USQ Not Required – ETF is a <Hazard Category 3 Radiological Facility

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-2</td>
<td>09/25/2018</td>
<td>Maintenance Request</td>
<td>Added Notes before 5.1.7, 5.2.8 and 5.3.9.</td>
</tr>
<tr>
<td>A-1</td>
<td>07/27/2016</td>
<td>Correct Use Type</td>
<td>Change from continuous use to reference use per document owner’s direction.</td>
</tr>
<tr>
<td>A-0</td>
<td>09/28/2015</td>
<td>Conversion to WRPS Format</td>
<td>New Procedure; Supersedes ETF-PRO-MN-51469 (EL23008)</td>
</tr>
</tbody>
</table>

Table of Contents

1.0 PURPOSE AND SCOPE ........................................................................................................................................... 2
  1.1 Purpose .......................................................................................................................................................... 2
  1.2 Scope ......................................................................................................................................................... 2

2.0 INFORMATION .................................................................................................................................................. 2

3.0 PRECAUTIONS AND LIMITATIONS ....................................................................................................................... 2
  3.1 Personnel Safety ........................................................................................................................................ 2
  3.2 Radiation and Contamination Control ......................................................................................................... 2
  3.3 Environmental Compliance .......................................................................................................................... 2

4.0 PREREQUISITES ................................................................................................................................................ 3
  4.1 Special Tools, Equipment, and Supplies .................................................................................................... 3
  4.2 Performance Documents ............................................................................................................................. 4
  4.3 Field Preparation ....................................................................................................................................... 4

5.0 PROCEDURE ...................................................................................................................................................... 5
  5.1 Quarterly Maintenance ................................................................................................................................. 5
  5.2 Annual Maintenance .................................................................................................................................. 6
  5.3 Restoration ............................................................................................................................................... 8
  5.4 Acceptance Criteria ................................................................................................................................. 9
  5.5 Review ...................................................................................................................................................... 9
  5.6 Records ................................................................................................................................................. 9

Figure 1 - Separator Element ................................................................................................................................. 10
Figure 2 - Control Line Filter 1 .............................................................................................................................. 11
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performing periodic maintenance on Sullair, Series 20, water-cooled, rotary screw air compressor.

1.2 Scope

This procedure applies to performing periodic maintenance on Sullair, Series 20, water-cooled, rotary screw air compressor.

2.0 INFORMATION

None.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Some locations require LOTO for protection against temperature, pressure or hazardous chemicals before breaching the system. Under these circumstances, lock and tag is required in accordance with procedure DOE-0336, Hanford Site Lockout/Tagout Procedure.

3.2 Radiation and Contamination Control

3.2.1 Work in radiological areas will be performed using a radiological work permit following review by Radiological Control per ALARA Work Planning procedure, TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Compliance

3.3.1 In the event of a spill/leak/release, notify the SOM/FWS and respond per ETF-ERP-85B-003, Emergency Spill or Release at ETF.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:

- WD-40 (MSDS #012664) for control linkage lubrication, Stores No. 0012-8870-050
- Bearing filter element, P/N 250028-32, Spare Part Catalog No. 0000552626
- Main Strainer, element and housing seal, P/N 001158, Spare Part Catalog No. 0000607523
- Air filter element, primary P/N 409854, Spare Part Catalog No. 0000607513, secondary P/N 409853, Spare Part Catalog No. 0000607507
- Separator element, primary P/N 250034-120, Spare Part Catalog No. 0000552623, secondary P/N 250034-128, Spare Part Catalog No. 0000552624
- Sull-Lube 32 (MSDS #014176)
- Strap wrench for filter removal
- De-Solv-It (MSDS #058729) cleaning solution
- Snoop Liquid Leak Detector (MSDS #013860)
- Control line filter element and seal repair kit, P/N 02250112-031, Spare Part Catalog No. 0000607562
- Control line filter float assembly and seal, P/N 02250115-960, Spare Part Catalog No. 0000607566
- V-type strainer repair kit (return line strainers), P/N 241772, Spare Part Catalog No. 0000607567
- Torque wrench, ½” drive (up to 250 ft/lbs)
- Spring, control light, P/N 250006-526, Catalog No. 0000607405
- Sullicon Control Repair Kit, P/N 250020-353, Catalog No. 000632748
- Phillips screwdriver (No. 2 or larger).
4.2 **Performance Documents**

The following documents may be needed to perform this procedure:

- DOE-0336, Hanford Site Lockout/Tagout Procedure
- ETF-01B-001, Compressed Air System Operations

4.3 **Field Preparation**

4.3.1 **PRIOR** to shutting down compressor, **ENSURE** the following:

- Hour meter reading is recorded on PM/S data sheet
- Compressor oil level is checked and oil is visible within sight glass.

4.3.2 **ENSURE** lock and tag is installed per DOE-0336.
5.0 PROCEDURE

NOTE - Section 5.1 for quarterly maintenance and Section 5.2 for annual maintenance are performed concurrently during the annual preventative maintenance.

5.1 Quarterly Maintenance

NOTE - Steps 5.1.1 to 5.1.9 may be worked in any logical order out of sequence or in parallel.

