CONTENT

This General Instruction assigns responsibility and details procedures for the inspection, testing, preventive maintenance, and replacement of fire protection equipment that includes portable and mobile firefighting equipment, fire detection & alarms systems, fixed and semi-fixed fire protection/suppression systems within Saudi Aramco facilities including marine vessels. It contains the following information:

1.0 SCOPE

1.1 This instruction provides information on the following:

1.1.1 Specifies the frequency of maintenance, inspection, and testing of fire protection equipment.

1.1.2 Assigns responsibility for the maintenance, inspection, testing, reporting of system impairment, and replacement of fire protection equipment.

1.1.3 Defines type of equipment and systems classified under fire protection equipment.

1.2 This instruction does not address inspection of Personal Protective Equipment (PPE) or emergency response equipment.

2.0 DEFINITIONS

2.1 Proponent Organization: Any organization that has been assigned ownership by the Company to occupy and/or operate in any onshore/offshore community or plant (industrial and non-industrial) facility or marine vessels or building.

2.2 Occupant Organization: Any organization (or its sub-group) that has been assigned by the Company to occupy and/or operate in any onshore/offshore community or plant (industrial or non-industrial) facility, or marine vessels, building, or section of building owned by Proponent Organization.

2.3 Maintenance Organization: Any organization (or its sub-group) that maintains any onshore/offshore

community or plant (industrial or non-industrial) facility or marine vessels or building which includes utility and fire protection equipment on behalf of the proponent or occupant.

2.4 Local Fire Control Unit (FCU): The organizational unit, at the Divisional level, that has been assigned by the Fire Protection Department (FrPD) to be responsible and to provide support to the proponent organizations for that area (community and/or industrial facility).

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2.5 Divisional Fixed Fire Systems Group (FFSG): A Group assigned to each area Fire Protection Division and responsible for conducting annual test and inspection (AT&I) of fixed and semi-fixed fire protection/suppression systems, or fire detection & alarm systems within their area of jurisdiction.

2.6 Area Fire Marshal: The Division Head managing the affairs of the Area Fire Protection Division.

2.7 Area Fire Chief: The Unit Head managing the affairs of the Local Fire Control Unit.

2.8 Annual Testing and Inspection (AT&I): A thorough and comprehensive test of the fire detection and alarm system, fixed fire protection system, components, and functions intended to give assurance that the system is in proper operating condition and that it will operate effectively for the purpose for which it was installed.

2.9 Routine Testing and Inspection (RT&I): A weekly, monthly, check and/or test to give reasonable assurance that fire protection equipment is in normal and full operating condition and that there have been no changes that would affect the system/equipment performance.

2.10 Follow-up Test and Inspection (FT&I): A test and/or inspection of the fire protection equipment, intended to verify job completion of maintenance or service work on all deficiencies and/or discrepancies, and restoration of the system to normal operating condition.

2.11 Performance and Acceptance Testing (P&AT): Test conducted for the approval of new installations. This includes complete testing of new devices, equipment, systems, and their functions, if applicable. The goal of this test is to determine that the system has been properly installed in conformity with National Fire Protection Association (NFPA) standards and Saudi Aramco Engineering Standards (SAES), installation plans, specifications, and manufacturer's instructions. Representatives from the Loss Prevention Department and the Fire Protection Department must witness these tests.

2.12 Re-acceptance Testing: Test conducted after system components are added or deleted and after any modification to existing systems. The test includes all new components and system functions affected by the change. In addition, the test covers all original functions to verify proper system operation.

2.13 Preventive Maintenance: A thorough check and necessary repairs or replacement of components intended to keep the system in normal operating condition.

2.14 Fire Protection Equipment: Any device, fixed or semi-fixed fire protection/suppression system, fire detection & alarm system, or firefighting equipment installed in a building, plant, or onshore / offshore facility to enhance the protection of life and property against the danger of fire. Such device, fire system, or equipment is primarily intended to indicate alarm, warn of abnormal conditions, summon appropriate aid, or contain/extinguish fire. Wherever fire protection equipment is used in this general instruction, except where it is specifically indicated, it shall mean all or any of the following:

2.14.1 Fire Detection and Alarm System: Any device or system installed in a building, plant, or facility to enhance the protection of life and property from the danger of fire. These systems and components are arranged to monitor and annunciate the status of fire alarm or supervisory signal initiating devices and are primarily intended to produce a fire alarm signal for occupant notification and/or building evacuation. Systems might also be designed to control and initiate actuation of other systems such as automatic fixed fire extinguishing systems, air handling systems, smoke control and pressurization systems, smoke doors, elevator capture and other control functions. Fire detection and alarm systems consist of, but are not limited to, the following:

2.14.1.1 Control panel with its primary (main) and secondary (standby) power supply

2.14.1.2 Remote anunciators, alarm transmitters, and data gathering panels

2.14.1.3 Fire alarm initiating devices (automatic fire detectors, manual alarm stations, water flow alarm devices, supervisory devices, etc.)

2.14.1.4 Alarm signaling and indicating appliances (bells, horns, chimes, strobe lights, speakers and emergency voice/alarm communication systems)

2.14.2 Fixed or Semi-Fixed Fire Protection/Suppression Systems: Systems or portion of systems that are permanently installed in a building or structure and primarily intended to control and/or extinguish fires by discharging extinguishing agent on the burning material or in the area of the fire. Systems that fall under this category include, but are not limited to:

2.14.2.1 Water-based Fire Extinguishing Systems:

2.14.2.1.1 Automatic Sprinkler Systems (Wet Pipe, Dry Pipe, Pre-action, Deluge, and Combined (Dry Pipe and Pre-action) Systems)

2.14.2.1.2 Standpipe and Hose Systems

2.14.2.1.3 Dedicated Fire Water Supply Systems including, but not limited to, water storage tanks, pumps, piping, control and isolation valves, hose stations, etc.

2.14.2.1.4 Water Spray Systems

2.14.2.1.5 Foam-Water Sprinkler Systems and Foam Systems

2.14.2.1.6 Semi Fixed Foam System operated by the Fire Truck that injects foam solution through the foam manifold and discharges through the foam chambers.

2.14.2.2 Other Fixed Fire Suppression Systems:

2.14.2.2.1 Halon 1301 or other clean agent like FM-200 or Novec 1230 (NFPA 2001) total flooding systems

2.14.2.2.2 Carbon Dioxide (CO_2) systems

2.14.2.2.3 Wet and Dry Chemical systems

2.14.3 Building Management, Smoke Control, and Smoke Removal (Exhaust) Systems

2.14.4 Small Tools and Appliances: axes, wrenches, ropes, ladders, etc., used specifically for fire protection and emergency purposes

2.14.5 Portable or mobile fire extinguishers

2.14.6 Oily Water and Surface Drainage Systems including catch basins, laterals, and sumps

2.15 Exit doors: Any of the following that can be used as a means of egress.

2.15.1 Automatically Operated Fire Doors: Doors used for egress or routine movements, that normally are open but close when the automatic closing device is activated.

2.15.2 Room or Entrance Doors: Doors that are used for routine movement of personnel.

2.16 SCBA: Self-Contained Breathing Apparatus.

2.17 Status Report: Refers to Saudi Aramco Form 3708, "Fire Protection Equipment Status Report." This report is issued by Proponent and Occupant Organizations to Local Fire Control Unit as a result of routine tests and inspections (RT&I) of fire protection equipment with deficiencies and/or discrepancies, as specified in Supplement 1781.001-01.

2.18 Fire Protection Equipment Layout: An onshore/offshore community or plant (industrial and non-industrial) facility, marine vessels, building or plant layout (drawing) that show all fire protection equipment locations and assigned item number or unit number.

2.19 Alterations: To upgrade, modify, relocate, and/or replace components of fire protection systems/equipment.

2.20 Logbook: A dedicated record book used for the purpose of documenting all testing, inspection, maintenance, and activation of the fire detection and alarm system or fixed fire protection system.

2.21 SAP PM: System Application Product Plant Maintenance is a system that makes on-line integration of testing & inspection schedules, work order notifications, maintenance work requests, follow up notifications, task lists etc., between the proponent organization, maintenance organization, and Fire Protection Department.

3.0 REFERENCES

3.1 General Instruction No. 2.710, Mechanical Completion and Performance Acceptance of Facilities

3.2 General Instruction No. 1780.001, Atmosphere- Supplying Respirators

3.3 General Instruction No. 1783.001, Fire Fighting Training Company Personnel

3.4 General Instruction No. 1000.500, Maintenance Work Order

3.5 National Fire Protection Association (NFPA) Codes and Standards:

NFPA 10	Portable Fire Extinguishers
NFPA 11	Low-, Medium-, and High-Expansion Foam
NFPA 12	CO_2 Extinguishing Systems
NFPA 12A	Halon 1301 Fire Extinguishing Systems
NFPA 13	Installation of Sprinkler Systems
NFPA 14	Installation of Standpipe and Hose Systems
NFPA 15	Water Spray Fixed Systems for Fire Protection
NFPA 16	Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
NFPA 17	Dry Chemical Extinguishing Systems
NFPA 17A	Wet Chemical Extinguishing Systems
NFPA 20	Installation of Stationary Pumps for Fire Protection
NFPA 22	Water Tanks for Private Fire Protection
NFPA 24	Installation of Private Fire Service Mains and Their Appurtenances
NFPA 45	Standard for the Fire Protection for Laboratories using Chemicals
NFPA 25	Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
NFPA 70	National Electrical Code
NFPA 72	National Fire Alarm Code
NFPA 75	Protection of Electronic Computer/Data Processing Equipment
NFPA 76	Recommended Practice for Fire Protection Of Telecommunication Facilities
NFPA 80	Fire Doors and Fire Windows
NFPA 90A	Installation of Air-Conditioning and Ventilating Systems
NFPA 90B	Installation of Warm Air Heating and Air-Conditioning Systems
NFPA 92A	Smoke-Control Systems
NFPA 92B	Smoke Management System in Malls, Atria, and Large areas
NFPA 291	Recommended Practice for Fire Flow Testing and Marking of Hydrants
NFPA 1962	Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles
NFPA 2001	Clean Agent Fire Extinguishing Systems

3.6 Saudi Aramco Engineering Standards (SAES):

SAES-A-004	General Requirements for Pressure Testing
SAES-B-005	Spacing and diking for atmospheric and Low-Pressure Tanks
SAES-B-009	Fire Protection and Safety Requirements for Offshore Production Facilities
SAES-B-014	Safety Requirements for Plants and Operations Support Buildings
SAES-B-017	Fire Water System Design
SAES-B-018	Air Foam Systems for Storage Tanks
SAES-B-019	Portable, Mobile and Special Fixed Firefighting Equipment
SAES-B-060	Fire Protection for Piers, Wharves and Sea Islands
SAES-B-067	Safety Identification and Safety Colors

SAES-B-069 Emergency Eyewashes and Showers
SAES-B-070 Bulk Plants
SAES-G-005 Centrifugal Pumps
SAES-L-105 Piping material specification
SAES-L-132 Material Selection of Piping Systems
SAES-S-020 Industrial Drainage and Sewers
SAES-S-050 Sprinkler and Standpipe Systems in Building
SAES-M-100 Saudi Aramco Building Code
SAES-O-118 Fire Fighting Equipment

3.7 Operating Instruction Manuals

4.0 GENERAL INFORMATION

4.1 Before placing in service, the Fire Protection Department shall witness the tests and carry inspection of all new fire protection equipment in accordance with SAES, NFPA standards, and manufacturer's recommended procedures.

4.2 Routine testing and inspection (RT&I) shall be conducted on all fire protection equipment specified in the attached Supplement 1781.001-01 by Proponent Organization or their delegated Maintenance Organization. In buildings with multi-occupant organizations, the building proponent is the responsible agency for inspection, testing, and maintenance of fire protection equipment.

4.3 Annual testing and inspection (AT&I) shall be conducted for fire detection and alarm systems and fixed fire protection systems specified in the attached Supplements 1781-001-02 by Fire Protection Department.

4.4 On high priority, the Proponent organization shall repair, replace, or recharge out of service fire protection equipment.

4.5 All proposed alterations to existing or new fire protection equipment shall be reviewed by Technical Support and Training Division and/or Divisional Fixed Fire Systems Group of Fire Protection Department. Such alterations shall be approved by Fire Prevention Engineering Group of Loss Prevention Dept.

4.6 Fire extinguisher shells/cylinders shall be hydrotested at intervals not exceeding those specified in the attached Supplements 1781.001-01 and 1781.001-02 and as per industry standard NFPA 10. They may be hydrotested earlier if deemed necessary.

4.7 If a fire extinguisher/cylinder is damaged or exposed to severe conditions, it shall not be hydrotested, but shall be replaced with the concurrence of the Local Fire Control Unit.

4.8 All portable halogenated (Halon) type extinguishers shall be removed from service upon expiration of their hydrotest date or when they require any type of service, i.e., refilling, part replacements, or when they are damaged or deemed unsafe in any way.

4.8.1 Portable halogenated type extinguisher can be replaced by any other suitable extinguishing agents as determined by the Local Fire Control Unit.

4.8.2 Contact area Loss Prevention Dept. for guidance concerning the removal and disposal of any halogenated agent from portable fire extinguishers or fixed fire protection system cylinders.

4.9 Fixed halogenated type systems must be projected for scheduled replacement with a suitable environmentally safe agent. The Fire Protection and Loss Prevention Departments shall be consulted of any proposed changes. In case of replacement of fixed halogenated type systems, prior approval must be obtained from Loss Prevention Department (LPD), regarding the selection of agent/system for the replacement.

4.10 The required annual tests and inspections (AT&I) performed by Fire Protection Department for all fire protection equipment in mothballed onshore/offshore community or plant (industrial and non-industrial) facility or marine vessels or building shall only be conducted after a work order is generated by Proponent Organization through SAP PM to the Divisional Fixed Fire Systems Group, Fire Protection Department.

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5.0 PROPONENT ORGANIZATION RESPONSIBILITIES

5.1 Each proponent organization shall upload in SAP PM all fire protection equipment specified in the attached Supplement 1781-001-01.

5.1.1 Fire equipment and systems data in SAP PM shall include:

a. Equipment model, serial number, name of manufacturer, and date of manufacture.
b. The word “FrPD” shall be added in the General info. 1 field.
c. The exact location of the Fire Protection Equipment in the sort field. For fire extinguisher, the sort field shall include the station number (hanging plate).

5.1.2 Any location changes of fire protection equipment specified in the attached Supplement 1781.001-01 shall be reflected in SAP PM immediately.

5.2 Each proponent organization shall be responsible for the test and inspection of all fire protection equipment assigned to their area of operating responsibilities as specified in Supplement 1781.001-01.

