



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Helgeson and Schlossberg  
FROM: Mel Damewood, Chief Water Engineering and Operations Officer  
DATE: December 28, 2018  
SUBJECT: Second Source (Willamette Water Treatment Plant) Level of Service Goals  
OBJECTIVE: Provide General Direction

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## **Issue**

The Water Long Term Financial Plan (LTFP) has construction starting on the Second Source – Willamette Water Treatment Plant (Plant) in 2023. For construction to start by this date, decisions will need to be made soon on the level of service goals and subsequent costs for the Plant so that adequate time is allowed for permitting, design, and financial planning to occur.

## **Background**

EWEB has made numerous attempts to build a second water treatment plant over the last several decades. These have included attempts on both the McKenzie River and the Willamette River. Earlier efforts had a goal of additional capacity while later efforts were focused on enhanced resiliency. Three different properties have been purchased during these efforts and numerous engineering studies completed.

The most recent effort to develop a Second Source began in 2014 and the following activities occurred for that effort:

1. Water rights and a point of diversion were obtained for the Willamette River at a point just below the confluence of the Coast Fork and Middle Fork.
2. Property was obtained for both a river intake and a water treatment plant. This property is located in South Glenwood off Franklin Blvd.
3. Preliminary design was completed for the new river intake and treatment plant. The treatment plant was to be a robust normally operating plant with a capacity of approximately 15 million gallons per day (MGD).

Numerous updates have been provided to the Board on this project and reference is made to the materials provided at the October 4, 2016; March 7, 2017; and August 1, 2017 Board meetings.

As the different efforts progressed, the funds allocated to the Second Source project in the Water Capital Improvement Plan (CIP) varied. Over the last ten years the amount allocated to the Second Source project has varied from \$120M in 2009-2011 to \$0 last year. Currently there is approximately \$40M in the CIP and the LTFP as a placeholder for the Second Source Project.

In 2017, a decision was made to put the Second Source project on hold and focus efforts on

development of Emergency Water Distribution Sites where water could be delivered to customers if EWEB loses its source of supply and/or distribution system. Work is currently occurring developing these sites. To date one site is operational at Kalupaya High/Prairie Mountain Middle School and a second site is nearing completion at Howard Elementary School. The current goal is to accelerate the number and locations of the Emergency Water Distribution Sites over the next few years to exceed the original goal of 5 sites in 5 years.

In 2018, a decision was made to bring the Second Source project back into the CIP and LTFP. Currently the LTFP has construction of the project occurring in 2023-2025.

### **Discussion**

The recent Second Source effort resulted in the preliminary design for a robust, normally operating, water treatment plant (Normal Plant) with an estimated cost of \$71M. As the preliminary design was wrapping up, concerns arose over the cost and the integrity of the distribution system following a seismic event. Responding to these concerns, an emergency only, scaled back treatment plant (Emergency Plant) was discussed as an alternative in the August 1, 2017 Board Update. This alternative had an estimated cost of \$42M. As the project was being deferred, a decision was not made as to which alternative should be pursued. Note also that the estimates provided were in 2017 dollars. As the project is deferred these estimates will increase due to inflation.

Staff believes that it will be difficult to design and construct a river intake, an Emergency Plant, and the necessary transmission improvements for much less than the \$42M (2017 dollars) presented in the August 2017 Board Update. As such this can be considered the lower ‘bookend’ for the project. At the other end is the Normal Plant developed as part of the preliminary design completed in 2017. This can be considered the higher ‘bookend’ for the project.

The final constructed project could be either of these scenarios or something in the middle. To facilitate a decision on how to proceed, the level of service goals and the respective funding mechanisms associated with each scenario are discussed below along with the operational impacts and the concept of a joint project with the Springfield Utility Board.

#### Level of Service Goals

##### *Plant Capacity.*

The plant capacity in both scenarios was based on the minimum demands projected. The Emergency Plant capacity was set at approximately 10 MGD which is enough to provide for residential use only with no landscaping or industrial/commercial use. During a regional event such as a large earthquake when everything is shut down, this would likely be enough to keep the distribution system or portions of it pressurized.

