

December 12, 2018

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CONTAINS REQUEST FOR CEII TREATMENT

DELIVERY VIA ELECTRONIC FILING

David E. Capka, P.E.
Director, Division of Dam Safety and Inspections
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: FERC Nos. P-2082; P-14803, NATDAM-OR00559, CA00323, CA00234, CA00325;
Additional Information Regarding Report of Independent Board of Consultants
Meeting No. 1**

Dear Secretary Bose:

Klamath River Renewal Corporation ("KRRRC") writes regarding the work of the Lower Klamath Project Independent Board of Consultants ("BOC").

BOC ADDITIONAL INFORMATION REQUEST

By separate filing today, KRRRC filed with the Federal Energy Regulatory Commission (FERC) the BOC's "Letter Report; Board of Consultants Mtg. No. 1." Following BOC's first formal meeting on October 24, 2018, and after a full review of the data package distributed to the BOC in advance of that meeting, the BOC requested additional information from KRRRC. By this letter, we now provide FERC with the BOC's additional information attachments (Attachment A) and the information provided in response to these requests in the following attachments:

- Attach B-08 (Technical Report No. SRH-2011-02).pdf
- Attach B-09 (KRRP Copco 1 Schedule Draft).pdf
- Attach B-09 (KRRP Copco 2 Schedule Draft).pdf
- Attach B-09 (KRRP Entire Schedule Draft).pdf
- Attach B-09 (KRRP General & Prep Schedule Draft).pdf
- Attach B-09 (KRRP Iron Gate Schedule Draft).pdf
- Attach B-09 (KRRP JC Boyle Schedule Draft).pdf
- Attach B-09 (KRRP Post Deconst & Rest Schedule Draft).pdf
- Attach B-10 (DBA Wage - California, Siskiyou County).pdf

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- Attach C-04.2 - CEII (COPCO Rating Curve).pdf
- Attach C-04.2 - CEII (Iron Gate Rating Update for BOC).pdf
- Attach C-04.2 - CEII (JCBoyle Rating Curve for BOC).pdf

KRRC requests confidential treatment of the CEII contained in the above-referenced attachments pursuant to 18 C.F.R. § 388.113. The CEII has been marked according to the Commission's instructions.

The above-referenced attachments qualify as CEII pursuant to 18 C.F.R. §§ 388.113(c)(1) and (c)(2) because the information included in the above-referenced attachments contains engineering, security, and detailed design information about existing critical generation infrastructure. This generation infrastructure is currently referred to by FERC as the Lower Klamath Project (FERC No. 14803). The CEII being submitted with this filing will continue to be CEII as long as the Lower Klamath Project continues in operation. While KRRC expects the Lower Klamath Project to be removed within the next five years, it is possible the period for removal could be greater than the five-year period set out in 18 C.F.R. § 388.113(e)(1). The critical infrastructure information should therefore be treated as CEII and re-designated as long as the Lower Klamath Project remains in operation.

Per FERC's May 22, 2018 directive, one copy of this letter (with enclosures) is being provided to the D2SI-PRO Regional Engineer, and three copies of this letter (with enclosures) the Director, D2SI, Washington DC. Should FERC require any further information at this time, please direct any such requests to the undersigned. Thank you.

Respectfully submitted,

/s/ Markham Quehrn

Markham Quehrn
Perkins Coie LLP
Counsel for Klamath River Renewal Corporation

cc: Douglas Johnson, (D2SI) Portland Regional Engineer
Mark Bransom (KRRC)
Dustin Till (Pacificorp)

BOC- RFI Control Log

A. Meetings Requests	Date Requested	Date of Meeting	Requested by:
1. Meeting on insurance (see Tab B)	10/24/2018 meeting	11/20/2018 Call	SC
2. Meeting with AECOM Risk Manager (see Tab C)	10/24/2018 meeting	11/16/2018 Call	SC
3. Meeting with AECOM estimating	10/24/2018 meeting	11/13 and 11/14 in Denver	DH and TC

