# Inspection of Emergency Lights For Tank Farms

## Tank Farm Maintenance Procedure

### 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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<tr>
<td>F-2</td>
<td>04/26/2018</td>
<td>Maintenance Request</td>
<td>Added &quot;Area Shift Manager&quot; and a new note.</td>
</tr>
<tr>
<td>F-1</td>
<td>01/30/2017</td>
<td>Industrial Safety Request</td>
<td>Added Section 3.1 Personnel Safety Warning and Warning Box before 5.1.13.3.a, 5.1.19.3.a, and records section change.</td>
</tr>
<tr>
<td>F-0</td>
<td>05/26/2016</td>
<td>Periodic Review</td>
<td>Removed Personnel Safety Section. Deleted Warning statement in 5.1. Deleted part of step 5.1.11</td>
</tr>
<tr>
<td>E-5</td>
<td>04/30/2015</td>
<td>Company driven by WRPS-PER-2014-2014.</td>
<td>Modified step 4.3.3, deleted step 4.3.4.1, modified step 5.1.1, 5.1.13.2, 5.1.13.3.a, added step 5.1.13.5 and NOTE, modified step 5.1.13.6, added step 5.1.14, modified step 5.1.15 and added a NOTE, modified step 5.1.16.3, 5.1.17, 5.1.18, 5.1.19.2, 5.1.19.3.a, modified step 5.1.19.5 and added a NOTE, added step 5.1.20, deleted steps 5.2.1, 5.2.2, 5.2.3 added new step 5.2.2, deleted step 5.3.1.1, and modified step 5.3.2.</td>
</tr>
<tr>
<td>E-4</td>
<td>10/07/2014</td>
<td>Reference Update</td>
<td>Updated reference from “MSDS” to “GHS-SDS and/or MSDS”</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides a method to check, test, and repair or replace the emergency lights for Tank Farms and document these activities on the applicable data sheet(s).

1.2 Scope

This procedure involves the monthly and annual maintenance on Tank Farms emergency lights.

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personal Safety

**WARNING** - Replacing broken batteries poses a risk of chemical exposure and/or burns. Appropriate PPE consisting of chemical goggles, chemical gloves, chemical face shield, chemical resistant apron and long sleeve shirt made of synthetic materials are required for this work.

3.2 Radiation and Contamination Control

Work in radiological areas will be performed using a radiation work permit following review by Radiological Control per the ALARA procedure TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Compliance

If any hazardous waste is generated during performance of this procedure, consult Facility/Plant/Area Hazardous Waste Coordinator for specific instructions to ensure compliance with all environmental standards, as applicable, for disposal.

3.4 Limits

RPP-16922, Environmental Specifications Requirements
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following tools may be needed to perform this procedure:
- Multi-meter,
- ½-inch hex head wrench,
- Small Straight and Phillips screwdriver,
- Other tools, equipment and supplies as identified by Shift Manager/OE/FWS.

4.2 Performance Documents

The following documents may be needed to perform this procedure:
- Site form A-6004-227, Radiological Evaluation For Release
- DOE-0336, Hanford Site Lockout/Tagout Procedure.

4.3 Field Preparation

4.3.1 **OBTAIN** release from Operations Management prior to beginning performance of this procedure.

4.3.2 **SPECIFY** only qualified electrician personnel work on batteries.

4.3.3 **CHECK** personnel working on batteries have current course on Battery training.

4.3.4 **ENSURE** an EHE has been completed for lighting >50 V.
5.0 PROCEDURE

Special Instructions

Steps that aren’t applicable to the fixture being inspected can be marked “N/A” on the Data Sheet.

5.1 Perform Inspection and Testing

5.1.1 DON PPE per the work package and/or EHE.

5.1.2 IF performing annual inspection GO TO Step 5.1.15.

Monthly Inspection

NOTE - Steps 5.1.3 through 5.1.11 may be performed in any logical order.

5.1.3 CHECK electrical cords and cord caps for cracking and damage.

5.1.4 CHECK that lamps are not cracked or damaged.

5.1.5 CHECK battery case for absence of cracks and/or leakage.

5.1.6 CHECK that unit is securely mounted.

5.1.7 CHECK that lamps are properly positioned to provide illumination for the required areas.

5.1.8 INSPECT battery and terminals for cleanliness, signs of oxidation AND CLEAN as necessary.
5.1 Perform Inspection and Testing (Cont.)

