures" at a minimum, should include Humboldt and Del Norte Counties. The BOC recommends that the enhancement of the TCEAP could include discussion of PacifiCorp's Iron Gate Dam Break Analyses and their EAP inundation maps. Chapter 6 of the FERC Guidelines, Section 6-9 of "Temporary Construction Emergency Action Plans" should be used to assure all appropriate content is included. "Action levels" for when the EAP will be enacted based on the construction PFMA, as applicable and when downstream evacuation will occur. Also, the FERC indicates that "Periodic testing of the plan should be performed at least quarterly and be documented by contractor and Quality Control Staff". The Board opines that the current revision of the TCEAP does not have sufficient consideration of the potential for a full height dam break, most critically at the Iron Gate Development. The BOC recommends that an effective plan needs to be in place to trigger the appropriate responses, potentially including evacuation of the downstream public and construction personnel at risk should the remote but credible case of an accidental breach occur.

Renewal Corporation Response

The Renewal Corporation will update the TCEAP by January 30, 2023, to comply with this recommendation. Specifically, contacts Listed in Section 3, "Notification Procedures" of the TCEAP will be amended to include Humboldt and Del Norte Counties. The TCEAP will also be amended to include a discussion of PacifiCorp's Iron Gate Dam Break Analyses and their EAP inundation maps. Chapter 6 of the FERC Guidelines, Section 6-9 of "Temporary Construction Emergency Action Plans" will be followed to assure that all appropriate content is included. "Action levels" for enactment of the EAP will be based on the construction PFMA (as applicable). The amended TCEAP will address a full height dam break, including the Iron Gate Development. The amended TCEAP will identify triggering events and appropriate responses, including evacuation of the downstream public and construction personnel at risk should the remote but credible case of an accidental breach occur.

Recommendation Number 5: Development and Status of Contingency Plans

The BOC is of the understanding that Site-Specific Contingency Plans are in development by the Contractor, with review by the Renewal Corporation and McMillen Jacobs.

The BOC recommends that, in the development of these contingency plans, stakeholders make certain that all risks developed in project documents are adequately addressed.

Renewal Corporation Response

The Renewal Corporation's contractor (Kiewit) is developing Site-Specific Contingency Plans that will adequately address risks identified in the Final Construction Documents and construction workplans. These plans will be reviewed by the Renewal Corporation and McMillen Jacobs a minimum of 30 days prior to initiation of the field work for the proposed construction activity.

Recommendation Number 6: Material and Placement Specifications:

In Specification 31 23 00 (Excavation and Placement of Fills) and Specification 31 05 00 (Materials for Earthwork) there are no explicitly stated maximum lift thicknesses or compaction specifications stated for the various fill materials. The BOC recommends that maximum lift thicknesses and compaction effort (Proctor-type compaction testing or number of passes with a certain energy compactor) be specified for the various fill types (J.C. Boyle scour hole, general site fills, disposal area fills, Iron gate spillway fills, etc.).

The BOC recommends that dumped fill and rubble should be evenly spread into specified lift thicknesses and compacted. Rubble should be well chinked to mitigate potential sinkhole development. Not providing control of lift thicknesses and compaction of fill and rubble could result in differential settlements, poor surface drainage, unsightly and potentially unsafe results.

Renewal Corporation Response

The Renewal Corporation will update the Final Construction Documents prior to construction to specify (a) maximum lift thicknesses and compaction effort for the various fill types (J.C. Boyle scour hole, general site fills, disposal area fills, Iron Gate spillway fills, etc.), (b) that dumped fill and rubble should be evenly spread into specified lift thicknesses and compacted, and (c) that rubble should be well chinked to mitigate potential sinkhole development.

Recommendation 7: Construction Schedule Risk Reduction Measure Milestones

The BOC recommends that milestones, consistent with attained risk reduction measures, be incorporated into the construction schedule. Similarly, the BOC recommends that various BOC touch points associated with either BOC site visits or BOC briefings, be identified and incorporated into the construction schedule for the purpose of notifying and informing the BOC accordingly.

Renewal Corporation Response

The Renewal Corporation will update the construction schedule included in the Final Construction Documents prior to construction to incorporate the recommended milestones and touch points associated with potential BOC site visits and BOC briefings.