KRRC Response

B. General- Questions/Items Requested	Date Requested	Date Received	Requested by:
1 FERC Order Amending License and Deferring Consideration of Transfer Application (3-15-18)	10/24/2018 meeting	10/26/2018	BOC
2 FERC Approval of BOC (5-22-18)	10/24/2018 meeting	10/26/2018	BOC
3 Risk Mitigation and Insurability for the Klamath Restoration Project (11-13-15)	10/24/2018 meeting	10/26/2018	BOC
4 BOC Kick-off Meeting- AECOM PowerPoint (10-23-18)	10/24/2018 meeting	10/26/2018	BOC
5 List of three potential contractors and their responses to RFQ	10/24/2018 meeting		BOC
6 Bid package for contractors (scheduled to be released 11-16)	10/24/2018 meeting		BOC
7 Sign in sheets for 10-22 and 10-23	10/24/2018 meeting	10/26/18; 11/6/18	BOC
8 Section 2: Existing Hydrology Conditions; Hydrology, Hydraulics and Sediment Transport Studies for the Secretary's	11/5/2018	11/9/2018	jeb
9 The CPM schedule for the removal of the four projects	11/15/2018	11/27/2018	DH
10 A breakdown of labor rates, including wage rate, burden, fringes, taxes, per diem, etc.	11/15/2018	11/26/2018	DH
11 A list of equipment with rates and a brief description of the rates from Equipment Watch	11/15/2018	11/26/2018	DH
12 A total of labor hours by category	11/15/2018	11/26/2018	DH

KRRC Response
In progress.
In progress.
See Attach B-08 (Technical Report No. SRH-2011-02).pdf
See Attach B-08 (Technical Report No. SRH-2011-02).pdf
See the following files: <ul style="list-style-type: none"> • Attach B-09 (KRRP Copco 1 Schedule Draft).pdf • Attach B-09 (KRRP Copco 2 Schedule Draft).pdf • Attach B-09 (KRRP Entire Schedule Draft).pdf • Attach B-09 (KRRP General & Prep Schedule Draft).pdf • Attach B-09 (KRRP Iron Gate Schedule Draft).pdf • Attach B-09 (KRRP JC Boyle Schedule Draft).pdf • Attach B-09 (KRRP Post Deconst & Rest Schedule Draft).pdf
See the following files: <ul style="list-style-type: none"> • Attach B-10 (DBA Wage - California, Siskiyou County).pdf • Attach B-10 (Labor Rates and Equipment Rates).pdf
See the following files: <ul style="list-style-type: none"> • Attach B-10 (Labor Rates and Equipment Rates).pdf • Attach B-11 (EquipmentWatch - Fuel @ \$3.00perGal).pdf
See Attach B-12 (Labor and Equipment Hours).pdf

13	A total of equipment hours by category	11/15/2018	11/26/2018	DH
B. General- Questions/Items Requested		Date Requested	Date Received	Requested by:
14	Current draft drawings	11/15/2018	11/27/2018	DH
15	Latest revised cost spreadsheet	11/15/2018	11/26/2018	DH
16	Revised cost spreadsheet sorted by D-groups D-1 through D-18	11/15/2018	11/26/2018	DH

See Attach B-12 (Labor and Equipment Hours).pdf
KRRC Response
See the following files: <ul style="list-style-type: none"> • Attach B-14 - CEII (zip file 01 of 15).zip • Attach B-14 - CEII (zip file 02 of 15).zip • Attach B-14 - CEII (zip file 03 of 15).zip • Attach B-14 - CEII (zip file 04 of 15).zip • Attach B-14 - CEII (zip file 05 of 15).zip • Attach B-14 - CEII (zip file 06 of 15).zip • Attach B-14 - CEII (zip file 07 of 15).zip • Attach B-14 - CEII (zip file 08 of 15).zip • Attach B-14 - CEII (zip file 09 of 15).zip • Attach B-14 - CEII (zip file 10 of 15).zip • Attach B-14 - CEII (zip file 11 of 15).zip • Attach B-14 - CEII (zip file 12 of 15).zip • Attach B-14 - CEII (zip file 13 of 15).zip • Attach B-14 - CEII (zip file 14 of 15).zip • Attach B-14 - CEII (zip file 15 of 15).zip
See Attach B-15 (Cost Spreadsheets).pdf
See Attach B-15 (Cost Spreadsheets).pdf

