Diesel Generator Tank Leak Detector Testing

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for functional testing Diesel Generator Underground Storage Tank Leak Detectors.

1.2 Scope

1.2.1 This procedure applies to the following:

1.2.2 This procedure may be performed at 242-A Evaporator. The appropriate data sheets listed below are used to record the results of the tests.
- Data Sheet 1, Data Sheet 2, Data Sheet 3 and Data Sheet 4 are to be used at 242-A Evaporator.

2.0 INFORMATION

NONE
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Leak Detector sensing cables labeled as LDE-DST-2 are located in a permit confined space. The cable may be brought above ground using remote tool as long as personnel do not break the plane of the pit with any portion of their body.

3.1.2 Comply with Electrical Safety practices per DOE-0359, Hanford Site Electrical Safety Program.

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 procedure TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Compliance

This functional test fulfills the requirements for underground storage tanks per WAC-173-360.

A Certified UST Supervisor is not required to be present for routine testing or corrective maintenance of alarm/leak detector. Initial installation, replacement and retrofits of leak detection equipment does require a licensed UST Supervisor complete the work (WAC 173-360-325) as clarified by Ecology during the November 2001 Hanford Site UST inspection and the associated Ecology inspection report dated June 20, 2002. The inspection report is RMIS accession # D9088210.

3.4 Environmental Compliance

3.4.1 IF a spill occurs, CONTACT Environmental Compliance in accordance with TFC-ESHQ-ENV_FS-C-01, Environmental Notification.

3.4.2 ENSURE waste (including absorbent materials) is disposed of per TO-100-052.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies
- Remote tools for accessing equipment in Diesel Tank Pit
- Hearing protection
- Rags / absorbent.

4.2 Field Preparation

NOTE - A list of firms with Certified Underground Storage Tank Supervisors can be obtained from the Department of Ecology web site http://www.ecy.wa.gov/programs/tcp/ust-lust/tanks.html.

4.2.1 NOTIFY 242-A Control Room Operator that testing of the Leak Detection System(s) is about to begin and that alarms will be activated.
5.0 PROCEDURE

5.1 General Alarm Test

5.1.1 CONFIRM equipment status indicators are in the status listed on the “Initial Conditions” lines of Data Sheet 1.

5.1.2 PRESS AND MAINTAIN switch Alarm Test AND

CONFIRM equipment status indicators are in the status listed on the “Alarm Test Push” lines of Data Sheet 1.

5.1.3 RELEASE switch Alarm Test AND

CONFIRM equipment status indicators are in the status listed on the “Alarm Test Release” lines of Data Sheet 1.
5.2 Tank Leak Test, LDE-DST-1

5.2.1 CONFIRM equipment status indicators are in the status listed on the “Pretest Checks” lines of Data Sheet 2.

NOTE - Sensing Cable LDE-DST-1 for 242-A Evaporator is located in the gang box on the West side of the pit cover.

5.2.2 BEND AND MAINTAIN LDE-DST-1 sensing cable approximately in a 2-inch diameter.

5.2.3 CONFIRM bell alarms AND PRESS “Bell Silence”.

5.2.4 CONFIRM equipment status indicators are in the status listed on the “Bend Sensing Cable” lines of Data Sheet 2.

5.2.5 REMOVE bend from LDE-DST-1 sensing cable.

5.2.6 PRESS TraceTek box “Silence Buzzer” Switch.

5.2.7 PRESS switch Reset AND CONFIRM equipment status indicators are in the status listed on the “Reset 1” lines of Data Sheet 2.
5.2 Tank Leak Test, LDE-DST-1 (Cont.)

NOTE - Wire colors match color of dot on Terminal Strip. Voltage is 5 – 9 VDC on sensing cable.

- Sensing cable may be disconnected by removing the YELLOW wire at the Trace Tek box or by removing the sensing cable extension.

5.2.8 DISCONNECT LDE-DST-1 sensing cable from TraceTek Box.

5.2.9 CONFIRM Bell Alarms AND

PRESS “Bell Silence”.

5.2.10 CONFIRM equipment status indicators are in the status listed on the “Disconnect Sensing Cable” lines of Data Sheet 2.

NOTE - Wire colors match color of dot on Terminal Strip. Voltage is 5 – 9 VDC on sensing cable.

5.2.11 CONNECT LDE-DST-1 sensing cable to TraceTek box.

5.2.12 PRESS TraceTek box “Silence Buzzer” Switch.

5.2.13 PRESS switch Reset AND

CONFIRM equipment status indicators are in the status listed on the “Reset 2” lines of Data Sheet 2.
5.3 Tank Overflow Test, LDE-DST-2

5.3.1 CONFIRM equipment status indicators are in the status listed on the “Pretest Checks” lines of Data Sheet 3.

5.3.2 USING remote retrieval device, REMOVE LDE-DST-2 sensing cable from Diesel pit.

5.3.3 BEND AND MAINTAIN LDE-DST-2 sensing cable in a 2-inch diameter.

5.3.4 CONFIRM Bell Alarms AND PRESS “Bell Silence.”

5.3.5 CONFIRM equipment status indicators are in the status listed on the “Bend Sensing Cable” lines of Data Sheet 3.

5.3.6 REMOVE bend from LDE-DST-2 sensing cable.

5.3.7 PRESS TraceTek box “Silence Buzzer” Switch.
5.3 Tank Overflow Test, LDE-DST-2 (Cont.)

5.3.8 PRESS switch Reset AND

CONFIRM equipment status indicators are in the status listed on the “Reset 1” lines of Data Sheet 3.

