PUBLIC HEALTH DIVISION
Drinking Water Services
Tina Kotek, Governor

Oregon Health Authority

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March 13, 2024

Brooke Shattuck
4B Engineering & Consulting, LLC
Via email: brooke.4b@outlook.com

Re: Reitz Well Replacement (PR#115-2022)
City of Keizer (PWS ID#00744)
Conditional Approval

Dear Brooke:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for the Reitz Well replacement project for City of Keizer, including the well log, abandonment well logs, sampling results, engineered plans, and details on the equipment for the well.

The project was issued a site plan approval letter in August of 2022. The well was drilled in November 2023. A geologist with our program reviewed the well log construction details and noted the following:

- The well meets current below-ground construction standards.
- The well was completed to a depth of 355 feet and is cased to a depth of 280 feet. The casing is sealed to a depth of 207 feet and extends through a 24-foot-thick gravel and clay layer (present at 153 feet) of lower permeability.
- This well draws water from a deep confined sand and gravel aquifer. Water is reported to first occur at a depth of 75 feet. However, the well is designed to capture water from deeper water-bearing zones within the aquifer. Based on the well log, these water-bearing zones appear to occur from 177 to 288 feet and 345 to 355 feet. Materials of lower permeability appears to overlie the water-bearing zone at 177 feet. These layers of lower permeability likely act as confining layers as water within the deeper water-bearing zones is under pressure, rising 102 feet above the water-bearing zone of 177 feet to a final static water-level depth of 75 feet below ground.

- Results from a sensitivity analysis indicate that the well construction has a low sensitivity to local land practices and the aquifer is not highly sensitive to nearby land use practices.

The plans are approved with the following condition:

- The site plan approval letter noted that the water system does not have the required 100-foot radius of control. Since the well is properly drilled into a confined aquifer, a waiver can be approved. I was not able to find a completed waiver form in the plan review file; please see the waiver form on our website and submit for approval.

Until we receive verification that the condition has been met and final approval has been issued, the facility is not approved for use. Upon completion of the project, the engineer must verify in writing that construction was completed according to the submitted plans. If substantial changes are made, a set of as-built drawings must be submitted. Documentation demonstrating how the above conditions were met should reference Plan Review #115-2022 and can be emailed to me at Carrie.L.Gentry@oha.oregon.gov.

In addition to the above condition, I have the following comments:

- Note that increased lead and copper sampling will be required once final approval is issued. The water system will be required to conduct two 6-month rounds at the original number of sample sites (60), with the new well in use or provide a lead and copper evaluation for review and approval.
- Although chemical sample schedules will be updated once final approval is issued, the water system could choose to continue taking the required radionuclide samples. Results for uranium and radium 226/228 were non-detect and the result for gross alpha was 4.9 pCi/L. Four rounds of quarterly radionuclide sampling are required, and the initial sampling counts for one of those rounds. If the next round of quarterly sampling for uranium and radium 226/228 are non-detect, then a reduction for those two is possible. Gross alpha requires the full four rounds of sampling (so three more quarters).

If you have any questions, please feel free to call me at (971) 201-9794.
Sincerely,

Carrie Gentry, PE
Regional Engineer

Drinking Water Services

cc: Chantal Wikstrom, REHS, OHA/DWS
Bill Lawyer, City of Keizer, LawyerB@keizer.org