

# CSO 018 Constructed Wetlands – Preliminary Disinfection Options

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The following list provides the preliminary options for providing disinfection at CSO 018 along with the next steps for investigating, and eventually finalizing, a recommended approach for meeting the SPDES permit requirement for fecal coliform discharge of 200 CFU/mL.

## Ultraviolet Disinfection

- **Description:** UV disinfection would be accomplished on the flow into to the wetlands after the grit and floatables facility. The target fecal coliform reduction level would be 5,000 CFU/mL on a 30-day geometric mean basis. The remainder of the fecal coliform reduction would be accomplished in the wetland cells.
- **Next Steps:** CH2M has had preliminary discussions with Trojan UV who recommends collecting a water sample from the influent during an event and shipping to Trojan for a collimated beam analysis. The analysis will help determine the UV dose necessary to disinfect the CSO flow to 5,000 CFU/mL. If results are favorable, CH2M recommends a pilot unit be installed for one month (pending number of events) to further test UV disinfection. Trojan's approximate cost per month for the pilot unit is \$7,000.

## Chlorine Disinfection

- **Description:** Chlorine disinfection would be accomplished on the flow after the grit and floatables facility and prior to the wetland cells. Dechlorination would occur in the wetland cells. As long as the chlorine concentration is below a maximum of 10 mg/L, the wetland plants will not be harmed. CH2M has used chlorine disinfection with similar natural treatment systems on previous projects with success.
- **Next Steps:** CH2M recommends pilot testing with a temporary chlorine system on the influent flow. A secured shipping tote of sodium hypochlorite could be placed on-site and CH2M would be able to complete preliminary calculations to determine appropriate dosing rates for varying flow rates. Chlorine dosing would need to be completed by WEP staff during qualifying events.

## Aluminum Chlorohydrate (ACH) Coagulation

- **Description:** ACH coagulation would occur within wetland Cell 3. The coagulant would be added at a target dose to reduce fecal coliform levels to less than the discharge limit. The wetland cells would need to operate in series for ACH coagulation.
- **Next Steps:** CH2M recommends pilot testing with at a target dose of ACH to Cell 3 of the wetland, when the facility is operating in series during qualifying events. A tote of ACH would be placed onsite. CH2M also recommends the collection of fecal coliform samples from Cell 3 to accurately calculate the required ACH concentration.