Calibration of Ametek Pressure Transmitters 88C Series

Table Farm Maintenance Procedure

Cross-Site Transfer System

USQ # Routine Maintenance

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-0</td>
<td>10/17/2016</td>
<td>Periodic Review with Changes</td>
<td>Changed Step 5.3.9.</td>
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<tr>
<td>E-1</td>
<td>11/18/2014</td>
<td>CHAMPS Removal</td>
<td>Removed reference to CHAMPS, updated records statements and removed next periodic review date.</td>
</tr>
<tr>
<td>E-0</td>
<td>11/15/2013</td>
<td>Periodic Review</td>
<td>Removed word “Replacement” Globally. Add Steps 3.1.2, 3.2.1, 5.2.14.1 – 5.2.14.5. Reword Steps 5.2.14, 5.3.3, 5.3.8, Record Section 5.6. Struck Step 3.2.5.</td>
</tr>
<tr>
<td>D-0</td>
<td>10/06/2009</td>
<td>Periodic Review</td>
<td>Updated LO/TO to DOE 0336 LO/TO procedure. Changed ENSURE to CONFIRM step 5.1.1. Reworded Steps 5.2.1, 5.2.2 and 5.3.6.</td>
</tr>
</tbody>
</table>

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 PURPOSE AND SCOPE</td>
<td>3</td>
</tr>
<tr>
<td>1.1 Purpose</td>
<td>3</td>
</tr>
<tr>
<td>1.2 Scope</td>
<td>3</td>
</tr>
<tr>
<td>2.0 INFORMATION</td>
<td>3</td>
</tr>
<tr>
<td>3.0 PRECAUTIONS AND LIMITATIONS</td>
<td>4</td>
</tr>
<tr>
<td>3.1 Personnel Safety</td>
<td>4</td>
</tr>
<tr>
<td>3.2 Radiation and Contamination Control</td>
<td>4</td>
</tr>
<tr>
<td>4.0 PREREQUISITES</td>
<td>5</td>
</tr>
<tr>
<td>4.1 Special Tools, Equipment, and Supplies</td>
<td>5</td>
</tr>
<tr>
<td>4.2 Performance Documents</td>
<td>5</td>
</tr>
<tr>
<td>4.3 Field Preparation</td>
<td>5</td>
</tr>
<tr>
<td>5.0 PROCEDURE</td>
<td>6</td>
</tr>
<tr>
<td>5.1 Prepare to Calibrate Ametek Pressure Transmitters</td>
<td>6</td>
</tr>
<tr>
<td>5.2 Calibrate Ametek Pressure Transmitters</td>
<td>7</td>
</tr>
<tr>
<td>5.3 Restoration</td>
<td>9</td>
</tr>
<tr>
<td>5.4 Acceptance Criteria</td>
<td>9</td>
</tr>
<tr>
<td>5.5 Review</td>
<td>9</td>
</tr>
<tr>
<td>6.0 Records</td>
<td>10</td>
</tr>
</tbody>
</table>
Calibration of Ametek Pressure Transmitters 88C Series

Figure 1 – AMETEK Model 88C Pressure Transmitter Test Set-Up......................................................... 11
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the calibration of Cross Site Transfer System Pressure Transmitters manufactured by Ametek.

1.2 Scope

This calibration includes the Cross Site Transfer System Ametek pressure transmitters used in various locations on both the supernate and slurry line.

2.0 INFORMATION

NONE
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Lockout/tagouts shall be performed in accordance with the DOE-0336, Hanford Site Lockout/Tagout Procedure during maintenance activities where there exists a potential for personnel injury or equipment damage.

3.1.2 IHT direct monitoring is required as a result of lingering odors from a poorly ventilated closed facility. No tank farm affiliated vapors have been noted, although some personnel are sensitive to the odors.

3.1.3 Spider hazards may exist in the Vent Station.

3.2 Radiation and Contamination Control

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

3.2.2 Portions of the Diversion Box and Vent Station will be radiologically controlled access areas.

3.2.3 Removal and re-installation of plug on calibration port of isolation valve for pressure transmitter will require specific radiation work procedure steps for radiological contamination control.

