UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

APR 17 2013

OFFICE OF
COMPLIANCE AND ENFORCEMENT

Reply To: OCE-082

Lukas Reyes
Utilities Superintendent
The Consolidated Borough of Quil Ceda Village
8802 27th Avenue NE
Tulalip, Washington 98271-9694

Re: Underground Injection Control Inspection of the Quil Ceda Village Wastewater Treatment Plant Injection Wells, 8802 27th Avenue NE, Tulalip, Washington, on March 25, 2013 (UIC ID #WA424T5-99-90091)

Dear Mr. Reyes:

On March 7, 2013, the U.S. Environmental Protection Agency (EPA), Region 10, received a request from the Consolidated Borough of Quil Ceda Village to reauthorize use of nineteen injection wells for disposal of wastewater treatment plant effluent. In response to your request, the EPA is conducting a file review and the EPA conducted an Underground Injection Control (UIC) inspection at the Quil Ceda Village Wastewater Treatment Plant on March 25, 2013. Through this letter, the EPA is sharing the findings from the inspection with the Consolidated Borough of Quil Ceda Village. The EPA will provide a separate response to the request for reauthorization of the injection wells following review of your updated sampling and analysis plan.

Inspection Summary

The EPA inspector observed the "UIC channel" where the injection wells are located. The injection wells are located below the ground surface, but your staff showed the inspector control vaults that control the flow of effluent to the injection wells and monitoring wells that are co-located with the injection wells. According to the information you and your staff provided, the injection wells are functioning as intended.

The wastewater treatment plant utilizes a membrane bioreactor (MBR) and ultraviolet (UV) disinfection for all effluent that is injected. The inspector observed the treatment plant facilities and you and your staff provided information about how the treatment process works. The inspector learned about your standard operating procedures, including contingency measures. In addition to learning how the system is currently configured, the inspector also learned that the Consolidated Borough of Quil Ceda Village intends to improve the treatment system in the near future by adding a pre-air basin and two more MBR tanks.

The operators showed the EPA inspector monitors and alarms built into the system that monitor system operation and notify the operators if the system is not performing properly. According to the

information received by the inspector, all of the monitors except the turbidimeter were working during this inspection. The turbidimeter was turned off because the operators determined that MBR tank lids must remain open in order to ensure that the aeration diffusers in the MBR tanks are working properly, but algae grows on the turbidimeter sensors when the tanks are left open, which prevents them from working properly. Since the turbidimeter is not working, the operators visually inspect the system daily and look at the effluent frequently to see if it is becoming cloudy.

The operators are implementing a monitoring plan. The EPA inspector learned that the operators test the effluent for pH, nitrate, nitrite, and ammonia at the treatment facility approximately once every two weeks, and the operators also sample for mixed liquor suspended solids and filterability at the plant more often than they sample for the effluent quality parameters. Each month, samples of the effluent are collected at the treatment plant and samples are also collected from monitoring wells throughout the village area and submitted to a commercial laboratory for analyses.

The EPA inspector requested and received data from eleven monthly sampling events conducted between 2010 and 2013. The data provided to the inspector included samples of effluent and samples from monitoring wells collected on 1/13/2010, 5/25/2010, 10/7/2010, 4/7/2011, 5/18/2011, 11/17/2011, 12/19/2011, 2/1/2012, 6/21/2012, 1/3/2013, and 2/28/2013. The UIC program reviewed the data for the effluent samples. All but one of the effluent samples were analyzed for biochemical oxygen demand (BOD), pH, nitrate, nitrite, phosphate, conductivity, fecal coliform, ammonia, total kjeldahl nitrogen, and total phosphorous. The effluent sample collected 10/7/2010 was analyzed for BOD, pH, nitrate, nitrite, phosphate, conductivity, and fecal coliform. The UIC program noted that the nitrate concentration in the effluent was below 1 mg/L in eight of the samples and less than 7 mg/L in two of the samples, but it was detected at 26 mg/L during one sampling event. Fecal coliform was not detected during eight sampling events but it was detected at 7/100 mL, 30/100 mL, and 130/100 mL during the other three sampling events; pH ranged from 7.0-7.7 in the samples; and BOD was not detected during five sampling events, was detected at 5 mg/L during one sampling event, ranged from 7-10 mg/L during four sampling events, and was detected at 34 mg/L during one sampling event. The analyses of samples from the monitoring wells along the UIC channel consistently detected nitrate at higher concentrations than in the effluent but you explained to the inspector that the monitoring wells are located in landscaped areas where fertilizer is applied.

EPA Evaluation of Information Collected During Inspection

In 2003 and 2008, in response to inventory information and supporting data submitted by the Consolidated Borough of Quil Ceda Village, the EPA determined that nineteen large capacity septic system Class V injection wells could be authorized by rule. As part of the inspection, the EPA requested and received data from eleven monthly effluent samples collected between January 2010 and February 2013. Although that data indicates that for the parameters analyzed, the effluent met drinking water standards prior to injection during many of the sampling events, on some occasions the effluent did not meet drinking water standards prior to injection. Overall, the data reviewed indicated that the treatment plant is producing effluent that is of far better quality than effluent produced by a typical large capacity septic system, but with that said, your treatment system should be capable of producing effluent that consistently meets the nitrate and bacteria (coliform) standards, in addition to all other primary drinking water standards, prior to injection. In regards to nitrate, the addition of the pre-air basin, which you have already planned to implement in the near future, should help to improve the denitrification process, and the effectiveness of this step can be evaluated after installation. In regards to the disinfection system,

the EPA recommends evaluating the UV disinfection system against the manufacturer's recommendations, and making adjustments as necessary, to ensure consistent performance.

The existing sampling and analysis plan indicates that continuous turbidity measurements are to be used in lieu of sampling for total suspended solids. Since the turbidimeter has been turned off, the EPA recommends that you revise your sampling procedures to sample for total suspended solids. At similar systems, total suspended solids are sampled daily when continuous monitoring with a turbidimeter is not possible. If and when you are able to implement an alternative means of monitoring the performance of the diffusers so that the turbidimeter can operate effectively, you could switch back to continuous turbidity measurements at that time.

The EPA inspector learned that you have developed contingency plans, but it was not clear what conditions would cause those contingency plans to go into effect, especially in instances when the treatment plant is not producing effluent that meets all primary drinking water standards. The EPA recommends that you evaluate the contingency plan to ensure that the proper trigger points are identified within the plan and to the operators to prevent injection of fluid that does not meet primary drinking water standards.

In addition to the findings summarized above, the EPA was supposed to be provided with an updated sampling and analysis plan during the inspection, but the inspector was informed the updated plan was not available due to unforeseen circumstances. When the updated sampling and analysis plan is available, please send it to:

U. S. Environmental Protection Agency, Region 10
Ground Water Unit (c/o Jennifer Parker)
1200 Sixth Avenue, Suite 900, OCE-082
Seattle, Washington 98101

The EPA will review the updated sampling and analysis plan in order to complete our review of your request for reauthorization of the nineteen injection wells for disposal of wastewater treatment plant effluent.

Thank you for your cooperation in this UIC inspection at the Quil Ceda Village Wastewater Treatment Plant. If you have any questions about these inspection findings or other UIC matters, please contact Jennifer Parker of my staff at (206) 553-1900.

Sincerely,

for Peter Contreras, Manager
Ground Water Unit