Tank Farm Maintenance Procedure

Effluent Treatment Facility

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

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performing non-refrigerant related preventive maintenance activities for the non-RCA HVAC air handlers, including belt and filter changes and lubrication.

1.2 Scope

This procedure applies to the steps necessary to perform maintenance requirements on air handling units EVU-6, -7, and -8 for Building 2025E by replacing filters and checking belts, sheaves, etc.

2.0 INFORMATION

2.1 General Information

2.1.1 Entry into permit-required confined spaces is required for performance of this procedure (ETF-CS-090, ETF-CS-091, and ETF-CS-092). Comply with applicable requirements set forth in DOE-0360, Hanford Site Confined Space Procedure (HSCSP).

2.1.2 A maximum of three people are allowed on the mezzanine at any one time.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

**WARNING** - EVU-6, -7 and -8 are a permit-required confined space and failure to have IH evaluate the confined space per DOE-0360 prior to entry may result in personnel injury or death.

3.1.1 Lock and tag protects 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-ESH-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:

The following is applicable to all air handlers addressed in the procedure:

- Grease: Chevron SRI Grease NLGI 2 (SDS/MSDS #072995A)
- V-Belt Deflection Gauge – Gates - Tension Tester.

Individual air handlers require the following specific V-belts and filters:

- For 45B-EVU-6:
  - Two size 5VX570 belts, Cat ID 662527.
  - Filters as follows:

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- For 45B-EVU-7:
  - One size 3VX355 belt, Cat ID 662529.
  - Filters as follows:

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- For 45B-EVU-8:
  - Two size B41 belts, Cat ID 662530.
  - Filters as follows:

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4.2 Performance Documents

The following documents may be needed to perform this procedure:

- DOE-0336, Hanford Site Lockout/Tagout Procedure
- DOE-0360, Hanford Site Confined Space Procedure (HSCSP)
- H-2-89096, One Line Diagram MCC-4
- H-2-89097, Electrical MCC Schedule.
5.0  PROCEDURE

NOTE - Sections 5.1, 5.2, and 5.3 may be performed in any logical order and may be performed completely independent of each other.

- Maintenance on the air handlers may be performed separately per the following sections, or in conjunction as determined by plant conditions.
  • Section 5.1 provides instructions for Air Handling Unit 45B-EVU-6, which is located above the electrical equipment room. EVU-6 includes fan 45B-F-2 and filters 45B-FL-2 and FL-10.
  • Section 5.2 provides instructions for air handling unit 45B-EVU-7, which is located above the electrical equipment room. EVU-7 includes fan 45B-F-3 and filters 45B-FL-3 and FL-11.
  • Section 5.3 provides instructions for 45B-EVU-8, which is located above the control room. EVU-8 includes fan 45B-F-4 and filters 45B-FL-4 and FL-5.

5.1  45B-EVU-6 Unit Check

5.1.1 IF air handling unit is in service, INSPECT for the following:
  • Excessive heat
  • Noise
  • Vibration.

5.1.2 APPLY lock and tag per DOE-0336.

WARNING

EVU-6, -7 and -8 are a permit required confined space and failure to have IH evaluate the confined space per DOE-0360 prior to entry may result in personnel injury or death.

5.1.3 ENSURE Hanford Confined Space Entry Permit is completed prior to entry.

NOTE - Steps 5.1.4 through 5.1.14 may be performed in any logical order.

5.1.4 INSPECT sheaves for the following:
  • Wear
  • Alignment
  • Loose fasteners.

5.1.4.1 RECORD condition of sheaves on work package.
5.1 45B-EVU-6 Unit Check (Cont.)

_____ 5.1.5 REPLACE v-belts.

   NOTE - For 45V-EVU-6, force should be between 4.5 and 5.5 lb, at a
deflection between \( \frac{1}{4} \) inch and \( \frac{3}{2} \) inch.

5.1.5.1 USE a v-belt tension tester AND

   ENSURE v-belts are adjusted for proper running tension.

_____ 5.1.6 INSPECT condition and tightness of the following:
   • Fan mounting bolts
   • Vibration isolators (when present).

5.1.6.1 IF found worn/loose, REPAIR.

5.1.6.2 RECORD findings on work package.

_____ 5.1.7 INSPECT condition and tightness of the following:
   • Motor mounting bolts
   • Vibration isolators (when present).

5.1.7.1 IF found worn/loose, REPAIR.

5.1.7.2 RECORD findings on work package.

_____ 5.1.8 LUBRICATE fan drive bearings using Chevron SRI grease NLGI 2.

_____ 5.1.9 LUBRICATE motor bearings using Chevron SRI grease NLGI 2.

_____ 5.1.10 INSPECT wiring to fan and fan local disconnects for the following:
   • Deterioration
   • Loose connections.

_____ 5.1.11 REPLACE air handler pre-filters.

_____ 5.1.12 REPLACE air handler final filters (bag).
5.1 45B-EVU-6 Unit Check (Cont.)

5.1.13 INSPECT all damper linkages for damage AND
REPAIR AND/OR RECORD findings on work package.

5.1.14 CLEAN AND LUBRICATE damper linkages.

5.1.15 REMOVE lock and tag per DOE-0336.

5.1.16 REQUEST air handling unit restart AND
OBSERVE for proper operation.

5.1.17 IF performing a unit check on 45B-EVU-6 only, GO TO Section 5.4.
5.2 **45B-EVU-7 Unit Check**

5.2.1 **IF** air handling unit is in service, **INSPECT** for the following:
- Excessive heat
- Noise
- Vibration.

5.2.2 **APPLY** lock and tag per DOE-0336.