Recommendation 8: Hydraulic Performance of Iron Gate Diversion Gate and Tunnel

The BOC recommends that the Renewal Corporation further develop specific pre-drawdown operation and testing procedures to confirm that the hoist can be used to achieve the fully opened position under unbalanced head conditions occurring under the initial drawdown stage.

The BOC recommends that the conceptual contingency plans discussed during the informal meeting be further developed to consider various partial gate opening scenarios. The BOC recommends CFD simulations of partial gate openings and corresponding tunnel discharges be used to better identify contingency plans and the on-site availability of means, methods and materials required to pass flows effectively and safely around Iron Gate for a series of unanticipated flood events.

The BOC recommends that the contingency plans include review of the sequencing of the embankment removal activities to consider a staged excavation of a controlled breach channel at an earlier stage.

Considerable design work has gone into the selection of an air vent system suspended from the crown of the tunnel to improve flow conditions within the tunnel. The loss of the air vent system would compromise the operation of the tunnel during the initial drawdown by introducing unsteady flow conditions and negative pressures which could result in gate vibrations and prevent it from being fully opened. The introduction of air not only helps achieve the flow capacity of the tunnel, but also improves energy dissipation in the critical lined tunnel reach and reduces the potential for floor baffle and tunnel lining cavitation.

The most vulnerable location of the air vents is between the blind flange and grout curtain collars, where the air vents will be subjected to the highly turbulent and laterally fluctuating flow conditions during the initial drawdown. Drawing C4125 shows that the air vent is suspended from, rather than against, the crown of the tunnel lining. Drawings C4191 and C4192 apparently show that the air vent is closely aligned with the new upstream vent hole, which may cause additional loads on the air vent piping. The BOC has not seen contingency plans related to the potential loss of the vent system.

The BOC recommends that Renewal Corporation revisit their design of the anchorage of the air vent system to resist laterally fluctuating flow conditions, and that sufficient space is provided between the new upstream vent hole and downstream air vent pipe. The BOC opines that the air vent piping will be subjected to lateral flow fluctuations during operation and recommends that the Renewal Corporation consider totally encasing the air vent piping in this critical reach. Since the aeration of the flow is imperative to the initial operation of the gate, achieving the tunnel flow capacity, and preventing supercavitation damage of the floor baffles and tunnel lining, the BOC recommends that consideration should be given to driving a vertical shaft/casing to improve air flow should the air vent piping be damaged and aeration becomes unavailable.

Drawing C4050 indicates that the diversion tunnel could potentially pass the design flow of 4,000 cfs for up to four months (Max Simulated WSL), and approximately 3,000 cfs for a total of up to one month (50thP Simulated WSL). The BOC opines that the Renewal Corporation take every precaution to prevent supercavitation damage to the floor baffles and tunnel lining over the extended duration of operation. Consequently, the BOC recommends that the Renewal Corporation consider incorporating the floor ramps between the floor baffles recommended by Dr. Falvey to reduce the potential for supercavitation damage along the floor, and extending the floor ramps laterally to the tunnel lining sidewall. The BOC recommends that the Renewal Corporation consider Dr. Falvey's recommendation to use removeable stoplogs at the tunnel

exit to help raise the tailwater levels during the initial gate opening. The BOC recommends that the Renewal Corporation consider installing additional half-floor baffles along the lining sidewalls to achieve the desired energy dissipation, and water stops along the base of the upstream face of the floor baffles (and potentially along the sides) to further reduce uplift pressure along the base "cold joint" and to increase floor baffle stability.

Renewal Corporation Response

The Renewal Corporation will develop specific pre-drawdown operation and testing procedures to confirm that the hoist can be used to achieve the fully opened position under unbalanced head conditions occurring under the initial drawdown stage. The testing procedures will be prepared and implemented prior to initiation of final drawdown to ensure the gate hoist is fully operational. The Renewal Corporation will also prepare a contingency plan and schedule specific to the gate allowing sufficient time to develop and implement alternative solutions for raising the gate to maintain the overall reservoir drawdown and dam removal timeline.

The Renewal Corporation is developing contingency plans for various partial gate opening scenarios of partial gate openings and corresponding tunnel discharges to identify contingency plans and the on-site availability of means, methods and materials required to pass flows effectively and safely around Iron Gate for a series of unanticipated flood events. The development of these contingency plans includes a review of the sequencing of the embankment removal activities. The Renewal Corporation will complete and include these contingency plans as part of the Kiewit prepared construction workplans and update the Final Construction Documents, if required, prior to construction.

