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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the inspection, hydrostatic testing, and labeling of chemical and/or water hoses.

1.2 Scope

1.2.1 This procedure applies to caustic addition chemical hoses and/or water hoses used in Tank Farm facilities.

1.2.2 This procedure will accomplish the following:

- Inspect hoses for damage and wear
- Hydrostatic test hoses
- Attach labels to hoses with test information.

1.2.3 Multiple hose assemblies may be inspected and tested in parallel during the performance of this procedure as long as the procedure is followed sequentially for each hose assembly. For example, Steps 5.1.1 - 5.1.4 may be performed for several hose assemblies and Data Sheet information recorded for each. Then the remainder of Sections 5.1 and 5.2 may be performed for each hose assembly in order.

2.0 INFORMATION

NONE
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

**WARNING** - Testing of a damaged hose assembly could result in serious personnel injury in the event of a hose failure.

**WARNING** - Failure of a hose fitting could result in serious personnel injury.

**WARNING** - Failure to establish an exclusion zone could result in personnel injury.

**WARNING** - Personnel must never stand in line with the ends of the hose being hydrostatic tested. Failure to comply may cause serious personnel injury.

3.1.1 Restrain hose assemblies at each end and at approximately 10 foot intervals along hose length to prevent whipping of hose ends in the event of a hose failure during hydrostatic testing. Restraints should be loose fitting.

3.1.2 The outlet end of the hose must be BULWARKED so a blown-out fitting will be stopped. The end of the hose will move as the hose expands with increased pressure. Therefore, the bulwark must be moveable.

3.1.3 Test personnel must be in attendance continuously while system is under pressure during hydrostatic testing and must keep bystanders clear of equipment.

3.1.4 An exclusion zone must be set up and posted around the pressure test assembly and all pressurized equipment.
3.2 Equipment Safety

CAUTION - Use of components that do not have a working pressure rating greater than or equal to the highest PRV setting may result in equipment damage.

3.2.1 Vents must be provided at all high points of the test system.

3.2.2 Provisions must be included for drainage of the system at low points.

3.2.3 All system components must have working pressure ratings of greater than or equal to the highest PRV setting.

3.2.4 A means of immediately shutting off and releasing the pressure must be provided to prevent damage if the relief valve or other critical system component fails to operate in case there is an over pressurization during hydrostatic testing.

3.2.5 Pressure must be gradually increased in steps providing sufficient time to allow the system to equalize during hydrostatic testing.

3.2.6 The pressure relief device must be of a standard type conforming to technical requirements listed in the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, paragraph UG-126.

3.3 Radiation and Contamination Control

3.3.1 Work in radiological areas will be performed using a Radiological Work Permit following review by Radiological Control per the ALARA Work Planning procedure TFC-ÉSHQ-RP_RWP-C-03.

3.3.2 When disconnecting, breaching or opening systems or system components that are currently or previously connected to waste tanks or waste transfer systems:

- Continuous HPT coverage is required
- Prejob and postjob surveys are required
- A wet rag will be used to contain the breach until radiological verifications have been performed.
3.4 Environmental Compliance

*Pollution Prevention and Best Management Practices Plan for State Waste Discharge Permit ST 4511.*

All planned incidental discharges to the ground must adhere to the following requirements:

3.4.1 Each discharge must be less than 150 gallons per minute instantaneously.

3.4.2 Reasonable efforts shall be taken to prevent pooling due to discharge flow rates above the expected soil infiltration capacity.

3.4.3 **NOTIFY** Environmental-on-call-representative through Tank Farm Shift Office of any unplanned discharge.

3.4.4 Planned incidental discharges to the ground expected to be larger than 60 gallons must adhere to the following requirements:

3.4.4.1 No discharge shall be allowed within a surface contamination area (areas with dangerous waste and/or radioactive contaminants).