The Normal Plant capacity was set at 15 MGD which would be enough under current conditions to keep water flowing to industrial and commercial users assuming complete curtailment of landscape use. If a local event shut down the Hayden Bridge source, and everything else was normal, this would help keep business and industry going.

##### *Resilience/Recovery Time.*

The EWEB water system has approximately 1 to 2 days demand’s worth of water in reservoirs when the Hayden Bridge source is lost i.e. no home water delivery or sanitation after a couple days.

Given this fact, the recovery time criteria for the Normal Plant was set at 24 hours. This would ensure near normal water use (without landscaping) following loss of our existing source and if the distribution system is intact.

The recovery criteria for the Emergency Plant was based on the 2013 Oregon Resiliency Plan which set recovery targets following a subduction zone earthquake. Targets were set for water and other services based on the location. For the Willamette Valley, the recovery target, for water supply capacity is 50 to 60% within 3 days and 80 to 90% within two weeks.

With the Emergency Plant, if the Hayden Bridge Source is lost, residents may have to rely on the emergency water distribution sites for up to two weeks or longer depending on the duration of the source disruption.

#### *Water quality.*

With the Emergency Plant only delivering water into the distribution system during a loss of the Hayden Bridge Source, as such its water quality criteria was set to the minimum to meet regulatory requirements and there is no treatment for taste and odor.

The Normal Plant would operate daily, delivering water into the distribution system. As such, the water quality criteria was set to exceed that achieved from the Hayden Bridge Plant up to 10 MGD. Above that capacity the water quality would be allowed to drop to minimum regulatory requirements.

#### *Confidence.*

There would be higher confidence that the Normal Plant would meet its start-up and capacity goals than the Emergency Plant. This is primarily due to the following with respect to the Normal Plant:

- It would be operated on a daily basis. Starting a treatment plant after it sits idle for extended periods is challenging and requires a significant effort. In addition, treatment plants have many pieces of equipment which in general is more reliable if operated regularly.
- It has redundancy in process and equipment. When failures do occur, there is a backup. Many of these were removed in the Emergency Plant to reduce costs.
- It has the appropriate treatment process to handle most river quality situations with ease. To reduce cost, the Emergency plant has minimal capacity to accommodate difficult raw water conditions.

A comparison of the level of service goals for each scenario is presented in Table 1 below. As mentioned previously, the values shown are bookends and do not require an either/or decision.

**Table 1. Level of Service: Emergency Only – Normal Operating Plant Comparison**

<u>Parameter</u>	<u>Emergency Only Plant</u>	<u>Robust Normal Operating Plant</u>
Operation:		
Normal	None	Daily
During Emergency - Loss of Hayden Bridge Source	Continuous	
Level of Service:		
Capacity/Water Quality		
Quality Equal or Better than Hayden Bridge	No	Up to 10 MGD
Quality Meeting regulatory limits	To 10 MGD	To 15 MGD
Ability to Treat during Fuel Spill	With Difficulty	Yes
Ability to Treat Following Fire in Watershed	With Difficulty	Yes
Ability to Treat for Algae Toxins	With Difficulty	Yes
Ability to Meet Anticipated Future Regulations	With Difficulty	Yes
Resiliency/Recovery Time	2 Weeks to 85% Capacity - 8.5 MGD (Meets Oregon Resiliency Plan)	24 Hours to 100% Capacity - 15 MGD
Confidence that LOS goals for capacity and recovery time will be achieved	Medium	High

Funding/Rate Actions

With respect to funding, two alternative scenarios were developed for the long term financial plan. One for the Emergency Plant and One for the Normal Plant.

Both of alternative scenarios are shown below following a summary of the current LTFP. The yellow shaded cells in Scenarios 1 and 2 show what changes are anticipated if a decision were made to proceed with these scenarios. The costs presented reflect an assumed annual inflation rate of 3% between 2017 and the anticipated time of construction.

As indicated, the bond amount increases by about \$10 million for the Emergency Only Plant and \$40 million for the Normally Operating Robust Plant. Anticipated changes in revenue requirements, debt service coverage and day’s cash are also shown.

