Tank Farm Maintenance Procedure  

Calibration

USQ # GCX-2

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<th>Rev-Mod</th>
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<td>CHAMPS Removal</td>
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<td>Added 4th bullet under 4.1. Add Steps 5.1.1, 5.2.4.1, 5.2.8.1, 5.3.3. Struck Note under 5.0. Reworded Steps 3.1.1, 5.1.2, 5.3.2.</td>
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<td>F-1</td>
<td>01/22/2013</td>
<td>DOE Standard</td>
<td>Replaced references to TFC-ESHQ-S-STD-03, Electrical Safety with DOE–0359, Hanford Site Electrical Safety Program.</td>
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Figure 1 - Bench Test and Alarm Set-up Using Bailey Calibration Box

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for calibrating a Bailey 7000 Dual Alarm instrument.

1.2 Scope

This procedure involves calibrating the Bailey 7000 Dual Alarm, Model 744 instrument.

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 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.

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

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.

3.2 Radiation and Contamination Control

Work in radiological areas will be performed using a Radiological Work Permit following review by Radiological Control per the ALARA Work Planning procedure TFC-ESHQ-RP_RWP-C-03.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

NOTE - Limit the amount of material taken into contaminated areas to minimize radioactive waste and future decontamination.

The following supplies may be needed to perform this procedure:
- 24 V dc power supply and two adjustable 1-5 V dc power supplies
- Bailey box
- Digital volt meter(s)
- 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:
- Certified Vendor Information 21530 #6.
5.0 PROCEDURE

5.1 Set Up Equipment

5.1.1 IF any step is not required for procedure completion, RECORD “N/A” in the applicable space(s) on the Data Sheet AND DOCUMENT the explanation in Data Sheet’s Comments/Remarks section.

5.1.2 REMOVE unit from service AND TRANSPORT to shop for bench test/calibration.

5.1.3 CONNECT to bench set up as shown in Figure 1.

5.1.4 CONNECT test equipment to TEST TERM.

5.1.5 APPLY input voltage as specified on Data Sheet AND WHEN the Alarm Contacts change state, RECORD output value in As-Found Section of Data Sheet.

5.1.6 ENSURE unit is clean AND INSPECT unit for the following:
- Signs of overheating
- Loose connections
- Wiring for damage or deterioration.

5.1.7 RECORD inspection results in Comments/Remarks section of Data Sheet.

5.1.8 DEPENDING on the instruments As-Found outputs PERFORM one of the following:

5.1.8.1 IF instrument As-Found outputs are within tolerance range specified on Data Sheet and NO adjustments are required RECORD value in As-Left section of the Data Sheet AND GO TO section 5.3.

5.1.8.2 IF instrument As-Found outputs are out of tolerance specified by Data Sheet and adjustments are required, GO TO section 5.2.
5.2 Calibration

5.2.1 DEPENDING on Alarm to be calibrated PERFORM one or both of the following Activities:

**Calibrating Alarm "A"**

5.2.2 ENSURE unit is CONNECTED to bench setup as shown in Figure 1.

5.2.3 ENSURE test equipment is CONNECTED to TEST TERM for Alarm "A".

5.2.4 APPLY required input voltage AND

ADJUST alarm point potentiometer R10 to desired operating point.

5.2.4.1 IF unable to adjust alarm point within tolerance, NOTIFY FWS for resolution.

5.2.5 RECORD value in As-Left section of Data Sheet.

**Calibrating Alarm "B"**

5.2.6 ENSURE unit is CONNECTED to bench setup as shown in Figure 1.

5.2.7 ENSURE test equipment is CONNECTED to TEST TERM for Alarm "B".

5.2.8 APPLY required input voltage AND

ADJUST alarm point potentiometer R60 to desired operating point.

5.2.8.1 IF unable to adjust alarm point within tolerance, NOTIFY FWS for resolution.

5.2.9 RECORD value in As-Left section of Data Sheet.
5.3 Restoration

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

5.3.2 IF not already removed, DISCONNECT AND REMOVE Test Equipment.

5.3.3 TRANSPORT unit back to field location AND

CONNECT wiring to original configuration.

5.3.4 RECORD the Test Equipment information and calibration status on Data Sheet.

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

5.3.6 RECORD all inspection activities and or deficiencies on Data Sheet.

5.3.7 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.
5.6 Records

This procedure is performed within a work package, as such, the procedure in its entirety will be maintained as a record per the Work Control process.

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 - Bench Test and Alarm Set-up Using Bailey Calibration Box