5.2.1 The proponent shall, on an expedient basis, inform the Local Fire Control Unit of any changes in the status of the fire protection equipment, by submitting a Status Report (SA-3708). SA-3708 shall only be used whenever any of the following conditions exists on the fire protection equipment:

5.2.1.1 Impairment due to alterations, repair, and/or maintenance, as defined in section 2.19.

5.2.1.2 The deficiency and/or discrepancy identified during proponent organization testing and inspection would adversely affect the proper operation of the fire protection equipment or render it inoperable.

5.2.1.3 When fire protection equipment has been used or is out of service.

5.3 Each proponent organization shall create a SAP PM work order to the Divisional Fixed Systems Group for conducting re-acceptance testing after new system components are added or modifications are done to existing systems. The definition of re-acceptance testing is given in section 2.12

5.4 Each proponent organization shall be responsible for the maintenance of all fire protection equipment assigned to their area of operating responsibilities.

Exception: Maintenance of mobile and portable fire extinguishers and SCBA is to be performed either by the Fire Protection Department (FrPD) or through a contract administered by FrPD. In either case the cost for such maintenance shall be borne by proponent organization. The planning plant of those equipment in SAP PM shall be Fire protection Department Plant (Z008) and the planner group is the local fire protection hydrotest group.

5.5 Proponent organization can delegate the inspection, testing, and maintenance requirement stated in sections 5.1 and 5.3 to their responsible maintenance organization. The proponent organization shall arrange with these maintenance organizations for routine testing and inspection and preventive maintenance functions, as outlined in Supplement 1781.001-01. This includes Work Orders or notification through SAP PM.

5.6 Each proponent organization shall maintain and update as required, but annually at a minimum, their fire protection equipment data in SAP PM, so that it can be viewed by Local Fire Control Unit for records and follow-up. The updated equipment data shall be attached to the Emergency Response Plan and copies provided in the Disaster/Emergency Control Center for easy reference and use in case of escalated fire emergencies.

5.7 Each proponent organization shall maintain and update as required, but annually at a minimum, their facility fire protection equipment layout showing all fire protection equipment, SAP PM Equipment number, type, model, capacity, and location in their area of responsibility and forward it to the Local Fire Control Unit for records and follow-up. The updated fire protection equipment layout shall be attached to the Emergency Response Plan and copies provided in the Disaster/Emergency Control Center for easy reference and use in case of escalated fire emergencies.

5.7.1 Any changes to the fire protection equipment layout shall be reported to the Local Fire Control Unit immediately.

5.8 Proponent organizations having portable and/or mobile fire extinguishers/equipment assigned to vehicles, vessels, and other onshore / offshore facilities shall deliver said equipment to the Local Fire Control Unit for necessary maintenance, and due test and inspection.

5.9 Proponent organizations having responsibility for fire protection equipment shall adhere to the inspection and testing frequency as outlined in Supplement 1781.001-01 of this General Instruction.

5.10 The results of all required tests and inspections indicated in the attached Supplement 1781.001-01 shall be recorded weekly/monthly in the logbook. Whenever any of the conditions stated in section 5.2 exists, as a result of all the required tests and inspections, SA-3708 shall be used and forwarded to the Local Fire Control Unit for necessary records and follow up.

5.11 All proponent organizations are responsible for limiting the use of fire protection equipment to emergency purposes only.

Exception: Fire protection equipment can be used by the Fire Protection Department, or the proponent with concurrence of the Area Fire Marshal, for training purposes.

5.12 The proponent organization shall order through SAP the required spare parts needed by FrPD for maintenance of portable Fire Extinguishers and SCBA sets. The prponenent organization shall be responsible for any cost of spare parts/equipment required for maintenance of fire extinguisher and SCBA sets under the contract.

5.12.1 All new fire extinguishers shall be delivered to the Local Fire Control Unit to be inspected, commissioned, tagged, and be assigned numbers prior to being placed in service. The actual numbering will be done by the proponent.

5.12.2 For any maintenance requirement, the proponent Organization shall be responsible for carrying mobile and portable fire extinguishers, and SCBA units to and from the FrPD hydrotest shop or contractor (as determined by FrPD).

5.13 The proponent organization shall use approved Saudi Aramco standard fire extinguishers. Where ever in the past non Saudi Aramco approved fire extinguishers have been procured, the proponent organizations shall use, at their expense, the fire extinguisher maintenance contract administered by FrPD, to maintain their fire extinguishers. The proponent organization shall be responsible to:

5.13.1 Initiate a contract release purchase order for contract services
5.13.2 Send the original purchase order by mail to FrPD planning and accountability group
5.13.3 Coordinate with FrPD planning and accountability group for contacting the contractor to perform the required services

5.14 The proponent organization shall inform the Area Fire Marshal of the scheduled dates and times of planned Mechanical Completion and Performance Acceptance Testing of their new projects. For conducting any planned Mechanical Completion and Performance Acceptance, the proponent organization shall give at least a prior notice of 10 working days to Area Fire Marshal.

5.15 The proponent organization shall ensure that all fire protection equipment installed in their facilities are on-line and operating properly at all times.

5.16 The proponent organization shall make sure that all personnel working in any area protected by fire alarms or fixed fire protection systems are informed about the sequence of operation of the system and are trained regarding extinguishing agents safety issues. Fire Protection Department will provide this training, when requested.

5.17 The proponent organization shall arrange with other maintenance organizations for routine testing and inspection and preventive maintenance functions, as outlined in Supplement 1781.001-01. This includes issuing Maintenance Work Orders and / or Service Orders in accordance with Saudi Aramco procedures.

5.18 The proponent shall make necessary arrangements and notify all affected facility occupants about the dates and timings of the T&I according to the SAP PM schedule in their area of responsibilities.

5.18.1 The proponent shall issue letter under the proponent Manager's signature to the Area Fire Marshal, should FFSG/ Local FCU fail to conduct annual or routine T&I within ten days from the date the T&I is scheduled to be conducted. Copy of letter to be sent to FrPD Manager.

5.19 Upon receipt of work order through the SAP PM regarding the deficiencies and/or discrepancies, the proponent shall, within 24 hours, take all necessary actions to correct any deficiency and restore the fire protection equipment to full operational condition.

5.19.1 In case restoration of fire protection equipment to operational condition as per section 5.19 is not possible within 24 hours, then Proponent shall plan execution of work order, including estimated completion dates, within 30 working days of the work order creation date. This includes contacting the responsible maintenance organization to carry out the needed repairs.

5.19.2 Proponent shall submit a periodic report to the local Plant and other Organization Safe Operations Committee (SOC) on the status of maintenance, until all items have been closed per section 5.21 of this General Instruction.

5.20 The proponent organization shall assign representative(s) to witness all required tests, as specified in Supplement 1781-001-02, and the annual testing and inspection of fire protection equipment performed by FrPD.

5.21 Following completion of all maintenance/service work,, the proponent organization shall co-ordinate with fixed systems or inspection group of FrPD to schedule and conduct a follow-up test and inspection of the system.

5.22 The proponent organization shall be responsible to have SAP numbers written legibly on all the fire protection equipment that are tested or inspected by FrPD in their area of operation. The numbers shall not be less than 1 cm in height

5.22.1 Proponent organization shall be responsible to ensure that fire extinguisher hanging plate is numbered with the SAP number that is installed on it. The numbering process shall be coordinated with area fixed system group/local Fire Control unit of FrPD.

5.23 The proponent organization shall be responsible to upload or change maintenance plan for all fire protection equipment mentioned in Supplement 1781.001-01 & 1781-001-02.

5.23.1 With coordination of local Fire Control Unit and divisional fixed Fire systems group, the proponent shall prepare a test and inspection schedule for fire protection equipment in its coverage area. The schedule shall be approved by the area fire marshal before uploading in SAP. Any changes in the schedule after it has been uploaded in SAP shall be approved by the area fire chief and divisional fixed systems group before it is again uploaded it in SAP.

5.23.2 All of the proponent equipment and systems included in Supplement 1781.001-02 shall be included in that proposed schedule.

5.23.3 Each fire protection system as indicated in Supplement 1781.001-02 shall be included in one maintenance item. Each equipment that is part of that system shall be included in the same

maintenance item as an object list. The title of the maintenance item shall be the same as the title of that fire system as indicated in Supplement 1781.001-02. A serial number shall be added beside the maintenance item to differentiate between similar items.

5.24 The proponent organization shall ensure that all proposed alterations within a plant/building or structure that could affect the design and/or operation of the fire alarm or fixed fire protection systems are reviewed in advance by the area Loss Prevention Division, Area Fire Marshal, and/or technical support and training division (TS&TD) of FrPD.

5.25 The proponent organization shall maintain a fire pump test procedure and be made available on the site, near the fire pump. The proponent organization shall coordinate with divisional fixed systems group of FrPD and area LPD to review the procedure and witness annual firewater system, and fire pump performance tests, as specified in Supplement 1781.001-02.

5.26 The proponent organization shall ensure that portable fire extinguishers provided and used by contractors are tested, inspected, and maintained by the contractor, in accordance with the approved Construction Safety Manual.

5.27 The proponent organization shall maintain "As-Built" drawings, specifications, and technical manuals of all fixed fire protection systems installed in their facilities. Such documentation must be made available to the concerned Area Fire Marshal/divisional fixed systems group and the responsible maintenance organization upon their request.

5.28 The proponent organization shall maintain a logbook near the control panel for each fire alarm or fixed fire protection system. This logbook shall be used to document all testing, inspection, maintenance, and activation of the fire alarm or fixed fire protection system.

Exception: If there are multiple fire detection and alarm systems and fixed fire protection/suppression systems installed in a building and these are maintained by the same maintenance organization, then a common logbook for all the aforementioned systems may be utilized.

6.0 OCCUPANT ORGANIZATION RESPONSIBILITIES

6.1 The occupant organization shall ensure that the fire protection equipment, including all fire alarm and fixed fire protection systems, installed in the facilities they occupy are on-line and operating properly at all times.

6.2 The occupant organization shall coordinate with the proponent organization, Area Fire Protection Division and maintenance organization to ensure that routine and annual T&I and maintenance for the fire protection equipment installed in the facility they occupy are being performed, as specified in Supplement 1781.001.

6.3 The occupant organization shall immediately inform the proponent organization and Local Fire Control Unit by submitting SA-3708 after fire protection equipment is either activated, used, damaged, or placed out of service.

7.0 FIRE PROTECTION DEPARTMENT RESPONSIBILITIES

7.1 The Fire Protection Department shall be responsible for the annual (AT&I) testing and inspection, as specified in Supplement 1781.001-02.

7.2 The Fire Protection Department shall be responsible to administer the contract for maintenance of mobile and portable fire extinguishers, and SCBA units as detailed below . Some maintenance may be performed by FrPD until there is full implementation of service contract covering all areas.

7.2.1 Fire Protection Department shall be responsible to administer the contract for hydrostatic testing and overhaul of all fire extinguishers and SCBAs. Some maintenance may be performed by FrPD until there is full implementation of service contract covering all areas.

7.2.2 List of spare parts and materials needed for the maintenance of mobile and portable fire extinguishers and SCBA units shall be submitted by FrPD to the Proponent Organization. It shall be responsibility of proponent to order the listed material through SAP, unless the parts are supplied through the contract.

7.3 The Area Fire Marshal shall be responsible to:

7.3.1 Ensure that all fire protection equipment within his area is being adequately tested, inspected and maintained in good working order.

7.3.2 Designate the responsible group within his organization in undertaking all the required tests and inspections of fire protection equipment to meet the obligations required in Supplement 1781.001-02 of this general instruction.

7.4 The Area Fire Marshal shall assign a representative to serve on the Mechanical Completion Acceptance Committee and to sign Mechanical Completion Certificates (MCCs), where FrPD involvement is applicable, as per GI 2.710.

7.5 The Local FCU Unit Head shall be responsible to:

7.5.1 Access SAP PM to view the schedule for inspections and / or testing of fire protection equipment, as specified in Supplement 1781.001-02, and confirm the schedule or event in writing, either through e-mail or letter to proponent organization(s). The items 1,2, 6,7,8,910,11,12,14,15,16,17,30,and 31 or the items designated by the Area Fire Marshal as indicated in Supplement 1781.001-02 shall be covered by local FCU.

7.5.2 Ensure that Local Fire Control Unit conducts annual (AT&I) testing and inspection of all fire protection equipment, as specified in section 7.5.1. Local Fire Control Unit Representative shall create a work order for any defects or deficiencies found as a result of tests and inspections. The work order shall include details of all findings, recommendations to correct any trouble or impairment.

7.5.3 Review and track SA-3708, as required in section 5.2.1, and ensure that appropriate corrective action is taken. Local Fire Control Unit representative must record on the SA-3708 any actions, conditions, or corrections taken. A copy of SA-3708 related to fixed fire protection/suppression system or fire detection & alarm system shall be submitted to divisional fixed systems group.

7.5.4 Ensure that the inspection tag, and fixed fire protection/suppression logbook, on all fire protection equipment are updated after each inspection/testing. Activation of any fire detection and alarm system or fixed fire protection/suppression system shall be also shown in the logbook

7.5.5 Coordinate with proponent and receive any portable or mobile fire extinguisher or SCBA that is due for hydrotest.

7.5.6 Ensure that hydrotested extinguishers and/or SCBAs are returned to proponent in due time.

7.5.7 Ensure that an adequate number of portable and mobile fire protection equipment and/or SCBAs are available for utilization on a loan basis according to local needs, especially when a fixed fire protection system is shut down for maintenance or other operational purposes, and maintain records of the above in SAP PM. Some of the equipment for loan purpose may be provided under the service contract.

7.5.8 Maintain T&I records in SAP PM and monitor the status of all impaired fire protection equipment installed in their area of operation.

7.5.9 Inform the Divisional FFSG of any malfunctioning fire detection and alarm and fixed fire protection/suppression system that was discovered during their routine inspection.

7.5.10 Ensure that proponent assigns representative to witness all required tests, as specified in Supplement 1781-001-02.

7.5.11 Ensure that inspectors review the weekly/monthly log kept by proponent.

7.6 Divisional Fixed Fire Systems Group (FFSG) shall be responsible to:

7.6.1 Coordinate with proponent organization to plan and schedule annual testing and inspection (AT&I) of all fire detection and alarm systems and existing fixed fire protection systems installed in all company facilities, buildings and plants.

7.6.2 Conduct annual testing and inspection (AT&I) of all fire detection and alarm systems, fixed or semi-fixed fire protection/suppression systems that are available in SAP PM data as per section 5.1 and installed in all company facilities, buildings and plants according to the guidelines and procedures outlined in the applicable National Fire Protection Association (NFPA) standards and Saudi Aramco Engineering Standards.

7.6.3 Conduct the reacceptance testing, as per the section 5.3, whenever system components are added or deleted, and after any modifications to the existing systems. The test includes all new components and system functions affected by the change. In addition, the test covers all original functions to verify system operation.

7.6.4 Access the SAP PM to view the testing and inspection schedule and confirm the dates and timings in writing, either through e-mail or letter, to all proponents of the facilities to be tested and inspected. Copies of written confirmation shall be sent to the Local Fire Control Unit.

