

PM000027

Revision 2

U/G FUEL STATION DRY CHEMICAL FIRE SUPPRESSION SYSTEM

SEMIANNUAL

Maintenance Procedure

EFFECTIVE DATE: 12/13/01

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PRINTED NAME

APPROVED FOR USE

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INTRODUCTION

This procedure provides work steps to safely perform the semiannual inspection and testing of the Underground Fuel Station Dry Chemical Fire Suppression System. Qualified and trained personnel will perform documented inspections. Performance of this procedure generates a Resource Conservation and Recovery Act (RCRA) record.

REFERENCES

- U/G Fuel Station Dry Chemical Fire System O&M Manual
- FM Data Sheet 4-10-5 Dry Chemical Systems
- NFPA 17 - Standard for Dry Chemical Extinguishing Systems
- MSHA - 30 CFR 57, Fire Prevention and Control
- OSHA - 29 CFR 1910.161, Fixed Extinguishing Systems - Dry Chemical
- WP 04-FP1401, Underground Fuel Station Operation
- WP 12-FP.01, Fire Protection Program
- WP 12-129, Fire Protection Impairment Procedure
- DOE-HDBK-1062-96, DOE Fire Protection Handbook
- WP 13-1, WTS Quality Assurance Program Description

EQUIPMENT

- Keys
- Allen Wrench
- Wrench
- Hearing protection
- Safety glasses
- Safety shoes
- Gloves
- Heat gun
- Minimum 50 foot extension cord

- Cart mounted generator
- Standard screwdriver
- Ladder
- Rubber mallet

PRECAUTIONS AND LIMITATIONS

- All work steps should be performed in sequence. If a major change in the Preventive Maintenance (PM) is needed for a particular job, Emergency Services (ES) Manager, **OR** designee, will review and approve. ES will attach approval to field copy showing temporary change.

PREREQUISITE ACTIONS

- 1.0 Facility Shift Manager (FSM), **OR** designee, will provide training, direction, and overview to personnel performing inspections and tests. FSM, **OR** designee, will ensure adequacy of inspection and test procedures for compliance to National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), Department of Energy (DOE), and Westinghouse TRU Solutions, LLC (WTS) requirements.
- 2.0 Emergency Services will provide qualified and trained personnel to conduct inspection and tests, ensure that provisions of this procedure are followed, and make procedure changes as needed.
- 3.0 Facility Maintenance will maintain PM procedures and provide Emergency Services Technician (EST) timely inspection sheets for documentation of scheduled inspections, and maintain documentation for review by authorized personnel.

PERFORMANCE

NOTE

Record deficiencies in comment section of Data Sheet. Initiate Action Request (AR) for correction of deficiencies not specifically addressed by this instruction.

1.0 SEMIANNUAL INSPECTION

- 1.1 Obtain work release from Underground Facility Engineer (UFE) for PM000027 and PM000036.

NOTE

IF defect is found, **THEN** notify Central Monitoring Room (CMR) and Underground Facilities Engineer (UFE), **AND** complete fire protection system impairment tag **AND** initiate AR.

- 1.2 Verify dry chemical fire suppression system is undamaged, unobstructed, and in normal operating configuration. Record data on inspection form.
- 1.3 Perform Monthly PM000036.
- 1.4 Perform semiannual Underground Fuel Station Dry Chemical Fire Suppression System inspection and testing including the following:
 - 1.4.1 Record thermal detector(s) **AND/OR** pull box(es) identification numbers to be tested in comment section.
 - 1.4.2 Verify, **AND** record, dry chemical fire suppression system is in normal operating configuration (see Attachments 1 **AND** 2).
 - 1.4.3 Verify fuel loading area, fuel storage room, and area around fire suppression system equipment is clear of vehicles and of personnel not required to conduct the tests.
 - 1.4.4 Verify backup fire extinguishers are readily available for refueling station area.
 - 1.4.5 Notify CMR operator that inspection and testing will begin.
 - 1.4.6 Verify system select switch is in the "Main" position.

CAUTION

The following steps will remove fire suppression system from operation.

- 1.5 Remove electric control heads from Main **AND** Reserve nitrogen cylinders (534-FP-14002-TR-1 01 & 534-FP-14002-TR-1 02).
- 1.6 Post a person at main **AND** reserve electric control heads to visually verify protrusion of actuating discharge pins.
- 1.7 If testing fire detectors, heat first detector with heat gun and verify the following:
 - Alarm received at Fire Alarm Panel (FAP)
 - All local alarms sound

- Evacuation alarm sounds
- CMR received alarm
- Main electric control head actuation pin protrudes
- Reserve electric control head actuation pin does **NOT** protrude
- Verify fire damper closed (534-FP-14002-FD-102)

NOTE

If any alarm malfunctions, **OR** main electric control head fails to function, **OR** reserve pin protrudes, **OR** fire damper fails to close, notify CMR **AND** UFE. Complete a fire protection system impairment tag **AND** initiate AR.

- 1.8 Reset main electric control head stem to "SET" position.
- 1.9 Reset FAP.
- 1.10 Place system select switch to "Reserve" position.
- 1.11 Heat next detector **AND** verify the following:
 - Alarm received at FAP.
 - All local alarms sound.
 - Evacuation alarm sounds.
 - CMR received alarm.
 - Reserve electric control head actuation pin protrudes.
 - Main electric control head actuation pin does **NOT** protrude.
 - Verify fire damper closed.
- 1.12 Reset reserve electric control head stem to "SET" position.
- 1.13 Reset FAP.
- 1.14 **IF** testing a pull box,
THEN place select switch to Main **OR** Reserve, activate pull box **AND** verify the following:
 - Alarm received at FAP.
 - All local alarms sound.