3.4.4.2 No discharge shall be allowed within 300 feet horizontal radius of a known active or inactive crib, ditch, or trench used for disposal of dangerous and/or radioactive contaminants.

3.5 Limits

3.5.1 The pressure relief valve must be set to operate at a pressure that does not exceed 110% of the test pressure.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:

- A calibrated Digital Pressure Gauge and/or Pressure Gauge between $1\frac{1}{2}$ and 4 times the maximum specified test pressure on Data Sheet
- Test manifold with Teledyne Republic/Sprague model S439JR10 or S439JR10SS pump
- Hoke 6500 Series relief valves
- Potable water
- Other tools, equipment and supplies as identified by Shift Manager/OE/FWS/User.

4.2 Performance Documents

The following documents may be needed to perform this procedure:

- ASME Boiler and Pressure Vessel Code, Section 8, Division 1, paragraph UG-126.
5.0  **PROCEDURE**

5.1  **Prepare to Pressure Test Chemical and/or Water Hose**

5.1.1  **ENSURE** pressure relief valve is set at $\leq 110\%$ of specified test pressure AND

**SIGN AND DATE** Step 1 of the Data Sheet.

NOTE - The maximum reading requirement is not applicable to digital pressure gauge.

5.1.2  **QC VERIFY** the following, and **SIGN AND DATE** Step 2 of the Data Sheet.

- Relief Valve(s), Pressure Gauge(s) and/or Digital Pressure Gauge(s) have been calibrated within the last 12 months.
- Pressure Gauge(s) maximum range is between $1\frac{1}{2}$ to 4 times the maximum specified test-pressure.

5.1.3  **ENSURE** pressure relief system is configured with the following:

- Teledyne Republic/Sprague Model S439JR10 or S439JR10SS Pump
- 2 Hoke 6500 series pressure relief valves, one adjacent to the pump with no valves in between and one adjacent to the hose with no valves in between
- No more than 10 ft of 1/4" I.D. discharge tubing extending beyond the relief valve
- An outlet valve at the end of the hose.

**CAUTION**

Use of components that do not have a working pressure rating greater than or equal to the highest PRV setting may result in equipment damage.

5.1.4  **ENSURE** all components have a working pressure rating greater than or equal to the highest PRV setting

5.1.5  **ENSURE** the test manifold and hose assembly are assembled.

5.1.6  **ENSURE** the test manifold is connected to a potable water source.
5.1 Prepare to Pressure Test Chemical and/or Water Hose (Cont.)

5.1.7 ENSURE the hose assembly is laid within the test structure, in a relatively straight and horizontal position.

5.1.8 INSPECT hose assembly before testing.

5.1.8.1 IF insulation is on the hose, ENSURE the insulation is removed prior to testing.

**WARNING**

Testing of a damaged hose assembly could result in serious personnel injury in the event of a hose failure.

5.1.9 IF any of the following conditions exist, STOP test preparations AND RETIRE hose:

- Significant cuts
- Significant gouges
- Significant tears
- Kinks in hose where the outer diameter of the hose is reduced by 20% at the kinked spot
- Slipping of fitting at the end of hose.

**NOTE** - If the hose was retired due to a slipped fitting but is otherwise in good condition, the hose may be refitted and retested.

5.1.10 RESTRAIN hose assembly at each end and at approximately 10 foot intervals along its length to prevent whipping in the event of a hose failure.

5.1.11 FWS/OE ENSURE hose restraints have been installed per RMA/IP-2/1996 and FWS/OE direction and fit loosely around the hose AND SIGN AND DATE Step 3 of the Data Sheet.
5.1 Prepare to Pressure Test Chemical and/or Water Hose (Cont.)

**WARNING**
Failure of a hose fitting could result in serious personnel injury.

5.1.12 **ENSURE** the outlet end of the hose is bulwarked so a blown-out fitting will be stopped.

5.1.13 **ENSURE** there is a means for shutting off and releasing the pressure, if a component failure were to occur.