7.6.5 Prior to testing and inspection (T&I), the FFSG representative shall make sure that the proponent, occupants, any Remote Monitoring Station and the area Security and Fire Dispatcher concerned are aware of the intent to test the system to prevent evacuation of premises and dispatching of emergency vehicles.

7.6.6 Ensure that proponent assigns representative to witness all annual and follow-up tests and inspections of fixed and semi-fixed fire protection systems installed in their area of responsibilities.

7.6.7 Create a work order for any defects or deficiencies found as a result of annual and follow-up tests and inspections. The work order shall include details of all findings, recommendations to correct any trouble or impairment. Copies of work order shall be distributed to: (a) Local or area Fire Control Unit, to be aware of system status and to arrange with proponents for alternatives and (b) Area Loss Prevention Division, for follow-up during local Safe Operations Committee (SOC).

7.6.6.1 Issue letter under FrPD Manager Signature to proponents who fail to execute the work order within 30 days as per section 5.19.1. Copy of letter to be sent to proponent's Admin Head, and area Loss Prevention Dept.

7.6.8 Whenever fire protection equipment is returned to service following completion of any maintenance/service work and after all the discrepancies/deficiencies highlighted in the FrPD maintenance requests or work orders have been corrected and the work orders are closed, FrPD fixed systems or inspection group will conduct a follow-up test and/or inspection to verify job completion and restoration of the system to normal operating condition

7.6.9 Provide technical assistance to proponents and/or occupants on system operations, limitations, safety issues and testing / preventive maintenance frequency and procedures. This will include assisting the proponents and maintenance organizations to correct deficiencies in their fire protection equipment including fixed and semi-fixed fire protection/suppression systems that were documented in FrPD work orders as a result of the AT&I.

7.6.10 Issue a written report on the results of the Mechanical Completion and Performance Acceptance Testing highlighting all findings and deviations from approved plans and specifications. This report shall be submitted to the Acceptance Committee Chairman and FrPD/ Technical Support and Training Division, as per GI 2.710.

7.6.11 Log in the fixed fire protection system logbook all relevant information for each site visit.

7.6.12 Wherever possible, maintain following up-to-date records on all fire detection and alarm and fixed fire protection systems installed in all company facilities. These records shall include, but are not limited to the following:

- Drawings and technical documentation
- Brief description of each system and its sequence of operation

8.0 AREA LOSS PREVENTION RESPONSIBILITIES

8.1 Coordinate with Divisional FFSG and TS&TD of FrPD in reviewing the specifications and design drawings of all proposed modifications to existing fire alarm and fixed fire protection systems located in their area.

9.0 AREA PROJECT MANAGEMENT RESPONSIBILITIES

9.1 The Project Management Organization shall coordinate with the Proponent Organization, Maintenance Organization, and Area Fire Marshal in all phases of development, including plan review and acceptance testing, for new and upgrade projects.

9.2 The Project Management Organization shall ensure that the Fire Protection Department is a member of the Mechanical Completion Acceptance Committee, per GI 2.710.

9.3 The Project Management Organization shall coordinate with Loss Prevention, Proponent Organization, Maintenance Organization, and General Supervisor FrPD/ Technical Support and Training Division in reviewing materials specification and procurement of fire protection equipment/systems' components to ensure they meet relevant SAMS and SAES minimum requirements.

9.4 The Project Management Organization shall coordinate with Loss Prevention Department, Proponent Organization, Maintenance Organization and FrPD/ Technical Support and Training Division in reviewing construction scope of work, design drawings and calculations of all new and proposed modifications to, fire alarm and fixed fire protection systems located in their area.

10.0 MAINTENANCE ORGANIZATION RESPONSIBILITIES

10.1 Conduct inspection, testing and preventive maintenance on all fire alarm and fixed fire protection systems in accordance with the procedures mentioned in applicable NFPA standards, in support of Sections 5.1, 5.2, 5.3, and 6.2. The minimum frequency of such testing and inspection is given in Supplement 1781.001-01.

10.2 Upon receiving a Maintenance Work Order or a request from a proponent of any facility requiring work on a fixed fire protection system, the responsible maintenance organization shall give this highest priority and carry out the required repairs as soon as possible.

10.3 Coordinate with proponent organization and FrPD to scheduled dates and times for conducting inspection, testing, and preventive maintenance on any fixed fire protection system with the proponent or occupant organization involved.

10.4 Complete a work order through SAP PM to inform the proponent of the result of the inspection, test, and preventive maintenance activities.

10.5 Notify in writing to Local Fire Control Unit and divisional fixed fire systems group immediately of any fixed fire protection systems that are malfunctioning or placed out of service.

10.6 Record in the fixed fire protection system logbook all relevant information for each site visit.

11.0 SUPPLEMENTS

11.1 The following Supplements are provided with this Instruction:

11.1.1 Supplement # 1781.001-01, Proponent Organization Responsibilities for Testing and Inspection of Fire Protection Equipment

11.1.2 Supplement # 1781.001-02, Fire Protection Department Responsibilities for Testing and Inspection of Fire Protection Equipment

12.0 APPROVAL

Recommended By:

_____ Date _____
A. A. Mokhtar
Manager, Fire Protection Department

Approved By

_____ Date _____
A.M.AL - Ghamdi
Executive Director, Safety & Industrial Security

Concurred By:

_____ Date _____
A. F. Al Wuhaib
Sr. Vice President, Operations Services

_____ Date _____
Amin H. Al Nasser
Sr. Vice President, Exploration & Project Management

_____ Date _____
S. S. Al Aydh
Sr. Vice President, Engineering & Project Management

_____ Date _____
A. F. Al Khayyal
Sr. Vice President, Industrial Relations

_____ Date _____
K. G. Al Buainain
Sr. Vice President, Marketing & International Operations

_____ Date _____
A. A. Al Othman
Sr. Vice President, Finance

SUPPLEMENT 1781.001-01

Proponent Organization Responsibilities for Testing and Inspection of Fire Protection Equipment

CONTENT

This supplement describes the frequency of testing and inspection of fire protection equipment required by the proponent organization. The testing and inspection shall be carried out by knowledgeable and properly trained personnel Results shall be reported to the local Fire Control Unit whenever any of the following conditions exists on the fire protection equipment:

- Impairment due to alterations, repair and/or maintenance.
- The deficiency and/or discrepancy identified during testing and inspection would adversely affect the proper operation of the fire protection equipment or render it inoperable.

1.0 30 Minute Standard Breathing Apparatus TEST & INSPECT WEEKLY "Scott 2.2 fifty"

1.1 Located as designated by the Fire Protection Department in an accessible location.
1.2 SCBA storage box is unobstructed, free from damage with dust seals intact.
1.3 Facemask and low-pressure hose are in good condition.
1.4 Facemask is clean and stored in plastic bag.
1.5 Waist and shoulder harness straps are in good condition and fully extended.
1.6 Cylinder shows no sign of damage.
1.7 Cylinder air pressure gauge reads "FULL." (2216 psi)
1.8 Vibralert alarm warning activated when tested.
1.9 Breathing regulator purge valve is "closed."
1.10 Remote pressure gauge in good condition and work properly
1.11 Metallic cylinder has valid hydrotest date (every five years).
1.12 Composite cylinder has valid hydrotest date (every three years)
1.13 Inspection tag is signed and updated.

2.0 Supplied Air Breathing Apparatus (SABA) TEST & INSPECT WEEKLY "Scott Type"

2.1 Located as designated by the Fire Protection Department in an accessible location and not exposed to direct sunlight or corrosive atmospheres.
2.2 Facemask and breathing hose/tube are in good condition.
2.3 Cylinder valves are not corroded.
2.4 Air hose in good condition, has no cracks, and is properly coiled.
2.5 Face mask is clean, stored in a plastic bag, and straps are fully extended.
2.6 Harness assembly shows no sign of damage.
2.7 Cylinders are painted and free from damage.
2.8 All cylinder pressure gauges read "FULL."
2.9 Alarm warning activated when tested if so equipped.
2.10 Red bypass valve is "CLOSED."
2.11 Yellow regulator valve is "OPEN."
2.12 Pressure demand lever valve is "OFF."
2.13 Cylinder brackets are firmly attached.

2.14 Cylinder has valid hydrotest date (every five years).
2.15 Inspection tag is signed and up-dated.

3.0 Fire Pump (Engine Driven) TEST & INSPECT WEEKLY

3.1 Pump house, pump weather shed or pump area in good repair, clean, well ventilated, access is not blocked and not being used for storage.
3.2 Battery power indicator reads 12/24 Volts Direct Current (VDC).
3.3 Engine oil level reads "FULL."
3.4 Fuel supply gauge reads "FULL."
3.5 Coolant level is full.
3.6 Cooling system valve is "OPEN."
3.7 Engine belt is in good condition.
3.8 Suction and discharge valves are "OPEN" and car-sealed.
3.9 Bypass valves are closed and car-sealed.
3.10 Starter control set to automatic mode.
3.11 Pump controller indicator lights are off with the exception of main power supply and start-up battery.
3.12 Suction and discharge gauges indicate specified pressure.
3.13 Pipe, fittings, and valves are painted red, with no leaks or corrosion.
3.14 Valve stem is greased and not painted.
3.15 Electrolyte level in batteries is "NORMAL."
3.16 Battery terminals are free from corrosion.
3.17 Start and operate pump automatically for 30 minutes (recycle water if necessary); and do the following while the pump is running:

3.17.1 Pump System Procedure.

(a) Record the system suction and discharge pressure gauge readings.
(b) Check the pump packing glands for slight discharge.
(c) Adjust gland nuts if necessary.
(d) Check for unusual noise or vibration.
(e) Check packing boxes, bearings, or pump casing for overheating.
(f) Record the pump starting pressure.

3.17.2 Diesel Engine System Procedure.

(a) Observe the time for engine to crank.
(b) Observe the time for engine to reach running speed.
(c) Observe the engine oil pressure gauge, speed indicator, water, and oil temperature indicators periodically while engine is running.
(d) Record any abnormalities.
(e) Check the heat exchanger for cooling waterflow.
(f) Examine exhaust system for leaks.
(g) Record engine speed before stopping pump at the end of the 30-minute test.

3.18 Engine temperature is "NORMAL."
3.19 Inspection tag and logbook are signed and updated.
3.20 For additional information on inspection and testing of Fire Pumps, refer to chapter, 8, NFPA 25.

4.0 Fire Pump (Electrically Driven) TEST & INSPECT WEEKLY

4.1 Pump house, pump weather shed or pump area in good repair, clean, well ventilated, access is not blocked and not being used for storage.
4.2 The main power supply circuit breaker is set to auto mode (ON Position).
4.3 Pump controller indicator lights are off with the exception of main power supply.
4.4 Suction and discharge valves are in the open position and car-sealed.
4.5 Bypass valves are closed and car-sealed
4.6 Valves function properly and their stems are greased.
4.7 Valves and pipefitting are painted red and not leaking or corroded.
4.8 Pump oil reservoir level is half-full.
4.9 Suction and discharge gauges indicate recommended working pressure.
4.10 Start and operate pump automatically for 15 minutes (recycle water if necessary); and do the following while the pump is running:

4.10.1 Pump System Procedure.

(a) Record the system suction and discharge pressure gauge readings.
(b) Check the pump packing glands for slight discharge.
(c) Adjust gland nuts if necessary.
(d) Check for unusual noise or vibration.
(e) Check packing boxes, bearings, or pump casing for overheating.
(f) Record the pump starting pressure.
(g) Record the motor starting voltage and current.

4.10.2 Electrical System Procedure.

(a) Observe the time for motor to accelerate to full speed.
(b) Record the time controller is on first step (for reduced voltage or reduced current starting).
(c) Record the time pump runs after starting (for automatic stop controllers).

4.11 Low pressure switch actuates pump.
4.12 Inspection tag and logbook are signed and updated.
4.13 For additional information on inspection and testing of Fire Pumps, refer to chapter, 8, NFPA 25.

5.0 Jockey Pump (Pressure Maintenance Pump) TEST & INSPECT WEEKLY

5.1 The main power indicator light on the pump controller is “ON” at all times.
5.2 The main power supply circuit breaker on the pump’s controller is in “CLOSED” or “ON” position.
5.3 The auto/manual start selector switch on the pump’s controller is set in:

- “AUTO” position (for system with single jockey pump)
- “MANUAL” position for 1st jockey pump and “AUTO” for 2nd jockey pump (for system with two jockey pumps)

5.4 The jockey pump is in the following operating condition:

- Stand-by (not running) position (for system with one jockey pump)
- 1st jockey pump running continuously and 2nd jockey pump in stand-by (not running) position (for system with 2 jockey pumps)

5.5 Suction and discharge valves are open and car-sealed.
5.6 Valves can be opened or closed without difficulty and their stems are greased.
5.7 Valves, pipes and fittings are painted red and not leaking or corroded.
5.8 Pump lubricating oil reservoir level is full.
5.9 Start and operate pumps manually and automatically for 15 minutes.
5.10 Pump starts and stops at set cut-in and cutout pressures (check pressure switch for pressure settings).
5.11 Pump packing glands leak slightly when pump is running, no heat build-up on pump casing, packing glands, and bearings.
5.12 Inspection tag and logbook are signed and updated.

6.0 2.5 Gallon Pressurized Water Extinguisher INSPECT MONTHLY

6.1 Prior to removal of Extinguisher from its place ensure following:

6.1.1 Safety pin and seal are intact.
6.1.2 Hose is firmly installed.
6.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge handle.

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6.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
6.3 Extinguisher is unobstructed.
6.4 Extinguisher is mounted on appropriate bracket/shelf.
6.5 Gauge reading is 95 - 100 psi, or indicates full, and is not damaged.
6.6 Operating instructions are legible and facing outward.
6.7 No sign of physical damage or corrosion.
6.8 Hose is free from cracks and cuts.
6.9 Nozzle is clear and not plugged.
6.10 Check 5-year hydrotest date has not expired.
6.11 Inspection tag is signed and updated.
6.12 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10.

7.0 10 Lb. CO_2 Extinguisher INSPECT MONTHLY

7.1 Prior to removal of Extinguisher from its place ensure following:

7.1.1 Safety pin and seal are intact.
7.1.2 Hose is firmly installed.
7.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge lever.

7.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.

7.3 Extinguisher is unobstructed.
7.4 Extinguisher is mounted on appropriate bracket/shelf not exposed to direct sunlight, corrosive atmospheres, or in environments exceeding 120°F (49°C).
7.5 Not corroded and no obvious physical damage.
7.6 Operating instructions are legible and facing outward.
7.7 Horn is clear and unplugged.
7.8 Valid hydrotest date (every five years).
7.9 Inspection tag is signed and updated.
7.10 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10.