**Table 2. Current LTFP:**  
\$40M Shown for Second Plant

<u>Key Metrics</u>	<u>Current Target</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Reserves & Cash	\$12,680	\$27,400	\$27,400	\$24,700	\$25,200	\$26,200	\$30,000	\$32,600	\$27,800	\$23,600	\$19,100
AWS Reserve Balance		\$5,600	\$5,200	\$4,900	\$4,500	\$0	\$0	\$0	\$0	\$0	\$0
AMI Reserve		\$0	\$0	\$300	\$800	\$1,400	\$2,000	\$2,600	\$3,100	\$3,700	\$4,300
Total Cash Reserves	\$12,680	\$33,000	\$32,600	\$29,900	\$30,500	\$27,600	\$32,000	\$35,200	\$30,900	\$27,300	\$23,400
Second Plant Capital Outlay						\$10M	\$15M	\$15M			
Bond Funding						\$50M					
DSC	2.00-2.50	3.77	3.83	3.90	3.73	2.94	2.54	2.60	2.69	2.77	2.80
Days Cash	> 150 days	610	609	559	515	463	497	529	449	382	310
Average impact resulting from change in revenue requirement		0.00%	0.00%	0.00%	3.00%	3.00%	3.00%	3.00%	4.00%	4.00%	4.00%

**Table 3. Scenario 1: Emergency Only Plant**  
\$51.8M Second Plant (\$42M inflated at a rate of 3% per year)

<u>Key Metrics</u>	<u>Current Target</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Reserves & Cash	\$12,680	\$27,400	\$27,400	\$24,700	\$25,200	\$32,000	\$32,400	\$31,600	\$27,000	\$23,000	\$18,700
AWS Reserve Balance		\$5,600	\$5,200	\$4,900	\$4,500	\$0	\$0	\$0	\$0	\$0	\$0
AMI Reserve		\$0	\$0	\$300	\$800	\$1,400	\$2,000	\$2,600	\$3,100	\$3,700	\$4,300
Total Cash Reserves	\$12,680	\$33,000	\$32,600	\$29,900	\$30,500	\$33,400	\$34,400	\$34,200	\$30,100	\$26,700	\$23,000
Second Plant Capital Outlay						\$14.3M	\$18.5M	\$19.0M			
Bond Funding						\$60M					
DSC	2.00-2.50	3.77	3.83	3.90	3.73	2.86	2.44	2.55	2.57	2.65	2.68
Days Cash	> 150 days	610	609	559	515	558	535	515	438	373	305
Average impact resulting from change in revenue requirement		0.00%	0.00%	0.00%	3.00%	3.00%	4.00%	4.00%	4.00%	4.00%	4.00%

**Table 4. Scenario 2: Normally Operating Robust Plant**  
\$87.7M Second Filtration Plant (\$71M inflated at a rate of 3% per year)

<u>Key Metrics</u>	<u>Current Target</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Reserves & Cash	\$12,680	\$27,400	\$28,300	\$27,800	\$30,600	\$41,800	\$38,600	\$33,300	\$28,500	\$24,300	\$20,000
AWS Reserve Balance		\$5,600	\$5,200	\$4,900	\$4,500	\$0	\$0	\$0	\$0	\$0	\$0
AMI Reserve		\$0	\$0	\$300	\$800	\$1,400	\$2,000	\$2,600	\$3,100	\$3,700	\$4,300
Total Cash Reserves	\$12,680	\$33,000	\$33,500	\$33,000	\$35,900	\$43,200	\$40,600	\$35,900	\$31,600	\$28,000	\$24,300
Second Plant Capital Outlay						\$21.5M	\$32.6M	\$33.6M			
Bond Funding						\$90M					
DSC	2.00-2.50	3.77	4.03	4.32	4.19	2.82	2.21	2.26	2.24	2.31	2.34
Days Cash	> 150 days	610	627	617	605	721	630	540	459	391	321
Average impact resulting from change in revenue requirement		0.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	4.00%	4.00%	4.00%

### Operational Impacts

Additional Operations and Maintenance (O&M) effort will be required for both scenarios. This effort will consist of both additional staffing and other non-labor components. At this time it is assumed that the O&M effort/cost will be equivalent for both scenarios during non-emergency conditions. The Normal Plant will have more continuous operating costs with some offset by reductions in capacity at Hayden Bridge. The Emergency Plant will have higher periodic O&M costs due to the greater level of effort to start up and shut down a normally idle plant for testing. There will also be costs associated with water disposal during periodic testing that still needs to be determined.