C. Definite Plan

Chapter	Title	Questions/Items Requested	Date Requested	Date Received	Requested by:
1	Objectives and Background				
2	Existing Feature Descriptions				
3	FERC Compliance and Dam Safety				
4	Reservoir Drawdown and Diversion Plan				
4.2.1	<i>J.C. Boyle Reservoir</i>				
	a. Figure 4.2-3	Provide diversion tunnel HW-Discharge rating curve supporting calculations	11/5/2018	11/9/2018	jeb
4.2.3	<i>Iron Gate Reservoir</i>				
	a. Diversion Tunnel	Provide diversion tunnel HW-Discharge rating curve supporting calculations	11/5/2018	11/9/2018	jeb

KRRC Response
See the following files: <ul style="list-style-type: none"> • Attach C-04.2 - CEII (COPCO Rating Curve).pdf • Attach C-04.2 - CEII (Iron Gate Rating Update for BOC).pdf • Attach C-04.2 - CEII (JCBoyle Rating Curve for BOC).pdf
See the following files: <ul style="list-style-type: none"> • Attach C-04.2 - CEII (COPCO Rating Curve).pdf • Attach C-04.2 - CEII (Iron Gate Rating Update for BOC).pdf • Attach C-04.2 - CEII (JCBoyle Rating Curve for BOC).pdf

C. Definite Plan

Chapter	Title	Questions/Items Requested	Date Requested	Date Received	Requested by:
4.3	Flood Frequency Analysis				
	a. Table 4.4-2	Explain significance of detailed plan design flood frequency is 25-yr event	11/5/2018	11/9/2018	jeb
	b. Figure 4.4-2	Legend indicates design flood frequency is 150-yr event	11/5/2018	11/9/2018	jeb
	c. Page 101	Paragraph 5 indicates design flood frequency is 100-yr event w/3-ft	11/5/2018	11/9/2018	jeb
	General Clarification	Clarify design flood frequency for embankment removals	11/5/2018	11/9/2018	jeb
4.6	Reservoir Drawdown Releases				
	a. 4.6.1 Detailed Modeling	Provide USBR's Hydrology, Hydraulics, and Sediment Transport Report (see	11/5/2018	11/9/2018	jeb
	b. 4.6.1 Detailed Modeling	Provide SRH1-D reservoir model cross sections for HEC-RAS model (see above)	11/5/2018	11/9/2018	jeb
4.6.2	J.C. Boyle Reservoir				
	a. 4.6.2.2 Reservoir Stabilization	Clarify two week stabilization requirement following large flood events	11/5/2018	11/9/2018	jeb
	b. 4.6.2 Results	Provide rational for assumption for initial sediment mobilization	11/5/2018	11/9/2018	jeb
	c. Figures 4.6-2 through 4.6-7	Explain why all figures indicate reservoir drawdowns in excess of 5-ft per day	11/5/2018	11/9/2018	jeb
4.6.3	Copco Lake				
	a. Results; paragraph 4	Provide rational for assumption for initial sediment mobilization	11/5/2018	11/9/2018	jeb

