

VIKING SYSTEM SPECIFICATIONS

FIRECYCLE CYCLING SYSTEM

TrimPac® Firecycle® III - Deluge System

The fire sprinkler system shall be of the open sprinkler head deluge design. The deluge system shall be designed to limit the damage, which may be caused by excessive water flow. The deluge system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. The on/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. The strobe and alarm will not deactivate until system is manually reset to normal operation. The deluge system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. The flow control valve shall incorporate as part of the deluge design a positive venting, pressure operated relief valve (PORV). The deluge valve TrimPac design shall utilize 2 electric solenoid valves; 1 normally open to set the PORV and 1 normally closed to retain the prime water pressure in the priming chamber. System shall be UL Listed and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Cycling Deluge System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-2 can be utilized for cycling deluge systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Deluge Model E-2, part number 13802E-2.

Water Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. Valve body to be ductile iron. Valve trim shall be galvanized, compatible and listed for valve. Flow control valve shall be listed for a working pressure of not less than 250 PSI (17 BAR). Flow control valve shall be UL Listed and Factory Mutual Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle III Detector

The normally closed detectors utilized in the detection system of the Firecycle III deluge system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle III deluge system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800°F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. Detector utilized in

Firecycle III Deluge System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector III Cable Installed Without Conduit

Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector III Cable Installed In Conduit

Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

System piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. Fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

TrimPac® Firecycle® III - Wet System

The fire sprinkler system shall be a cycling wet system in design. Cycling wet system shall be designed to limit the damage, which may be caused by excessive water flow. Cycling wet system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. On/off operation shall cycle when heat detector senses heat regeneration the system will operate, when detector cools and restores the system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Flow control valve shall operate as a check valve, clapper assembly closing on valve seat when higher pressures are present downstream of flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The cycling wet system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. Flow control valve TrimPac design shall utilize 2 electric solenoid valves; 1 normally open and 1 normally closed. In an operation mode the normally closed solenoid valve shall open allowing the flow control valve priming chamber a reduced pressure zone to expel priming water pressure. Priming water pressure shall be redirected into the supply water stream downstream of the solenoid valves. In an operation mode the normally open solenoid valve shall close and latch closed when a water flow is detected by the riser flow switch. If power is lost to the system release control panel the system shall fail open or "fail safe". System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Cycling Wet System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-3 can be utilized for cycling wet systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Wet Model E-3, part number 12936E-3.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle III Detector

The normally closed detectors utilized in the detection system of the Firecycle III wet cycling system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle III wet cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. The detector utilized in Firecycle III Cycling Wet System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector III Cable Installed Without Conduit

Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part

number of 04632A.

Firecycle Detector III Cable Installed In Conduit

Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". Cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. Flow control valve shall be UL Listed and Factory Mutual Approved. Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

TrimPac® Firecycle® III - Single Interlocked Praction

The fire sprinkler system shall be of the cycling single interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self restoring heat detector with a drop-off tab indicating the detector had been exposed to a temperature of 800°F and requires replacement. On/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

System shall operate as a preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe" if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized for "fail safe" operation of the system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90 hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

System riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. Check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling single interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Praction System shall be manufactured by The Viking Corporation. Cycling single interlocked preaction system shall be a Firecycle III Single Interlocked Praction System. System shall be UL Listed and Factory Mutual Approved and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Single Interlocked Praction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Praction Model E-1, part number 13801E-1.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle III Detector

The normally closed detectors utilized in the detection system of the Firecycle III cycling preaction system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle III preaction cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. The detector utilized in Firecycle III Cycling Preaction System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector III Cable Installed Without Conduit

Where local regulations permit, the detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector III Cable Installed In Conduit

Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The preaction sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

The pipe fittings installed on the preaction sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is

reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve

Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. Valve Model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

- A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
- B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
- C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor

(Insert applicable product specification.)