### Joint Project with the Springfield Utility Board

The information presented above assumes that the Second Source Project is an EWEB only effort. It is acknowledged that a joint effort with the Springfield Utility Board (SUB) to build a new Water Treatment to serve both utilities would be advantageous and potential result in lower costs for each. Discussions with SUB have not yet matured enough however to indicate that this is a viable alternative.

If a joint water treatment plant does become viable, decisions will still need to be made on the level of service goals mentioned herein.

### **Recommendation**

None

### **Requested Board Action**

Input is sought from the Board on the items presented herein and the direction for the Second Source Project.

Staff and consultants will summarize this topic and be available for discussion and to answer questions at the February 5, 2019 Board Meeting.

If you have any questions please contact Mel Damewood, Chief Water Engineering and Operations Officer at 541-685-7145 or email [mel.damewood@eweb.org](mailto:mel.damewood@eweb.org).



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Helgeson and Schlossberg  
FROM: Mark Zinniker, Generation Engineering Supervisor  
DATE: December 27, 2018  
SUBJECT: Update on Urgent Work at Carmen Diversion Reservoir  
OBJECTIVE: Information Only

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## Issue

On July 25, 2018, the FERC issued a letter directing EWEB to take immediate action to work with our Independent Consultant (the “IC” for the 5-year Part 12 Dam Safety Review of the Carmen-Smith Hydroelectric Project, being performed by Schnabel Engineering) to develop a work plan to investigate and mitigate potential failure modes associated with sinkholes at Carmen Diversion Reservoir. To respond to that FERC direction, EWEB staff were compelled to request an emergency declaration for contracting with Schnabel Engineering for \$169,616 in engineering services so that investigation and mitigation work could proceed in a timely manner. The August 2018 correspondence to the Board related to the emergency declaration is included for reference as an attachment to this update.

On September 26, 2018, the FERC issued additional directives to EWEB including a requirement to drawdown the Carmen Diversion Reservoir to a free-flow condition by removing the fixed stoplogs from the dam’s sluiceway. The letter directed EWEB to complete the drawdown work by October 31, 2018. The FERC also required EWEB to confirm that the fixed stoplogs could be safely removed using a temporary bulkhead system by completing stability analyses of both temporary and permanent sluiceway/spillway configurations. EWEB negotiated Contract Amendment No. 1 with Schnabel Engineering to complete the required stability analyses for the amount of \$34,700.

On October 26, 2018, the FERC issued additional directives to EWEB that necessitated another contract amendment with Schnabel Engineering. The additional engineering services included:

- IC review and concurrence with the Carmen Diversion Reservoir stage-storage curve that EWEB uses to plan reservoir drawdown and wet weather reservoir management operations.
- IC review and concurrence with the hydraulic model of the diversion tunnel that EWEB uses to plan reservoir drawdown and set weather reservoir management operations.
- IC performance of rapid drawdown analyses and concurrence that the EWEB’s proposed rates of water level adjustment are safe for drawdown and wet weather reservoir management operations.
- IC review and concurrence that EWEB’s overall wet weather operating plan properly mitigates risks associated with the sinkholes.

These additional services, in combination with FERC insistence for the full-time presence of a Schnabel geotechnical engineer during the late October reservoir drawdown activities, resulted in EWEB staff negotiating Contract Amendment No. 2 with Schnabel Engineering for the amount of \$57,766.

Amendment No. 1 increased the emergency contract amount by 20-percent above the baseline contract value of \$169,616. Amendment No. 2, in combination with Amendment No. 1, increased the emergency contract amount by 55-percent above the baseline contract value, thus triggering Board notification. The current emergency contract value with Schnabel Engineering is \$262,082.