---

**WARNING**

**EVU-6, -7 and -8 are a permit required confined space and failure to have IH evaluate the confined space per DOE-0360 prior to entry may result in personnel injury or death.**

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5.2.3 **ENSURE** Hanford Confined Space Entry Permit is completed prior to entry.

NOTE - Steps 5.2.4 through 5.2.14 may be performed in any logical order.

5.2.4 **INSPECT** sheaves for the following:
- Wear
- Alignment
- Loose fasteners.

5.2.4.1 **RECORD** condition of sheaves on work package.

5.2.5 **REPLACE** v-belts.

NOTE - For 45B-EVU-7, force should be between 1.5 and 2.5 lb, at a deflection between $\frac{7}{8}$ inch and $\frac{5}{32}$ inch.

5.2.5.1 **USE** a v-belt tension tester **AND**

**ENSURE** v-belts are adjusted for proper running tension.

5.2.6 **INSPECT** condition and tightness of the following:
- Fan mounting bolts
- Vibration isolators (when present).

5.2.6.1 **IF** found worn/loose, **REPAIR**.

5.2.6.2 **RECORD** findings on work package.
5.2 45B-EVU-7 Unit Check (Cont.)

5.2.7 INSPECT condition and tightness of the following:
   - Motor mounting bolts
   - Vibration isolators (when present).

5.2.7.1 IF found worn/loose, REPAIR.

5.2.7.2 RECORD findings on work package.

5.2.8 LUBRICATE fan drive bearings using Chevron SRI grease NLGI 2.

5.2.9 IF motor bearings require lubrication, LUBRICATE using Chevron SRI grease NLGI 2.

5.2.10 INSPECT wiring to fan and fan local disconnects for the following:
   - Deterioration
   - Loose connections.

5.2.11 REPLACE air handler pre-filters.

5.2.12 REPLACE air handler final filters (bag).

5.2.13 INSPECT all damper linkages for damage AND REPAIR AND/OR RECORD findings on work package.

5.2.14 CLEAN AND LUBRICATE damper linkages.

5.2.15 REMOVE lock and tag per DOE-0336.

5.2.16 REQUEST air handling unit restart AND OBSERVE for proper operation.

5.2.17 IF performing a unit check on 45B-EVU-7 only, GO TO Section 5.4.
5.3 45B-EVU-8 Unit Check

5.3.1 **IF** air handling unit is in service, **INSPECT** for the following:
- Excessive heat
- Noise
- Vibration.

5.3.2 **APPLY** lock and tag per DOE-0336.

---

**WARNING**

**EVU-6, -7 and -8 are a permit required confined space and failure to have IH evaluate the confined space per DOE-0360 prior to entry may result in personnel injury or death.**

5.3.3 **ENSURE** Hanford Confined Space Entry Permit is completed prior to entry.

**NOTE** - Step 5.3.4 through Step 5.3.14 may be performed in any logical order.

5.3.4 **INSPECT** sheaves for the following:
- Wear
- Alignment
- Loose fasteners.

5.3.4.1 **RECORD** condition of sheaves on work package.

5.3.5 **REPLACE** v-belts.

**NOTE** - For 45B-EVU-8, force should be between 3.5 and 4.5 lb, at a deflection between \(\frac{3}{16}\) inch and \(\frac{7}{32}\) inch.

5.3.5.1 **USE** a v-belt tension tester **AND**

**ENSURE** v-belts are adjusted for proper running tension.

5.3.6 **INSPECT** condition and tightness of the following:
- Fan mounting bolts and
- Vibration isolators (when present).

5.3.6.1 **IF** found worn/loose, **REPAIR**.

5.3.6.2 **RECORD** findings on work package.
5.3 45B-EVU-8 Unit Check (Cont.)

_____ 5.3.7 INSPECT condition and tightness of the following:
   • Motor mounting bolts
   • Vibration isolators (when present).

   5.3.7.1 IF found worn/loose, REPAIR.

   5.3.7.2 RECORD findings on work package.

_____ 5.3.8 LUBRICATE fan drive bearings using Chevron SRI grease NLGI 2.

_____ 5.3.9 IF motor bearings require lubrication, LUBRICATE using Chevron SRI grease NLGI 2.

_____ 5.3.10 INSPECT wiring to fan and fan local disconnects for the following:
   • Deterioration
   • Loose connections.

_____ 5.3.11 REPLACE air handler pre-filters.

_____ 5.3.12 REPLACE air handler final filters (bag).

_____ 5.3.13 INSPECT all damper linkages for damage AND
   REPAIR AND/OR RECORD findings on work package.

_____ 5.3.14 CLEAN AND LUBRICATE damper linkages.

5.3.15 REMOVE lock and tag per DOE-0336.

5.3.16 REQUEST air handling unit restart AND
   OBSERVE for proper operation.

5.3.17 IF performing a unit check on 45B-EVU-8 only, GO TO Section 5.4.
5.4 Restoration

5.4.1 **RESTORE** to as-found conditions.

5.4.2 **INFORM** SOM test is complete and instrument/equipment/system may be returned to service.

5.5 Acceptance Testing

**Special Instructions**

V-belts should be checked for proper tension after approximately five days running.

5.5.1 **APPLY** lock and tag per DOE-0336.

5.5.2 **CHECK** v-belts for proper tension.

5.5.3 **REMOVE** lock and tag.

5.5.4 **RUN** unit 45B-EVU-7 for four hours **AND**

**EVALUATE** per Step 5.2.1.

5.6 Review

5.6.1 **INFORM** FWS test is complete.

5.6.2 (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.

5.7 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.