- Evacuation alarm sounds.
- CMR received alarm.
- Main **OR** Reserve electric control head actuation pin protrudes.
- Reserve **OR** Main electric control head actuation pin does **NOT** protrude.
- Verify fire damper closed.

NOTE

Refer to PM00028 - Fire/Safety Inspection and Testing, Section 7.0.

- 1.15 **IF** alarm **AND/OR** electric control head actuation pin does not protrude, **THEN** repeat step 1.10 after resetting pull box.
 - 1.16 **IF** alarm still does not activate, **AND/OR** electric control head actuation pin does **NOT** protrude, **THEN** notify CMR **AND** UFE, **AND** complete fire protection system impairment tag **AND** initiate AR.
 - 1.17 Reset electric control head stem to "SET" position.
 - 1.18 Reset FAP.
 - 1.19 **IF** FAP still does not reset, **THEN** notify CMR **AND** UFE, **AND** complete fire protection system impairment tag **AND** initiate AR.
 - 1.20 Verify that dry powder is in good condition.
- 2.0 RESTORATION
- 2.1 Replace Main **AND** Reserve electric control heads on nitrogen cylinders with swivel nuts, secured hand-tight.
 - 2.2 Return system select switch to "Main" position.
 - 2.3 Verify dry chemical fire suppression system is in normal configuration, see Attachment 1.
 - 2.4 Notify CMR **AND** UFE, that inspection and testing is completed.
 - 2.5 **IF** any system can not be returned to normal configuration, **THEN** notify CMR **AND** UFE, **AND** complete fire protection system impairment tag **AND** initiate AR.

| 2.6 FSM, **OR** designee, reviews completed form for completeness **AND** prints
| name, signs **AND** dates form. FSM, **OR** designee, may make additional
| comments on form.

| 2.7 FSM, **OR** designee, return original with CHAMPS cover sheet to ES for
| filing in accordance with RCRA and ES Records Inventory and Disposition
| Schedule (RIDS).

3.0 RETEST

3.1 Retest **AND** inspect if system had a impairment **AND** it was corrected.

Attachment 1 - Normal Operational Condition

<u>EQUIPMENT</u>	<u>OPERATIONAL CONDITION</u>
*FAP	Power to FAP And no other alarms or signals
*System Switch	Set on Main
*Discharge Heads	Installed on Main And Reserve Nitrogen Cylinders
*Ring Lock Pins and Seals	Installed in Electrical Control Heads
*Electric Control Heads	Stem indicator in "SET" position and installed on Main and Reserve nitrogen cylinders.
Electric Control Heads	Installed hand tight only
*Nitrogen Cylinder Pressure	Pressure indicating within gauge black band
*Main Discharge Valves	Actuator unpressurized And valve closed
*Tank Vent Valves	CLOSED
*Tank Pressure Gages	Pressure indicating zero
*Pressure Relief Valves	Capped and sealed
*Sequence Line Vent Valves	CLOSED
*Discharge Nozzles	All caps in place, cap chains intact, and 6" from floor
Roll-up Door	Operates up And down
*Roll-up Door Fusible Link	Installed
	* Monthly Visual Inspection Items

1.0 If discharge heads are removed, reinstall as follows:

- 1.1 Wipe off cylinder valve mating surfaces. Verify sealing surfaces are clean and free of damage.
- 1.2 Inspect discharge heads, threads, and O-ring grooves for damage.
- 1.3 Verify discharge head grooves have both O-rings and O-rings are not worn or damaged. Replace cut, nicked, or otherwise damaged O-rings.
- 1.4 Thread discharge heads onto cylinder valves and tighten hand tight.

Attachment 2 - U/G Fuel Station Fire Suppression System Checklist

U/G FUEL STATION FIRE SUPPRESSION SYSTEM CHECKLIST		
MAIN SYSTEM [] RESERVE SYSTEM []		
<input type="checkbox"/> OK <input checked="" type="checkbox"/> Adjustment Made <input type="checkbox"/> Repairs Required (check or complete appropriate information)		
INSPECTION ITEMS	CONDITION	AFTER TESTS
*FAP		
*System Switch set on Main		
Discharge Head Installed Hand Tight		
*Ring Lock Pin and Seal		
*Electric Control Head Indicator on SET		
Electric Control Head Installed Hand Tight		
*Nitrogen Cylinder Pressure		
*Cylinder Condition		
*Hoses/Piping and Connections		
*Main Discharge Valve Unpressurized and Closed		
*Tank Vent Valve Closed		
*Tank Pressure Zero		
*Pressure Relief Valve Capped and Sealed		
*Sequence Line Valve Closed		
Dry Chemical Condition		
Tank Lid Tight		
*Discharge Nozzles		
*Fire Damper Open		
Roll-up Door		
*Roll-up Door Fusible Link		
*Fire Detectors		
*Pull Boxes (Hand Switches)		
System in Normal Configuration		
* Monthly Visual Inspection Items		
Comments: _____ _____ _____		
Inspected by: _____	Date: _____	Time: _____
Inspected by: _____	Date: _____	Time: _____
FSM or designee: _____	Date: _____	Time: _____

RCRA Form