With Schnabel's support through this contract, EWEB received FERC approval on December 20 for our wet weather operating plan that will allow for nearly normal operation of the Carmen-Smith facilities until our next planned outage for major construction work at Carmen Powerhouse.

### **Requested Board Action**

Information only. No Board action requested.



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson  
FROM: Mark Zinniker, Generation Engineering Supervisor  
DATE: August 23, 2018  
SUBJECT: Urgent Investigations at Carmen Diversion Reservoir  
OBJECTIVE: Information Only

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## **Issue**

As described in the attached emergency declaration, EWEB has needed to move ahead quickly on preparations for investigation work related to the presence of sinkholes on the bottom of Carmen Diversion Reservoir.

On July 16 and 17, 2018, a team consisting of EWEB staff, our Part 12D Independent Consultant (Schnabel Engineering), and our FERC dam safety compliance engineer inspected the Carmen-Smith Project. During that field inspection, the team viewed numerous known sinkholes in Carmen Diversion Reservoir, reviewed results from a previous bathymetric survey of the reservoir bottom, and discussed potential failure modes associated with the sinkhole situation.

In response to concerns raised from observations and discussions during the week of July 16<sup>th</sup>, the FERC issued a letter on July 25, 2018 requesting that EWEB take immediate action to work with the Independent Consultant to develop a work plan for assessing the site conditions, complete site investigations, and design of any needed repairs at the Carmen Diversion Reservoir within 45 days of receipt of their letter (see attached letter).

Since receipt of the FERC letter, EWEB staff have worked with Schnabel Engineering to negotiate a scope and fee to develop and perform the FERC mandated work plan. The fee exceeded the threshold for Board approval and waiting until the September 4<sup>th</sup> Board meeting would not permit EWEB to comply with the FERC-mandated response schedule. As a result, EWEB staff requested an emergency declaration so that this necessary work could proceed in a timely manner.

EWEB staff also observe that rapid progress on the FERC requested work plan is advantageous with respect to the approaching wet weather season which could complicate or preclude certain investigation and/or remediation opportunities.

## **Requested Board Action**

Information only, no Board action requested.

FEDERAL ENERGY REGULATORY COMMISSION  
Office of Energy Projects  
Division of Dam Safety and Inspections – Portland Regional Office  
805 SW Broadway, Suite 550  
Portland, Oregon 97205  
(503) 552-2700 Office - (503) 552-2799 Facsimile

7/25/2018

In reply refer to:  
P-2242-OR

Mr. Mark Zinniker  
Generation Engineering Supervisor  
Eugene Water and Electric Board  
P.O. Box 10148  
Eugene, OR 97440

Subject: 2018 Dam Safety Inspection Follow-Up Items for the Carmen-Smith Project

Dear Mr. Zinniker:

On July 16 and 17, 2018, Ms. Kristie Hartfeil of this office inspected the Carmen-Smith Project, FERC No. 2242. All project structures were inspected. As discussed with you and your staff, numerous large sinkholes have been identified in Carmen Diversion reservoir in the past as well as during this inspection. Based on our observations, the sinkholes could pose a significant dam safety or reservoir blowout concern and require immediate attention. Based on our visual inspections, review of project files, and discussions during the Part 12D Potential Failure Mode Assessment (PFMA), we have significant dam safety concerns about the following:

- a. Thirteen sinkholes documented in the 2016 bathymetry survey of the Carmen Diversion reservoir, including a sinkhole 25 feet in diameter and 13 feet deep near the upstream dam toe;
- b. Two previously backfilled sinkholes immediately downstream of the dam near Station 24+00;
- c. Linear depressions or slumping observed on the dam downstream slope, near the toe between Stations 22+00 and 24+00; and
- d. Uncontrolled seepage exiting at the downstream dam toe between Station 22+00 and 23+00.