The Renewal Corporation has reviewed the design of the anchorage of the air vent system to resist laterally fluctuating flow conditions, and confirmed that sufficient space is provided between the new upstream vent hole and downstream air vent pipe. During this review, the Renewal Corporation considered encasing the air vent piping and to driving a vertical shaft/casing to improve air flow should the air vent piping be damaged and aeration becomes unavailable. The Renewal Corporation will revisit its previous work and confirm our current design meets all stability and air flow requirements for successful operation of the tunnel.

The Renewal Corporation will consider incorporating floor ramps between the floor baffles as recommended by Dr. Falvey to reduce the potential for supercavitation damage along the floor and extending the floor ramps laterally to the tunnel lining sidewall. The Renewal Corporation will consider Dr. Falvey's recommendation to use removeable stoplogs at the tunnel exit to help raise the tailwater levels during the initial gate opening, and will consider installing additional half-floor baffles along the lining sidewalls to achieve the desired energy dissipation, and water stops along the base of the upstream face of the floor baffles (and potentially along the sides) to further reduce uplift pressure along the base "cold joint" and to increase floor baffle stability. The Renewal Corporation will complete its review and incorporate any changes, if required, to the Final Construction Documents prior to construction.

Recommendation 9: Removal of Copco No. 1 Adit Steel Conduit

The BOC recommends that the Renewal Corporation review the potential for flooding the work platform and delaying the mining of the adit and develop contingency plans for mitigating this risk.

Renewal Corporation Response

The Renewal Corporation will review the potential for flooding the work platform and delaying the mining of the adit and develop contingency plans for mitigating this risk. The Renewal Corporation will complete its review and include these contingency plans as part of the Kiewit prepared construction workplans and update the Final Construction Documents, if required, prior to construction.

Request for CEII Treatment

Attachments A, B, C and D contain specific detailed information designated as Critical Energy/Electric Infrastructure Information ("CEII") under the Commission's rules. These documents are enclosed. Public versions of these Attachments are being concurrently filed with this letter in this proceeding.

The Renewal Corporation requests confidential treatment of the information in the Attachments A, B, C and D marked CEII pursuant to 18 C.F.R. § 388.113. The CEII has been marked according to the Commission's instructions. These documents qualify as CEII pursuant to the Commission's rules because they contain sensitive dam safety and construction information that (a) relates details about the production, generation, transmission, or distribution of energy, (b) could be useful to a person planning an attack on critical infrastructure, (c) is exempt from mandatory disclosure under the Freedom of Information Act, and (d) gives strategic information beyond the location of the critical infrastructure. Accordingly, the Renewal Corporation requests confidential treatment of these documents pursuant to 18 C.F.R. § 388.113.

The CEII being submitted with this filing will continue to be CEII so long as the Lower Klamath Project continues in operation. While the Renewal Corporation expects the Lower Klamath Project to be decommissioned and removed on or before December 2024, it is possible the period for decommissioning and removal could be greater than the five-year period set out in 18 C.F.R. § 388.113(e)(1). Upon any expiration of the CEII designation, the critical infrastructure information should therefore be treated as CEII and re-designated so long as the Lower Klamath Project remains in operation. A proposed CEII Protective Agreement was filed in FERC Nos. P-14803-001 and P-2082-063 on December 1, 2017 (FERC accession no. 20171201-5385) and is referenced here for purposes of 18 C.F.R. § 388.113(d)(1)(iii).

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The Renewal Corporation appreciates the continued hard work and diligence of the BOC and looks forward to continuing to work with the BOC in connection with the implementation of our project.

Sincerely,

s/ Mark Bransom

Mark Bransom
Chief Executive Officer
Klamath River Renewal Corporation

Attachments:

Attachment A: Letter Report: Board of Consultants Mtg. No. 4.
Attachment B: Lower Klamath Project 100% Final Design FERC Submittal Summary of Design Changes.
Attachment C: Dr. Henry T. Falvey's Memorandum, Iron Gate Baffle Blocks.
Attachment D: Knight Piesold Consulting Memorandum, Iron Gate Diversion Tunnel Baffle Structural Design.

cc: Douglas Johnson, (D2SI) Portland Regional Engineer
Dustin Till (PacifiCorp)
Service List (FERC No. 2082-063 and 14803-001)