**FIRE SPRINKLER SYSTEMS, CORROSION MITIGATION PROGRAM, DRY OR PREACTION**

All corrosion management work shall be designed, installed, inspected, tested and maintained in accordance with all applicable codes, referenced standards, documents listed herein, the manufacturer's instructions and the provisions of this specification:

1. NFPA 13, Standard for installation of Sprinkler Systems

2. NFPA 25, Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems

**A. Potter Nitrogen Generator System – Integrated System (Model NGP-300D, 500D, 1000D)**

1. Furnish and install a Potter Nitrogen Generator at each fire sprinkler riser room to service all dry/pre-action zones as required by the system size and pressure requirement stipulated in the drawings and installed per manufacturer's instructions.

2. The Potter Nitrogen Generation shall be skid mounted and include:

a) Integrated Oil-less Air Compressor

1. The integrated oil-less compressor shall be sized appropriately for the application and capable of achieving system air pressure within 30 minutes in accordance with requirements of NFPA 13.
2. Air compressor(s) shall be capable of producing a continuous volume of compressed air that is sufficient to meet the design requirements of the fire protection system. When multiple risers are used the compressor must be sized to handle the combined flow and pressure requirements of all system riser(s) serving a specific zone as shown on the drawings.

b) Automatic Drain Valve

1. The automatic drain valve shall be capable of removing all liquid moisture from the air storage tank and nitrogen pre-filters.
2. The automatic drain valve shall be piped to a drain.

c) Nitrogen Membrane

1. The nitrogen membrane shall be capable of producing a minimum of 98% nitrogen.

d) Air Filtration

1. The air filtration shall include a 5 micron filter and a coalescing filter.

e) Nitrogen Control Panel

1. The nitrogen control panel shall include run time monitor with excess runtime alarm.
2. The nitrogen control panel shall have an audible alarm and visual indication.
3. The nitrogen control panel shall contain dry contact for BMS notification (NC&NO Contacts available).
4. The nitrogen control panel shall be UL 508A.

f) Air Bypass Alarm

1. The air bypass alarm shall monitor the bypass valve in the nitrogen cabinet.

g) Air Storage Tank and Nitrogen Storage Tank

1. The air and nitrogen storage tanks shall confirm to ASME standard for pressure vessel.

h) Portable Nitrogen Analyzer

1. The portable nitrogen analyzer shall be battery operated and able to be used to obtain purity readings at all nitrogen purge valve locations. One required per jobsite.

3. The Potter Nitrogen Generator System shall be designed to achieve a nitrogen concentration of 98% or greater and maintain that concentration within the system continuously.

4. Each sprinkler system shall have a Potter IntelliPurge Nitrogen Purge Valve (INS-PV) or Potter Purge Valve (NGP-SPV) furnished with a restricted orifice to restrict venting to a minimum to attain the 98% or greater nitrogen purity level.

5. The fire sprinkler contractor shall install all interconnecting piping between the nitrogen storage tank and the sprinkler risers to allow adequate nitrogen supply to all risers.

6. The fire sprinkler contractor shall determine the operating pressure range for the dry pipe (pre-action) nitrogen generator and set the air maintenance device for each zone to the correct setting. Coordination of this final setting shall be achieved with input from the dry pipe or pre-action valve manufacture.

7. Potter shall provide technical start-up services and training on all nitrogen generation systems as well as provide instruction and training to site engineers and owner representatives once commissioning has been complete.

**B. Potter Nitrogen Purging System**

Each sprinkler system shall have a Potter IntelliPurge Nitrogen Purge Valve (INS-PV) or Potter Purge Valve (NGP-PV) furnished to attain the 98% or greater nitrogen purity level.

**Potter IntelliPurge Nitrogen Purge Valve (INS-PV)**

1. Furnish and install a Potter IntelliPurge Nitrogen Purge Valve (INS-PV) at the furthest point from the fire sprinkler riser for each fire sprinkler riser.

2. The INS-PV be supplied with a restricted orifice which size is determined by the total system pressure requirements.

3. The INS-PV shall have a zirconium nitrogen sensor that can shut off the purge valve after 98% nitrogen has been achieved throughout the fire sprinkler system.

4. The INS-PV shall monitor the nitrogen level in the fire protection system periodically.

5. The INS-PV shall have a BMS alarm relay to indicate trouble if nitrogen purity drops below desired purity.

6. The INS-PV shall be able to connect to a Potter IntelliPurge Remote Annunciator for remote monitoring of multiple IntelliPurge nitrogen purge valves.

7. The INS-PV shall be closed during hydrostatic and air pressure testing of the fire sprinkler system and then placed in the open position for the commissioning, treatment and operation of the system.

**Potter IntelliPurge Remote Annunciator (INS-RA)**

1. Furnish and install a Potter IntelliPurge Remote Annunciator (INS-RA) conveniently located for ease of access for facility management.

2. The INS-RA shall be able to control up to 27 INS-PV units.

3. The INS-RA shall be password protected.

4. The INS-RA shall have local visual indicator for purge trouble alarms.

5. The INS-RA shall be able to record history of the IntelliPurge Nitrogen Purge Valve.

**Potter Nitrogen Purge Valve (NGP-SPV)**

1. Furnish and install a Potter Purge Valve (NGP-SPV) at the furthest point from the fire sprinkler riser for each fire sprinkler riser.

2. The Potter Purge Valve shall be supplied with a restricted orifice which size is determined by the total system pressure requirements.

3. The Potter Purge Valve shall vent to attain a minimum level of 98% nitrogen has been achieved throughout the fire sprinkler system.

4. The end line nitrogen quality shall be confirmed by using a portable hand held nitrogen analyzer.

**C. Air Maintenance Device**

1. The Air Maintenance Device shall be equipped with an adjustable pressure regulator that is capable of setting the required pressure for the fire sprinkler system.

2. The Air Maintenance Device shall be listed or approved for fire sprinkler application.

3. The Air Maintenance Device shall be installed per manufacturer’s specifications

**D. SUPERVISION AND TRAINING**

A Consulting Services Package for Commissioning the nitrogen generator shall be provided by Potter Corrosion Solutions. Contact Potter Corrosion Solutions 314-595-6700 or e-mail: sales@pottersignal.com to schedule commissioning at least 3 weeks in advance. The fire sprinkler contractor shall have Potter Corrosion Solutions assist in final system commissioning. The fire sprinkler contractor shall confirm that all the Potter Nitrogen Generator System connections have been made as specified and as indicated in the manufacturer's installation instructions.