TSR 48-Month Check of Tank Farm Thermocouple Trees

Tank Farm Maintenance Procedure

T.S.R Compliance

USQ # Routine Maintenance

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1.0 PURPOSE AND SCOPE

1.1 Purpose
This procedure provides instructions for the 48-Month check of thermocouples associated with the manual freeze temperature monitoring at Tank Farm.

1.2 Scope
This procedure applies to testing and evaluating thermocouples, including baseline resistance tests and checking thermocouple service life.

2.0 INFORMATION
N/A
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 An Energized Electrical Work Permit (EEWP) is NOT required when working energized parts that operate at less than 50 volts potential per DOE-0359, Hanford Site Electrical Safety Program Section 5.7, paragraph 2 “Exemptions to an EEWP”.

The maximum voltage encountered when connecting and disconnecting from terminal strips is less than 50 VDC.

3.1.2 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.

3.2 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.

3.3 Environmental Compliance

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.

3.4 Limits

HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements

DF 6.9 Waste Transfer System Freeze Protection Temperature Monitoring.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure:
- Digital Multimeter (DMM)
- Ohmmeter
- Digital Thermocouple Reader
- 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
- H-14-109815, Sht 1-4.

4.3 Field Preparation

4.3.1 Shift Manager/OE CONFIRM no active waste transfers or leak checks are using thermocouples.

_________________________/_________________________/_________________________
Signature Print (First & Last) Date
Shift Manager /OE

4.3.2 CONFIRM compliance with Industrial hygiene (IH) sampling and/or monitoring requirements for tank farm entry will be specified in the industrial hygiene sampling plan identified in each farm specific Tank Vapor Information Sheet (TVIS).

4.3.3 ENSURE WRPS QAT is available to witness testing and inspection.
5.0 PROCEDURE

5.1 Check Thermocouple Baseline Resistance

NOTE - Determ of thermocouple leads is not required.

5.1.1 FROM jack panel or selector switch, MEASURE resistance between thermocouple leads for the thermocouple identified on Data Sheet AND RECORD resistance value on R1 column of the Data Sheet.

5.1.2 REVERSE test equipment lead connections.

5.1.3 MEASURE resistance between thermocouple leads AND RECORD resistance value on R2 column of Data Sheet.

5.1.4 COMPUTE average resistance AND RECORD on Average Resistance Column of Data Sheet.

NOTE – Average resistance within the Baseline Resistance Acceptance Range is passing, average resistance outside is a failure.

5.1.5 RECORD acceptable (PASS) or unacceptable (FAIL) results on Pass/Fail column of Data Sheet. (DF 6.9)

5.1.6 IF thermocouples FAIL baseline resistance Acceptance Range, INSPECT the following for damage:

• terminal box interior wiring
• visible thermocouple conduit between terminal box and thermocouple tree

5.1.7 RECORD observations on Data Sheet.
5.1 Check Thermocouple Baseline Resistance (Cont.)

NOTE - Purpose of temperature measurement is to demonstrate functionality and does not have an acceptance range.

5.1.8 MEASURE temperature AND RECORD results on temperature column of Data Sheet.

5.1.9 WRPS QAT WITNESS testing per Data Sheet.

5.1.10 NOTIFY Shift Manager of any Safety Significant SSC failures.

5.1.11 IF thermocouple service life date will expire before next 48-month PM, CHECK “Yes” on Data Sheet.

5.1.12 For failed or expiring thermocouples, FWS CONTACT Waste Transfer Freeze Protection CSE/DA. (DF 6.9)
5.2 Restoration

5.2.1 IF not already removed; DISCONNECT AND REMOVE Test Equipment.

5.2.2 RECORD the test equipment information and calibration status on Data Sheet.

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

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 resistance values are within the acceptance range specified on the Data Sheet.

5.4 Review

5.4.1 INFORM FWS test 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 (if applicable).

5.5 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.