Orange Water and Sewer Authority

OWASA is Carrboro-Chapel Hill's not-for-profit public service agency delivering high quality water, wastewater, and reclaimed water services.

Dechlorination Plan for Flushing and Discharging Super-Chlorinated Water

Project Name:			Neighborhood:
Phase:	Contractor:		Contract Number:
Methods and Equipment to Be Used:			

Location 1:			Source Location Address (attach map if necessary):	
Proposed Date:		Pipe Size:	Discharge Location (attach map if necessary):	
Start Time:	End Time:	Pipe Length:	Max Flow Rate of Diffuser:	Anticipated Gallons of Captor:
Chlorine to Remove, ppm:		Volume of Super-Chlorinated Water:	Anticipated Discharge Rate:	Anticipated Captor Feed Rate:
Location 2:			Source Location Address (attach map if necessary):	
Proposed Date:		Pipe Size:	Discharge Location (attach map if necessary):	
Start Time:	End Time:	Pipe Length:	Max Flow Rate of Diffuser:	Anticipated Gallons of Captor:
Chlorine to Remove, ppm:		Volume of Super-Chlorinated Water:	Anticipated Discharge Rate:	Anticipated Captor Feed Rate:
Location 3:			Source Location Address (attach map if necessary):	
Proposed Date:		Pipe Size:	Discharge Location (attach map if necessary):	
Start Time:	End Time:	Pipe Length:	Max Flow Rate of Diffuser:	Anticipated Gallons of Captor:
Chlorine to Remove, ppm:		Volume of Super-Chlorinated Water:	Anticipated Discharge Rate:	Anticipated Captor Feed Rate:
Location 4:			Source Location Address (attach map if necessary):	
Proposed Date:		Pipe Size:	Discharge Location (attach map if necessary):	
Start Time:	End Time:	Pipe Length:	Max Flow Rate of Diffuser:	Anticipated Gallons of Captor:
Chlorine to Remove, ppm:		Volume of Super-Chlorinated Water:	Anticipated Discharge Rate:	Anticipated Captor Feed Rate:

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:

_____

Signature Name Phone Number Date

Plan Submittals Reviewed by:

_____

OWASA Reviewer Signature Name Date

Field Inspection Performed by:

_____

OWASA Inspector Signature Name Date

Dechlorination Plan Calculations Worksheet

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

   Volume in gallons = 3.14 x (radius of pipe in feet, squared)* x length of pipe in feet x 7.48

   For example: 5000 feet of 8" ductile iron pipe **rounded up*
   3.14 x (.333 x .333) x 5000 x 7.48 = **13,023** gallons to be dechlorinated

   3.14 x (_____ x_____) x _____feet of pipe x 7.48 = _____ gallons to be dechlorinated

2. Determine the parts per million of chlorine (Cl_2) to be dechlorinated.

   Liquid Sodium Hypochlorite, $Na_2S_2O_3$

   Chlorine level in ppm = (Gallons $Na_2S_2O_3$ x percent Cl_2 x 10,000) / gallons of water

   For example: Fed 30.0 gallons of 5% $Na_2S_2O_3$
   (30.0 gallons $Na_2S_2O_3$ x 5 x 10,000) / 13,023 = **115** ppm

   (_____ gallons $Na_2S_2O_3$ x ____ % Cl_2 x 10,000) / _____ gallons of water = _____= ppm Cl_2

   Dry Calcium Hypochlorite, $Ca(ClO)_2$

   Chlorine level in ppm = (pounds $Ca(ClO)_2$ x percent Cl_2 x 1199) / gallons of water

   For example: Fed 19.3 pounds of 65% $Ca(ClO)_2$
   (19.3 pounds $Ca(ClO)_2$ x 65 x 1199) / 13,023 = **115** ppm

   (_____ pounds $Ca(ClO)_2$ x _____ % Cl_2 x 1199) / _____gallons of water = _____ ppm Cl_2

3. Determine the amount of Calcium Thiosulfate, $Ca(S_2O_3)$- Captor® liquid needed for the project.

   Gallons of Captor® = Volume of water (gallons)* x Cl_2 Concentration (ppm) / 200,000†

   For example: 13,023 gallons of water x 115 ppm Cl_2 / 200,000 ** rounded up*
   7.5 gallons of Captor® needed † *factor is specific to Captor®*

   _____ gallons of water x _____ ppm Cl_2 / 200,000 = _____ Gallons of Captor®

4. Determine the dechlorination device's Flow Rate.

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

5. Identify the Captor® feed rate.

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

   Time of flushing = gallons of water / flow rate
   Captor® Feed rate = gallons of Captor® / Time of flushing.

   For example: 13,023 gallons of water / 160 GPM = **81.4** minutes
   7.5 gallons of Captor® / 81.4 minutes = Captor® feed rate of **0.092** GPM

   _____ gallons of water / _____ GPM flow rate = _____ minutes of flushing

   _____ gallons of Captor® / _____ minutes of flushing = _____ GPM Captor® feed rate