NOTE - Wire colors match color of dot on Terminal Strip. Voltage is 5 – 9 VDC on sensing cable.

- Sensing cable may be disconnected by removing the YELLOW wire at the Trace Tek box or by removing the sensing cable extension.

5.3.9 DISCONNECT LDE-DST-2 sensing cable from TraceTek Box.

5.3.10 CONFIRM Bell Alarms AND

PRESS “Bell Silence.”

5.3.11 CONFIRM equipment status indicators are in the status listed on the “Disconnect Sensing Cable” lines of the appropriate Data Table.

NOTE - Wire colors match color of dot on Terminal Strip. Voltage is 5 – 9 VDC on sensing cable.

5.3.12 CONNECT LDE-DST-2 sensing cable to TraceTek box.

5.3.13 PRESS TraceTek box “Silence Buzzer” Switch.

5.3.14 PRESS switch Reset AND

CONFIRM equipment status indicators are in the status listed on the “Reset 2” lines of Data Sheet 3.
5.4 Manway Visual Inspection

5.4.1 **PERFORM** visual inspection of tank manway for water or debris **AND** Record results on Data Sheet 4.

5.4.2 **INSPECT** neoprene gasket on manway cover **AND** Record results on Data Sheet 4.

5.4.3 **IF** any unsat conditions are identified in Step(s) 5.4.1 or 5.4.2, **correct** deficiencies **AND** Record as-left conditions on Data Sheet 4.

5.4.4 **RECORD** any deficiencies on Comment Sheet.

5.5 Restoration

5.5.1 **IF** any problems were encountered with testing, **INFORM** FWS.

5.5.2 **ENSURE** that all test equipment has been disconnected and removed.

5.5.3 **ENSURE** equipment system restoration by observing indications are consistent with expected conditions.

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

5.6 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.
5.7 Review

5.7.1 INFORM FWS test is complete and if any of the Acceptance Criteria was not met.

5.7.2 The FWS MUST REVIEW AND ENSURE the following:

- Complete Data Sheets meet the acceptance criteria.
- Comments are recorded on the Comments Sheet.
- 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 Comment Sheet, as applicable.

5.7.3 IF any of the Acceptance Criteria is not met, NOTIFY Environmental Compliance, per the Environmental On-Call list, so reportability can be evaluated.

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.
## Diesel Generator Tank Leak Detector Testing

### Data Sheet 1 - ULD-1 General Alarm Test (242 A Evaporator)

Check (√) box when confirmed

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Alarm YS-DIEGEN (F34/13)</th>
<th>Tank Full</th>
<th>Tank High Level</th>
<th>Tank Leak</th>
<th>Tank Overflow</th>
<th>Strobe</th>
<th>Bell</th>
<th>Tank Full Horn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Conditions 5.1.1</td>
<td>Non-Alarm State</td>
<td>N/A</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Alarm Test Push 5.1.2</td>
<td>N/A</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Alarm Test Release 5.1.3</td>
<td>N/A</td>
<td>N/A</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>
# Diesel Generator Tank Leak Detector Testing

Data Sheet 2 - ULD-1 Tank Leak Test, LDE-DST-1 (242-A Evaporator)

Check (✓) box when confirmed

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Alarm YS-DIEGEN (F34/13)</th>
<th>Tank Leak</th>
<th>Strobe</th>
<th>Bell</th>
<th>TraceTek Box Green Light Power</th>
<th>TraceTek Box Red Light Alarm</th>
<th>TraceTek Box Yellow Light Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest Checks 5.2.1</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Bend Sensing Cable 5.2.4</td>
<td>In-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF**</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Reset 1 5.2.7</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Disconnect Sensing Cable 5.2.10</td>
<td>In-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF*</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Reset 2 5.2.13</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

* The alarm bell is silenced in Step 5.2.9
** The alarm bell is silenced in Step 5.2.3.
## Diesel Generator Tank Leak Detector Testing

### Data Sheet 3 - ULD-1 Tank Overflow Test, LDE-DST-2 (242-A Evaporator)

Check (✓) box when confirmed

<table>
<thead>
<tr>
<th>Test Step</th>
<th>Alarm YS-DIEGEN (F34/13)</th>
<th>Tank Overflow</th>
<th>Strobe</th>
<th>Bell</th>
<th>TraceTek Box Green Light Power</th>
<th>TraceTek Box Red Light Alarm</th>
<th>TraceTek Box Yellow Light Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest Checks 5.3.1</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Bend Sensing Cable 5.3.5</td>
<td>In-Alarm State</td>
<td>ON</td>
<td>ON</td>
<td>OFF**</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Reset 1 5.3.8</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Disconnect Sensing Cable 5.3.11</td>
<td>In-Alarm State</td>
<td>ON</td>
<td>ON</td>
<td>OFF*</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Reset 2 5.3.14</td>
<td>Non-Alarm State</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

* The alarm bell is silenced in Step 5.3.10
** The alarm bell is silenced in Step 5.3.4.
# Data Sheet 4 - Manway Visual Inspection

Check (√) box when confirmed

<table>
<thead>
<tr>
<th>Debris/ Water (as found)</th>
<th>SAT</th>
<th>UNSAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gasket Condition (as found)</th>
<th>SAT</th>
<th>UNSAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>As-left</th>
<th>SAT</th>
<th>UNSAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Comment Sheet 1

Record any comments encountered during performance of the Functional Check within the space below.

<table>
<thead>
<tr>
<th>WORK PACKAGE NO.</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>_________________</td>
<td>______</td>
</tr>
</tbody>
</table>

________________________ / __________________ / ____________
Signature                  Print (First and Last)       Date
Commenter

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