8.0 30 Lb. Dry Chemical Extinguisher INSPECT MONTHLY

8.1 Prior to removal of Extinguisher from its place ensure following:

8.1.1 Safety pin and seal are intact.
8.1.2 Hose is firmly installed
8.1.3 Lifting of extinguisher is done by using “Carrying Handle”, without pressing discharge handle.

8.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.
8.3 Extinguisher is unobstructed.
8.4 Extinguisher is mounted on appropriate bracket/shelf not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
8.5 Not corroded, and no obvious physical damage.
8.6 Operating instructions are legible and facing outward.
8.7 Nozzle is clear and unplugged.
8.8 Plastic weather cover is in good condition.
8.9 Valid hydrotest date (every twelve years).
8.10 Inspection tag is signed and updated.
8.11 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10

9.0 Halon 1211 Extinguisher INSPECT MONTHLY

9.1 Prior to removal of Extinguisher from its place ensure following:

9.1.1 Safety pin and seal are intact.
9.1.2 Hose, is firmly installed.
9.1.3 Lifting of extinguisher is done by using “Carrying Handle”, without pressing discharge handle.

9.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.
9.3 Extinguisher is unobstructed.
9.4 Extinguisher is mounted on appropriate bracket not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
9.5 Not corroded, and no obvious physical damage.
9.6 Where provided, gauge reading is in full range.

9.7 Operating instructions are legible and facing outward.
9.8 Nozzle is clear and unplugged.
9.9 Valid hydrotest date (every 12 years).
9.10 Inspection tag is signed and updated.
9.11 For additional information on inspection of Fire Extinguishers, refer to chapter 6, NFPA 10

10.0 Wheeled Type Dry Chemical Extinguisher INSPECT MONTHLY

10.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
10.2 Unit housed in shed, sunshade, or cover.
10.3 Pathway to the extinguisher is unobstructed.
10.4 Wheels turn freely.
10.5 Tires, where applicable, are inflated properly and in good condition.
10.6 Tamper seal and safety pin are intact.
10.7 Nitrogen pressure gauge reads full (at least 1600 psi).
10.8 Extinguisher has no obvious damage or corrosion.
10.9 Plastic weather cover is in good condition.
10.10 Rubber hose coiled properly and in good repair.
10.11 Nozzle moves freely, is in holder, and is unplugged.
10.12 Cap gasket is in good condition.
10.13 Extinguishers over 35 years in service from date of manufacture are not used
10.14 Valid hydrotest date (every five years for nitrogen cylinder, every 12 years for shell).
10.15 Inspection tag is signed and updated
10.16 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10

11.0 Wheeled Type CO_2 Extinguisher INSPECT MONTHLY

11.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
11.2 Unit housed in shed, sunshade, or cover.
11.3 Extinguisher is unobstructed.
11.4 Hose is free from cracks and cuts.
11.5 Hose is coiled properly.
11.6 Tamper seal and safety pin are intact.
11.7 Wheels rotate freely.
11.8 Tires, where applicable, are properly inflated and in good condition.
11.9 Plastic weather cover is in good condition.
11.10 No obvious corrosion or physical damage.
11.11 Valid hydrotest date (every five years).
11.12 Inspection tag is signed and updated
11.13 For additional information on inspection of Fire Extinguishers, refer to chapter 6, NFPA 10

12.0 Twin Agent Unit Skid or Trailer Extinguisher INSPECT MONTHLY

12.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated

location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).

12.2 Unit housed in shed, sunshade, or cover.
12.3 Unit is accessible and unobstructed.
12.4 No obvious corrosion or physical damage.
12.5 Tires are properly inflated and in good condition.
12.6 Seal and safety pin are intact.
12.7 Hose is free from cracks, unplugged, and is in good condition.
12.8 Nitrogen pressure gauge reads at least 2000 psi.
12.9 Valid hydrotest date (foam shell every five years, nitrogen cylinder every five years, dry chemical shell every twelve years).
12.10 Inspection tag is signed and updated
12.11 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10

13.0 Automatically Operated Fire Door INSPECT MONTHLY

13.1 Door is in normal operating position (magnetically latched open or hold open by a counter-balanced weight or rolled-up).
13.2 Door opening is clear of obstructions.
13.3 Fusible link/fire detector(s) is in good condition.
13.4 Where applicable, pulley and cable show no sign of damage and are lubricated.
13.5 Where applicable, weights are in place and have clear travel.
13.6 Magnetic holder, if installed, is in good condition.
13.7 Door is free from damage and identification plate is in place.

14.0 Fire Hose Cabinet INSPECT MONTHLY

14.1 The cabinet is identified, accessible, and not obstructed.
14.2 Hose folding rack/spool moves freely.
14.3 Nozzle, valve, and pipes are free from excessive corrosion and no leaks.
14.4 Control valve is closed.
14.5 Cabinet door swing is unobstructed.
14.6 Check single-jacketed hose test date, initially five years, three years thereafter.
14.7 Check double-jacketed hose test date (every year).
14.8 Hoses are folded properly, clamp in place, and are in good condition.
14.9 Cabinet interior is clean, dry, and in good condition.
14.10 Nozzle is adjustable.
14.11 Rubber gaskets are intact and in good repair.
14.12 Operating instructions are available and legible.
14.13 Inspection tag is signed and updated.
14.14 For additional information on inspection of Fire Hose Cabinet, refer to chapter 7, NFPA 25

15.0 Fire Hose Reel INSPECT & TEST MONTHLY

15.1 Hose reel is identified, accessible, not obstructed, and flows water.
15.2 Nozzle, valve, and pipes are free from excessive corrosion and no leaks.
15.3 Hose has no cracks, cuts, or otherwise damaged.
15.4 Spool moves freely.

15.5 Nozzle adjusts from spray to straight stream.
15.6 Cabinet door swing is unobstructed.
15.7 Cabinet interior is clean, dry, and in good condition.
15.8 Spool rotator handle is in the cabinet.
15.9 Hose reel box drain holes are not blocked.
15.10 Hose is reeled properly, clamp in place, and are in good condition
15.11 Hose valve is opened.
15.12 Operating instructions are available and legible.
15.13 Inspection tag is signed and updated.

16.0 Mobile Monitor INSPECT MONTHLY

16.1 Properly located at designated location and is accessible.
16.2 Hose is readily available, in good condition, and equipped with gaskets.
16.3 Monitor is free from corrosion.
16.4 Couplings and nozzle are not corroded and turn freely.
16.5 Wheels are greased and move freely.
16.6 Tires, where applicable, are properly inflated and are in good condition.
16.7 Valve closes and reopens fully.
16.8 Nozzle adjusts from spray to straight position.
16.10 Inspection tag is signed and updated
16.11 For additional information on inspection of Mobile Monitor, refer to chapter 7, NFPA 25

17.0 Fire Hose Station INSPECT MONTHLY

17.1 Weather shed/box is in good condition, with no damaged or broken parts.
17.2 Fire hoses are free from excessive abrasion, cracks, or cuts.
17.3 Valid hose test date (every year)
17.4 All couplings turn freely and threads are not damaged.
17.5 All couplings are provided with rubber gaskets.
17.6 Hydrant wrench is present.
17.7 Nozzle is appropriate for risk.
17.8 Nozzle adjusts from spray to straight stream.
17.9 Inspection tag is signed and updated

18.0 Fire Water Tank INSPECT MONTHLY

18.1 Automatic fill valve is "OPEN."
18.2 Tank shell and piping are free from corrosion.
18.3 Tank hatch cover is in place.
18.4 Surroundings are free from debris.
18.5 Water level indicator shows "DESIGNATED LEVEL." to indicate tank is filled to required level
18.6 Automatic fill system is in good condition.
18.7 All valves car-sealed in correct operating position.
18.8 Logbook is signed and updated
18.9 For additional information on inspection of Fire Water Tank, refer to chapter 9, NFPA 25

19.0 Fire Detection and Alarm System INSPECT MONTHLY

19.1 Normal power supply indicator is “ON."
19.2 Battery power indicator reads 12/ 24 VDC.
19.3 Master alarm visual indicator is "OFF.”
19.4 Master trouble visual indicator is "OFF.”
19.5 Zone trouble and/or alarm visual indicator is "OFF.”
19.6 No text message for alarm or trouble is shown at Liquid Crystal Display (LCD) of fire alarm control panel for addressable systems.
19.7 No common alarm and common trouble indication is received at centrally monitored facility, or central control room (CCR), if applicable.
19.8 Lamp test lights all visual indicators when activated.
19.9 Manual pull stations are in good condition.
19.10 Automatic fire detectors are in good condition.
19.11 All visual and audible alarms devices are in good condition.
19.12 The batteries supporting the system do not have corrosion or leakage The battery terminal connections are properly tight and clean.
19.13 Zone layout plan is available.
19.14 Inspection tag and logbook are signed and updated.
19.15 For additional information on inspection & testing of Fire Detection and Alarm System, refer to chapter 10, NFPA 72

20.0 Standpipe & Hose INSPECT MONTHLY

20.1 Pipes and valves are painted and not corroded.
20.2 Outlets have undamaged threads and protected with caps.
20.3 Valves and pipefittings have no leaks.
20.4 Control valves are locked or car-sealed open.
20.5 Standpipe threads are of the same type as Fire Department hose.
20.6 Fire Department connection is accessible, swivel couplings are free turning, and with caps.
20.7 Sign posted at Fire Department connection indicating ‘Wet’ or ‘Dry.’
20.8 Check hose cabinet and hose in accordance with item 14 ‘Fire Hose Cabinet’, if available.
20.9 Inspection tag and logbook are signed and updated
20.10 For additional information on inspection of Standpipe & Hose , refer to chapter 6, NFPA 25

21.0 Sprinkler System (Wet Type) INSPECT MONTHLY

21.1 System alarm indicators on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 19.0 for correct inspection.)
21.2 Water flow alarm is not corroded or leaking.
21.3 Electrical connections on water flow alarm initiating device are secured.
21.4 The alarm shut-off control valve is car sealed “OPEN” and not leaking.
21.5 Remote inspector test valve is closed.
21.6 Valves and pipefittings are painted, and no corrosion or leaks.
21.7 Post indicator valve’s tamper switch is in good condition.
21.8 Main control valve is car sealed "OPEN.”
21.9 Sprinkler heads are not obstructed, damaged, or painted.
21.10 Fire Department connection is accessible, swivel couplings are free turning, and with caps.
21.11 Water supply and system gauges indicate specified pressure.

21.12 Calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
21.13 Drain valve is closed.
21.14 Extra heads of the proper type and temperature rating and appropriate sprinkler wrenches are available and located close to the riser. The stock of spare sprinklers shall be as follows:

(a) For protected facilities having under 300 sprinklers - no fewer than 6 sprinklers
(b) For protected facilities having 300 to 1000 sprinklers - no fewer than 12 sprinklers
(c) For protected facilities having over 1000 sprinklers - no fewer than 24 sprinklers

21.15 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
21.16 Fully close and open all control valves
21.17 Inspection tag and logbook are signed and updated
21.18 For additional information on inspection & testing of Sprinkler System, refer to chapter 5, NFPA 25

22.0 Sprinkler System (Dry Pipe) INSPECT MONTHLY

22.1 System alarm indicator lights on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 19.0 for correct inspection.)
22.2 Fire water main valve is open.
22.3 Sprinkler control valve is car sealed "OPEN."
22.4 Drain valve is closed.
22.5 Air pressure gauge on system side is 25-35 psi for differential type valve, if applicable
22.6 Water supply gauge indicates specified pressure
22.7 Valves and pipefittings are painted, and no corrosion or leaks.
22.8 Calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
22.9 Sprinkler heads are unobstructed.
22.10 Extra heads of the proper type and temperature rating and appropriate sprinkler wrenches are available and located close to the riser. The stock of spare sprinklers shall be as follows:

(a) For protected facilities having under 300 sprinklers - no fewer than 6 sprinklers
(b) For protected facilities having 300 to 1000 sprinklers - no fewer than 12 sprinklers
(c) For protected facilities having over 1000 sprinklers - no fewer than 24 sprinklers

22.11 Pipe hangers are not damaged, loose or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
22.12 Fully close and open all control valves.
22.13 Inspection tag and logbook are signed and updated
22.14 For additional information on inspection & testing of Sprinkler System, refer to chapter 5, NFPA 25

23.0 Deluge System INSPECT MONTHLY

23.1 System alarm indicator lights on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 19.0 for correct inspection.)
23.2 Fire water main valve is accessible and car sealed “OPEN.”
23.3 Piping and nozzles are free from damage or corrosion.
23.4 Calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
23.5 Nozzles are unobstructed.

23.6 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
23.7 Fully close and open all control valves
23.8 Inspection tag and logbook are signed and updated
23.9 For additional information on inspection & testing of Deluge System, refer to chapter 5, NFPA 25

24.0 Foam Systems INSPECT MONTHLY (ANNUALLY, as indicated)

24.1 Water and foam concentrate supply systems are in good condition.

24.1.1 Manifold:

24.1.1.1 Clapper valves are in good condition.
24.1.1.2 Caps are installed on hose inlets.
24.1.1.3 Manifold is in good condition and has proper female fittings.

24.1.2 Bladder:

24.1.2.1 Bladder bag is free of leaks. Open the shell side drain valve to ensure no foam concentrate/solution is discharging. (Refer to manufacturer's instructions manual in your file for leak detection procedure.)
24.1.2.2 Condition of bladder is good.
24.1.2.3 Annual foam samples sent to FrPD/TS&TD for laboratory and fire performance tests.
24.1.2.4 Foam sample PASSED the tests and the laboratory and fire performance test reports are valid and in the file.

Note: Where representative foam samples FAILED the tests, drain out the existing foam concentrate from the foam storage tank and replace it with fresh batch of foam concentrate of the same type.

24.1.3 Balanced Pressure:

24.1.3.1 Free from leaks in piping.
24.1.3.2 Foam pump is in automatic mode.
24.1.3.3 All valves are car-sealed in correct position.
24.1.3.4 Annual foam samples sent to FrPD/TS&TD for laboratory and fire performance tests.
24.1.3.5 Foam sample PASSED the tests and the laboratory and fire performance test reports are valid and in the file.

Note: Where representative foam samples FAILED the tests, drain out the existing foam concentrate from the foam storage tank and replace it with fresh batch of foam concentrate of same type. Before putting new batch of foam concentrate thoroughly clean the bladder.

24.2 Piping:

24.2.1 Free from corrosion and leaks.
24.2.2 Piping is self-draining properly.
24.2.3 All valves are car-sealed in correct position.
24.2.4 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.

