

Section 11263

**CHLORINE GAS LEAK DETECTOR**

**PART 1 GENERAL**

**1.01 SUMMARY**

This Section includes the furnishing and installation of chlorine leak detectors as shown on Plans and specified herein.

**1.02 MEASUREMENT AND PAYMENT**

No separate payment will be made for chlorine gas leak detectors under this Section. Include payment in price for Work of which this is a component part.

**1.03 REFERENCES**

This specification references the following publications in their current editions. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

- A. American Petroleum Institute Pamphlet 1: Chlorine Basics
- B. The Chlorine Institute Pamphlet 073: Atmospheric Monitoring Equipment for Chlorine

**1.04 SUBMITTALS**

- A. Submit Shop Drawings and product data in accordance with Section 01330 – “Submittal Procedures.”
- B. As a minimum, submit the following:
  - 1. Catalog bulletins or comparable illustrations and data sheets for all components and accessories.
  - 2. Manufacturer's installation instructions
- C. Submit Operations and Maintenance Manual in accordance with Section 01782 – “Operations and Maintenance Data.”

**1.05 RELATED REQUIREMENTS**

- A. Section 01330 – “Submittal Procedures”
- B. Section 01610 – “Basic Product Requirements”
- C. Section 01782 – “Operations and Maintenance Data”

- D. Section 16473 - "Water Receiving Facilities (WRF) Programmable Logic Controllers (PLC), SCADA Interface Panels and Panel Mounted Equipment"

1.06-1.07 (NOT USED)

1.08 DELIVERY, SOTRAGE, AND HANDLING

Deliver equipment to site, store and protect in accordance with Section 01610 – “Basic Product Requirements.”

1.09-1.12 (NOT USED)

1.13 WARRANTY

The Manufacturer shall warrant the leak detector to be free of defects in material and workmanship for a period of two years from date of shipment, provided the detector is installed and used in accordance with all applicable instructions.

PART 2 PRODUCTS

2.01 MANUFACTURER(S)

- A. Capital Controls Company – Model Series 1610B Single Point Gas Detector or Series 1620B Multipoint Gas Detector
- B. Wallace & Tiernan – Model ACUTEK 35 Gas Detection System
- C. Or Approved Equal

2.02 MATERIALS AND/OR EQUIPMENT

- A. Detectors shall sense and provide local indication of gas concentration and contacts for remote alarm at adjustable levels.
- B. Single point or multipoint gas detectors complete with sensor and cable (See "ATTACHMENT" for type of detector selected.)
- C. If multipoint gas detector is selected, it must be expandable in the field with sensing modules for each location.
- D. Sensor module shall consist of an electrochemical type sensor (requiring no chemical additions)
- E. Power Requirements: 120 or 240 Volts (ac); 50/60 Hz; Single phase
- F. Dual alarm output for remote warning and device control
- G. Number of locations to be monitored: 1 to 8 (See "ATTACHMENT" for number of locations)

- H. Audible and visual alarms
- I. Remote Indicator:
  - 1. Provide remote indicator to indicate and alarm when a preset gas level is exceeded
  - 2. Capital Controls Model 1630 (Or Approved Equal)
  - 3. Bar graph indicator shall provide level indication
  - 4. Annunciator shall provide audible indication of an alarm condition. Audible alarm can be turned off but the visual “ALARM” indicator light will flash until the condition is cleared.
- J. The receiver shall contain the following components:
  - 1. A power switch and LED indicators for power and ready
  - 2. Set point alarm level, field set via push button on the front of the receiver and indicated by on the color bar graph by a flashing bar segment
  - 3. LED alarm indicator and annunciators with corresponding contact
  - 4. LED malfunction indicator with jumper-selectable manual or automatic reset relay contact
  - 5. RESET button for clearing alarm and malfunction circuits
  - 6. Timer for sensor stabilization
  - 7. LED bar graph display in the range of 0-10 ppm for chlorine; 0-50 ppm and 0-100 ppm for ammonia.
  - 8. A 4-20 mA DC output signal shall be provided to transmit scanned levels.
- K. Receiver shall process and display incoming signals from the sensor module and be housed in a corrosion-resistant NEMA 4X enclosure suitable for wall mounting.
- L. Alarm contacts:
  - 1. Warning alarm set point, field adjustable from 0.5 to 1.0 ppm
  - 2. Danger alarm set point, field adjustable from 1.0 to 5.0 ppm
  - 3. Power loss alarm contacts
  - 4. Alarm reset switch for alarm acknowledgement

- M. Alarm Light:
  - 1. Provide a "Leak Detected" alarm light mounted outside the room where chlorine gas leak detector is located.
  - 2. Weatherproof cast steel fixture, with red globe and guard mounted on top of control panel.
  - 3. See "ATTACHMENT" for recommended manufacturer and model.
- N. Relay contacts rate: 5 amp at 240 VAC
- O. 8 character alpha/numeric display
- P. Leak detector shall have the capability to send the "Leak Detected Alarm" to the customer operated control panel or PLC and/or the Owner's Supervisory Control and Data Acquisition (SCADA) system. See Section 16473 - "Water Receiving facilities (WRF) Programmable Logic Controllers (PLC), SCADA Interface Panels and Panel Mounted Equipment" for more information on the interface between the leak detector and the Owner's SCADA system, if applicable.
- Q. Provide Radio Frequency/Electromagnetic Interference (RFI/EMI) protection
- R. Provide a minimum of two spare sensors per installed detector. Each spare sensor shall come sealed as a complete unit.
- S. Back-Up Power:
  - 1. Capital Controls Company Model 1640 Power Back-Up (Or Approved Equal)
  - 2. Automatically provide battery backup for continuous operation
  - 3. No manual switching shall be required
  - 4. Automatically and continuously recharge to supply maximum support to the gas detector and/or the remote indicator
  - 5. 120 VAC / 18 Volt DC

2.03-2.04 (NOT USED)

### PART 3 EXECUTION

3.01-3.02 (NOT USED)

### 3.03 ERECTION / INSTALLATION AND CONSTRUCTION

- A. Install in accordance with Manufacturer's written instructions.

- B. Install two (2) feet above the floor near the chlorinators or the active 150 lb. cylinders and vacuum regulators.
- C. Testing and Placing in Service:  
  
Manufacturer's technical representative to assist Contractor in testing and calibration of all components.

3.04-3.10 (NOT USED)

END OF SECTION

**ATTACHMENT**

*[Design Engineer is to complete blanks per site requirements]*

Water District Name: \_\_\_\_\_

A. EQUIPMENT

1. Leak Detector Manufacturer:
2. Leak Detector Model:
  
3. Remote Indicator Manufacturer:
4. Remote Indicator Model:
5. Power Back-Up Manufacturer:
6. Power Back-Up Model:
7. Number of Detectors: \_\_\_\_\_
8. Single or Multipoint:
9. Number of Locations: \_\_\_\_\_
10. "Leak Detected" Alarm Light:

END OF SECTION