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

OFFICE OF
COMPLIANCE AND ENFORCEMENT

September 4, 2015

Reply To: OCE-101

Mr. Bill Iyall, P.E.
Chairman
Cowlitz Indian Tribe
P.O. Box 2547
Longview, Washington 98632-8594

Re: Cowlitz Indian Tribe Water Reclamation Plan Feasibility Study
UIC ID # WA132T5-30-13798

Dear Chairman Iyall:

The U.S. Environmental Protection Agency, Region 10 (EPA), Underground Injection Control (UIC) Program, received an Inventory of Injection Wells and proposal for one Class V injection well planned for the Cowlitz Indian Tribe Water Reclamation Plant. Parametrix provided these materials to EPA on July 21, 2015 and July 27, 2015. EPA has reviewed the information and is providing comments for your consideration. Once EPA receives a response to the comments set out below and/or future construction plans, the agency will provide additional comments prior to making a final determination on the proposed injection activity and whether the proposal can be authorized by rule or requires a permit.

Injection Wells

- The Inventory submitted for the proposed project identifies one UIC well in Section 6 of EPA Form 7520-16. In the comments section you clarify it as one UIC system with 11 vadose zone wells. While comments describing injectate, system construction, etc., are appreciated; since the system contains 11 injection wells, the UIC inventory form will need to be resubmitted, with each well inventoried separately in Section 6 of the form.

Injectate

- Under 40 C.F.R. § 144.12, an owner or operator is prohibited from injecting fluid into an underground source of drinking water, which may cause a violation of any primary drinking water regulation under 40 C.F.R. Part 141 or adversely affect the health of persons. This means the recharged water must meet the primary drinking water regulations and must not cause the degredation of groundwater below the primary drinking water standards. Injecting reclaimed water containing up to 0.5 mg/L of chlorine may cause the formation of disinfection byproducts or have other unanticipated impacts on the aquifer. Please consider technologies or methods that do not introduce chlorine into the underground source of drinking water (e.g., disinfection).

- Page 11 of the Feasibility Study discusses provisions to prevent bypass of off-spec water. The Feasibility Study proposes to divert water that is off-spec for reuse to the vadose zone injection wells. An operator must meet all federal primary drinking water standards. *See* 40 C.F.R. §§ 144.12(a) and 144.82. Water that is off-spec for reuse may also be off-spec for injection into the vadose zone wells including the presence of chlorine. For authorization by rule, EPA recommends ensuring the water quality at the point of injection meets primary drinking water standards.

Vadose Zone Injection into Underground Source of Drinking Water

- The inventory submittal proposes vadose zone injection of up to 12.4 million gallons of reclamation plant effluent per month (400,000 gallons per day) into the Upper Troutdale Aquifer geologic unit. The underlying Sand and Gravel Aquifer is an underground source of drinking water (USDW) that supplies public and residential drinking water, and has no intermediary confining layer between geologic units. With a proposal to inject into a geologic unit with an unconfined connection to a USDW it is recommended that an operator meet all federal primary drinking water standards at the point of injection. *See* 40 C.F.R. §§ 144.12(a) and 144.82. EPA measures injectate quality at the last accessible sampling point prior to injection when assessing the potential for endangerment. Your current proposal documents only address the design standards for biological oxygen demand, turbidity, total coliform, pH and dissolved oxygen in the wastewater effluent to be injected. Please include provisions for sampling for the presence of all primary drinking water contaminants in future proposal or construction documents.

- The Feasibility Study denotes the location of two recommended monitoring well locations downgradient of the injection well field. If injection occurs as proposed, additional monitoring wells would be necessary to evaluate potential impacts to the USDW from the injection operations. At other reclamation plants of similar design, at least one monitoring well is installed in an up-gradient direction to establish background water quality, and a line of monitoring wells are typically installed down-gradient from the injection point at locations where they are most likely to intercept the injected effluent.

Reclamation Plant Design and Operation

- In order to maintain the proposed system and prevent the injection of contaminants into the USDW, the facility will require redundancy and a high degree of reliability. These elements should be included in the design as well as incorporating compliance verification and process control monitoring into the operation and maintenance of the facility and detailed in the O&M Manual. If injection occurs at this site, a quality assurance plan for sampling and analysis should be established. The sampling and analysis plan should be designed to evaluate whether injection activities introduce contaminants into the USDW. This information should be submitted for review along with the plans and specifications as required for construction of a new water reclamation plant.

- The Feasibility Study proposes possible implementation of reverse osmosis (RO) should a higher level of treatment be required by EPA for groundwater protection in the future. Although EPA does not advocate any particular technology for the purposes of ensuring adequate treatment, RO, as a possible component in a multi-barrier approach, can be an effective method for ensuring that operation of the system does not endanger underground sources of drinking water.

EPA is also providing the following advisory comments from the Indian Health Service (IHS) in regards to your proposal. These comments are provided as a courtesy and are not within the scope of EPA's evaluation under UIC regulations.

- It is not evident that other alternatives for providing the sanitation needs of the development were considered. IHS recommends that other alternatives be developed, including a budget level 20-year lifecycle cost. The lifecycle cost should include capital costs, as well as complete operations and maintenance costs. This includes, but is not limited to labor (operators at appropriate level of certification), debt service, continued training, material, supplies, power, equipment, replacement and repair costs. The revenue should be estimated based on user rates and connection fees.

- On Page 2 of the Feasibility Study it is recommended that a high pressure reclaimed water system be installed to facilitate water reuse. IHS recommends that the distribution pressure for the reclaimed water be at least 10 psi less than the potable system and that the piping and appurtenances be easily identified as non-potable water.

- IHS recommends considering equipping the reclaimed water tank for mixing or recirculation, as water in an uncirculated tank will stagnate if effluent disposal options are not immediately available.

If you have any questions or would like to schedule a meeting to discuss the items listed above, please contact me at (206) 553-1146.

Sincerely,

Derek Schruhl

Derek Schruhl
Ground Water Unit

cc via email: Michael T. Ollivant, PE, Parametrix