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® III - Double Interlocked Preaction

The fire sprinkler system shall be of the cycling double interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self-restoring heat detectors with a drop-off tab indicating the detector had been exposed to temperature in excess of 800°F and require replacement. On/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

The system shall operate as a double interlocked preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe" if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized in the release system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90 hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

The system riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. The check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling double interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. The cycling single interlocked preaction system shall be a Firecycle III Double Interlocked Preaction System. The system shall be UL Listed and installed according to the manufacturer's guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Double Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for double interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Double Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle III Detector

The normally closed detectors utilized in the detection system of the Firecycle III cycling preaction system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle III preaction cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. Detector utilized in Firecycle III Cycling Preaction System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector III Cable Installed Without Conduit

Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector III Cable Installed In Conduit

Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle III installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices

(Insert applicable product specification)

Detection System

Electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force

of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve

Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

- A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
- B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
- C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor

(Insert applicable product specification.)

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® III-OH Cycling Wet System

The fire sprinkler system shall be a cycling wet system in design. Cycling wet system shall be designed to limit the damage, which may be caused by excessive water flow. Cycling wet system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. On/off operation shall cycle when heat detector senses heat regeneration the system will operate, when detector cools and restores the system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Flow control valve shall operate as a check valve, clapper assembly closing on valve seat when higher pressures are present downstream of flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The cycling wet system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. Flow control valve trim design shall utilize 2 electric solenoid valves; 1 normally open and 1 normally closed. In an operation mode the normally closed solenoid valve shall open allowing the flow control valve priming chamber a reduced pressure zone to expel priming water pressure. Priming water pressure shall be redirected into the supply water stream downstream of the solenoid valves. In an operation mode the normally open solenoid valve shall close and latch closed when water flow is detected by the riser flow switch. If power is lost to the system release control panel, the system shall fail open or "fail safe". System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Firecycle III-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® III Cycling Wet System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-3 can be utilized for cycling wet systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Wet Model E-3, part number 12936E-3.

Firecycle III-OH Detector

The heat sensitive normally closed detectors utilized in the detection system of the Firecycle III-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle III-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle III-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector III-OH Cable

The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. Flow control valve shall be UL Listed and Factory Mutual Approved. Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

TrimPac® Firecycle® III-OH Cycling Single Interlocked Preaction

The fire sprinkler system shall be of the cycling single interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self restoring heat detector with a drop-off tab indicating the detector had been exposed to a temperature of 800°F and requires replacement. On/off operation shall cycle when heat detector senses heat regeneration; when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

System shall operate as a preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe", if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized for "fail safe" operation of the system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90-hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

System riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. Check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling single interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. Cycling single interlocked preaction system shall be a Firecycle III-OH Single Interlocked Preaction System. System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Firecycle III-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® III Single Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle III-OH Detector

The heat sensitive normally closed detectors utilized in the detection system of the Firecycle III-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle III-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless steel. The

resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle III-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector III-OH Cable

The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The preaction sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

The pipe fittings installed on the preaction sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve

Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for

periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. Valve Model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

- A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
- B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
- C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor

(Insert applicable product specification.)

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. The Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® III-OH Cycling Double Interlocked Preaction

The fire sprinkler system shall be of the cycling double interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self-restoring heat detectors with a drop-off tab indicating the detector had been exposed to temperature in excess of 800°F and require replacement. On/off operation shall cycle when heat detector senses heat regeneration; when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

The system shall operate as a double interlocked preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe", if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized in the release system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90-hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

The system riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. The check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling double interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. The cycling single interlocked preaction system shall be a Firecycle III-OH Double Interlocked Preaction System. The system shall be UL Listed and installed according to the manufacturer's guidelines.

SYSTEM DEVICES

Firecycle III-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® III Double Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle III-OH Detector

The heat sensitive normally closed detectors utilized in the detection system of the Firecycle III-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle III-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless

steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle III-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector III-OH Cable

The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices

(Insert applicable product specification)

Detection System

Electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve

Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for

periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

- A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
- B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
- C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor

(Insert applicable product specification.)

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)