24.3 Discharge outlets:

24.3.1 Floating roof:

24.3.1.1 Air inlet screen on foam chamber is clean and in good condition.
24.3.1.2 Foam dam is in good condition.
24.4.1.3 Foam deflectors are in good condition.
24.3.1.4 Floating roof seal and shunts are in good condition.
24.3.1.5 Rain drains are open and clear.
24.3.1.6 Caps are installed on 1 1/2" hose outlets.
24.3.1.7 Fire Department connection is free from damage and accessible

24.3.2 Cone Roof:

24.3.2.1 Rubber hose free from cracks.
24.3.2.2 No obvious damage to foam chamber.

24.3.3 High Expansion Foam Generator:

24.3.3.1 Foam generator is not obstructed.
24.3.3.2 Foam screen is clean and not obstructed.
24.3.3.3 Foam generator is operable.

24.4 Calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
24.5 Inspection tag and logbook are signed and updated
24.6 For additional information on the testing & inspection of the Foam Systems, refer to chapter 10 , NFPA 11.

25.0 Halon (NFPA 12A) and other Clean Agent (NFPA 2001) System INSPECT MONTHLY

25.1 Control panel's main power indicator is "ON." Refer to item 19.0 for proper inspection.
25.2 System activation indicator on fire control panel is "OFF."
25.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
25.4 Pipe manifolds are painted and not corroded and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.
25.5 Pipe hangers are not damaged, loose, or missing.
25.6 Manual discharge and abort switches are in normal standby mode, and unobstructed.
25.7 Cylinder transfer key set to primary.
25.8 Cylinder brackets are firmly attached.
25.9 Solenoid and pneumatic discharge valves are firmly attached to the cylinder head.
25.10 Discharge nozzles are unobstructed.

25.11 Discharge nozzles' blow-off caps is in place, where provided.
25.12 Discharge flexible hoses are in good condition.
25.13 Cylinder(s) are fully charged to the correct pressure for ambient temperature.
25.14 Manual and automatic actuating devices are in good condition and meet manufacturer's recommendations.
25.15 Where applicable, pneumatic type CO_2 cartridge disc is intact.
25.16 Hose assemblies have valid hydrotest date (every five years).
25.17 Cylinders have valid hydrostatic test date (every five years).

Note: Discharged cylinders shall not be recharged without a hydrotest if more than five years have elapsed since the date of the last test and inspection. Cylinders continuously in service without discharge shall be given a complete external visual inspection every five years and need not be emptied or stamped while under pressure.

25.18 Safety/warning signs are posted identifying the protected area.
25.19 Operating instructions are posted and legible.
25.20 Protected space has not been altered.
25.21 Inspection tag and Logbook are signed and updated
25.22 For additional information on testing & inspection of halon system, refer to chapter 4 NFPA 12A,while for other clean agent systems , refer to chapter 6, NFPA 2001

26.0 CO_2 System INSPECT MONTHLY

26.1 Control panel's main power indicator is "ON."
26.2 System activation indicator on the fire alarm control panel is "OFF."
26.3 Automatic fire detection system and components are on-line and in good condition. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
26.4 Pipe manifolds are painted and not corroded and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.
26.5 Pipe hangers are not damaged, loose, or missing.
26.6 Manual discharge is in normal standby mode.
26.7 Solenoid/pneumatic discharge valves are firmly attached to the cylinder head.
26.8 Discharge nozzles are unobstructed.
26.9 Cylinder brackets are firmly attached to the cylinders.
26.10 Operating instructions are posted and legible.
26.11 All system hoses have valid hydrotest date (every five years).
26.12 Master/pilot cylinder pressure gauge indicates correct pressure for ambient temperature.
26.13 All cylinders are weighed and are fully charged (Semi-annually).
26.14 Cylinders have valid hydrostatic test date (every five years).

Note: Discharged cylinders shall not be recharged without a hydrostatic test and remarking if more than 5 years have elapsed from the date of the last test. Cylinders continuously in service without discharging may be retained in service for a maximum of 12 years from the date of last hydrotest. At the end of 12 years of service an in-place discharge test shall be conducted and hydrotest performed.

26.15 Safety/warning signs are posted identifying the protected area.
26.16 Protected space has not been altered.

26.17 Inspection tag and logbook are signed and updated
26.18 For additional information on the testing & inspection of the CO2 System, refer to chapter 4, NFPA 12

27.0 Dry Chemical System (Kitchen Hood) INSPECT MONTHLY

27.1 Control panel's main power indicator is "ON."
27.2 System activation indicator on the fire alarm control panel is "OFF."
27.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
27.4 Dry chemical level is "FULL."
27.5 Valves, pipes, and pipefittings are painted and not corroded.
27.6 Manual actuators are unobstructed.
27.7 Nozzle caps are intact and undamaged.
27.8 Tamper indicators and seals are intact.
27.9 Manual discharge button is provided with sealed safety pin.
27.10 Fusible link/heat detectors are clean and not damaged.
27.11 Cylinder/hose assemblies have valid hydrotest (every twelve years).
27.12 Hoods and filters are free of accumulated grease.
27.13 Operating instructions are posted and legible.
27.14 Inspection tag and logbook are signed and updated
27.15 For additional information on the testing & inspection of the Dry Chemical System, refer to chapter 10 & 11, NFPA 17

28.0 Wet Chemical (Hood Type) INSPECT MONTHLY

28.1 Control panel's main power indicator is "ON."
28.2 System activation indicator on the fire alarm control panel is "OFF."
28.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
28.4 Manual actuators are unobstructed.
28.5 Tamper indicators and seals are intact.
28.6 Maintenance tag or certificate is in place.
28.7 No obvious physical damage or condition that would hinder operation.
28.8 Pressure gauges, if provided, are in operable range.
28.9 Nozzle blowout caps are intact and undamaged.
28.10 Wet chemical pressure gauge reads full.
28.11 Fusible links/heat detectors are clean and not damaged.
28.12 Cylinder/hose assemblies have valid hydrotest date (every twelve years).
28.13 Hood and filters are free of accumulated grease.
28.14 Operating instructions are posted and legible.
28.15 Inspection tag and logbook are signed and updated
28.16 For additional information on the testing & inspection of the Wet Chemical Systems, refer to chapter 7, NFPA 17A

29.0 Dry Chemical System (Industrial Plants) INSPECT MONTHLY

29.1 Control panel's main power indicator is "ON."
29.2 System activation indicator on the fire alarm control panel is "OFF."

29.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
29.4 Pilot cylinder disc/pneumatic valve is intact/closed.
29.5 Nitrogen cylinder(s) gauge reads 2000-2500 psig.
29.6 Cylinder brackets are firmly attached.
29.7 Nitrogen cylinder(s) has valid hydrotest date (every five years).
29.8 Fusible links/automatic fire detection devices are all in normal standby mode, clean, and show no sign of damage.
29.9 Pneumatic valves of each nitrogen cylinder are firmly attached.
29.10 Nozzles are clean and not damaged.
29.11 Dry chemical cylinder/hose assemblies have valid hydrotest date (every twelve years).
29.12 Operating instructions are posted and legible.
29.13 Inspection tag and logbook are signed and updated
29.14 For additional information on the testing & inspection of the Dry Chemical System, refer to chapter 10 & 11, NFPA 17

30.0 Fire Hydrant & Fixed Monitor INSPECT MONTHLY

30.1 Properly located, identified by assigned number as per the facility layout, is accessible, and unobstructed.
30.2 Hydrant/Monitor is free from corrosion.
30.3 Hydrant caps vent holes are unobstructed.
30.4 Nozzle is the correct type and size.
30.5 Valves close and reopen fully with no leaks.
30.6 Hydrant/Monitor is painted red and properly guarded.
30.7 Nozzle is lubricated and adjusts freely from straight to fog.
30.8 Hydrant wrench is available.
29.9 Monitor valve is fully closed and nozzle is open.
30.10 Hydrant sectional lines are not isolated and isolation valve is fully open and car-sealed.
30.11 Monitors are pointed downwards to drain completely and avoid potential corrosion due to stagnant water.
30.12 Logbook is signed and updated
30.13 For additional information on the testing & inspection of the Fire Hydrants & Fixed Monitor, refer to chapter 7, NFPA 25

31.0 Oscillating Monitors INSPECT MONTHLY

31.1 Properly located, identified by assigned number as per the facility layout, is accessible, and unobstructed.
31.2 Monitor is properly aimed at protected equipment.
31.3 Monitor is free from corrosion, accessible and unobstructed.
31.4 Nozzle is the correct type and size.
31.5 Nozzle is lubricated and adjusts freely from straight to fog.
31.6 Monitor is painted red and properly guarded.
31.7 Monitor valve is fully closed and nozzle is open.
31.8 Valves close and reopen fully with no leaks.
31.9 Motor (hydraulic-operated) is free from leaks and corrosion.
31.10 Hydraulic tubes free from leaks and shielded.
31.11 Arc of oscillation is within the set range.

31.12 Logbook is signed and updated

32.0 Oily Water and Surface Drainage (Industrial Plants) INSPECT MONTHLY / TEST ANNUALLY

32.1 Inspection and testing shall be conducted in accordance with the applicable plant instruction manual.
32.2 Capacity of sewer line shall accommodate firewater discharge.
32.3 Fire Protection Department will witness annual inspection and test.

33.0 Fire Water Mains INSPECT MONTHLY

33.1 Not corroded, damaged or leaking.
33.2 All isolation valves are car sealed open, with no leaking or corrosion
33.3 Fully close and open all isolation valves.
33.4 Water pressure maintained at specified pressure.
33.5 For additional information on the testing & inspection of the Fire Water Mains, refer to chapter 7, NFPA 25

34.0 Backflow Prevention Assemblies INSPECT MONTHLY

34.1 Backflow preventer is in good condition, free from leaks and corrosion.
34.2 Isolation valves are open and secured with locks or tamper switch.
34.3 Differential-sensing valve relief port is not continuously discharging.
34.4 Logbook is signed and updated
34.5 For additional information on the testing & inspection of the Backflow Prevention Assemblies, refer to chapter 12, NFPA 25

35.0 Foam Hose Cabinets INSPECT & TEST (Without Foam) MONTHLY

35.1 Ensure Foam station is not obstructed
35.2 Check operation of cabinet lid
35.3 Examine hose cabinet for corrosion
35.4 Ensure operational procedures are posted in Arabic and English
35.5 Close main water control
35.6 Extend hose 3 meters (9 feet) and check for defects and ease of deployment
35.7 Annually extend the entire length of hose and examine for leaks, cracks/cuts, and dry rotting
35.8 With main water valve off, check the nozzle by moving to fully open position and back to closed position.
35.9 With the main water valve off, remove the nozzle and check for obstructions in the hose. Check the nozzle gasket; lubricate metal nozzles and threads with WD40 (or equivalent). Put the nozzle back on hose.
35.10 With the main water valve off, ensure that the foam and water valves operates easily and are not corroded or painted shut
35.11 Open the main water valve and check for leaks.
35.12 Open the main valve, while keeping foam valve closed, and flow water from the nozzle.
35.13 Check for operation of the nozzle with a strong stream in the fog and straight stream positions.
35.14 Ensure the foam tank vent is free from obstruction and corrosion
35.15 Check the contents of the foam tank. Note: use caution and face away from the tank as cap is opened. If pressure escapes as cap is opened do not open cap. Report malfunctions immediately.
35.16 Ensure foam tank is marked “3% AFFF” or “3% Flouroprotein” as appropriate with the installation date.

35.17 Check that metering valve is set on 3%.
35.18 Put foam cabinet back into service by closing foam and water valves, close the nozzle, rewind hose, and open the main water valve.
35.19 Inspection tag is signed and updated.
35.20 For additional information on the testing & inspection of the Foam Hose Cabinets, refer to chapter 10, NFPA 11.

36.0 Sphere Bottom Flooding Connections INSPECT MONTHLY

36.1 Check that sign posted at Fire department connection point is in good condition and indicates the pressure required for water injection into the sphere at maximum loading.
36.2 Check the fire department connection is outside the spill containment area.
36.3 Check female coupling are in good condition and fitted with blank caps.
36.4 Check that a check valve is provided down stream of OS&Y valve.
36.5 Check that the pressure gauge is in good condition and can be read easily.
36.6 Check that drain valve is indicated and is in closed position.

SUPPLEMENT 1781.001-02

Fire Protection Department Responsibilities for Required Testing and Inspection

CONTENT

This supplement describes the frequency of routine Testing and Inspection of fire protection equipment required by the Fire Protection Department. These requirements of the Fire Protection Department are in addition to and separate from the requirements as identified in Supplement 1781.001-01. Maintenance work orders shall be created to the proponent to fix any deficiency.

1.0 30 Minute Standard Breathing Apparatus TEST & INSPECT ANNUALLY "Scott 2.2-fifty"

1.1 Located as designated by the Fire Protection Department in an accessible location.
1.2 SCBA storage box is unobstructed, free from damage with dust seals intact.
1.3 Facemask and low-pressure hose are in good condition.
1.4 Facemask is clean and stored in plastic bag.
1.5 Waist and shoulder harness straps are in good condition and fully extended.
1.6 Cylinder shows no sign of damage.
1.7 Cylinder air pressure gauge reads "FULL." (2216 psi)
1.8 Vibralert alarm warning activated when tested.
1.9 Breathing regulator purge valve is "closed."
1.10 Remote pressure gauge in good condition and work properly
1.11 Metallic cylinder has valid hydrotest date (every five years).
1.12 Composite cylinder has valid hydrotest date (every three years)
1.13 Inspection tag is signed and updated.

2.0 Supplied Air Breathing Apparatus (SABA) TEST & INSPECT ANNUALLY "Scott Type"

2.1 Located as designated by the Fire Protection Department in an accessible location and not exposed to direct sunlight or corrosive atmospheres.
2.2 Facemask and breathing hose/tube are in good condition and form airtight seal when tested.
2.3 Cylinder valves are not corroded.
2.4 Air hose in good repair, has no cracks or cuts, and is properly coiled.
2.5 Facemask is clean, stored in plastic bag, and straps are fully extended.
2.6 Harness assembly has no damage.
2.7 Cylinders are painted and free from damage.
2.8 All cylinder pressure gauges read "FULL."
2.9 Alarm warning activated when tested, if so equipped.
2.10 Red bypass valve is "CLOSED."
2.11 Yellow regulator valve is "OPEN."
2.12 Pressure demand lever valve is "OFF."
2.13 Cylinder brackets are firmly attached.
2.14 Cylinder has valid hydrotest date (every five years).
2.15 Inspection tag is signed and updated.