These observations are consistent with developing potential internal erosion failure modes of the foundation and/or embankment under normal loading conditions. Although the dam currently has a low downstream hazard classification, failure of the structure would result in loss of the ability to divert water into Smith Reservoir and

severely limit the functionality of the power project. In addition, there are dozens of people recreating in the Tamolitch Falls (Blue Pool) area downstream from the dam during the summer that could be endangered in the event of a reservoir blowout and/or dam failure. **Therefore, we are requesting that EWEB should take immediate action and work with your Part 12D Independent Consultant (IC) to develop a workplan for assessing the site conditions, complete site investigations, and design of any needed repairs to be submitted within 45 days of receipt of this letter.** Furthermore, you need to develop interim risk reduction measures, which could include restricting the reservoir level, increased monitoring and surveillance, and/or enhanced downstream warning systems.

Additional items observed during the inspection were discussed with you, Ms. Cheri Wilson, Mr. Dan Olmstead, and Ms. Laura Ohman. A complete list of the additional items requiring your attention are listed below:

General:

1. The 2016 Bathymetric and Topographic Survey of Trail Bridge Dam, Smith Dam, and Carmen Diversion Reservoirs for EWEB by David Evans and Associates was never formally submitted to D2SI-PRO. This report and all future bathymetric and topographical surveys should be filed with D2SI-PRO upon receipt by EWEB.

Carmen Diversion Development:

2. Seepage Weir CD-SW1 is affected by backwater from spillway discharges and does not adequately monitor seepage flows observed between Stations 22+00 and 23+00 at the downstream dam toe. Additional weirs should be constructed near the seepage exit points to adequately monitor flows.
3. An approximately 1250-foot-long seepage blanket was originally constructed over the native pervious talus slope along the western edge of the reservoir, as shown in the as-built Drawing 3048-A-22-004. Trees are currently growing along the eastern edge of the road and into the seepage blanket. All vegetation over the seepage blanket should be removed and the seepage blanket repaired to original condition.
4. Given the presence of recreationalists and campgrounds downstream, EWEB should confirm the low hazard classification of this development. This effort would include a dam break analysis under both flood and sunny day, inundation mapping, and Sudden Failure Assessment (SFA).
5. As mentioned above, Blue Pool is heavily recreated and is downstream of the Carmen Diversion development. If Blue Pool is determined to be within the inundation zone of a Carmen Diversion dam breach, EWEB should

revise their Emergency Action Plan and Public Safety Plan, including development of interim risk reduction measures, to provide adequate warning time for evacuation of recreationists.

6. As discussed during the inspection, the Carmen Diversion tunnel was last inspected in 1982, and required repairs at that time due to settlement and internal erosion of foundation material. It is our understanding that EWEB is intending to inspect the tunnel this fall and we concur with the importance of this activity.
7. The vegetation near the downstream toe impairs visual inspection for seepage and surficial changes due to dam operations. Your IC should provide a recommendation for the width of the vegetation buffer that EWEB should maintain.

Smith Dam Development:

8. The siren on the Smith Dam spillway operates only as the gate opens, providing an inadequate warning time for anyone downstream. EWEB should revise the Public Safety Plan and project operations to improve the warning time for spillway discharges.

Trail Bridge Development:

9. The actual embankment footprint of Trail Bridge Dam is much larger than what is currently covered by EWEB's vegetation management plan. The embankment footprint extends west across Highway 126 (West Embankment), to the upstream end of the impervious/cutoff blanket; and almost five hundred feet upstream along the right abutment. Vegetation (shrubs to trees) were observed within the embankment footprint at the following locations:
  - a. On both upstream and downstream slopes of the West Embankment;
  - b. On upstream impervious blanket from approximately Station 4+84 to Station 7+00; and
  - c. On several hundred feet of the upstream right abutment embankment shell and blanket.

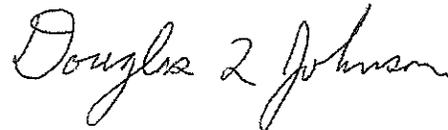
All vegetation over blanket and shell materials should be removed and embankment materials repaired to original condition.

Due to the potential urgency of the issues associated with the sinkholes at Carmen Diversion, in addition to providing a workplan as requested within 45 days from the date of this letter, we also request a face to face meeting with you and your

consultants to discuss the workplan and a path forward. For the remaining nine comments, please respond to or submit a plan and schedule for addressing comments Nos. 1 through 9 within 60 days of the date on this letter.

