USQ Not Required – ETF is a < Hazard Category 3 Radiological Facility

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides a safe, uniform method for calibration of Digital Control Corporation Model 12259 BLM.

1.2 Scope

This procedure provides instructions for calibrating the Digital Control Corporation Model 12259 BLM.

2.0 INFORMATION

2.1 Terms and Definitions

- BLM - Bubbler Level Monitor
- TST - Tanker Simulation Tube.

2.2 General Information

2.2.1 The bubbler is set to sample every 15 seconds. This should not need adjustment. The high level alarm may be adjusted depending on the type of tanker. (For a Polar Tanker, the Hi Alarm is set at 50 inches (~ 4750 gal). For a Beall Tanker, the Hi Alarm is set at 70 inches (~7700 gal).)
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 ALARA Work Planning procedure, TFC-ESH-RP_RWP-C-03.

3.2 Environmental Compliance

3.2.1 In the event of a spill/leak/release, notify the SOM/FWS and respond per ETF-ERP-85B-003, Emergency Spill or Release at ETF.

4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:

- Tanker simulation tube (TST)
- Source of water
- Replacement Battery: 12V, Sealed Lead Acid, glass mat, valve regulated, 7.0 amp Hr or greater (vendor approved units: Yuasa NP7-12 or Power Sonic PS-1270).
5.0 PROCEDURE

5.1 As-Found Readings

5.1.1 REPLACE battery if the unit fails to hold a charge.

5.1.2 SECURE tanker simulation tube in a vertical orientation.

5.1.3 CONNECT BLM to top of TST.

5.1.4 OPEN valve at bottom of TST AND ENSURE TST is empty.

5.1.5 TURN ON BLM AND ALLOW unit to cycle and readings to stabilize.

5.1.6 DEPRESS the “High” button to display the current high alarm setpoint AND RECORD on data sheet.

5.1.7 ENSURE “Alarm Switch” is ON.

5.1.8 RECORD as-found zero level reading on data sheet.

5.1.9 CONNECT water source to fitting at bottom of TST.

5.1.10 PERFORM the following sub-steps for each port level (starting with 25%):

5.1.10.1 OPEN valve on port of TST.

5.1.10.2 SLOWLY FILL TST until water comes out of port.

5.1.10.3 CLOSE valve at bottom of TST.

5.1.10.4 TURN OFF water.

5.1.10.5 ALLOW readings on BLM to stabilize.

5.1.10.6 RECORD as-found reading on data sheet.

5.1.11 REPEAT Step 5.1.10 for 50%, 75%, and 100% levels.

5.1.12 RECORD on data sheet “Does High Alarm Actuate Y/N?”
5.1 As-Found Readings (Cont.)

5.1.13 **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** Section 5.4, Setting Hi Alarm.
5.2 Calibration

NOTE - Section 5.2 may be repeated as necessary to complete calibration.

5.2.1 REMOVE water source from bottom of TST AND OPEN valve to drain all water from TST.

5.2.2 CLOSE valves at 25%, 50%, and 75% ports on TST.

5.2.3 DEPRESS AND HOLD the “High” and “Low” buttons together until display show the following:
OFFSET = XX.XX IN (value xx.xx does not matter at this time)

5.2.4 ROTATE adjust pot fully counter-clockwise.

5.2.5 MOMENTARILY DEPRESS the “Coarse” button.

5.2.6 WAIT for the internal averagers to settle and become stable (approximately two minutes).

5.2.7 DEPRESS AND HOLD the “Coarse” button while slowly turning the “Adjust” knob until the display shows as close to 1.00 reading as possible, THEN
RELEASE the “Coarse” button.

5.2.8 WHEN reading is stable, ROTATE adjust pot fully counter-clockwise.

5.2.9 DEPRESS AND HOLD the “Fine” button while turning (slowly) the “Adjust” knob until the display shows 1.0, THEN
RELEASE the “Fine” button.