3.0 Fire Pump (Engine Driven) TEST & INSPECT ANNUALLY

3.1 Pump house, pump weather shed or pump area in good condition, clean, well ventilated, access is not blocked and not being used for storage.
3.2 Battery power indicator reads 12/24 Voltage Direct Current (DVC).
3.3 Electrolyte level in batteries is "NORMAL."
3.4 Battery terminals are free from corrosion.
3.5 Engine oil level reads "FULL."
3.6 Fuel supply gauge reads "FULL."
3.7 Cooling system valve is "OPEN."
3.8 Coolant level is "FULL."
3.9 Engine belts are in good condition.
3.10 Suction and discharge valves are "OPEN" and car-sealed.
3.11 Bypass valves are closed and car-sealed.
3.12 Starter control set to automatic mode.
3.13 Pump controller indicator lights are off with the exception of main power supply and start-up battery.
3.14 Suction and discharge gauges indicate specified pressure (annually during pump performance test).
3.15 Pipe, fittings, and valves are painted red, with no leaks or corrosion.
3.16 Valve stem is greased and not painted.
3.17 Start both automatically and manually, and operate the pump for 30 minutes (recycle water if necessary); and do the following while the pump is running:

3.17.1 Pump System Procedure.

3.17.1.1 Record the system suction and discharge pressure gauge readings.
3.17.1.2 Check the pump packing glands for slight discharge.
3.17.1.3 Check for unusual noise or vibration.
3.17.1.4 Check packing boxes, bearings, or pump casing for overheating.
3.17.1.5 Record the pump starting pressure.

3.17.2 Diesel Engine System Procedure.

3.17.2.1 Observe the time for engine to crank.
3.17.2.2 Observe the time for engine to reach running speed.
3.17.2.3 Observe the engine oil pressure gauge, speed indicator, water, and oil temperature indicators periodically while engine is running.
3.17.2.4 Record any abnormalities.
3.17.2.5 Check the heat exchanger for cooling water flow.
3.17.2.6 Examine exhaust system for leaks.
3.17.2.7 Record engine speed before stopping pump at the end of the 30-minute test.

3.18 Engine temperature is "NORMAL."
3.19 Review logbooks kept by proponent to ensure weekly test/inspection are done.
3.20 Inspection tag and logbook are signed and updated.
3.21 For additional information on inspection and testing of Fire Pumps, refer to chapter, 8, NFPA 25

4.0 Fire Pump (Electrically Driven) TEST & INSPECT ANNUALLY

4.1 Pump house, pump weather shed or pump area in good condition, clean, well ventilated, access is not blocked and not being used for storage.
4.2 The main power circuit breaker is set to auto mode (ON Position).
4.3 Pump controller indicator lights are off with the exception of main power supply.
4.4 Suction and discharge valves are in the open position and car-sealed.
4.5 Bypass valves are closed and car-sealed.
4.6 Valves function properly and their stems are greased.
4.7 Valves and pipefittings are painted red and not leaking or corroded.
4.8 Pump oil reservoir level is at least half-full.
4.9 Suction and discharge gauges indicate specified pressure (annually during pump performance test).
4.10 Start both automatically and manually, and operate the pump for 15 minutes (recycle water if necessary); and do the following while the pump is running:

4.10.1 Pump System Procedure.

4.10.1.1 Record the system suction and discharge pressure gauge readings.
4.10.1.2 Check the pump packing glands for slight discharge.
4.10.1.3 Check for unusual noise or vibration.
4.10.1.4 Check packing boxes, bearings, or pump casing for overheating.
4.10.1.5 Record the pump starting pressure.
4.10.1.6 Record the motor starting voltage and current.

4.10.2 Electrical System Procedure.

4.10.2.1 Observe the time for motor to accelerate to full speed.
4.10.2.2 Record the time controller is on first step (for reduced voltage or reduced current starting).
4.10.2.3 Record the time pump runs after starting (for automatic stop controllers).

4.11 Low-pressure switch actuates pump.
4.12 Review logbook kept by proponent to ensure weekly test/inspection are done.
4.13 Inspection tag and logbook are signed and updated.
4.14 For additional information on inspection and testing of Fire Pumps, refer to chapter, 8, NFPA 25

5.0 Jockey Pump (Pressure Maintenance Pump) TEST & INSPECT ANNUALLY

5.1 The main power indicator light on the pump controller is “ON” at all times.
5.2 The main power supply circuit breaker on the pump’s controller is in “CLOSED” or “ON” position.
5.3 The auto/manual start selector switch on the pump’s controller is set in:

- “AUTO” position (for system with single jockey pump)
- “MANUAL” position for 1st jockey pump and “AUTO” for 2nd jockey pump (for system with two jockey pumps)

5.4 The jockey pump is in the following operating condition:

- Stand-by (not running) position (for system with one jockey pump)

- 1st jockey pump running continuously and 2nd jockey pump in stand-by (not running) position (for system with 2 jockey pumps)

5.5 Suction and discharge valves are open and car-sealed.
5.6 Valves can be opened or closed without difficulty and their stems are greased.
5.7 Valves, pipes and fittings are painted and not leaking or corroded.
5.8 Pump lubricating oil reservoir level is full.
5.9 Start and operate pumps manually and automatically for 15 minutes.
5.10 Pump starts and stops at set cut-in and cutout pressures (check pressure switch for pressure settings).
5.11 Pump packing glands leak slightly when pump is running, no heat build-up on pump casing, packing glands, and bearings.
5.12 Review logbook kept by proponent to ensure weekly test/inspection are done.
5.13 Inspection tag and logbook are signed and updated.

6.0 2.5 Gallon Pressurized Water Extinguisher INSPECT ANNUALLY

6.1 Prior to removal of Extinguisher from its place ensure following:

6.1.1 Safety pin and seal are intact.
6.1.2 Hose is firmly installed.
6.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge handle.

6.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
6.3 Extinguisher is unobstructed.
6.4 Extinguisher is mounted on appropriate bracket/shelf.
6.5 Gauge reading is 95 - 100 psi or indicates full and is not damaged.
6.6 Operating instructions are legible and facing outward.
6.7 No sign of physical damage or corrosion.
6.8 Hose is free from cracks and cuts.
6.9 Nozzle is clear and not plugged.
6.10 Check hydrotest date (every five years).
6.11 Inspection tag is signed and updated.
6.12 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10.

7.0 10 Lb. CO_2 Extinguisher INSPECT ANNUALLY

7.1 Prior to removal of Extinguisher from its place ensure following:

7.1.1 Safety pin and seal are intact.
7.1.2 Hose is firmly installed.
7.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge lever.

7.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.

7.3 Extinguisher is unobstructed.
7.4 Extinguisher is mounted on appropriate bracket/shelf and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
7.5 Not corroded and with no obvious physical damage.
7.6 Operating instructions are legible and facing outward.
7.7 Horn is clear and unplugged.
7.8 Valid hydrotest date (every five years).
7.9 Weigh cylinder to determine if fully charged.
7.10 Inspection tag is signed and updated.
7.11 For additional information on inspection of Fire Extinguishers, refer to chapter 6 , NFPA 10.

8.0 30 Lb. Dry Chemical Extinguisher INSPECT ANNUALLY

8.1 Prior to removal of Extinguisher from its place ensure following:

8.1.1 Safety pin and seal are intact.
8.1.2 Hose is firmly installed.
8.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge handle.

8.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.
8.3 Extinguisher is unobstructed.
8.4 Extinguisher is mounted on appropriate bracket/shelf and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
8.5 Not corroded, with no obvious physical damage.
8.6 Operating instructions are legible and facing outward.
8.7 CO_2 cartridge disc is intact, cartridge weighed to check for leakage.
8.8 Cap gasket in good condition.
8.9 Puncture lever operates freely.
8.10 Nozzle is clear and unplugged.
8.11 Dry chemical level and type is correct with no caking.
8.12 Valid hydrotest date (every 12 years).
8.13 Inspection tag is signed and updated.
8.14 For additional information on inspection of Fire Extinguishers, refer to chapter, 6 , NFPA 10

9.0 Halon 1211 Extinguisher INSPECT ANNUALLY

9.1 Prior to removal of Extinguisher from its place ensure following:

9.1.1 Safety pin and seal are intact.
9.1.2 Hose is firmly installed.
9.1.3 Lifting of extinguisher is done by using "Carrying Handle", without pressing discharge handle.

9.2 Properly identified and numbered as per the facility/building fire protection layout, located at designated location and is in an accessible site.
9.3 Extinguisher is unobstructed.

9.4 Extinguisher is mounted on appropriate bracket and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
9.5 Not corroded with no obvious physical damage.
9.6 Where provided, gauge reading is in full range.
9.7 Operating instructions are legible and facing outward.
9.8 Nozzle is clear and unplugged.
9.9 Weigh cylinder to check that it is full.
9.10 Valid hydrotest date (every 12 years).
9.11 Inspection tag is signed and updated.
9.12 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10.

10.0 Wheeled Type Dry Chemical Extinguisher INSPECT ANNUALLY

10.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
10.2 Unit housed in shed, sunshade, or cover.
10.3 Pathway to the extinguisher is unobstructed.
10.4 Wheels turn freely.
10.5 Tires, where applicable, are inflated properly and in good condition.
10.6 Tamper seal and safety pin are intact.
10.7 Nitrogen pressure gauge reads full (at least 1600 psi).
10.8 Extinguisher has no obvious damage or corrosion.
10.9 Plastic weather cover is in good condition.
10.10 Rubber hose coiled properly and in good repair.
10.11 Nozzle moves freely, is in holder, and is unplugged.
10.12 Dry chemical level and type is correct with no caking.
10.13 Cap gasket is in good condition.
10.14 Bursting disc is intact.
10.15 Valid hydrotest date (every five years for nitrogen cylinder, every 12 years for shell).
10.16 Extinguishers over 35 years in service from date of manufacture are not used
10.17 Inspection tag is signed and updated.
10.18 For additional information on inspection of Fire Extinguishers, refer to chapter, 6, NFPA 10.

11.0 Wheeled Type CO_2 Extinguisher INSPECT ANNUALLY

11.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
11.2 Extinguisher is unobstructed.
11.3 Hose is free from cracks and cuts.
11.4 Hose is coiled properly.
11.5 Tamper seal and safety pin are intact.
11.6 Wheels rotate freely.
11.7 Tires, where applicable, are properly inflated and in good condition.
11.8 Plastic weather cover is in good condition.
11.9 No obvious corrosion or physical damage.
11.10 Valid hydrotest date (every five years).

11.11 Inspection tag is signed and updated.
11.12 For additional information on inspection of Fire Extinguishers, refer to chapter, 6 , NFPA 10.

12.0 Twin Agent Unit Skid or Trailer Extinguisher INSPECT ANNUALLY

12.1 Properly identified and numbered as per the facility/building fire protection layout, located at designated location, is in an accessible site, and not exposed to direct sunlight or corrosive atmospheres or in environments exceeding 120°F (49°C).
12.2 Unit housed in shed, sunshade, or cover.
12.3 Unit is accessible and unobstructed.
12.4 No obvious corrosion or physical damage.
12.5 Tires are properly inflated and in good condition.
12.6 Seal and safety pin are intact.
12.7 Hose is free from cracks, unplugged, and is in good condition.
12.8 Dry chemical level and type is correct with no caking.
12.9 Nitrogen pressure gauge reads at least 2000 psi.
12.10 CO_2 cartridge disc is intact.
12.11 Foam (light water) solution changed (annual basis).
12.12 Cap gasket in good condition.
12.13 Valid hydrotest date (foam shell every five years, nitrogen cylinder every five years, dry chemical shell every twelve years).
12.14 Inspection tag is signed and updated.
12.15 For additional information on inspection of Fire Extinguishers, refer to chapter, 6 , NFPA 10.

13.0 Automatically Operated Fire Door TEST & INSPECT ANNUALLY

13.1 Door is in normal operating position (magnetically latched open or hold open by a counter-balanced weight or rolled-up).
13.2 Door opening is clear of obstructions.
13.3 Fusible link/fire detector(s) are in normal operating condition.
13.4 Where applicable, pulley and cable have no obvious damage and are lubricated.
13.5 Where applicable, weights are in place and have clear vertical travel.
13.6 Magnetic holder, if installed, is functional.
13.7 Door is free from damage and identification plate in place.
13.8 Door closes completely and freely in automatic operation.

14.0 Fire Hose Cabinet TEST& INSPECT ANNUALLY

14.1 The cabinet is identified, accessible, and not obstructed.
14.2 Hose folding rack/spool moves completely outward.
14.3 Nozzle, valve, and pipes are free from corrosion and no leaks.
14.4 Wherever possible, conduct a test and ensure water flows at stipulated flow & pressure
14.5 Cabinet door swing is unobstructed.
14.6 Check single-jacketed hose test date, initially five years, three years thereafter.
14 7 Check double-jacketed hose test date (every year).
14.8 Hoses are folded properly, clamp in place, and are in good condition.
14.9 Cabinet interior is clean and in good condition.
14.10 Nozzle is adjustable.

14.11 Rubber gaskets are intact and in good repair.
14.12 Operating instructions are available and legible.
14.13 Review logbook kept by proponent to ensure monthly inspection are done.
14.14 Inspection tag and logbook are signed and updated.
14.15 For additional information on inspection of Fire Hose Cabinet, refer to chapter 7, NFPA 25.

15.0 Fire Hose Reel TEST & INSPECT ANNUALLY

15.1 Hose reel is identified, accessible, not obstructed. .
15.2 Valves and pipes are free from corrosion and leaks.
15.3 Hose has no cracks, cuts, or otherwise damaged.
15.4 Spool moves freely.
15.5 Upon opening of nozzle, conduct a test and ensure water flows at stipulated flow & pressure.
15.6 Nozzle adjusts from spray to straight stream.
15.7 Spool rotator handle is in the cabinet.
15.8 Hose reel box drain holes are not blocked.
15.9 Hose valve is opened.
15.10 Cabinet drains completely.
15.11 Operating instructions are available and legible.
15.12 Review logbook kept by proponent to ensure monthly inspection is done.
15.13 Inspection tag and logbook are signed and updated.

16.0 Mobile Monitor TEST & INSPECT ANNUALLY

16.1 Properly located at designated location and is accessible.
16.2 Hose is readily available, in good condition, and equipped with gaskets.
16.3 Monitor is free from corrosion.
16.4 Couplings and nozzle are not corroded and turn freely.
16.5 Wheels are greased and move freely.
16.6 Tires, where applicable, are properly inflated and in good condition.
16.7 Valve closes and reopens fully.
16.8 Valve is left in fully open position.
16.9 Nozzle adjusts from spray to straight stream under flow conditions.
16.10 Review logbook kept by proponent to ensure monthly inspection is done.
16.11 Inspection tag and logbook are signed and updated.
16.12 For additional information on inspection of Mobile Monitor, refer to chapter 7, NFPA 25.

17.0 Fire Hose Station TEST & INSPECT ANNUALLY

17.1 Weather shed/box is in good condition, with no damaged or broken parts.
17.2 Fire hoses are free from excessive abrasion, weather cracks, or cuts.
17.3 Valid hose test (every year).
17.4 All couplings turn freely and with no thread damage.
17.5 All couplings are provided with rubber gaskets.
17.6 Hydrant wrench is present.
17.7 Nozzle adjusts from spray to straight stream.
17.8 Review logbook kept by proponent to ensure monthly inspection is done.
17.9 Inspection tag is signed and updated.

