



September 15, 2023

Adam Jackson, EIT
Avion Water Company
Via email: Adam@avionwater.com

**Re: China Hat Well #4 (PR#107-2023)
Avion WC – Greater Avion (PWS ID#00091)
Site Plan Approval**

Dear Adam:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for the China Hat Well #4 project for Avion WC – Greater Avion. On August 9, 2023, our office received a site plan, proposed well details, and easement information. A plan review fee of \$3,300 was received on August 25, 2023.

The project includes drilling a well with a 14" casing to a proposed depth of 640 feet. With the included easement, the water system has the required 100' radius of control and setback from sanitary hazards.

A regional geologist in our program reviewed the proposed well construction. He noted the following, which should be shared with the well driller:

- The estimated depth to a water-bearing zone is approximately 520 feet below ground surface (ft bgs) based on well log DESC 61639.
- The aquifer is estimated to be confined. The area around the proposed well location is sufficiently mapped as Quarternary Newberry Volcanics (Qba).
- The proposed well construction indicates that the well will be sealed to a depth of 518 ft bgs with concrete. The new well will need to extend from land surface to a minimum of at least five feet into solid, uncreviced, consolidated rock (i.e. most likely andesite/basalt) overlying the water bearing zone (see OAR 690-210-0150 and 690-210-0155). The well driller will also need to meet Oregon Water Resource Department's (OWRD) construction standards for a concrete seal as described below:
 - OAR 690-210-0315 Concrete – Concrete for use in the construction of a dug

well, or for filling the annular space or well bore of a well, shall consist of clean, hard, and durable aggregate, and not less than five sacks of Portland cement per cubic yard of concrete. Concrete will be allowed only when the oversize drill hole is a minimum of eight inches larger in diameter than the well casing used in construction of the well. The maximum diameter of aggregate particles shall not exceed 1-1/2 inches, but, in any case, shall not exceed 1/5 or 20 percent of the minimum width of the space to be filled. The ratio of coarse aggregate to fine aggregate (Passing No. 4, U.S. Standard Sieve) shall be approximately 1-1/2 to 1 by volume, but, in any case, shall not exceed 2 to 1 nor be less than 1 to 2.

- 690-210-0320 Methods of Placement of Cement Grout or Cement – Cement grout or concrete used as a sealing material in a well shall be placed or forced upward from the bottom to completely fill the annular space to be grouted and shall be placed in one continuous operation without significant interruption. If temporary outer surface casing is used in the construction of the well, it shall be withdrawn as the grout or concrete is placed. (For acceptable methods of placement, see Appendix 210-3 and Figure 210-1, 1986).
- Although the proposed well construction is approved, DWS recommends that the well driller consult with OWRD during the drilling process and prior to placement of the final seal.

The project is granted site plan approval. Once construction of the well is complete, please submit:

1. The well driller's report (well log).
2. Well pumping test information including static water level, pumping rate, drawdown and rate of recovery.
3. Pump information.
4. Raw (Untreated) Water Quality Data including coliform bacteria, IOC, SOC, VOC and radionuclides. These are to be taken from the new well's raw water sample tap at the wellhead.

The above items should reference Plan Review #107-2023 and can be emailed to me at Carrie.L.Gentry@oha.oregon.gov.

Note that the addition of this new well will trigger the requirement to conduct two 6-month rounds of lead and copper sampling at the original number (60) of sample sites.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Gentry', written in a cursive style.

Carrie Gentry, PE
Regional Engineer
Drinking Water Services

cc: Michelle Byrd, REHS, OHA/DWS
Travis Kelly, Well Construction Compliance Coordinator, OWRD