USQ # Routine Maintenance

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<tr>
<th>Rev-Mod</th>
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<tr>
<td>B-1</td>
<td>05/25/2016</td>
<td>Maintenance Request</td>
<td>Deleted step 5.1.5 and changed 5.1.6</td>
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<td>B-0</td>
<td>03/09/2016</td>
<td>Periodic Review</td>
<td>Add step 3.2.1, Section 4.3, Special Instructions prior to 5.1,</td>
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<td>Reword Section 3.3, Steps 5.1.1, 5.1.2, 5.3.2.4, 5.4.3, 5.4.8, and 5.4.9.</td>
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<tr>
<td>A-2</td>
<td>08/19/2014</td>
<td>Maintenance request</td>
<td>Changed 300 to 3000 psig, Section 4.1. Reworked 5.1.2,</td>
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<td>5.1.9.1, 5.1.9.2, 5.1.11 &amp; Records Section 5.7. Add 5.1.2.1.</td>
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<td>A-1</td>
<td>07/16/2014</td>
<td>Maintenance Request</td>
<td>Added additional test ports to Step 5.1.9 and the opening and closing of isolation</td>
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<td>valve JBX-002 (5.1.7, 5.4.4) Modified Records Section to clarify Record Retention</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performing calibration check and calibration of Pressure Transducer(s) and/or Gauges on the Core Sampling System (CSS).

1.2 Scope

This procedure applies to Ashcroft pressure transducer and gauge (Type 2174) POR264-SAMP-PIT-007 and POR264-SAMP-PIT-008.

This procedure also applies to Noshok (0-3000) psig fluid filled pressure gauge PI-007 and Ashcroft (0-3000) psig fluid filled pressure gauge PI-012.

2.0 INFORMATION

2.1 General Information

2.1.1 Care must be exercised when performing this procedure to avoid introducing hysteresis effects into the test data. M&TE test pressures must be established by continuously raising pressure from low to high without allowing dips (pressure reversals) below previously established pressure.

2.1.2 Plug or cover all open hydraulic fittings when left unattended or exposed to environment (e.g., dust, water, etc.) in order to maintain cleanliness of system internals.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Opening hydraulic system while system is under pressure increases the potential for personnel injury.

3.1.2 All safety related hazards and their controls will be identified on a General Hazard Analysis (Site Form A-6005-827) or a site specific Job Hazard Analysis (Site Form A-6004-101) based on site specific hazards.

3.1.3 Failure to use protective equipment when working on or near energized systems could result in serious injury. Job specific protective equipment requirements should be addressed during the pre-job brief and be in accordance with TFC-ESHQ-S_IS-C-02.

3.1.4 Energized circuits and leads are connected inside the cabinets. If working around live circuits, extreme caution should be used. Failure to follow electrical safety practices as outlined in DOE-0359, Hanford Site Electrical Safety Program could result in serious injury.

3.1.5 If a lock and tag is required during the performance of this procedure, comply with DOE-0336, Hanford Site Lockout/Tagout Procedure.

3.2 Radiation and Contamination Control

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.

3.2.1 Radiological areas may be DOWNPOSTED based on survey results. Area postings will be adjusted as changing conditions and work activities require.

3.3 Environmental Protection

The Central Shift Office must be notified in the event of a leak or a spill in accordance with TFC-ESHQ-ENV_FS-C-01, Environmental Notification.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:

- Calibrated Pressure Indicator, DRUCK DPI 601 or equivalent with range of 0 – 3000 psig and output display accurate to within ± 0.10 % of full scale
- Calibrated Process Calibrator, current reading accuracy to within ± 0.05 % on 0-20 mA scale, 4 ½ digit resolution
- Pressure Tester with integral readout calibrated to within minimum accuracy of 0.1% of span and capable of 0-3000 psig
- DC Power Supply, adjustable 0 to 30 VDC
- Suitable container for storing drained glycerin from gauges
- GHS-SDS and/or MSDS for glycerin (#035602)
- 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:

- DOE–0359, Hanford Site Electrical Safety Program
- DOE-0336, Hanford Site Lockout/Tagout Procedure
- Ashcroft Manuel I&M008-10109.

4.3 Field Preparation

4.3.1 REQUEST Operations to configure system to allow performance of this procedure.
5.0 PROCEDURE

Special Instructions

Take care to avoid introducing hysteresis effects into the test data. Establish M&TE test pressures by continuously raising pressure from low to high without allowing dips (pressure reversals) below previously established pressure; if otherwise, return to zero pressure and start over.

5.1 Obtain As-Found Data

5.1.1 IF Drill is not in the lowest position, PLACE Drill is in its lowest position.

NOTE - The pressure for PI-007 will bleed off on its own with the HPU off.

5.1.2 IF the HPU is not off, TURN-OFF the HPU (no pressure on hydraulic system).

5.1.2.1 RAISE the mushroom actuator above DRILL UP/DN hydraulic manifold AND

VERIFY residual pressure is removed from PIT-007/PIT-008.

5.1.3 PERFORM radiological survey.

5.1.4 IF only performing replacement or calibration of Ashcroft/Noshok (0-3000) psig fluid filled pressure gauge, GO TO Section 5.3.

5.1.5 CONNECT DMM to pressure transducer per Data Sheet.

5.1.6 CLOSE isolation valve in JBX-002 for transmitter to be calibrated per data sheet.

5.1.7 CONTROL pipe fitting removal/ connection areas as Contamination Areas when breaching potentially contaminated systems.

