Testing of Leak Detectors LDE-42-1, 43-1, and 44-1 in 242 A Retention Basin

Tank Farm Maintenance Procedure

Effluent Treatment Facility

All Changes Require Review by the following Organizations:

USQ

Table of Contents

1.0 PURPOSE AND SCOPE ........................................................................................................... 2
  1.1 Purpose ................................................................................................................................. 2
  1.2 Scope .................................................................................................................................. 2

2.0 INFORMATION ......................................................................................................................... 2
  2.1 Terms and Definitions ......................................................................................................... 2

3.0 PRECAUTIONS AND LIMITATIONS ....................................................................................... 2
  3.1 Equipment Safety ................................................................................................................. 2

4.0 PREREQUISITES ..................................................................................................................... 3
  4.1 Special Tools, Equipment, and Supplies ............................................................................. 3
  4.2 Performance Documents .................................................................................................... 3

5.0 PROCEDURE ............................................................................................................................ 4
  5.1 Prepare for Test .................................................................................................................... 4
  5.2 Test Leak Detection Loop ................................................................................................... 5
  5.3 Restoration .......................................................................................................................... 6
  5.4 Acceptance Criteria ............................................................................................................ 6
  5.5 Review ................................................................................................................................. 6
  5.6 Records ................................................................................................................................ 6
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performing functional testing of LERF Basins leak detectors:

- LDE-42-1
- LDE-43-1
- LDE-44-1.

This procedure also provides instructions for testing the operation of individual leak detectors and, where possible, testing of the individual alarm and interlock functions.

1.2 Scope

This procedure is written to provide the user enough detail to prove the output relay functions to give both a remote and local alarm. No control functions are performed by these leak detectors.

2.0 INFORMATION

2.1 Terms and Definitions

- LDE - Leak Detector Element.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Equipment Safety

CAUTION - This test is performed with the LDE systems energized. Incorrectly connecting test jumper can damage LDE and associated components.

3.2 Radiation and Contamination Control

3.2.1 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.

3.3 Environmental Compliance

3.3.1 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

NOTE - Measuring and Test Equipment used to collect acceptance criteria data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label
- Be capable of desired range
- Accuracy is equal to or greater than M&TE tolerance specified on PM/S data sheet or is at least four times greater than specified device tolerance.

The following supplies may be needed to perform this procedure:

- CMD
- Insulated test jumper with approximately 2-watt 10K ohms resistor.

4.2 Performance Documents

The following documents may be needed to perform this procedure.

5.0 PROCEDURE

Special Instructions

The restoration section of this procedure must be performed on any device being tested before leaving the work site or scope of the job.

Throughout the performance of this procedure XX = 42, 43, or 44, respective to which basin the procedure is being worked.

5.1 Prepare for Test

5.1.1 NOTIFY both ETF and 242-A Evaporator Operations the following alarms will be received:
- F28/3, LDS-BSN42, CATCH BASIN 42 LEAK
- F28/4, LDS-BSN43, CATCH BASIN 43 LEAK
- F28/5, LDS-BSN44, CATCH BASIN 44 LEAK.

5.1.2 IF alarm is “ON” for unit under test, PERFORM the following OTHERWISE

5.1.2.1 MEASURE voltage between terminal 3 and 4 of relay, (wire MPZ-(XX)-7H,-7N). (Expected voltage is 110 to 125 Vac.)

5.1.2.2 IF voltage is not present, ENERGIZE source at panel board MPZ-42, 43, or 44, breaker 7 AND PERFORM the following:

a. IF alarm clears, GO TO Section 5.2.

b. VALIDATE alarm by measuring voltage going to probes.

c. IF voltage is present and less than 200 Vac. (i.e., alarm is valid), GO TO step 5.2.2.

d. IF alarm does not clear, or is not valid, REQUEST a work package be prepared AND RE-PERFORM this procedure after repair.
5.2 Test Leak Detection Loop

CAUTION
This test is performed with the LDE systems energized. Incorrectly connecting test jumper can damage LDE and associated components.

5.2.1 TEST detector LDE-XX-1 by jumping relay terminals 7 to 8, Wire no. MPZ-XX-73 to 74.

5.2.2 PERFORM the following:

5.2.2.1 CONFIRM local strobe light for detector 60M-XX-1 is flashing.

5.2.2.2 CONFIRM LDE-XX-1 alarm has been received in 242-A Control Room and ETF Control Room.

5.2.2.3 REMOVE jumper from terminals 7 and 8.

5.2.2.4 CONFIRM alarm reset unless actual alarm is ON.

5.2.2.5 PERFORM loss of power test by de-energizing breaker 7 at panel board MPZ-XX AND CONFIRM alarms are received.

5.2.2.6 RE-ENERGIZE detector.

5.2.2.7 CONFIRM alarms reset UNLESS actual alarm is on per step 5.1.2.

5.2.2.8 RECORD results on work package.

5.2.3 REPEAT steps 5.2.1 and 5.2.2 for remaining basins.
### 5.3 Restoration

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

5.3.2 **ENSURE** alarms are cleared.

5.3.3 **IF** alarms are not reset, **IDENTIFY** abnormalities.

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

### 5.4 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).

### 5.5 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.

### 5.6 Records

The performance of this procedure generates no records. However PM/S 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.