KRRC Response
The Detailed Plan calculated return interval flows for the 25-yr event. The Definite Plan calculates for the 20-yr event.
I believe this note refers to Fig 4.4-3. 150-yr is a bit of a misnomer in this case. The design flow for dam removal has a probability of 0.67% for the
The embankment removal elevations are based on 150yr (0.67% propability event). The text that states it is based on a 100-yr event is a typo.
Same as above.
See Attach B-08 (Technical Report No. SRH-2011-02).pdf
See the following files: <ul style="list-style-type: none"> • Attach C-04.6a • Attach C-04.6b
Regarding "The reservoir elevation will be allowed to stabilize and be held for one to two weeks to allow dissipation of pore pressures in the embankment and the reservoir rim.": The reservoir elevation will be maintained at the lowest possible level (depending upon inflow) for a 1 to 2- week period between the opening of the first diversion culvert and the opening of the second diversion culvert.
The results in USBR's Hydrology, Hydraulics, and Sediment Transport Studies for the Secretary's Determination report. See Section 9.2 of that
For JC Boyle, the restriction of drawdown to 5 ft/d can only be applied to the spillway and power intake facilities because they are the only openings that can be controlled. The 2 diversion culverts are non-operable, and are closed with cemented concrete stop logs. Once a culvert is opened, the drawdown rate is only controlled by the size of the culvert, and this results in drawdown faster than 5 ft/d. The dam stability memo in Appendix D discusses this and notes that the dam embakment is stable at drawdown rates up to 10 ft/d and the hold period is recommended there.
See response in Row 47.

C. Definite Plan

Chapter	Title	Questions/Items Requested	Date Requested	Date Received	Requested by:
4.6.4	<i>Iron Gate Reservoir</i>				
	a. Results; paragraph 3	Provide rational for assumption for initial sediment mobilization	11/5/2018	11/9/2018	jeb
	b. Figures 4.6-15 through 4.6-16	Indicate two week reservoir stabilization following large flood	11/5/2018	11/9/2018	jeb
4.6.5	<i>Downstream of Iron Gate</i>				
	a. Analysis Setup	Were HEC-RAS steady state profiles used for estimate water surface changes?	11/5/2018	11/9/2018	jeb
	b. Results	Dynamic routing would probably show lower flows if gate regulated outflow with two week reservoir level stabilizations; This approach may prevent issues with property owners downstream of Iron Gate.	11/5/2018	11/9/2018	jeb
4.8	Best Management Practices				
	4.8.1 Blockage of Diversion Facilities	Explain rational for removing large debris from diversion tunnel entrance	11/5/2018	11/9/2018	jeb
	4.8.1 Blockage of Diversion Facilities	Collapse of tunnel lining from cyclical loadings during transient operations	11/5/2018	11/9/2018	jeb

KRRC Response
See response in Row 47.
There is no applicable 2-week hold period for Iron Gate.
No RAS models were used for the analysis of flows downstream of Iron Gate. Section 4.6.5 uses historical gage record data. It is an analysis of hydrographs only.
See responses in Rows 54 and 56.
Our understanding is that the watersheds do not historically bring much large debris into the Copco Lake or Iron Gate Reservoir. It is unknown how much large debris may be buried in the sediment. Given the large size of the tunnels, debris that would be of concern would be trees and large lumber. Large debris could block or interrupt the flow through the diversion tunnel and would reduce the tunnel's release capacity. A debris screen will be required to prevent large debris to enter the diversion tunnels. One concept for a debris screen would be to install a line of anchored H-piles (approximately 6' the center to center spacing) across the channel upstream of the tunnel entrance a sufficient distance to allow debris to be trapped and allow sufficient flow to pass through to maintain the desired drawdown rate. The DB contractor will be required to design a debris screen for the Copco 1 and Iron Gate diversion tunnels.
The effects of cyclical loading will be included in the design of new tunnel linings that are required for reservoir drawdown. There is a potential for cyclical loading to cause distress in the existing unreinforced concrete lining in the upstream portion of the Iron Gate diversion tunnel. We will evaluate this condition and determine if there is a potential for collapse and how to mitigate that potential if it exists. The DB contractor will be required to consider this requirement and design accordingly.

