

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – Portland Regional Office
1201 NE Lloyd Blvd, Suite 750
Portland, Oregon 97232
(503) 552-2700

3/3/2025

In reply refer to:
P-2496

VIA Electronic Mail

Ms. Laura Ohman
Chief Dam Safety Engineer
Eugene Water and Electric Board
Laura.Ohman@EWEB.org

Subject: Walterville Canal Hydrologic and Hydraulic Modeling Report

Dear Ms. Ohman:

This letter is to acknowledge Mr. Daniel Huang's August 19, 2022 letter transmitting the Hydrologic and Hydraulic Modeling Report for the Walterville Canal and Forebay and Walterville Storage Pond Developments of the Leaburg-Walterville Canal Project, FERC No. 2496. We have reviewed the information provided and have the following comments:

1. Your consultant's estimate of upland tributary flows into the canal for different return intervals using StreamStats used the median flow estimates to develop the frequency curves. The regression equations used in the StreamStats model for this area in Oregon typically have a standard error of 30% to 40%. We recommend that the Upper 90% Prediction estimate of flows be used in the frequency curves to account for uncertainty.
2. The HMR 57 Probable Maximum Flood (PMF) was determined only using the 72-hour General Storm, 10 sq mi Probable Maximum Precipitation (PMP) of 17 inches. In the Walterville watershed, the HMR-57 Local Storm 1-hour PMP, adjusted for the drainage area, has a 1-hour depth of about 6 inches on the watershed. Since the canal has relatively limited surcharge capacity, the canal is likely to be more sensitive to peak inflow rather than flood volume. Hence the 1-hour PMP may be more critical for assessing the PMF on Walterville Canal. Therefore, an updated PMF analysis must be performed for the Local Storm PMP using HMR 57 to see if it is the controlling event for the PMF into the canal.

3. The report does not discuss the source of the bathymetric data used to develop canal cross-sections for the model or how the LiDAR and bathymetric surveys were tied into design drawing elevations for existing structures. Please provide details on the source of the survey data including dates of the surveys, control points, survey equipment, and estimated accuracy, etc. Also provide the bathymetric survey mapping results.
4. The Waterville Canal is currently in a dewatered condition due to concerns about seepage and internal erosion at the forebay section. An additional analysis should be performed of the HMR 57 PMP (both General Storm and Local Storm) on the contributing watershed with the canal initially dewatered, to determine if any overtopping of high hazard sections would still occur.
5. The Hydraulic analysis Table 6-2 shows that the canal is overtopped at several locations under the PMF scenarios, but most critically, the high hazard sections of the canal are overtopped between STA 124+00 and 140+00, STA 185+00 to 190+00, and STA 190+00 to 192+00. Once the additional Local Storm PMF analysis and the revised flood frequency curves are developed, a dam breach assessment will be needed at these specific overtopping locations to see if the breach flows would present an incremental impact to life safety. In the event that any identified overtopping sections pose a threat to life safety, risk reduction measures, such as raising the canal embankments to prevent overtopping, will be required before the canal is allowed to return to full capacity.
6. The analysis of overtopping of the intake structure by flood flows in the McKenzie River shows that while such a scenario is possible, the flood event needed to initiate overtopping has a very low probability and not a large amount of flow into the canal. A flow of 106,300 cfs on the McKenzie, which is estimated to have a 3333-year return period, only discharges 650 cfs into the canal. Additionally, your consultant concluded that the timing of a flood on the main river would not occur concurrently with the tributaries into the Waterville Canal. We concur with this assessment and consider the issue of overtopping from the river into the canal resolved. A summary of this analysis should be included in the next update to the STID.
7. We have reviewed the rating curves developed for the Waterville Storage Pond Gate, the Siphon Spillways, Low-Level outlet, and Turbine gate and have no comments. These rating curves should be included in the next update to the STID.

Within 60 days of the date of this letter, please respond to or submit a plan and schedule to address the comments above. File your submittal using the Commission's eFiling system at <https://www.ferc.gov/ferc-online/overview>. When eFiling, select Hydro: Dam Safety and Portland Regional Office from the eFiling menu. The cover page of the filing must indicate that the material was eFiled. For assistance with eFiling,

contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

Thank you for your continued cooperation and interest in dam safety. If you have any questions, please contact Ms. Kelci Welty of this office at (503) 552-2728.

Sincerely,

Douglas L. Johnson, P.E.
Regional Engineer