5.1.14 **ENSURE** a vent is installed at the necessary high point.

**WARNING**
Failure to establish an exclusion zone could result in personnel injury.

5.1.15 **ENSURE** an exclusion zone is set up and posted around pressure test assembly and pressurized equipment per FWS instructions.
5.2 Pressure Test for Water and Chemical Hose

5.2.1 **ENSURE** a QC representative is present during performance of this section.

5.2.2 **FILL** hose assembly with potable water **AND**

**VENT** air at high points to purge air pockets.

5.2.3 **WHEN** the system is under pressure, **ENSURE** Test Personnel are in attendance continuously **AND**

**ENSURE** bystanders are kept clear of equipment.

**WARNING**

Personnel must never stand in line with the ends of the hose being hydrostatic tested. Failure to comply may cause serious personnel injury.

*NOTE* - Any difficulties in maintaining test pressure could be an indication of leak or faulty equipment.

- Specified pressure should be held a minimum of five (5) minutes.

5.2.4 **GRADUALLY** apply pressure to the value specified on Step 5 of the Data Sheet.

5.2.4.1 **WHEN** the specified pressure is obtained, **RECORD** Start Time of Pressure Test on Step 4 of the Data Sheet **AND**

**SIGN AND DATE** Step 5 of the Data Sheet.

*NOTE* - Fittings may be re-installed in a retired hose and the hose retested.

5.2.5 **AFTER** holding pressure a minimum of five (5) minutes, **VISUALLY INSPECT** hose assembly **AND**

**IF** any of the following defects are found, **RETIRE** hose from use.

- Leaks at the coupling
- Fitting slippage
- Bulging or malformation
- Weakness in the hose structure.
5.2 Pressure Test for Water and Chemical Hose (Cont.)

5.2.6 AFTER the visual inspection is completed, RECORD the Stop Time of Pressure Test on Step 6 of the Data Sheet.

5.2.7 QC VERIFY test pressure held within the range specified in Step 5 of the Data Sheet for a minimum of 5 minutes AND SIGN AND DATE Step 7 on the Data Sheet.

5.2.8 RELIEVE test pressure from system.

5.2.9 DRAIN all water from the hose assembly AND REMOVE test fixtures.

5.2.10 DOCUMENT findings and results on the comment section of the Data Sheet.

5.2.11 IF a new hose was tested, ENSURE a nameplate has been placed on each end of the tested hose assembly containing the following information:

- P.O. Number
- Date received
- Test document: 7-MISC-548
- Test pressure
- Date tested
- Hose Length
- Service History, as applicable
  (for example, intended use: water, caustic, etc.).

5.2.12 IF an existing hose assembly was tested, TRANSFER old information with new Date Tested to a new tag AND ATTACH to hose assembly.

5.2.13 ENSURE that a separate tag is attached to the hose with the EIN number.
5.3 Restoration

5.3.1 IF any problems were encountered with inspection, INFORM FWS.

5.3.2 ENSURE test equipment is disassembled and stored properly.

5.3.3 ENSURE Test Equipment information and calibration status are recorded on Data Sheet.

5.4 Acceptance Criteria

Acceptance Criteria has been met when Steps in this procedure have been satisfactorily performed and As-Left values meet the specifications and tolerance(s) per the Data Sheet.

5.5 Review

5.5.1 INFORM FWS test is complete.

5.5.2 FWS REVIEW AND ENSURE the following:

- Completed Data Sheets meet the acceptance criteria.
- Comments sections are filled out appropriately.
- Work requests needed as a result of this procedure are identified and generated.
- Work request number(s) of any work documents generated as a result of this procedure, are recorded in the Comments/Remarks section of the Data Sheet, as applicable.

5.6 Records

The performance of this procedure generates no records. However, PM Data Sheets associated with the procedure, are records and are maintained in the work package as record material.

The record custodian identified in the Company-level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.