



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Helgeson and Schlossberg
FROM: Mark Zinniker, Generation Engineering Supervisor
DATE: March 22, 2019
SUBJECT: Update on Carmen Diversion Reservoir Sinkhole Investigations
OBJECTIVE: Information Only

Issue

On July 25, 2018, the Federal Energy Regulatory Commission (FERC) issued a letter directing EWEB to develop a work plan to investigate existing sinkholes on the bottom of Carmen Diversion Reservoir. Sinkhole features at the reservoir site had been noted during original construction and EWEB had been roughly monitoring sinkhole features for decades. In more recent years, EWEB documented the sinkhole features in great detail by performing a detailed bathymetric survey in July 2016 by using high-resolution multi-beam sonar. At the time of FERC letter, EWEB had just performed a follow-up bathymetric survey on July 23/24, 2018 and was in the process of comparing new results to the 2016 baseline information. In response to apparent sinkhole changes that were revealed by analysis of the follow-up survey results, EWEB lowered the lake level from elevation 2626.5 feet to under elevation 2621 feet in early August 2018 as a precautionary measure.

Discussion

EWEB continues to operate the Carmen Diversion Reservoir at a reduced water surface elevation. The normal maximum water level at Carmen Diversion during the wet weather season is elevation 2625 feet. In response to the sinkhole concerns, EWEB proposed to modify the wet weather season maximum water level to 2621 feet. This proposal was approved by the FERC in December 2018.

Since receiving FERC approval, EWEB has been able to keep the reservoir level well below the modified maximum level while maintaining our diversion of the majority of reservoir inflows for power generation. To date, the highest reservoir level experienced during modified operations has been elevation 2616.75 feet. And during the recent heavy snowfall/cold weather period, the reservoir level fell as low as 2615 feet. The upcoming spring snowmelt period could present significant operational challenges for remaining below elevation 2621 as concurrent storm systems can always trigger flooding. But detailed operating plans are in place such that EWEB staff are well positioned to manage potential flood conditions to the greatest extent possible.

EWEB submitted a Drilling Program Plan (DPP) for investigating subsurface conditions at Carmen Diversion in October 2018 and is awaiting approval from the FERC. Recent communication with

FERC staff at the Portland Regional Office indicate that their approval could be imminent pending blessing from their counterparts in Washington DC. As such, EWEB has scheduled our specialty drilling contractor for their next available work window which is in May. The results from this drilling work will improve EWEB's understanding of the dam safety risks associated with the sinkhole features and inform our proposal to the FERC for sinkhole remediation as appropriate. EWEB would hope to implement any warranted remediation work in Fall 2019 during the low inflow period and prior to the return of wet weather.

With the Carmen-Smith Project entering into an eight month outage in April for reconstruction of the substation and plant electrical systems, flow management at Carmen Diversion will shift toward directing flow into the bypass reach (toward Blue Pool/Tamolitch Falls) as opposed to diverting flow to Smith Reservoir. This transition is expected to eventually take the water elevation at Carmen Diversion even lower during the upcoming dry weather season, perhaps as low as elevation 2612. Since the current and projected summertime water levels are not compatible with the normal recreational activities at the reservoir (boat ramps do not extend all of the way to the lake, large mud flats are present around the perimeter of the lake, dangerous river currents extend well into the lake, etc.), EWEB has worked with the US Forest Service (USFS) to restrict public access to the lake.

Requested Board Action

Information only. No Board action requested.