Thank you for your continued cooperation and interest in dam safety and emergency planning. If you have any questions, please contact Ms. Kristie Hartfeil of this office at (503) 552-2731.

Sincerely,

A handwritten signature in cursive script that reads "Douglas L. Johnson". The signature is written in black ink and is positioned above the typed name.

Douglas L. Johnson, P.E.  
Regional Engineer

Document Content(s)

P-2242 2018 DSI Follow-Up.PDF.....1-4

## FINDINGS TO SUPPORT DECLARATION OF EMERGENCY

DATE: 8/17/2018REQUESTOR: Cheri Wilson, Generation EngineeringESTIMATED COST: \$169,616

**In accordance with ORS 279A.065, ORS279A.025, 279B.080, 279B.145, 279C.335(5); 279C.380(4) and all applicable EWEB Rules:**

The Purchasing Manager, with the concurrence of the General Manager and/or an affected Executive Manager, may approve award of a public contract for goods, services, or work as an emergency procurement.

“**Emergency**” means circumstances that:

- (A) Could not have been reasonably foreseen;
- (B) Create a substantial risk of loss, damage or interruption of services or a substantial threat to property, public health, welfare or safety; and
- (C) Require prompt execution of a contract to remedy the condition. (See ORS 279A.010((1)(f))

Such circumstances may also include, but are not limited to:

- (a) EWEB moving forward as quickly as possible to prevent interruption to vital services, restoration of vital services, or to
- (b) Prevention of loss to EWEB,
- (c) Protection of the quality of services, or
- (d) Other circumstances necessary to responsibly carry out EWEB's services to its customers

**279B.145 Finality of determinations.** The determinations under ORS 279B.055 (3) and (7), 279B.060 (3) and (10), 279B.075, 279B.080, 279B.085 and 279B.110 (1) are final and conclusive unless they are clearly erroneous, arbitrary, capricious or contrary to law.

**NATURE OF THE EMERGENCY:**

(Describe the nature of the emergency and what if any effort was made to complete a competitive process)

On July 16 and 17, 2018, a team consisting of EWEB staff, our Part 12D Independent Consultant (Schnabel Engineering), and our FERC dam safety compliance engineer inspected the Carmen-Smith Project. During that field inspection, the team viewed numerous known sinkholes in Carmen Diversion Reservoir, reviewed results from a previous bathymetric survey of the reservoir bottom, and discussed potential failure modes associated with the sinkhole situation. In response to concerns raised during those discussions, the FERC issued a letter on July 25, 2018 requesting that EWEB take immediate action to work with the Independent Consultant to develop a work plan for assessing the site conditions, complete site investigations, and design of any needed repairs at the Carmen Diversion Reservoir within 45 days of receipt of their letter (see attached letter). Since receipt of the FERC letter, EWEB staff have worked with Schnabel Engineering to negotiate a scope and fee to develop and perform the FERC mandated work plan. Since the fee exceeds the threshold for Board approval and waiting until the September 4<sup>th</sup> Board meeting will not permit EWEB to comply with the FERC-mandated response schedule, EWEB staff request an emergency declaration so that this necessary work can proceed in a timely manner. EWEB staff also observe that rapid progress on the FERC requested work plan is

advantageous with respect to the approaching wet weather season which could complicate or preclude certain investigation and/or remediation activities.

**APPROVALS**

Department Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

Purchasing Manager: \_\_\_\_\_ Date: \_\_\_\_\_

ET Manager: \_\_\_\_\_ Date: \_\_\_\_\_

General Manager: \_\_\_\_\_ Date: \_\_\_\_\_

**PURCHASE CONTACT INFORMATION**

Vendor/Contractor: Schnabel Engineering, Inc \_\_\_\_\_

Buyer Name: \_\_\_\_\_ P.O. Number: \_\_\_\_\_



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Helgeson and Schlossberg  
FROM: Mark Zinniker, Generation Engineering Supervisor  
DATE: December 27, 2018  
SUBJECT: Urgent Investigations at the Leaburg Canal  
OBJECTIVE: Information Only

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## Issue

As described in the attached emergency declaration, EWEB needed to move quickly on response activities associated with excessive seepage at Station 120+00 on the Leaburg Canal. Observations of excessive seepage and soil movement in the area indicated that an internal erosion failure could develop. In response to this situation, EWEB drew down the canal and began preparations for embankment repair work.