3.2.4 Prior to entering diversion box or vent station to perform this procedure, a radiological survey shall be performed by Radiological Control.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies are needed to perform this procedure:

- Calibrated voltmeter or ammeter
- Calibrated variable test pressure and vacuum source.

4.2 Performance Documents

NONE

4.3 Field Preparation

OBTAIN release from Operations management prior to beginning performance of this procedure.
5.0 PROCEDURE

5.1 Prepare to Calibrate Ametek Pressure Transmitters

NOTE - All test equipment must have a current calibration sticker and be in good working condition.

5.1.1 CONFIRM Cross Site Transfer System is shut-down and supernate and slurry lines are de-pressurized.

5.1.2 ENSURE release from Operations management has been obtained prior to beginning performance of this procedure.

5.1.3 PERFORM radiological survey prior to beginning maintenance calibration.

5.1.4 IF the cover plates will be moved, CONTACT Health Physic Technician and Shift Manager.
5.2 Calibrate Ametek Pressure Transmitters

5.2.1 SHUT pressure isolation valve for pressure transmitter under test.

5.2.2 REMOVE cover (screwed cap) from pressure transmitter.

5.2.3 CONNECT voltmeter or ammeter to test terminals located on pressure transmitter internal circuit board or associated wire terminal on the PCU.

5.2.4 REMOVE plug from calibration port AND CHECK for radiological contamination.

5.2.5 INSTALL variable test pressure/vacuum source to calibration port of isolation valve.

As-Found Values

5.2.6 APPLY each input test signal specified by Data Sheet AND RECORD corresponding output value in As-Found section of Data Sheet.

5.2.7 IF transmitter As-Found values are within tolerance range specified by Data Sheet, RECORD values in As-Left column of Data Sheet AND GO TO Restoration 5.3.
5.2 Calibrate Ametek Pressure Transmitters (Cont.)

Calibration

5.2.8 APPLY Minimum input value per Data Sheet.

5.2.9 ADJUST "Zero" pot (located on circuit board) to obtain 4 ma (40 mV) output per Data Sheet.

5.2.10 APPLY pressure corresponding to "full scale" input.

5.2.11 ADJUST "span" pot to obtain 20 ma (200 mV) output per Data Sheet.

5.2.12 APPLY each test input value specified by Data Sheet AND CHECK output values for tolerance.

5.2.13 IF values are within tolerance per Data Sheet, RECORD As-Left values on Data Sheet AND GO TO Restoration, Section 5.3.

5.2.14 IF values are not within tolerance per Data Sheet, REPEAT Steps 5.2.8 through 5.2.13 up to two (2) times, AND

IF unable to bring values into tolerance AND replacement/repair parts are required, PERFORM the following:

5.2.14.1 NOTIFY FWS of pending equipment replacement/repair.

5.2.14.2 FWS NOTIFY Shift Manager and contact planning for BOM.

5.2.14.3 IF a new Data Sheet is required, REQUEST Planning to print new Data Sheet(s).

5.2.14.4 IF Lockout/Tagout is required, CONTACT OE for Lock and Tag.

5.2.14.5 REPAIR/REPLACE Instrument AND RE-PERFORM Steps 5.2.8 through 5.2.13.
### 5.3 Restoration

5.3.1 **IF** any problems were encountered with calibration, **INFORM** FWS.

5.3.2 **ENSURE** input test pressure has been reduced to zero (0) psig.

5.3.3 **IF** not already removed, **DISCONNECT AND REMOVE** all Test Equipment.

5.3.4 **IF** removed, **ENSURE** calibration port plug has been reinstalled.

5.3.5 **REINSTALL** cover (screwed cap) of Pressure Transmitter.

5.3.6 **ENSURE** associated pressure isolation valve is open.

5.3.7 **ENSURE** all alarms are cleared and system is being restored to original configuration.

5.3.8 **RECORD** Test Equipment information and calibration status on Data Sheet.

5.3.9 **PERFORM** Post Job radiological survey; **AND**

**DE-CONTAMINATE** to As-Found conditions as survey warrants.

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

### 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.
6.0 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.
Figure 1 – AMETEK Model 88C Pressure Transmitter Test Set-Up