

SECTION 11234TEMPORARY DECHLORINATION SYSTEMPART 1 - GENERAL1.1 DESCRIPTION

A. Work Included:

1. Provide temporary liquid sodium bisulfite dechlorination system complete with pumps, piping, valves, chemical storage tanks, PLC-based control panel, electrical, connections to existing PLC network and all necessary appurtenances, and temporary shelter/building in order to facilitate construction activities.
2. Contractor may utilize the permanent dechlorination pumps as specified in Section 11235 for the temporary systems.
3. Engineer shall be responsible for the programming of the temporary Dechlorination PLC-based control panel. Once all equipment has been installed and started-up by the Contractor and Owner trained in its operation, and accepted by the Owner, the Contractor shall provide the specified time in his schedule to permit complete start-up, testing and commissioning of the temporary dechlorination system control panel. Please refer to Specification section 01010 and 01050 for further details regarding construction sequencing and interfacing with work provided by others.
4. This temporary system shall operate from the time the control system commissioning and training has been completed and accepted by the Owner until such time that the new dechlorination system has been installed, started-up, tested and accepted by the Owner.

B. Related Work Specified Elsewhere:

1. Additional requirements specified in Divisions 1 and 11.

1.2 QUALITY ASSURANCE

- A. The specifications direct attention to certain required features of the temporary dechlorination system but do not purport to cover all details entering into its design and construction. Nevertheless, the Contractor shall furnish the equipment complete in all details and ready for operation.

1.3 SUBMITTALS

- A. Submit shop drawings and other documents in accordance with Section 01340, the General Conditions of the Construction Contract and as specified herein.
- B. Shop drawings shall be provided for all equipment specified herein as well as plans for the temporary dechlorination shelter/housing.
- C. Contractor may use whatever structure that can sufficiently house pumps, chemical and controls while providing for necessary light, heat and workable space within which to maintain such temporary facilities.

1.4 CONDITIONS OF SERVICE

- A. Description of Treatment Facilities and Dechlorination:
1. The WWTF's average daily flow is 17.8 million gallons per day (mgd) with wet weather peaks as high as 80 mgd.
 2. The facilities secondary treatment processes have a peak flow capacity of 36 mgd. Influent flow exceeding 36.8 mgd bypass secondary treatment ("Bypass flow") and is diverted directly to the two northernmost chlorine contact tanks via a 48-inch influent pipe.

PART 2 - PRODUCTS

2.1 TEMPORARY DECHLORINATION SHELTER/BUILDING

- A. Contractor shall construct a temporary building, adjacent to the existing Dechlorination Building, to house the temporary dechlorination system in an area generally shown on the Drawings.
- B. Contractor shall provide electric power, lighting and heat as described in Specification 01500, Temporary Facilities and Controls.
- C. Temporary Structure shall provide safe access for Owner's staff during construction. Provide exterior lighting to main access door.
- D. All construction shall meet City of Portland Building codes. Contractor shall be responsible for securing the building permit and meeting the associated requirements.
- E. Contractor shall be responsible for tying into the existing carrier water system used to deliver dechlorination chemical to the point of application and extending this, as necessary, to the temporary dechlorination shelter/building.
- F. Contractor shall be responsible for connecting the temporary dechlorination PLC-based control panel to the Owners existing PLC network located in the existing Dechlorination Building (new hypochlorite building). This connection will permit the temporary panel to receive signals associated with flow and chlorine residual and to determine when a bypass event is occurring to allow the temporary system to properly dechlorinate both the secondary and bypassed flows.

2.2 MATERIALS FOR DECHLORINATION PURPOSES

- A. After successful completion of the testing, commissioning and training of the temporary dechlorination system by the Engineer, the Owner shall be responsible for the procurement and payment for Sodium bisulfite during the construction period.
- B. There are two existing dechlorination chambers, each with diffusers and associated piping, located within the secondary and bypass chlorine contact tanks. The Contractor shall utilize this existing system to deliver sodium bisulfite solution to both of the dechlorination chambers. As discussed above, the contractor will need to temporarily tie into this delivery system.
1. The Contractor shall provide all necessary taps, piping, attachments, etc. necessary to intercept the existing carrier water piping so that liquid sodium bisulfite can be introduced into the system. The Contractor shall intercept the

existing carrier water piping at a location to be approved by the Engineer in the field.

2.3 TEMPORARY CHEMICAL FEED EQUIPMENT

A. Description:

1. The chemical feed pumps shall be those specified in Section 11235 of the permanent dechlorination system.

2.4 TEMPORARY CHEMICAL STORAGE REQUIREMENTS

A. Description:

1. The temporary liquid sodium bisulfite dechlorination system shall be capable of providing a minimum of 5000 gallons of storage. Contractor shall provide secondary containment equivalent to 120% of the storage volume for spill containment purposes. Sodium Bisulfite for temporary system shall be 38% trade strength.
2. The Contractor shall provide a suitable chemical storage tank, tanker truck or other means acceptable to the Engineer that will provide the required minimum volume of liquid sodium bisulfite on site.
3. Contractor shall provide maintenance services for the chemical storage and piping system, as needed, during the construction period.

2.5 TEMPORARY CONTROL SYSTEM

A. Description:

1. Under this contract, three (3) PLC-based control panels shall be provided. One of these panels is dedicated to the temporary dechlorination control system. This panel shall meet the design requirements of the permanent panel for dechlorination as specified in Section 13440 and shown on the Instrumentation Drawings.
2. The Contractor shall provide all wiring, connections to the existing PLC network and appurtenances necessary to physically connect all associated I/O to the temporary control panel.
3. The temporary control panel shall be programmed, tested, commissioned, and training for the control system operation, by the Engineer.
4. The Contractor shall afford time within their schedule to accommodate this start-up consistent with the requirements noted in 1.1.A of this section.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Temporary Dechlorination Facilities:

1. In accordance with Specification Section 11000.
2. For equipment provided by the Contractor, the services of the manufacturer's factory trained representative, who is specifically knowledgeable in the type of equipment specified herein, shall be provided during the equipment installation

period and the initial startup. During initial startup interface with temporary control system, install pumps, storage facilities and all needed appurtances so the dechlorination system operates as intended.

3. The Contractor is to provide temporary dechlorination facilities to allow for continuous effluent dechlorination during the demolition of the existing gaseous sulfur dioxide dechlorination system and the installation, start-up and performance testing of the new sodium bisulfite dechlorination system.
4. The temporary system shall consist of dechlorination equipment and all necessary connections to the existing dechlorination system, carrier water, electrical service, etc. as necessary for a complete and fully operational system. The temporary system location shall be coordinated with the Owner. Provisions shall be made for weather protection as necessary for reliable system operation.
5. The Contractor will be responsible for the installation, maintenance and servicing of the temporary dechlorination system. After the system has been installed and tested as described herein, the Owner will operate the system. The Contractor shall provide all necessary maintenance of the system throughout the duration of the system's operation.

3.2 START-UP AND TESTING

- A. In accordance with Specification Sections 01800 and 11000.

END OF SECTION