



December 3, 2021

Mark Cleaner
Callahan's Restaurant
7100 Old Hwy 99 S.
Ashland, OR 97520

**Re: Groundwater Disinfection (PR#191-2021)
Callahan's Restaurant (PWS ID#91551)
Conditional Approval**

Dear Mark Cleaner:

Thank you for your submittal to the Oregon Health Authority's Drinking Water Services (DWS) of plan review information for the groundwater disinfection for Callahan's Restaurant water system. On December 1, 2021, DWS received drawings, calculations, specifications, and a plan review fee of \$248.

The project includes the installation of a new 4-log chlorine disinfection system at the Callahan's Restaurant and Lodge located near Ashland, Oregon. The project involves the installation of a new hypochlorite injection system on the inlet line of the water system's 10,000-gallon storage tank. The water system is proposing to use an existing 1,250 feet 3-inch water line to generate 18 minutes of contact time. The peak flow is being restricted to a flow of not more than 25 gallons per minute per a new flow restricting valve/mechanism.

The project shall adhere to all applicable DWS Oregon Administrative Rules (OAR). The submitted plan review material has been reviewed and the following items were noted as conditions of final approval:

- Per OAR 333-061-0050(5)(b), water obtained from wells and springs shall be considered groundwater unless determined otherwise by the Authority. Wells and springs may be utilized without disinfection if the construction requirements of section (2) of this rule are met and analyses indicate that the water consistently meets microbiological standards. A well or spring that is inadequately constructed

must be upgraded to meet current construction standards or disconnected from the water system before disinfection treatment may be utilized when E. coli contamination was confirmed according to OAR 333-061-0032(7) or OAR 333-061-0036(6)(j) and where the Authority determines that reconstruction will add a significant measure of public health protection. Per recent field inspection by DWS and Jackson County staff, the water system's spring boxes current construction do not meet the State's construction standards and are subject to surface water influence. As a condition of final approval of the 4-log disinfection system, the water system will need to initiate plan review (i.e., submit reconstruction plans, pay plan review fee, and receive conditional approval) to reconstruct all spring boxes desired to be active to meet State construction standards.

- Per OAR 333-061-0050(5)(c)(D), sufficient contact time shall be provided to achieve "CT" values capable of the inactivation required by OAR 333-061-0032(1). Per the submitted 4-log disinfection form calculations required as part of the plan review, the 25 gallon per minute "flow controller" valve/mechanism needs to be installed on the outlet side of the 10,000-gallon storage tanks to control the flow in the 1,250 feet of 3-inch waterline to be used contact time.
- Per OAR 333-061-0050(5)(f), Sample taps shall be provided before and after disinfectant application as specified in subsection (4)(a)(E) of this rule.
- Per OAR 333-061-0050(5)(g), testing equipment shall be provided to determine the chlorine residual.
- Per OAR 333-061-0050(5)(h), chlorinator piping shall be designed to prevent the contamination of the potable water system by backflow of untreated water or water having excessive concentrations of chlorine.
- Per OAR 333-061-0050(5)(i), the disinfectant must be applied in proportion to water flow.
- Per OAR 333-061-0050(10)(a), following construction or installation of new facilities and repairs to existing facilities, those portions of the facilities which will be in contact with water delivered to users must be cleaned and flushed with potable water and disinfected according to AWWA Standards C651 through C654 before they are placed into service. Disinfection must be by chlorine unless another disinfectant can be demonstrated to be equally effective.
- Per OAR 333-061-0036, water system will need to monitor the 4-log disinfection system daily and record and report chlorine residuals at the water system entry point/first user.

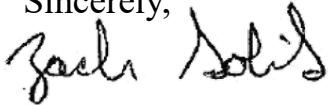
The submitted 4-log disinfection verification form calculations indicate that an assigned minimum chlorine residual of **0.44 mg/L at a minimum 5 degree Celsius (41 degree Fahrenheit) is required**. At no time shall the water chlorine residual drop below this minimum as measured at the water system's entry point or first user. Please note that if winter water source temperatures drop below 5 degree Celsius, the water will need to

recalculate its chlorine minimum residual to adjust to a higher CT values to achieve 4-log inactivation by free chlorine. In example, a wintertime water temperature of 0.5 degree Celsius will have a CT value of 12 and with a contact time of 18 minutes, the minimum chlorine residual will become 0.67 mg/L. The water system will need to verify the minimum chlorine residual once the hypochlorite injection system is complete.

Until we receive verification that the conditions have been met and final approval has been issued, the groundwater disinfection system is not approved for use. Upon completion of the project, the Owner and/or Owners Representative 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 #191-2021 and can be emailed to me at zachariah.cunningham-golik@dhsoha.state.or.us.

If you have any questions, please feel free to call me at 541-231-9077.

Sincerely,



Zach Golik, PE
Regional Engineer
Drinking Water Services

CC: Julie Wray, DWS Portland
Susan Baker, Jackson County Health Department