### Dechlorination Plan for Flushing and Discharging Super-Chlorinated Water

<table>
<thead>
<tr>
<th>Location</th>
<th>Source Location Address (attach map if necessary):</th>
<th>Proposed Date</th>
<th>Pipe Size</th>
<th>Discharge Location (attach map if necessary):</th>
<th>Start Time</th>
<th>End Time</th>
<th>Pipe Length</th>
<th>Max Flow Rate of Diffuser:</th>
<th>Anticipated Gallons of Captor:</th>
<th>Chlorine to Remove, ppm:</th>
<th>Volume of Super-Chlorinated Water:</th>
<th>Anticipated Discharge Rate:</th>
<th>Anticipated Captor Feed Rate:</th>
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Note: Contractor is responsible for ensuring and verifying effective field dechlorination occurs. Engineer / Construction Manager must be present before the start of flushing super-chlorinated water.

Plan Submitted by:

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<tr>
<th>Signature</th>
<th>Name</th>
<th>Phone Number</th>
<th>Date</th>
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Plan Submittals Reviewed by:

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<thead>
<tr>
<th>OWASA Reviewer Signature</th>
<th>Name</th>
<th>Date</th>
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Field Inspection Performed by:

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<tr>
<th>OWASA Inspector Signature</th>
<th>Name</th>
<th>Date</th>
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Dechlorination Plan Calculations Worksheet

1. Determine the Total Volume of Water to be dechlorinated in gallons.

   Volume in gallons = $3.14 \times (\text{radius of pipe in feet, squared}) \times \text{length of pipe in feet} \times 7.48$

   For example: 5000 feet of 8” ductile iron pipe

   $3.14 \times (0.333 \times 0.333) \times 5000 \times 7.48 = 13,023$ gallons to be dechlorinated

   $3.14 \times (\underline{\text{____}} \times \underline{\text{____}}) \times \underline{\text{________}} \text{feet of pipe} \times 7.48 = \underline{\text{________}} \text{gallons to be dechlorinated}$

2. Determine the parts per million of chlorine (Cl$\textsubscript{2}$) to be dechlorinated.

   Liquid Sodium Hypochlorite, Na$_2$S$_2$O$_3$

   Chlorine level in ppm = $\frac{(\text{Gallons Na}_2\text{S}_2\text{O}_3 \times \text{percent Cl}_2 \times 10,000)}{\text{gallons of water}}$

   For example: Fed 30.0 gallons of 5% Na$_2$S$_2$O$_3$

   $(30.0 \text{ gallons Na}_2\text{S}_2\text{O}_3 \times 5 \times 10,000) / 13,023 = 115$ ppm

   $(\underline{\text{____}} \text{gallons Na}_2\text{S}_2\text{O}_3 \times \underline{\text{____}} \% \text{Cl}_2 \times 10,000) / \underline{\text{____}} \text{gallons of water} = \underline{\text{____}} = \text{ppm Cl}_2$

   Dry Calcium Hypochlorite, Ca(ClO)$_2$

   Chlorine level in ppm = $\frac{(\text{pounds Ca(ClO)}_2 \times \text{percent Cl}_2 \times 1199)}{\text{gallons of water}}$

   For example: Fed 19.3 pounds of 65% Ca(ClO)$_2$

   $(19.3 \text{ pounds Ca(ClO)}_2 \times 65 \times 1199) / 13,023 = 115$ ppm

   $(\underline{\text{____}} \text{pounds Ca(ClO)}_2 \times \underline{\text{____}} \% \text{Cl}_2 \times 1199) / \underline{\text{____}} \text{gallons of water} = \underline{\text{____}} \text{ppm Cl}_2$

3. Determine the amount of Calcium Thiosulfate, Ca(S$_2$O$_3$)$_2$- Captor$\textsuperscript{®}$ liquid needed for the project.

   Gallons of Captor$\textsuperscript{®}$ = $\frac{\text{Volume of water (gallons)} \times \text{Cl}_2 \text{ Concentration (ppm)}}{200,000}$

   For example: 13,023 gallons of water x 115 ppm Cl$_2$ / 200,000

   $7.5$ gallons of Captor$\textsuperscript{®}$ needed

   $\underline{\text{____}} \text{gallons of water} \times \underline{\text{____}} \text{ ppm Cl}_2 / 200,000 = \underline{\text{____}} \text{ Gallons of Captor}^\textsuperscript{®}$

4. Determine the dechlorination device’s Flow Rate.

   From the manufacturers’ information. Typically, 160 GPM for standard tablet diffusers.

5. Identify the Captor$\textsuperscript{®}$ feed rate.

   Feed rate is determined by using the total amount of Captor$\textsuperscript{®}$ needed in gallons, divided by the flushing duration based on the limiting or set flow rate in GPM.

   Time of flushing = $\frac{\text{gallons of water}}{\text{flow rate}}$

   Captor$\textsuperscript{®}$ Feed rate = $\frac{\text{gallons of Captor}^\textsuperscript{®}}{\text{Time of flushing}}$

   For example: 13,023 gallons of water / 160 GPM = 81.4 minutes

   $7.5$ gallons of Captor$\textsuperscript{®}$ / 81.4 minutes = Captor$\textsuperscript{®}$ feed rate of 0.092 GPM

   $\underline{\text{____}} \text{gallons of water} \div \underline{\text{____}} \text{ GPM flow rate} = \underline{\text{____}} \text{ minutes of flushing}$

   $\underline{\text{____}} \text{gallons of Captor}^\textsuperscript{®} \div \underline{\text{____}} \text{ minutes of flushing} = \underline{\text{____}} \text{ GPM Captor}^\textsuperscript{®} \text{ feed rate}$

Rev. April 29, 2020