5.1.1 CLEAN/REPLACE return line strainers leading into compressor AND CLEAN orifices.

5.1.2 LUBRICATE control linkage.

5.1.3 REPLACE bearing filter element.

5.1.4 CLEAN main strainer element:

5.1.4.1 WASH with cleaning solution.

5.1.4.2 IF unable to clean, REPLACE main strainer element.

5.1.5 WIPE DOWN exterior surfaces of the following:
- Compressor
- Aftercooler
- Associated piping.

5.1.6 INSPECT foundation bolts for signs of loosening or failure AND RECORD inspection results in work package.

NOTE - Proper oil level is visible half to ¾ of full sight glass.

5.1.7 IF oil is low, ADD oil. (Do not overfill.)

5.1.8 RECORD on PM/S data sheet amount of oil added.

5.1.9 INSPECT control spring, AND REPLACE if spring requires changing.

5.1.10 IF performing only quarterly maintenance, GO TO Section 5.3, Restoration.
5.2 Annual Maintenance

NOTE - Section 5.2 may be worked in any logical order, out of sequence, or in parallel.

5.2.1 **INSPECT** condensate traps.

5.2.1.1 **DISASSEMBLE AND INSPECT** the listed trap strainers for the following:

- Corrosion
- Foreign material.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B-050</td>
<td>1D-056</td>
</tr>
<tr>
<td>1B-051</td>
<td>1D-057</td>
</tr>
<tr>
<td>1B-103</td>
<td>1D-058</td>
</tr>
</tbody>
</table>

5.2.1.2 **CLEAN AND RE-ASSEMBLE** each trap strainer.

5.2.2 **DRAIN** compressor fluid, Sull-Lube 32, AND **DISPOSE** of fluid per work package.

5.2.3 **REMOVE** oil return lines from separator cover plate.

5.2.4 **REPLACE** primary and secondary separator elements (Figure 1 - Separator Element):

5.2.4.1 **USE** a Phillips screwdriver AND **ALIGN** the following so the outermost return line can pass through holes in both primary and secondary separator element flanges:

- Separator elements
- Cover plate.

5.2.4.2 **DO NOT REMOVE** staples from separator gaskets.

5.2.4.3 **Using** a triangular bolt pattern 1-5-9-3-7-11-2-6-10-4-8-12, **TORQUE** cover plate cap screws as follows:

- 50 ft-lbs.
- 100 ft-lbs.
- 150 ft-lbs.
- 190-200 ft-lbs. (final torque).
5.2 **Annual Maintenance (Cont.)**

5.2.4.4 **ENSURE** return lines are clear and unobstructed.

5.2.4.5 **RE-CONNECT** return lines to contact bottom of separator element.

5.2.5 **REPLACE** air filter element. (Do not oil.)

5.2.6 **REPLACE** the following items on control line filter (Figure 2 - Control Line Filter 1):
- Filter element
- Strainer gasket
- O-rings
- Float.

5.2.7 **REPLACE** the following items on the Sullicon control actuator:
- Sealing screw
- Back-up washer
- Diaphragm
- Cup seal.

**NOTE** - Proper oil level is visible half to ¾ of full sight glass.

5.2.8 **REPLACE** Sullair compressor fluid, Sull-Lube 32.

5.2.9 **PERFORM** general electrical inspection for the following components:

<table>
<thead>
<tr>
<th>Electrical component</th>
<th>Cleanliness ✓</th>
<th>Condition ✓</th>
<th>Tightness ✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grounds</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.3 Restoration

NOTE - Section 5.3 may be worked in any logical order, out of sequence, or in parallel.

____ 5.3.1 REMOVE lock and tag per DOE-0336.

____ 5.3.2 INFORM SOM maintenance is complete and system may be returned to service.

____ 5.3.3 Once returned to service, OBSERVE compressor while system is operating AND

LISTEN for unusual noise and conditions.

____ 5.3.4 USE Snoop Liquid Leak Detector AND

PERFORM leak test on the following:
• Control air filter housing
• Sullicon control actuator
• Condensate trap housings.

____ 5.3.5 TIGHTEN to eliminate any leaks found.

____ 5.3.6 (OPS) INSPECT control panel indications for proper operation of compressor in accordance with ETF-01B-001, Compressed Air System Operations.

____ 5.3.7 IF oil level is below half of full-sight glass,

OR

IF rework is required to eliminate air or oil leaks,

CONTINUE at Step 5.3.8,

OTHERWISE

GO TO Section 5.4.

____ 5.3.8 INSTALL lock and tag per DOE-0336.

NOTE - Proper oil level is visible half to ¾ of full sight glass.

____ 5.3.9 IF oil is low, ADD oil. (Do not overfill.)
5.3 Restoration (Cont.)

5.3.10 RECORD on PM/S data sheet amount of oil added.

5.3.11 IF separator elements were replaced in Step 5.2.4, RE-TORQUE cover plate cap screws to 190-200 ft-lbs.

5.3.12 IF any leak found in Step 5.3.7 is not eliminated by tightening, CONTACT FWS.

5.3.13 REMOVE lock and tag per DOE-0336.

5.4 Acceptance Criteria

Acceptance criteria has been met when steps in this procedure have been satisfactorily performed and results are recorded on the data sheet(s).

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.

5.6 Records

The performance of this procedure generates no records. However PM/S 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.
Figure 1 - Separator Element

- Return Lines
- MPV/Check Valve
- Capscrew
- Lock Washer
- Secondary Element
- Primary Element
Figure 2 - Control Line Filter 1

- O-Ring
- Louver
- Filter Element
- Baffle
- Float
- Automatic Drain Assembly
- Gasket
- Body
- Bowl
- Nut