Inspect / Service Randolph 610 Seal Pot Pump

Tank Farm Maintenance Procedure

USQ # ROUTINE MAINTENANCE

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions to perform preventive maintenance on Randolph pump model 610.

1.2 Scope

This procedure includes Randolph pump model 610 and associated equipment necessary for preventive maintenance (maintenance includes inspection on equipment and replacement of disposable routine parts such as flex hose).

NOTE - All component identification numbers referenced in this procedure are preceded with POR04-VTP-, POR05-VTP-, POR06-VTP-. This prefix will not be repeated throughout the remainder of this document.

2.0 INFORMATION

2.1 General Information

2.1.1 As applicable, component identification numbers referenced in this procedure are preceded with POR04-VTP-, POR05-VTP-, POR06-VTP-.

2.1.2 Operational life-time of tubing (within pump housing) is approximately 400 hours of pump operation. Tubing life can be increased by advancing a new section of tubing into the pump housing every 24 hours of pump operation.

2.1.3 Tubing should be removed from the pump housing when not in use: Tubing left in an inactive pump will harden (set) and become non-resilient as evidenced by discoloration and cracking.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Lockouts and tagouts or over-tagging requirements shall be performed in accordance with DOE-0336, Hanford Site Lockout/Tagout Procedure.

3.2 Radiation and Contamination Control

3.2.1 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
- Pre-job and post-job surveys are required
- A wet rag will be used to contain the breach until radiological verifications have been performed.

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

3.3 Environmental Compliance

When performing this procedure ALARACT 16, Demonstration for Work on Potentially Contaminated Ventilation System Components, will apply.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure:

- Clean rags
- Randolph tubing lubricant (Cat. No. 00-0590) (MSDS-SDS # 022017)

NOTE - If available, the preferred tubing is “Cilran” (Part# C 037062P.
- ¾” OD x ½” ID Cilran tubing (Part# C 037062P, Ref VI file 50039)
- (Shore durometer, scale A, 35-65)
- Randolph drive belt (Cat. No. 00-0582)

4.2 Field Preparation

4.2.1 IF performing field maintenance on equipment (in the loop), **OBTAIN** responsible Shift Manager permission per Work Package, to perform this procedure.

4.2.2 IF performing field maintenance on equipment (in the loop), **ENSURE** Operations has configured system to allow preventive maintenance.

4.2.3 **COMPLY** with applicable lock and tag and over-tagging requirements.
5.0 PROCEDURE

Special Instruction

If performance of any steps in this procedure is not required for procedure completion, steps not performed are to be marked, "N/A" in appropriate Data Sheet signoff space, and explained in comments/remarks section of Data Sheet.

5.1 Service / Replacement of Tubing

NOTE - It is recommended that tubing be replaced annually regardless of its appearance.

- Section 5.1, Steps 5.1.5 through 5.1.9 and Section 5.2, Steps 5.2.2 through 5.2.7, can be performed simultaneously.

5.1.1 INSPECT tubing for cracking or discoloration.

5.1.1.1 IF tubing does not require replacement, RECORD results of inspection on Data Sheet AND GO TO Section 5.2.

5.1.2 CONTACT HPT for support prior to proceeding.

5.1.3 IF working Exhauster(s), POR04, POR05, or POR06, SHUT pump isolation valves V-166 (discharge) and V-164 (suction) AND OPEN pump enclosure drain valve V-165.

5.1.4 UNPLUG pump motor from receptacle.
5.1 **Service / Replacement of Tubing (Cont.)**

5.1.5 **ENSURE** an HPT is present prior to servicing/replacing tubing.

5.1.6 **REMOVE** two knurled nuts from pump side plate.

5.1.7 **REMOVE** side plate to access rollers and tubing.

5.1.8 **LOosen** tubing clamp knurled nut to move/adjust or remove tubing.

5.1.9 **SLIDE** tubing through housing until previously lubricated portion has completely emerged from the housing **AND**

**REMOVE** tubing.

**NOTE** - Engineering may determine type of tubing to install.

5.1.10 **IF** tubing is damaged or worn, **REPLACE** tubing as specified by Engineering.
5.1 Service / Replacement of Tubing (Cont.)

5.1.11 **LUBRICATE** rollers, and tubing inside pump housing along the inner arc where rollers make contact **AND**

**RECORD** on Data Sheet.

5.1.12 **IF** working Exhauster(s), POR04, POR05, POR06, **OPEN** pump isolation valves V-166 (discharge) and V-164 (suction) **AND**

**SHUT** pump enclosure drain valve V-165.
5.2 Inspection / Replacement of Drive Belt

NOTE - It is recommended, but not required, that the drive belt be replaced once every 2 years regardless of its appearance.

5.2.1 ENSURE pump motor is electrically isolated by unplugging from receptacle.

5.2.2 REMOVE safety guard.

5.2.3 INSPECT condition of drive belt AND RECORD results on Data Sheet.

5.2.3.1 IF belt replacement is not required, GO TO Step 5.2.7.

5.2.4 LOOSEN motor mount bolts.

5.2.5 REPLACE drive belt AND ADJUST belt tension.

5.2.6 TIGHTEN motor mount bolts.

5.2.7 INSTALL safety guard cover.
5.3 Restoration

5.3.1 IF any problems were encountered, INFORM FWS.

5.3.2 ENSURE Test Equipment has been disconnected and removed.

5.3.3 CONFIGURE valving for “Recirculation” of pump as follows:

**POR04/05/06**

- V-164 OPEN (Pump Suction)
- V-166 CLOSED (Pump Discharge)
- V-163 OPEN (Pump Recirculation).

5.3.4 IF maintenance was performed in the field, PLUG motor into receptacle AND RETURN equipment to service as directed by Work Package.

5.3.5 REQUEST Operations start and run pump.

5.3.6 ENSURE equipment system restoration by observing indications are consistent with expected conditions.

5.3.7 ENSURE all valves operated in this procedure are restored per applicable exhauster operating procedure.

5.3.8 INFORM responsible Shift Manager per Work Package, that maintenance is complete.
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 following records are generated during the performance of this procedure and are maintained in the work package as record material.

- This procedure in its entirety

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