

# **Kidde Pre-Engineered Dry Chemical Gas Island Fire Suppression Systems**

## **Technical Specification**

### **PART 1 – GENERAL**

#### **1.01 DESCRIPTION OF WORK:**

- A. Design and installation of a Pre- engineered, Dry Chemical Fire Suppression System as manufactured by Kidde Fire Systems, 400 Main St., Ashland, MA 01721, USA.

#### **1.02 REFERENCES:**

- A. National Fire Protection Association (NFPA):
  - 1. NFPA 17 – Standard For Chemical Extinguishing Systems.
  - 2. NFPA 30 – Standard For Flammable & Combustible Liquids
  - 3. NFPA 70 – National Electric Code
- B. Requirements of the Authority Having Jurisdiction (AHJ)
  - 1. STATE OF MAINE OFFICE OF STATE FIRE MARSHAL RULES AND REGULATIONS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS
    - a. Chapter 8-4: UNATTENDED SELF-SERVICE STATIONS

#### **1.03 GENERAL**

- A. Furnish all materials for a complete Dry Chemical Fire Suppression System including agent storage cylinders, nozzles, control devices, detectors, energy shut off device(s) and all other equipment necessary for a complete operational system.

### **PART 2 - PRODUCTS**

## **2.01 MANUFACTURER & SYSTEM**

- A. The fire suppression system shall be a Kidde Model IND Industrial Dry Chemical Fire Suppression System. The hardware shall be manufactured by Kidde Fire Systems, 400 Main St., Ashland, MA 01721, USA (ISO 9001 Certified).
- B. The dry chemical agent shall be BC, (sodium bicarbonate). The dry chemical agent shall be stored in steel cylinders meeting D.O.T. requirements. The cylinders shall be of the stored pressure type with a maximum internal pressure of 360 psig @ 70 F degrees. Cylinder valves must be equipped with a pressure gauge. The design concept shall be of the pre-engineered type with piping parameters and discharge nozzle types pre-determined by the fire suppression system manufacturer. No hydraulic calculations shall be used to accomplish the piping design.

## **2.02 SYSTEM DESIGN & PERFORMANCE**

- A. The Kidde IND Dry Chemical Gas Island Fire Suppression Systems shall be installed, tested, and serviced only by a current factory authorized distributor for Kidde Fire Systems.
- B. The design for this hazard shall be Total Flooding. The fire suppression equipment shall be capable of a minimum storage temperature of -40 F (-40 C) degrees. The design piping and installation shall be in accordance with NFPA 17 and the "Gas Station Dry Chemical Fire Suppression System Model IND-50 And IND-25 Instruction Manual", KIDDE Fire Systems P/N 220339.
- C. The use of at least one manual station for system release must be installed in accordance with NFPA 17. The manual station can be of either electric or mechanical means. Notification to the building fire alarm panel or security system must be provided in the event of any trouble or alarm signal from the fire suppression system.
- D. The dry chemical fire suppression system must be able to be released automatically from two different means of actuation: either pneumatic or electric thermal detection.
- E. Equipment shut down shall be provided by relay contact outputs with power switched to it by way of Cylinder Control

Head (Releasing Device) micro-switches. Building fire alarm or security system notification can be achieved through the same means.

- F. Each Gasoline Dispenser shall be protected by one stored pressure cylinder containing 50 lbs. of siliconized Sodium Bicarbonate Dry Chemical connected via a network of discharge piping to four high overhead discharge nozzles. These nozzles shall be designed specifically for the gas island hazard. They shall be arrayed symmetrically over each protected dispenser using Manufacturer approved "H" pattern style piping. Arc of hose, end-of-island coverage shall also be provided. Extra agent cylinders as required shall be provided for this purpose.
- G. All agent cylinders will discharge simultaneously upon system actuation. The system will use the XV Control System Nitrogen Release System.
- H. The XV Control System and all input devices shall be controlled by an **AEGIS** Low Voltage Control Panel as Manufactured by KIDDE Fire Systems, Inc. 400 Main St., Ashland, MA 01721, USA.
  - 1. The panel shall be listed for detection and agent release.
  - 2. The panel shall provide a secondary power supply in the event of the loss of primary power.

## **2.03 PIPE & FITTINGS**

- A. All agent discharge piping shall be threaded, Schedule 40 Hot Dipped Galvanized. All fittings shall be standard weight, threaded, Hot Dipped Galvanized.
  - 1. Pipe unions are acceptable.
  - 2. Use reducing tees for all pipe splits.
  - 3. Reduced bushings are not acceptable.
  - 4. Cast iron pipe and fittings are not acceptable.
  - 5. **Pipe thread compound or pipe tape is not allowed for distribution piping.**
  - 6. Before assembling pipe and fittings make certain all ends are carefully reamed and blown clear of chips and scale. Inside of pipe must be free of oil and dirt.

- B. Agent Discharge Piping shall be installed on top of the Gas Island Canopy, except any piping necessary to effect a 15' height from the finished parking grade proximate to the protected gasoline dispenser to the outlet (tip) of the discharge nozzle(s).

## **2.04 QUALITY ASSURANCE**

- A. Qualifications:
  - 1. Manufacturer: The manufacturer of the system components shall have a minimum of 10 years experience in the manufacture and design of Dry Chemical Fire Suppression Systems and related fire detection and control equipment.
  - 2. Installer: The installer shall be authorized and trained by Kidde Fire Systems to design, install, and maintain Dry Chemical Gas Island Fire Suppression Systems.
- B. Regulatory Requirements:
  - 1. Conform to State of Maine Code requirements specified herein.
  - 2. Codes and Permits: Conform to the local code requirements applicable to this section. Obtain and pay any necessary permits prior to beginning work involved in this section.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Install system in accordance with manufacturer's Design, Installation, Recharge and Maintenance Manual.

### **3.02 ACCEPTANCE & FIELD TESTING**

- A. Acceptance of the finished system shall be in accordance with State Fire Prevention Codes and the Kidde Instruction Manual.

- B. If field-testing is required by the local authority having jurisdiction, it shall be performed by personnel authorized and trained by Kidde Fire Systems.

**3.04 DEMONSTRATION**

- A. Instruct owner's personnel in the operation of the Dry Chemical Gas Island Fire Suppression Systems.

**PART 4 - WARRANTY**

WARRANTY:

- A. All Kidde IND system components furnished under this contract shall be guaranteed against defect in design, material and workmanship for the full warranty time which is standard with the manufacturer and/or supplier but not less than one (1) year from the date of system acceptance. In addition, the installing contractor must guarantee the system against false actuation or leakage due to faulty equipment, design or workmanship for a period of one (1) year from final acceptance. In the event of system agent leakage or system discharge from any of the above conditions, the installing contractor shall completely recharge and recondition the system at no cost to the owner.

**END OF SECTION**

