

ORIGINAL

RESOLUTION NO. 518

EMERGENCY RESOLUTION FOR 10TH STREET RESERVOIR REPAIRS

WHEREAS, the District found water seeping from the ground adjacent to 500,000 gallon Reservoir No. 6A at the 10th Street NE and Kentucky Street reservoir site, and

WHEREAS, the District has drained the reservoir in order to evaluate the condition of Reservoir No. 6A, and

WHEREAS, the Department of Health requires water purveyors to have gravity water storage for fire flow, equalizing storage, and standby storage and having this storage tank out of commission reduces that available water storage component, and

WHEREAS, upon inspection of the tank we have found several large cracks in the concrete floor of the concrete reservoir which has created a leak that saturated the sub-grade area under the tank and the foundation of the tank has settled approximately 4 inches, and

WHEREAS, the reservoir has been evaluated by the District's consulting firm RH2 Engineering, and their civil and structural engineers recommendation is to salvage the tank by making emergency repairs as the least cost and quickest alternative to restoring the required storage to the District, and


WHEREAS, the District needs these repairs done by early spring so the reservoir storage in this pressure zone can be back online for irrigation season so water restrictions will not be necessary, and

WHEREAS, the Board finds that the project results from an unforeseen circumstance beyond the control of the District that presents a real, immediate threat to the proper performance of essential functions, and

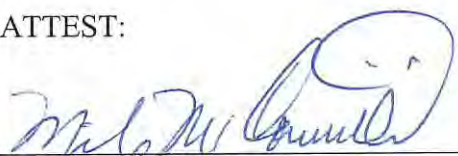
NOW, FURTHER, BE IT HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS of the East Wenatchee Water District, that pursuant to RCW 39.04.280(2)(b), the District hereby designates the General Manager as its designee for purposes of responding to any current or future emergency situation, which may exist in the District.

NOW THEREFORE, BE IT HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS of the East Wenatchee Water District, that pursuant to RCW 57.08.050(3) and RCW 39.04.280(1)(c), an emergency exists necessitating the repairs to the No. 6A reservoir and further, hereby authorizes its General Manager to proceed with whatever is necessary to make the necessary repairs to Reservoir 6A in order to get it back in service as soon as practicable.

ADOPTED, by the BOARD OF COMMISSIONERS of the EAST WENATCHEE WATER DISTRICT, Douglas County, Washington at a regular meeting thereof, this 18th day of December 2001.


Glen Broadsword, President

ATTEST:


Mike McCourt, Secretary



December 4, 2001

Board of Commissioners
East Wenatchee Water District
P.O. Box 7190
East Wenatchee, WA 98802-7190

Sent Via: Hand Delivery

Subject: 10th Street Reservoir Status

Dear Gentlemen:

We have performed a preliminary investigation of the damage to the 0.5Mg 10th Street Reservoir. The concrete tank was built in 1959. It has an integral dome roof and the floor rests on a spread footing. The southern quadrant of the floor and footing has dropped approximately four inches. It is possible that a leak developed in the floor some years ago and has been slowly eroding or settling the soils beneath the floor. From what we can see at the exposed footing, the soils appear to be a mixture of sand and clay, which is not conducive for carrying a heavy load on an unconstrained hillside.

The main issue is whether or not the tank is salvageable for a reasonable cost. There will need to be further investigation to determine the best measures to salvage the tank. Presented here is our best current estimate of the work involved and possible repair measures. District personnel costs are not included.

Soils Investigation

Excavate using District personnel just outside of the footing. Have a geotechnical engineer determine if stable soils exist at a reasonable depth. Note: Results of the investigation may conclude that measures other than those detailed here may be necessary. Lab testing may also be necessary.

Estimated Cost: \$2,500

Stabilization of Footing

Remove damaged portion of footing. Excavate down to competent soils and backfill with CDF up to base of footing. Pour back replacement footing.

Estimated Cost: \$20,000

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**Stabilization of Floor**

Drill multiple holes in the floor for injection of pressure grouting to fill voids between the floor and native soil. It is not anticipated that this will raise the floor to its original level or provide 100% long-term stabilization. There may still be some minor settling over time as remaining water is expelled from the soils.

Estimated Cost: \$12,000

Repair of Overflow

Overflow piping and support has been damaged due to floor settlement. A portion, or all of the structure should be replaced.

Estimated Cost: \$1,500

Lining of Tank

The stabilization of the floor will not provide a watertight structure. Given the age and condition of the construction joints, it may not be possible to seal the floor using conventional grout or epoxy systems. It is recommended that a fusion welded plastic liner be installed. Not only will this make a watertight tank today, but it will also stretch to accommodate possible future settling of the floor.

Estimated Cost: \$40,000

Engineering Consulting Services

Provide ongoing support, review and recommendations for the project.

Estimated Cost: \$8,000

Total Cost Estimate

$\$84,000 + 10\% \text{ contingency} + 8\% \text{ sales tax} = \$100,000$

Note that this cost assumes the methods described above will all be appropriate. After further investigation, it may be determined that other measures are necessary such as removal of a portion of the floor, retention of the footing, construction of a retaining wall, additional drainage systems or other procedures.

As a comparison, following are rough estimates for removing the existing tank and construction of a new replacement tank. We are assuming the construction of a 1.0Mg tank, which would also allow future removal of the older (1949) 0.3Mg tank.

\$70,000 Removal of existing 0.5Mg tank

\$600,000 Partially buried concrete tank

\$500,000 Above grade steel tank (retaining wall may be necessary at additional cost)



If you have any questions or need any further additional information regarding the cost estimates for the 10th Street Reservoir, please do not hesitate to contact me.

Sincerely,

RH2 ENGINEERING, INC.

A handwritten signature in blue ink, appearing to read 'Ryan Peterson', is written over the typed name. The signature is fluid and stylized, with a long horizontal stroke extending to the right.

Ryan Peterson, P.E.

RP:mw