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**SECTION 33 16 13.11****WATER STORAGE TANK DISINFECTION****PART 1: GENERAL**

## 1.01 SCOPE

- A. The Contractor shall clean and disinfect the water storage tank after all work has been completed and inspected and prior to placing the tank into service. This Specification will also apply upon completion of the one-year anniversary inspection.
- B. AW will furnish water for flushing and disinfecting tank.

## 1.02 SUBMITTALS

- A. Prior to performing any disinfection procedure, Contractor will be required to submit his proposed method of disinfection, including the exact type and amount of disinfecting agent to be used with a specific volume of water, the tools and methods of application and the intended amount of residual chlorine. The Contractor is responsible to satisfy AW that the persons performing the disinfection procedure are qualified and have been trained in the appropriate safety measures.

## 1.03 PROTECTION

- A. Due to the toxicity of chlorine fumes, men performing work under this Section should be equipped with the appropriate respiratory protection and personal protective equipment and should be attended by other personnel who are in the vicinity where work is to be performed.

**PART 2: PRODUCTS**

## 2.01 MATERIALS AND EQUIPMENT

- A. Furnish liquid chlorine and injection equipment and/or calcium hypochlorite (HTH) as needed to complete the disinfection of the tank.
- B. Furnish pumps, pressure washer, sprayer, hose, nozzle and other equipment for spraying and washing the interiors of the tank.
- C. Provide NSF Standard 60 certified products per Listing of Certified Drinking Water Treatment Chemicals - Health Effects.

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## **PART 3: EXECUTION**

### **3.01 COORDINATION**

- A. The Contractor must notify AW at least seven days in advance of the disinfection procedure to allow AW adequate time to arrange the necessary operation modifications for refilling the tank promptly upon completion of the disinfection procedure.
- B. The Contractor will not discharge any chlorinated rinse water from the tank prior to coordination with AW.

### **3.02 PREPARATION**

- A. All interior painting shall be completed in the tank prior to cleaning and disinfection of the tank. The tank should remain empty for a minimum period of seven (7) days with all manholes, hatches, drains and plugs, etc., open to permit paint fumes to escape.
- B. Following the seven day period, provisions should be made to perform the rinsing operation. The following equipment will be needed:
  - 1. A pump of sufficient capacity to supply enough water for spray rinsing.
  - 2. A length of fire hose and a nozzle for spraying. On elevated tanks the hose should extend up through the riser to the tank.
  - 3. Adequate flow of water with sufficient pressure to rinse all interior surfaces.
- C. The interior surfaces should be thoroughly rinsed and particular attention should be given to laps, crevices, corners or any areas in which the solid material might collect. The rinse water along with any contaminants should be carefully removed from the tank and connected piping and disposed of properly per local base requirements.

### **3.03 APPLICATION OF DISINFECTANT**

- A. Application of disinfectant shall be performed in accordance with chlorination methods set forth in the current ANSI/AWWA C652 *Disinfection of Water Storage Facilities*.

### **3.04 TESTING**

- A. Bacteriological tests of new, repaired, or cleaned tanks are required to be absent for total coliform bacteria before being placed online. Bacteriological tests will be made by AW. Tanks will not be accepted and placed into service until the results of the bacteriological tests are acceptable by AW.
- B. Should the initial treatment prove to be ineffective, in the opinion of AW, the Contractor shall repeat the chlorination procedure at no additional cost to AW

until satisfactory results are obtained.

- C. Volatile Organic Compound (VOC) Tests: VOC testing shall be completed as required by State regulations for disinfection procedures being performed in conjunction with a tank painting project. Before a newly coated or lined reservoir is brought into service, a VOC sample shall be collected after the reservoir is filled and a minimum of five day soaking period is allowed. In addition to chemicals on the standard list (Method 524), analyses shall be made for ortho-Xylene, para-Xylene, meta-Xylene, methylethylketone (MEK), methylisobutyletones (MIBK), and any other solvent included in the coating, lining, or adhesive Material Safety Data Sheets (MSDS). The results of the VOC shall be submitted to the State, if required.
- D. VOC testing is not required for disinfection procedures required for typical maintenance work. Where required, at least one sample shall be tested by AW for all currently regulated or proposed to be regulated VOCs in accordance with currently accepted EPA methods published in 40 CFR part 141 and EPA 600/4-79-020. Measured levels shall not exceed the Maximum Contaminate Level (MCL) for VOCs as established by the National Primary Drinking Water Standard. Testing which does not meet the MCL will be retested. If further retests are not satisfactory, corrective actions shall be made to comply with the MCL at no cost to AW.

**END OF SECTION 33 16 13.11**