### 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>
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<tbody>
<tr>
<td>E-0</td>
<td>03/01/2016</td>
<td>Periodic Review</td>
<td>Incorporated changes found in periodic review process.</td>
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<tr>
<td>D-1</td>
<td>11/19/2014</td>
<td>CHAMPS Removal</td>
<td>Removed reference to CHAMPS, updated records statements and removed next periodic review date.</td>
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<tr>
<td>C-3</td>
<td>06/03/2011</td>
<td>RadCon Request.</td>
<td>Added new RadCon Control 3.1.2</td>
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</table>
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides a method to shop or bench calibrate dial thermometers.

1.2 Scope

This procedure applies to the calibration of dial thermometers.

2.0 INFORMATION

None

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

3.1.1 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

The following supplies may be needed to perform this procedure:

- Lint free cloth
- Controlled temperature bath/oven
- Calibrated temperature indicator for monitoring controlled temperature bath.

NOTE - Some controlled temperature baths have a self-contained calibrated temperature indicator. These may be used in place of an independent instrument if it meets the requirements below.

- Calibrated verification temperature indicator must have a range and accuracy equal to or greater than input requirements listed on Data Sheet.
5.0  PROCEDURE

5.1  Calibrate Dial Thermometers

5.1.1  REMOVE Dial Thermometer from field.

5.1.1.1  IF no temperature well is present, INSTALL a plug where the Dial Thermometer was removed.

5.1.2  ENSURE temperature indicator is clean.

5.1.3  INSPECT temperature indicator AND RECORD deficiencies in COMMENTS/REMARKS section of Data Sheet.

5.1.4  INSTALL calibrated verification temperature indicator into controlled temperature bath/oven.

5.1.5  INSTALL thermometer into controlled temperature bath/oven.

5.1.6  SET controlled temperature bath for a temperature indication that is equal to each specified input value listed on Data Sheet.

5.1.7  READ dial thermometer for each specified output value versus specified input value listed on Data Sheet.

5.1.8  RECORD each specified output value in As-Found section of Data Sheet.

NOTE - If output values are within tolerance, but deemed marginal by the craftsman, calibration may continue at craftsman’s discretion.

5.1.9  IF specified output value versus specified input value is within limit of tolerance required by Data Sheet, RECORD output data in As-Left section of Data Sheet AND

GO TO Step 5.1.12.

NOTE - The needle adjustment screw, if present, will be found on the side or back of the dial.

5.1.10  IF needle adjustment screw is not present and specified output values versus specified input values are not within limit of tolerance required by Data Sheet, NOTIFY FWS of problem encountered.
5.1 Calibrate Dial Thermometers (Cont.)

5.1.11 IF needle adjustment screw is present and specified output values versus specified input value are not within limit of tolerance required by Data Sheet, PERFORM the following:

5.1.11.1 SET controlled temperature bath/oven for a temperature indication that is equal to one of the specified input values listed on Data Sheet.

5.1.11.2 ADJUST needle screw to a temperature reading that is equal to the temperature indication set in Step 5.1.11.1.

5.1.11.3 REPEAT Steps 5.1.11.1 and 5.1.11.2 until no further correction can be achieved.

5.1.11.4 SET controlled temperature bath/oven for temperature indication that is equal to each specified input value listed on Data Sheet.

5.1.11.5 READ dial thermometer for each specified output value versus specified input value listed on Data Sheet.

5.1.11.6 RECORD each specified output value in As-Left section of Data Sheet.

5.1.11.7 IF specified output values versus specified input values are still not within limit of tolerance required by Data Sheet, NOTIFY FWS of problem encountered.

5.1.12 REMOVE thermometer from controlled temperature bath/oven.

5.1.13 REMOVE the Thermometer plug AND INSTALL the Dial Thermometer.
Calibrate Dial Thermometers

5.2 Restoration

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

5.2.2 ENSURE Test Equipment information and calibration status are recorded on Data Sheet.

5.2.3 CONFIRM Dial Thermometer mounted in Step 5.1.13 is properly installed.

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

5.3 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.

5.4 Review

5.4.1 INFORM FWS the calibration is complete.

5.4.2 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.

5.5 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.