18.0 Fire Water Tank INSPECT ANNUALLY

18.1 Automatic fill valve is "OPEN."
18.2 Tank shell and piping are free from corrosion.
18.3 Tank hatch cover is in place.
18.4 Surroundings are free from debris.
18.5 Water level indicator shows "DESIGNATED LEVEL" to indicate tank is filled to required level
18.6 Low level alarm is operational.
18.7 Automatic fill system operates.
18.8 All valves car-sealed in correct position.
18.9 Review logbook kept by proponent to ensure monthly inspection is done
18.10 Inspection tag and logbook are signed and updated.
18.11 For additional information on inspection of Fire Water Tank, refer to chapter 9, NFPA 25.

19.0 Fire Detection and Alarm System TEST & INSPECT ANNUALLY

19.1 Normal power supply indicator is "ON."
19.2 Battery power indicator reads 12/ 24 VDC.
19.3 Master alarm visual indicator is "OFF."
19.4 Master trouble visual indicator is "OFF."
19.5 Zone trouble visual indicator is "OFF."
19.6 No text message for alarm or trouble is shown at Liquid Crystal Display (LCD) of fire alarm control panel for addressable systems
19.7 In normal condition, no common alarm and common trouble indication is received at centrally monitored facility, or central control room (CCR), if applicable.
19.8 Lamp test lights all visual indicators when activated.
19.9 Manual pull stations are in normal operational condition.
1910 Automatic fire detectors are in normal operational condition.
19.11 All visual and audible alarms operate when tested.
19.12 The batteries support the operation of the system when tested.
19.13 Zone layout plan is available.
19.14 System alarm activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified.
19.15 Record all tests and inspection results in the logbook.
19.16 Logbook is available and up to date and adjacent to the control panel
19.17 Review logbook kept by proponent to ensure monthly inspection is done.
19.18 Inspection tag and logbook are signed and updated.
19.19 For additional information on inspection & testing of Fire Detection and Alarm System, refer to chapter 10, NFPA 72

20.0 Standpipes & Hose System INSPECT ANNUALLY

20.1 Pipes and valves are painted and not corroded.
20.2 Outlets have undamaged threads and protected with caps.
20.3 Valve and pipefittings have no leaks.
20.4 Control valves are locked or car-sealed open.
20.5 Standpipe threads are of the same type as Fire Protection Department hose.

20.6 Fire Department connection is accessible, swivel couplings are free turning, and with caps.
20.7 Sign posted at Fire Department connection indicating 'Wet' or 'Dry.' .
20.8 Review logbook kept by proponent to ensure monthly inspection is done.
20.9 Inspection tag and logbook are signed and updated.
20.10 For additional information on inspection of Standpipe & Hose, refer to chapter 6, NFPA 25.

21.0 Sprinkler System (Wet Type) TEST & INSPECT ANNUALLY

21.1 System alarm indicators on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 19.0 for correct inspection & test.)
21.2 Water flow alarm devices are not corroded or leaking.
21.3 Electrical connections on water flow alarm initiating device are secured.
21.4 Alarm and associated equipment activated and checked for operation.
21.5 The alarm shut-off control valve is car sealed OPEN and not leaking.
21.6 Alarm test valve is car sealed close and not leaking
21.7 Remote Inspection or test valve is closed.
21.8 Valves, pipes, and fittings are painted, with no corrosion or leaks.
21.9 Post indicator valve's tamper switch is operational.
21.10 Main control valve is car sealed "OPEN."
21.11 Sprinkler heads are not obstructed, damaged, or painted.
21.12 Fire Department connection is accessible, swivel couplings are free turning, and with caps.
21.13 Water supply and system gauges indicate specified pressure and calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
21.14 Drain valve is closed.
21.15 Extra heads of the proper type and temperature rating located close to the riser. The stock of spare sprinklers shall be as follows:

(a) For protected facilities having under 300 sprinklers - no fewer than 6 sprinklers
(b) For protected facilities having 300 to 1000 sprinklers - no fewer than 12 sprinklers
(c) For protected facilities having over 1000 sprinklers - no fewer than 24 sprinklers

21.16 Sprinkler pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
21.17 Hydraulic nameplate, if provided, is attached securely to the sprinkler riser and is legible.
21.18 Fully close and open all control valves
21.19 Main drain test is done and results noted.
21.20 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
21.21 Review logbook kept by proponent to ensure monthly inspection is done.
21.22 Inspection tag and logbook signed and updated.
21.23 For additional information on inspection & testing of Sprinkler System, refer to chapter 5, NFPA 25.

22.0 Sprinkler System (Dry Pipe) TEST & INSPECT ANNUALLY

22.1 System alarm indicator lights on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 19.0 for correct inspection.)
22.2 Fire water main valve is open.

22.3 Sprinkler control valve is car sealed "OPEN."
22.4 Drain valve is closed.
22.5 Air pressure gauge on system side is 25-35 psi for differential type valve, if applicable.
22.6 Alarm and associated equipment activated and checked for operation.
22.7 Water and air supply gauges indicate specified pressure and calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
22.8 Valves and pipefittings are painted with no corrosion or leaks.
22.9 Sprinkler heads are unobstructed.
22.10 Extra heads of the proper type and temperature rating and appropriate sprinkler wrenches are located close to the controls. The stock of spare sprinklers shall be as follows:

(a) For protected facilities having under 300 sprinklers - no fewer than 6 sprinklers
(b) For protected facilities having 300 to 1000 sprinklers - no fewer than 12 sprinklers
(c) For protected facilities having over 1000 sprinklers - no fewer than 24 sprinklers

22.11 Sprinkler pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
22.12 Fully close and open all control valves
22.13 Main drain test is done and results noted
22.14 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
22.15 Review logbook kept by proponent to ensure monthly inspection is done.
22.16 Inspection tag and logbook are signed and updated
22.17 For additional information on inspection & testing of Sprinkler System, refer to chapter 5, NFPA 25.

23.0 Deluge System TEST & INSPECT ANNUALLY

23.1 System alarm indicator lights on the building fire alarm control panel are "OFF" with the exception of the main power supply indicator. (Refer to item 22.0 for correct inspection.)
23.2 Fire water main valve is accessible and car sealed “OPEN.”
23.3 Drain valve is closed.
23.4 Piping and nozzles are free from damage or corrosion.
23.5 Nozzles are unobstructed.
23.6 Water supply gauge indicates specified pressure and calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
23.7 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipe or hung from the pipe.
23.8 Fully close and open all control valves
23.9 Main drain test is done and results noted
23.10 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
23.11 Review logbook kept by proponent to ensure monthly inspection is done.
23.12 Inspection tag and logbook are signed and updated.
23.13 For additional information on inspection & testing of Sprinkler System, refer to chapter 5, NFPA 25.

24.0 Foam Systems TEST & INSPECT ANNUALLY

24.1 Water and foam concentrate supply systems are in good operating condition.

24.1.1 Manifold:

24.1.1.1 Clapper valves are operational.
24.1.1.2 Caps are installed on hose inlets.
24.1.1.3 Manifold is in good condition.

24.1.2 Bladder:

24.1.2.1 Bladder is free of leaks. Open the shell side drain valve to ensure no foam concentrate/solution is discharging. (Refer to manufacturer's instructions manual for leak detection procedure.)
24.1.2.2 Condition of bladder is good.
24.1.2.3 Review the laboratory and fire performance tests reports kept by proponent to ensure annual foam samples are sent to FrPD/P&TSD for laboratory and fire performance tests.
24.1.2.4 Foam sample PASSED the tests and the laboratory and fire performance test reports are valid and on file.
24.1.2.5 Conduct foam circulation (annually).

24.1.3 Balanced Pressure:

24.1.3.1 Free from leaks in piping.
24.1.3.2 Foam pump is in automatic mode.
24.1.3.3 All valves are car-sealed in correct position.
24.1.3.4 Review the laboratory and fire performance tests reports kept by proponent to ensure annual foam samples are sent to FrPD/P&TSD for laboratory and fire performance tests.
24.1.3.5 Foam sample PASSED the tests and the laboratory and fire performance test reports are valid and on file.
24.1.3.6 Conduct foam circulation (annually).

24.2 Piping:

24.2.1 Free from corrosion and leaks.
24.2.2 Piping is self-draining properly.
24.2.3 All valves car-sealed in correct position.
24.2.4 Sprinkler pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.

24.3 Discharge outlets:

24.3.1 Floating roof:

24.3.1.1 Air inlet screen on foam chamber is clean and in good condition.
24.3.1.2 Foam dam is in good condition.

24.3.1.3 Foam deflectors are in good condition.
24.3.1.4 Floating roof seal and shunts are in good condition.
24.3.1.5 Rain drains are open and clear.
24.4.1.6 Caps are installed on 1 1/2" hose outlets.

24.3.2 Cone Roof:

24.3.2.1 Rubber hose is free from cracks.
24.3.2.2 No obvious damage to foam chamber.

24.3.3 High Expansion Foam Generator:

24.3.3.1 Foam generator is not obstructed.
24.3.3.2 Foam screen is clean and not obstructed.
24.3.3.3 Foam generator is operational.

24.4 Water supply gauge indicates specified pressure and calibration sticker is affixed on the pressure gauges and it has valid calibration date. Validity is 5 years.
24.5 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
24.6 All foam systems shall have discharge tests done.
24.7 Review logbook kept by proponent to ensure monthly inspection is done.
24.8 Inspection tag and logbook are signed and updated
24.9 For additional information on the testing & inspection of the Foam Systems, refer to chapter 10, NFPA 11.

25.0 Halon (NFPA 12A) and other Clean Agent (NFPA 2001) System TEST & INSPECT ANNUALLY

25.1 Control panel's main power indicator is "ON." Refer to item 19.0 for inspection requirements.
25.2 System activation indicator on fire control panel is "OFF."
25.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for inspection requirements of automatic fire detection system and components.
25.4 Pipe manifolds are painted and not corroded
25.5 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.
25.6 Manual discharge and abort switches are in normal standby mode, and unobstructed.
25.7 Cylinder transfer key set to primary.
25.8 Cylinder brackets are firmly attached.
25.9 Solenoid and pneumatic discharge valves are firmly attached to the cylinder head.
25.10 Discharge nozzles are unobstructed.
25.11 Where provided, discharge nozzles' blow-off caps are in place.
25.12 Discharge flexible hoses are in good condition.
25.13 Cylinder(s) are fully charged to the correct pressure for ambient temperature.
25.14 Manual and automatic actuating devices are operational and meet manufacturer's recommendations.
25.15 Hose assemblies have valid hydrotest date (every five years).
25.16 Cylinders have valid hydrostatic test date (every five years).

Note: Cylinder shall not be recharged without a hydrotest if more then five years have elapsed since the date of the last test and inspection. Cylinders continuously in service without discharge shall be given a complete external visual inspection every five years and need not be emptied or stamped while under pressure.

25.17 Where applicable, pneumatic type CO_2 cartridge disc is intact.
25.18 Operating instructions are posted and legible (Arabic & English).
25.19 Safety/warning signs are posted identifying the protected areas (Arabic & English)
25.20 Protected space has not been altered.
25.21 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
25.22 Review weekly logbook kept by proponent to ensure monthly inspection and semi-annually weighing of cylinders is done.
25.23 Inspection tag and logbook are signed and updated.
25.24 For additional information on testing & inspection of halon system, refer to chapter 4 NFPA 12A, while for other clean agent systems, refer to chapter 6, NFPA 2001.

26.0 CO_2 System TEST & INSPECT ANNUALLY

26.1 Control panel's main power indicator is "ON." Refer to item 19.0 for inspection requirements.
26.2 System's activation indicator on the fire alarm control panel is "OFF."
26.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for inspection requirements of automatic fire detection system and components.
26.4 Pipe manifolds are painted and not corroded.
26.5 Pipe hangers are not damaged, loose, or missing and pipes are not subject to external loads by materials either resting on the pipes or hung from the pipe.
26.6 Manual discharge is in normal standby mode.
26.7 Solenoid/pneumatic discharge valves are firmly attached to the cylinder head.
26.8 Discharge nozzles are unobstructed.
26.9 Cylinder brackets are firmly attached to the cylinders.
26.10 Operational instructions are legible.
26.11 Cylinder hose assemblies have valid hydrotest date (every five years).
26.12 Master/pilot cylinder pressure gauge indicates correct pressure for the ambient temperature. (850 psig at 70F)
26.13 Cylinders have valid hydrostatic test date (every five years).

Note: Discharged cylinders shall not be recharged without a hydrostatic test and remarking if more than 5 years have elapsed from the date of the last test. Cylinders continuously in service without discharging may be retained in service for a maximum of 12 years from the date of last hydrotest. At the end of 12 years of service an in-place discharge test shall be conducted and hydrotest performed.

26.14 Safety/warning signs are posted identifying the protected area.
26.15 Protected space has not been altered.
26.16 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.

26.17 Review logbook kept by proponent to ensure monthly inspection and semi-annually weighing of cylinders are done.
26.18 Inspection tag and logbook are signed and updated.
26.19 For additional information on the testing & inspection of the CO2 System refer to chapter 4, NFPA 12.

27.0 Dry Chemical System (Kitchen Hood) TEST & INSPECT ANNUALLY

27.1 Control panel's main power indicator is "ON."
27.2 System activation indicator on the fire alarm control panel is "OFF."
27.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
27.4 Dry chemical level "FULL."
27.5 Valves, pipes, and fittings are painted and not corroded.
27.6 Manual actuators are unobstructed.
27.7 Nozzle caps are intact and undamaged.
27.8 Tamper indicators and seal are intact.
27.9 Manual discharge button is provided with sealed safety pin.
27.10 Fusible link/heat detectors are clean and not damaged.
27.11 Cylinder/hose assemblies have valid hydrotest (every twelve years).
27.12 Hoods and filters are free of accumulated grease.
27.13 Unit is tested in accordance with manufacturer's instructions.
27.14 Propellant CO_2 cartridge disc is intact.
27.15 Operating instructions are posted and legible.
27.16 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
27.17 Review logbook kept by proponent to ensure monthly inspection is done.
27.18 Inspection tag and logbook are signed and updated.
27.19 For additional information on the testing & inspection of the Dry Chemical System refer to chapter 10 & 11, NFPA 17.

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28.0 Wet Chemical (Hood Type) TEST & INSPECT ANNUALLY

28.1 Logbook is available and up to date.
28.2 Review weekly log kept by proponent to ensure weekly test/inspection and semi-annually weighing of cylinders are done.
28.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
28.4 Manual actuators are unobstructed.
28.5 Tamper indicators and seals are intact.
28.6 Maintenance tag or certificate is in place.
28.7 No obvious physical damage or condition that would hinder operation.
28.8 Pressure gauges, if provided, are in operable range.
28.9 Nozzle blowout caps are intact and undamaged.
28.10 Wet chemical level is full.
28.11 Fusible links/heat detectors are clean and not damaged.
28.12 Cylinder/hose assemblies have valid hydrotest date (every twelve years).
28.13 The system is manually tested according to manufacturer's recommendations.