In responding to this situation, EWEB required immediate geotechnical engineering support to provide oversight of the canal drawdown activities, prepare a subsurface investigations plan and develop conceptual repair designs. EWEB contracted with Cornforth Consultants from Portland, Oregon, to perform this work. (Contract # 18-2732Q for \$208,000.) Cornforth, a specialized geotechnical consulting firm that is well-qualified to perform these engineering services, has a long history of doing high quality work for EWEB. Their past work includes serving as the Independent Consultant (IC) for a 5-Year Dam Safety Review and numerous projects associated with the Leaburg Canal and the landslide-prone slopes above portions of the canal.

With Cornforth's support, EWEB has submitted a plan to the FERC for subsurface investigations at the area of concern. EWEB staff used that plan to solicit competitive bids from drilling contractors. A driller is currently under contract and poised to proceed with the subsurface investigations as soon as the FERC issues their approval of the plan. EWEB and Cornforth will also be working together expeditiously in 2019 to reach an agreement with the FERC on an appropriate repair strategy so that the Leaburg Canal can be returned to normal operations in a timely manner.

## Requested Board Action

Information only. No Board action requested.

## FINDINGS TO SUPPORT DECLARATION OF EMERGENCY

DATE: November 21, 2018REQUESTOR: Dan Olmstead, Generation EngineeringESTIMATED COST: \$ 208,000

**In accordance with ORS 279A.065, ORS279A.025, 279B.080, 279B.145, 279C.335(5); 279C.380(4) and all applicable EWEB Rules:**

The Purchasing Manager, with the concurrence of the General Manager and/or an affected Executive Manager, may approve award of a public contract for goods, services, or work as an emergency procurement.

**“Emergency”** means circumstances that:

- (A) Could not have been reasonably foreseen;
- (B) Create a substantial risk of loss, damage or interruption of services or a substantial threat to property, public health, welfare or safety; and
- (C) Require prompt execution of a contract to remedy the condition. (See ORS 279A.010((1)(f))

Such circumstances may also include, but are not limited to:

- (a) EWEB moving forward as quickly as possible to prevent interruption to vital services, restoration of vital services, or to
- (b) Prevention of loss to EWEB,
- (c) Protection of the quality of services, or
- (d) Other circumstances necessary to responsibly carry out EWEB's services to its customers

**279B.145 Finality of determinations.** The determinations under ORS 279B.055 (3) and (7), 279B.060 (3) and (10), 279B.075, 279B.080, 279B.085 and 279B.110 (1) are final and conclusive unless they are clearly erroneous, arbitrary, capricious or contrary to law.

### **NATURE OF THE EMERGENCY:**

Observations of a void and sediment accumulation and increasing seepage flows in the Leaburg Canal embankment indicate that a piping failure could develop. Generation staff have completely drained the canal to eliminate the immediate dam safety hazard and address various requirements from the FERC (see attached letters). The FERC has indicated that they will not allow EWEB to restore the canal to normal service until a comprehensive repair of the area between canal station 114+00 and 123+00 has been designed and constructed. Due to the canal outage, all generation at the Leaburg power plant has been suspended and will remain so until repairs are implemented and the threat to dam safety has been eliminated. The daily loss of generation revenues represents a substantial loss to EWEB. The nature of the final design of the repairs is unknown at this time, however it is critical that engineering design services proceed quickly so that the canal can be returned to service. This declaration of emergency is being requested to hire Cornforth Consultants to accommodate the FERC's requirement for licensed geotechnical engineering support, provide site geotechnical investigations support, and prepare conceptual repair designs. Cornforth has worked with EWEB since the 1980's on various Leaburg projects and is very familiar with both the Leaburg Canal and its important geological setting. The firm is located locally (Portland) and has licensed geotechnical engineers that have responded to EWEB's urgent needs quickly.