5.2.10 WHEN display shows 1.00, DEPRESS AND RELEASE the “Enter Next” button to get the following display:
SPAN = 00.00 IN

5.2.11 ROTATE adjust pot fully counter-clockwise.

5.2.12 CONNECT water source to fitting at the bottom of TST.

5.2.13 FILL TST to 100%.
5.2 Calibration (Cont.)

5.2.14 WAIT for the bubbler tube to fill with air and the averagers to settle and become stable (approximately three minutes).

5.2.15 DEPRESS AND HOLD the “Coarse” button while slowly turning the “Adjust” knob until the display shows as close to full scale reading as possible, THEN

RELEASE the “Coarse” button.

5.2.16 WHEN reading is stable, ROTATE adjust pot fully counter-clockwise.

5.2.17 DEPRESS AND HOLD the “Fine” button while slowly turning the “Adjust” knob until the display shows full scale, THEN

RELEASE the “Fine” button.

5.2.18 IF display does not get to full scale, REPEAT coarse and fine adjustment using the “Up” and “Down” buttons to make small display corrections.

5.2.19 WHEN display shows full scale, DEPRESS AND RELEASE the “Enter Next” button to get the following display:

ADDRESS = XXX

5.2.20 DEPRESS AND RELEASE the “Enter Next” button to get the following display:

OUT FS = XX.XX IN

5.2.21 DEPRESS AND RELEASE the “Enter Next” button to get the following display:

SAVE? (UP=YES)

5.2.22 DEPRESS AND RELEASE the “Up” button to save values AND

RETURN to Normal mode.
5.3 As-Left Readings

5.3.1 ALLOW readings to stabilize.

5.3.2 RECORD as-left 100% level reading on data sheet.

5.3.3 PERFORM the following sub-steps for each port level (starting at 75%):

5.3.3.1 OPEN valve on port of TST.

5.3.3.2 WAIT until water stops coming out of port.

5.3.3.3 ALLOW readings on BLM to stabilize.

5.3.3.4 RECORD as-left reading on data sheet.

5.3.4 REPEAT Step 5.3.3 for the 50% and 25% ports.

5.3.5 DISCONNECT water source from TST.

5.3.6 OPEN valve at bottom of TST to drain.

5.3.7 ALLOW readings on BLM to stabilize.

5.3.8 RECORD as-left zero reading on data sheet.
5.4 Setting Hi Alarm

5.4.1 IF no Hi Alarm adjustments are requested, RECORD “as found” setpoint in “as left” AND

GO TO Section 5.5, Restoration.

5.4.2 DEPRESS AND HOLD “high” button until the display shows:

“ADJ HI = XX.X IN.”

5.4.3 DEPRESS AND HOLD the “Coarse” button while slowly turning the “Adjust” knob until the display shows as close to the desired alarm setpoint as possible, THEN

RELEASE the “Coarse” button.

5.4.4 DEPRESS AND HOLD the “Fine” button while slowly turning the “Adjust” knob until the display shows alarm setpoint, THEN

RELEASE the “Fine” button.

5.4.5 IF display does not get to alarm setpoint, REPEAT coarse and fine adjustment using the “Up” and “Down” buttons to make small display corrections if needed.

5.4.6 WHEN display shows alarm setpoint, DEPRESS AND RELEASE the “Enter Next” button to get the following display:

SAVE? (UP=YES)

5.4.7 DEPRESS AND RELEASE the “Up” button to save values AND

RETURN to Normal mode.

5.4.8 DEPRESS AND HOLD the “test” button while slowly turning the “Adjust” knob until the display goes past the alarm setpoint.

5.4.9 ENSURE alarm energizes at the proper setpoint.

5.4.10 RELEASE the “Test” button to return to Normal mode.
5.5 Restoration

5.5.1 **RESTORE** to as-found conditions.

5.5.2 **INFORM** SOM test is complete and instrument/equipment/system may be returned to service.

5.5.3 **ENSURE** alarms are reset or cleared.

5.6 Acceptance Criteria

Acceptance criteria has been met when steps in this procedure have been satisfactorily performed and results are recorded on the data sheet(s).

5.7 Review

5.7.1 **INFORM** FWS test is complete.

5.7.2 **(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.

5.8 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.