Message

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Sent: 1/22/2015 8:48:15 PM
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Subject: TO38 CA0024449 City of Eureka Elk River WWTF RPA
Attachments: CA0024449_City of Eureka_Elk River WWTF_Ammonia RPA_(1-22-15).xlsx; CA0024449_City of Eureka_Elk River WWTF_RPA_(1-22-15).xls

Charles,

Attached please find the reasonable potential analysis (RPA) for the City of Eureka, Elk River Wastewater Treatment Facility (NPDES No. CA0024449). A few things to note as you review the RPA:

1. The RPA was based on monitoring data collected between August 2009 and October 2014, which included annual effluent monitoring for Ocean Plan Table B parameters. The dataset includes effluent data for both normal flows and blending events (i.e., when flows exceed 8.6 mgd). Additionally, the RPA includes receiving water data collected on December 2, 2013 as part of the Discharger's Effluent Discharge Study. The background samples were collected up-current of the outfall to avoid sampling the effluent plume. Per the Discharger, samples collected at Site 1 were collected during an incoming tide and should ocean water, while samples collected at Site 2 were collected during an ebb tide and represent bay water. Duplicate samples were collected at Site 1 and were both included in the RPA.
2. Per our discussion on December 3rd, a SIP RPA was conducted. Per the Basin Plan, Humboldt Bay is listed as having the municipal and domestic supply (MUN) beneficial use. Therefore, MCLs and CTR human health criteria for consumption of water and organisms were used. Additionally, because the bay is an estuarine environment, CTR aquatic life criteria for freshwater and saltwater were used. This approach is consistent with the permit for the City of Arcata WWTF, which also discharges to Humboldt Bay. During our last discussion, I believe you were going to double-check that this approach is appropriate for this area of the Bay. If any changes to the criteria are necessary, please let me know.
3. The existing permit allowed a dilution ratio of 30:1. However, since the Basin Plan does not allow credit for dilution, the RPA and WQBEL's were calculated without consideration of dilution.
4. Effluent and receiving water hardness data was not available. However, the Effluent Discharge Study indicated that the hardness exceeded 6,000 mg/L in samples collected in December 2013. Thus, we used a default hardness of 400 mg/L to calculate criteria for the hardness-based metals, per the CTR.
5. Based on the RPA for CTR constituents, the discharge exhibited reasonable potential for copper, cyanide, chlorodibromomethane, and dichlorobromomethane. It does not appear the Discharger would be able to comply with effluent limitations for these parameters.
6. The existing permit included effluent limitations for chlorine residual based on the use of chlorine for disinfection. These limits were based on the Ocean Plan Table B objectives. The USEPA National Ambient Water Quality Criteria for protection of freshwater aquatic life are 0.019 mg/L (acute) and 0.011 mg/L (chronic), and for protection of saltwater aquatic life are 0.013 mg/L (acute) and 0.0075 mg/L (chronic). The MEC for chlorine residual was 1.57 mg/L. Should effluent limitations for chlorine residual be included based on the saltwater aquatic life criteria? If so, do you have a preference for how they are expressed (e.g., 1-hour and 4-day averages, average monthly and maximum daily)?
7. For ammonia, the National Ambient Water Quality Criteria for protection of freshwater and saltwater aquatic life are based on pH and temperature. The Discharger only conducted effluent pH data. I was able to find some receiving water temperature data from NOAA in the vicinity of the discharge, but was unable to locate pH data. I calculated the freshwater and saltwater criteria using the available effluent pH and receiving water temperature

data. Note that the freshwater criteria were calculated assuming the presence of salmonids and mussels. For the saltwater criteria, I used the tables (in attached spreadsheet) and used the most conservative salinity assumptions (i.e., 10 g/kg). Please let me know if you'd like to re-calculate the freshwater and/or saltwater criteria using different assumptions. Given the lack of effluent temperature and receiving water pH data, do you wish to establish effluent limitations for ammonia, or would you prefer to include monitoring for ammonia, pH, and temperature only?

8. The existing permit includes an effluent limitation of 6.0 to 9.0 at all times for pH. The Basin Plan includes water quality objectives for Humboldt Bay specifying an instantaneous maximum of 8.5 and that the pH shall not be depressed below natural background levels. To be consistent with the Bodega Farms permit, do you want to retain the instantaneous minimum limit of 6.0 (based on the Secondary Treatment Standards) and revise the instantaneous maximum limit from 9.0 to 8.5 based on the Basin Plan objective?
9. The Discharger collected two samples for dioxins. I calculated the TCDD-equivalents excluding all results where the congener was detected in the method blank (highlighted in yellow in the attached spreadsheet), but still considering the estimated values (i.e., those with a J or q qualifier). The effluent TCDD-equivalents concentration exceeds the CTR criterion for 2,3,7,8-TCDD. Note that all of the detected results were estimated concentrations (when those detected in the method blank are excluded). Should effluent limitations for TCDD-equivalents be established?
10. The existing permit included a numeric chronic toxicity monitoring trigger of 31 TUc based on the allowable dilution credit, and required monitoring at dilutions that only went to 12.5% effluent (thus, the minimum possible toxicity result was 8 TUc). Most of the toxicity results were 8 TUc; however, the effluent toxicity was measured at 10 TUc in samples from August 2009 and December 2012. I have not yet conducted an RPA for chronic toxicity, but will follow up with you with some questions I have related to this issue. Note that the draft Toxicity Policy indicates that POTWs that discharge >1 MGD are classified as having reasonable potential.

Once you've had a chance to review the RPA, please let me know if you have any questions or if you would like to set up a call to discuss the RPA results.

Thank you,

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