28.14 The system is returned to normal operating mode.
28.15 Hoods and filters are free of accumulated grease.
28.16 Operating instructions are posted and legible.
28.17 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
28.18 Review logbook kept by proponent to ensure monthly inspection is done.
28.19 Inspection tag and logbook are signed and updated.
28.20 For additional information on the testing & inspection of the Wet Chemical Systems, refer to chapter 7, NFPA 17A.

29.0 Dry Chemical System (Industrial Plants) TEST & INSPECT ANNUALLY

29.1 Control panel's main power indicator is "ON."
29.2 System activation indicator on the fire alarm control panel is "OFF."
29.3 Automatic fire detection system and components are on-line and operational. Refer to item 19.0 for proper inspection of automatic fire detection system and components.
29.4 Pilot cylinder disc/pneumatic valve is intact/closed.
29.5 Nitrogen cylinder(s) gauge reads 2000-2500 psig.
29.6 Cylinder brackets are firmly attached.
29.7 Nitrogen cylinder(s) has valid hydrotest date (every five years).
29.8 Fusible links/automatic fire detection devices are all in normal standby mode, clean, and show no sign of damage.
29.9 Pneumatic valves of each nitrogen cylinder are firmly attached.
29.10 Nozzles are clean and not damaged.
29.11 Dry chemical cylinder/hose assemblies have valid hydrotest date (every twelve years).
29.12 Service test to be conducted per manufacturer's recommendations.
29.13 System is placed back in normal operating mode.
29.14 Dry chemical level full, up to shoulder, with no caking.
29.15 System alarm and associated equipment activated and checked for proper operation. And alarm signals to the building fire alarm control panel and remote monitoring stations are verified; and tests results are recorded in the logbook.
29.16 Review weekly logbook kept by proponent to ensure monthly inspection is done.
29.17 Inspection tag and logbook are signed and updated.
29.18 For additional information on the testing & inspection of the Dry Chemical System, refer to chapter 10 & 11, NFPA 17.

30.0 Fire Hydrant & Fixed Monitor TEST & INSPECT ANNUALLY

30.1 Properly located, identified by assigned number as per the facility layout, is accessible, and unobstructed.
30.2 Hydrant/Monitor is free from corrosion.
30.3 Hydrant caps vent holes are unobstructed.
30.4 Nozzle is the correct type and size.
30.5 Valves close and reopen fully with no leaks.
30.6 Hydrant/Monitor is painted red and properly guarded.
30.7 Nozzle adjusts freely from straight to fog during flow conditions.
30.8 Hydrant wrench is available.

30.9 Monitor valve is fully closed and nozzle is open.
30.10 Hydrant sectional lines are not isolated and isolation valve is fully open and car-sealed.
30.11 Monitors are pointed downwards to drain completely and avoid potential corrosion due to stagnant water.
30.12 Review logbook kept by proponent to ensure monthly inspection is done.
30.13 Logbook is signed and updated
30.14 For additional information on the testing & inspection of the Fire Hydrants & Fixed Monitor, refer to chapter 7, NFPA 25.

31.0 Oscillating Monitors TEST & INSPECT ANNUALLY

31.1 Properly located, identified by assigned number as per the facility layout, is accessible, and unobstructed.
31.2 Monitor is properly aimed at protected equipment.
31.3 Monitor is free from corrosion, accessible and unobstructed.
31.4 Nozzle is the correct type and size.
31.5 Nozzle is lubricated and adjusts freely from straight to fog.
31.6 Monitor is painted red and properly guarded.
31.7 Monitor valve is fully closed and nozzle is open.
31.8 Valves close and reopen fully with no leaks.
31.9 Hydraulic-operated motor is free from leaks and corrosion.
31.10 Hydraulic tubes free from leaks and shielded.
31.11 Arc of oscillation is within the set range.
31.12 Review logbook kept by proponent to ensure monthly inspection is done.
31.13 Logbook is signed and updated

32.0 Flush Test for Water Based Fire Protection Systems ANNUALLY

32.1 Inspect and operate all control valves, lubricate as required.
32.2 Inspect piping and fittings for corrosion and leaking.
32.3 Check nozzles, discharges, foam pourers, and air intakes for obstructions.
32.4 Conduct flushing of mains distribution pipes of fire protection systems. Fire protection systems include but are not limited to:

- Semi-fixed foam systems (Note: All foam systems, where possible, shall have foam run through them at operating pressures, annually.)
- Cooling rings
- Standpipes, hydrants, and monitors
- Other systems as required

32.5 For additional information on the annual flush of the Fire Protection System, refer to chapter 13, NFPA 25

33.0 Fire Water Distribution Flow Test and Flush of Fire Water Systems (Community and Plants) ANNUALLY

33.1 Divisional Fixed Fire Systems Group (FFSG) will perform this activity in conjunction with the annual fire pump test.
33.2 To prevent jamming fully close and open all isolation valves.

33.3 The Fire Protection Department will provide necessary equipment to conduct the test.
33.4 The proponent will provide manpower and support for this activity.
33.5 For additional information on annual Fire Water Distribution Flow Test of the Fire Water Systems, refer to chapter 7, NFPA 25.

34.0 Backflow Prevention Assemblies INSPECT ANNUALLY

34.1 Backflow preventer is in good condition, free from leaks and corrosion.
34.2 Isolation valves are open and secured with locks or tamper switch.
34.3 Review logbook kept by proponent to ensure monthly inspection is done.
34.4 Logbook is signed and updated.
34.5 For additional information on the testing & inspection of the Backflow Prevention Assemblies, refer to chapter 12, NFPA 25.

35.0 Foam Hose Cabinets INSPECT & TEST ANNUALLY

35.1 Ensure Foam station is not obstructed
35.2 Check operation of cabinet lid
35.3 Examine hose cabinet for corrosion
35.4 Ensure operational procedures are posted in Arabic and English
35.5 Close main water control
35.6 Extend hose 3 meters (9 feet) and check for defects and ease of deployment
35.7 Annually extend the entire length of hose and examine for leaks, cracks/cuts, and dry rotting
35.8 With main water valve off, check the nozzle by moving to fully open position and back to closed position.
35.9 With the main water valve off, remove the nozzle and check for obstructions in the hose. Check the nozzle gasket; lubricate metal nozzles and threads with WD40 (or equivalent). Put the nozzle back on hose.
35.10 With the main water valve off, ensure that the foam and water valves operates easily and are not corroded or painted shut
35.11 Open the main water valve and check for leaks.
35.12 Open the main valve and flow water from the nozzle.
35.13 Check for operation of the nozzle with a strong stream in the fog and straight stream positions, while keeping foam valve closed.
35.14 Ensure the foam tank vent is free from obstruction and corrosion
35.15 Check the contents of the foam tank. Note: use caution and face away from the tank as cap is opened. If pressure escapes as cap is opened do not open cap. Report malfunctions immediately.
35.16 Ensure foam tank is marked “3% AFFF” or “3% Flouroprotein” as appropriate with the installation date.
35.17 Check that metering valve is set on 3%.
35.18 Operate hose reel and discharge foam.
35.19 Discharge foam until the mixture has stabilized and obtain a sample. Use a refractometer to check that the concentration of the sample is 3%.
35.20 After completing the test close the foam valve and flush the hose station with water.
35.21 Put foam cabinet back into service by closing foam and water valves, close the nozzle, rewind hose, and open the main water valve.
35.22 Inspection tag is signed and updated.
35.23 For additional information on the testing & inspection of the Foam Hose Cabinets, refer to chapter 10 NFPA 11.

36.0 Sphere Bottom Flooding Connections INSPECT & TEST ANNUALLY

36.1 Check that sign posted at Fire department connection point is in good condition and indicates the pressure required for water injection into the sphere at maximum loading.
36.2 Check the fire department connection is outside the spill containment area.
36.3 Check female coupling are in good condition and fitted with blank caps.
36.4 Check that a check valve is provided down stream of OS&Y valve.
36.5 Check that the pressure gauge is in good condition and can be read easily.
36.6 Check that drain valve is indicated and is in closed position.
36.7 Annually, pressure test the system by:

36.7.1 Ensure check valve and OS&Y valves are closed
36.7.2 Open the drain valve
36.7.3 Pressurize the system to 200 psi and check that water flows from drain valve.

36.8 Place the system back in operation by draining system and closing drain valve.

37.0 Fire Pump Performance TEST ANNUALLY (By Divisional Fixed Fire Systems Group)

37.1 Performs annual fire pump performance tests including, but not limited to, the following test requirements per NFPA 20:

37.1.1 Shut-off head
37.1.2 Rated capacities (100%)
37.1.3 Pump overloads capacities (150% flow at 65% head)

37.2 Reports, including calculations and performance graphs, on the results of the tests are submitted to the proponent and other relevant organizations.
37.3 Logbook is signed and updated.
37.4 For additional information on Annual Fire Pump Performance test of Fire Pumps, refer to chapter, 8, NFPA 25.

FIRE PROTECTION EQUIPMENT STATUS REPORT

Saudi Aramco 3708 (6/2002) (Refer to General Instruction 1781.001)

File Number	Test/Inspection Date (MM/DD/YY)

1 Fire Protection Department		Proponent / Occupant Organization	
To: Local Fire Control Unit (FCU)		From: Proponent/Occupant Org. (Dept./Div./Unit Name)	Organization Code
Dept. / Div. / Local FCU / Box No.		Mailing Address (Box No.)	Area
Telephone No. / Fax No. / E-mail Address		Telephone No. / Fax No. / E-mail Address	

Refer to General Instruction 1781.001

All Fire Protection Equipment as specified in Supplement 01 of G.I. 1781.001, uploaded in the SAP, and that are assigned to my area of responsibility have been inspected and tested on the date appearing above and were found to be on-line/in service, and in operable and satisfactory condition, with the exception of the items listed in Section 3.

2 FrPD No.	3 Deficiency / Discrepancy Items	4 Action Taken By				5 Status	
		4a Proponent / Occupant		4b FrPD		Closed	Open

6 Proponent / Occupant Organization		7 Fire Protection Department
Inspected By (Print Name & Badge No.)	Signature & Date Prepared	Received By Local FCU (Print Name / Badge No.)
Foreman or Supervisor (Print Name & Badge No.)	Signature & Date Issued	Signature & Date Received:

Note: The Area FIRE CHIEF shall acknowledge receipt of this report by signing in the space provided in Section 7, enter the necessary corrective action in Section 4b and ensure they are undertaken and closed. The proponent/occupant Foreman or Supervisor shall follow-up and confirm correction and closure of each reported item by checking and affixing his initial, opposite each item, in Section 5 and forward a copy of the report to the Local FCU. Please contact your Local Fire Control Unit or Divisional Fixed Fire Systems Group if you have any questions or require assistance.

SUPPLEMENT 1781.001-03: TEST & INSPECTION RESPONSIBILITY / FREQUENCY CHART

(For T&I details see Supplements 1781.001-01 and 1781.001-02)

Legend: **P**-Proponent **FrPD**-Fire Protection Department **O**-Occupant[1] **M**-Maintenance[2]

Item	Fire Protection Equipment	Activity: Insp. (I), or Test & Inspection (T&I)[3]		
		Weekly	Monthly	Annually
1.0	30 Minute Standard Breathing Apparatus	P (T, I)		FrPD (T&I)
2.0	Supplied Air Breathing Apparatus (SABA)	P (T, I)		FrPD (T&I)
3.0	Fire Pump (Engine Driven)	P (T, I)		FrPD (T&I)
4.0	Fire Pump (Electrically Driven)	P (T, I)		FrPD (T&I)
5.0	Jockey Pump (Pressure Maintenance Pump)	P (T, I)		FrPD (T&I)
6.0	2.5 Gallon Pressurized Water Extinguisher		P (I)	FrPD (I)
7.0	10 Lb. CO_2 Extinguisher		P (I)	FrPD (I)
8.0	30 Lb. Dry Chemical Extinguisher		P (I)	FrPD (I)
9.0	Halon 1211 Extinguisher		P (I)	FrPD (I)
10.0	Wheeled Type Dry Chemical Extinguisher		P (I)	FrPD (I)
11.0	Wheeled Type CO_2 Extinguisher		P (I)	FrPD (I)
12.0	Twin Agent Unit Skid or Trailer Extinguisher		P (I)	FrPD (I)
13.0	Automatically Operated Fire Door		P (I)	FrPD (T&I)
14.0	Fire Hose Cabinet		P (I)	FrPD (T&I)
15.0	Fire Hose Reel		P (T& I)	FrPD (T&I)
16.0	Mobile Monitor		P (I)	FrPD (T&I)
17.0	Fire Hose Station		P (I)	FrPD (T&I)
18.0	Fire Water Tank		P (I)	FrPD (I)
19.0	Fire Detection and Alarm System		P (I)	FrPD (T&I)
20.0	Standpipe & Hose		P (I)	FrPD (I)
21.0	Sprinkler System (Wet Type)		P (I)	FrPD (T&I)
22.0	Sprinkler System (Dry Pipe)		P (I)	FrPD (T&I)
23.0	Deluge System		P (I)	FrPD (T&I)
24.0	Foam Systems		P (I)	FrPD (T&I)
25.0	Halon System		P (I)	FrPD (T&I)
26.0	CO_2 System		P (I)	FrPD (T&I)
27.0	Dry Chemical System (Kitchen Hood)		P (I)	FrPD (T&I)
28.0	Wet Chemical (Hood Type)		P (I)	FrPD (T&I)
29.0	Dry Chemical System (Industrial Plants)		P (I)	FrPD (T&I)
30.0	Fire Hydrant & Fixed Monitor		P (I)	FrPD (T&I)
31.0	Oscillating Monitors		P (I)	FrPD (T&I)
32.0	Oily Water and Surface Drainage (Indl. Plants)		P (I)	FrPD (I), P (I&T)
	Annual Flush Test for Fire Protection Systems			FrPD (T) P (T)[4]
33.0	Fire Water Mains / Fire Water Distribution		P (I)	FrPD (T& I) P (T)[4]
34.0	Backflow Prevention Assemblies		P (I)	FrPD (I)
35.0	Foam Hose Cabinets		P (T&I)	FrPD (T&I)
36.0	Sphere Bottom Flooding Connection		P (I)	FrPD (T&I)
37.0	Fire Pump Performance Test			FrPD (T&I) P (T)[4]

Notes:

1 Refer to section 6.0 of GI 1781.001 for specific responsibilities. Occupant organization is to ensure that the Test and Inspection of fire protection equipment installed in their area of operation are performed as scheduled above.

2 Refer to section 10.0 of GI 1781.001 for Maintenance Organization responsibilities.

3 Full functional and operational test performed by Area Fixed Systems Group.

4 Annual inspections or to witness the test should be done by Maintenance Organization (Refer to section 10.1).