5.1.7.1 USE drape and damp rag for contamination control when performing breaches of potentially contaminated systems.
5.1 Obtain As-Found Data (Cont.)

5.1.8 CONNECT M&TE to pressure transducer at one of the following connection points:

5.1.8.1 IF calibrating PIT-008, CONNECT at the following point:
   • POR264-SAMP-V-008 Test Port.

5.1.8.2 IF calibrating PIT-007, CONNECT at the following point:
   • POR264-SAMP-V-007 Test Port.

5.1.9 ALLOW 15 to 30 minute warm-up time for Transducer.

5.1.10 USING pressure source, PERFORM calibration checks per Data Sheet AND

   RECORD corresponding output values in As-Found section of Data Sheet(s).

5.1.11 IF As-Found values are not within specified tolerance per Data Sheet,
   GO TO Section 5.2

   OR

   IF As-Found values are within specified tolerance, but deemed marginal, and optimization is desired, GO TO Section 5.2

   OR

   IF As-Found values are within specified tolerance, RECORD As-Found values in As-Left column of Data Sheet AND

   GO TO Restoration, Section 5.4.

   OR

   IF also performing calibration on Ashcroft/Noshok (0-3000) psig fluid filled pressure gauge, GO TO Section 5.3.
5.2 Calibrate Ashcroft Transducer and Gauge

5.2.1 USING the transducers keypad, PRESS MENU button.

5.2.2 PRESS the DOWN arrow key until CONFIG is displayed AND PRESS ENTER.

5.2.3 IF the transducer is password protected, ENTER password (See Data Sheet for password).

5.2.4 PRESS the DOWN arrow key until RECAL is displayed AND PRESS ENTER.

NOTE - The transducer gauge will now be flashing between INPUT and unit of measure on the lower line; and displaying .00 on the top line.

5.2.5 USING calibrated pressure source, APPLY the ZERO SCALE value to transducer per the Data Sheet.

5.2.6 WHEN zero scale value is applied, PRESS ENTER button.

NOTE - The gauge will now display full scale pressure.

5.2.7 USING calibrated pressure source, APPLY the FULL SCALE value to transducer per the Data Sheet.

5.2.8 WHEN full scale value is applied, PRESS ENTER button.

NOTE - The gauge will now display mid-scale pressure.

5.2.9 USING calibrated pressure source, APPLY the MID-SCALE value to transducer per the Data Sheet.

5.2.10 WHEN mid-scale value is applied, PRESS ENTER button.

5.2.11 WHEN SAVE appears on display, PRESS ENTER button AND GO TO Step 5.1.10.
5.3 Calibrate Ashcroft/Noshok Fluid Filled Pressure Gauge

5.3.1 CONTROL pipe fitting removal/ connection areas as Contamination Areas when breaching potentially contaminated systems.

5.3.1.1 USE drape and damp rag for contamination control when performing breaches of potentially contaminated systems.

5.3.2 IF gauge is outside tolerance, REPLACE gauge with a calibrated gauge of the same type AND

GO TO Restoration, Section 5.4.

OR

CALIBRATE the gauge by performing the following:

NOTE - GHS-SDS and/or MSDS for glycerin is #035602.

5.3.2.1 DRAIN glycerin from gauge into suitable container for reuse.

5.3.2.2 REMOVE bezel from gauge AND

ADJUST dial position screw.

5.3.2.3 REASSEMBLE bezel AND

ADD glycerin.

5.3.2.4 PERFORM trial calibration per Data Sheet.

5.3.2.5 REPEAT Steps 5.3.2.1 through 5.3.2.4, as necessary, to obtain tolerance on Data Sheet(s).

5.3.2.6 APPLY test pressure values specified on Data Sheet.
5.3 Calibrate Ashcroft/Noshok Fluid Filled Pressure Gauge (Cont.)

5.3.2.7 IF values are within tolerance per Data Sheet, RECORD As-Left values on Data Sheet AND

GO TO Restoration, Section 5.4.

5.3.2.8 IF values are not within tolerance per Data Sheet, REPEAT Steps 5.3.2.1 through 5.3.2.7 until values are within tolerance OR

IF values cannot be brought into tolerance, NOTIFY FWS for resolution AND

STOP WORK until further directed.
5.4 Restoration

5.4.1 CONTROL pipe fitting removal/re-connection areas as radiological survey results require when breaching potentially contaminated systems.

5.4.2 USE drape and damp rag when performing breaches of potentially contaminated systems.

5.4.3 IF not already disconnected DISCONNECT Test Equipment and remove.

5.4.4 OPEN isolation valve in JBX-002 for transmitter calibrated per data sheet.

5.4.5 RE-CONNECT hydraulic hoses and fittings previously disconnected.

5.4.6 IF significant loss of hydraulic fluid occurred, FILL Hydraulic System.

5.4.7 IF any problems were encountered with calibration, INFORM FWS.

5.4.8 RECORD Test Equipment information and calibration status on Data Sheet.

5.4.9 CHECK equipment system restoration by observing indications are consistent with expected conditions.

5.4.10 NOTIFY Operations that testing is complete and system may be returned to desired configuration.

5.4.11 HAVE qualified personnel ENERGIZE hydraulic pressure AND CHECK for leaks on the joints that were disturbed during the performance of this procedure.
5.5 **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.

5.6 **Review**

5.6.1 **INFORM** FWS test is complete.

5.6.2 **FWS REVIEW AND ENSURE** the following:

- Completed Data Sheet(s) 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(s).

5.7 **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.