5.1.9 IF needed, COAT terminals with anti-oxidant.

5.1.10 IF equipped with indicating meters, CHECK for normal charge indication.

NOTE - The lamps should illuminate within ten seconds after unit is de-energized or the test button is depressed.

5.1.11 TEST operation of units for 30 SECONDS by de-energizing.

5.1.12 RECORD PASS/FAIL condition on Monthly Emergency Light Inspection Data Sheet.

5.1.13 IF the unit fails inspection or testing, PERFORM the following:

5.1.13.1 NOTIFY FWS.

5.1.13.2 OBTAIN approval from Shift Manager/OE, if implementing the use of DOE-0336, Hanford Site Lockout/Tagout Procedure.

5.1.13.3 INITIATE immediate actions to repair or replace with a bench tested unit.

WARNING
Replacing broken batteries poses a risk of chemical exposure and/or burns. Appropriate PPE consisting of chemical goggles, chemical gloves, chemical face shield, chemical resistant apron and long sleeve shirt made of synthetic materials are required for this work.

a. IF broken batteries are encountered, REFER to GHS-SDS and/or MSDS numbers in specific vendor information AND

FOLLOW proper handling and controls.

5.1.13.4 IF unable to repair/replace within 24 hours, PROVIDE portable emergency lighting in the affected area(s) until the permanent fixture(s) can be repaired or replaced.
5.1 Perform Inspection and Testing (Cont.)

NOTE - Notification to the Area Shift Manager/Central Shift Office to contact Environmental will ensure a proper evaluation of regulatory actions for the identified emergency equipment (i.e. emergency lighting monthly verification of operability inspection).

5.1.13.5 NOTIFY the Area Shift Manager/Central Shift Office to contact Environmental and provide details concerning the emergency lighting to be repaired/replaced within 24 hours including the use of portable emergency lighting in lieu of the permanent fixture. (RPP-16922, Tables 5-2, 6-1, 7-4 and 8-6)

5.1.13.6 DOCUMENT action in the comment section of the Data Sheet for equipment history records.

5.1.14 IF an emergency light has been repaired or replaced, PERFORM Section 5.0 for that emergency light WHEN COMPLETE

GO TO Section 5.2.

Annual Inspection

NOTE - De-energizing emergency light may be performed by opening circuit breaker, unplugging unit, utilizing internal test button, etc.

5.1.15 TEST operation of units for 90 MINUTES by de-energizing.

5.1.16 MEASURE battery voltage AND

PERFORM the following:

5.1.16.1 CHECK light is still lit.

5.1.16.2 CHECK remaining voltage is at least 87.5% of nominal or 10.5 Vdc for 12 V systems, 5.25 V DC for 6 V systems.

5.1.16.3 RECORD battery voltage on Annual Emergency Light Inspection Data Sheet.
5.1 Perform Inspection and Testing (Cont.)

5.1.17 RECORD PASS/FAIL status for voltage after 90 minute test on Annual Emergency Light Inspection Data Sheet.

5.1.18 REPORT all exceptions on the WRPS Work Record AND INCLUDE any additional work required, or safety concerns.

5.1.19 IF the unit fails inspection or testing, PERFORM the following:

5.1.19.1 NOTIFY FWS.

5.1.19.2 OBTAIN approval from the Shift Manager/OE, if implementing the use of DOE-0336, Hanford Site Lockout/Tagout Procedure.

5.1.19.3 INITIATE immediate actions to repair or replace with a bench tested unit.

WARNING

Replacing broken batteries poses a risk of chemical exposure and/or burns. Appropriate PPE consisting of chemical googles, chemical gloves, chemical face shield, chemical resistant apron and long sleeve shirt made of synthetic materials are required for this work.

a. IF broken batteries are encountered, REFER to GHS-SDS and/or MSDS numbers in specific vendor information AND

FOLLOW proper handling and controls.
5.1 Perform Inspection and Testing (Cont.)

5.1.19.4 IF unable to repair/replace within 24 hours, PROVIDE portable emergency lighting in the affected area(s) until the permanent fixture(s) can be repaired or replaced.

NOTE - Notification to the Area Shift Manager/Central Shift Office to contact Environmental will ensure a proper evaluation of regulatory actions for the identified emergency equipment (i.e. emergency lighting monthly verification of operability inspection).

5.1.19.5 NOTIFY the Area Shift Manager/Central Shift Office to contact Environmental and provide details concerning the emergency lighting to be repaired/replaced within 24 hours including the use of portable emergency lighting in lieu of the permanent fixture. (RPP-16922, Tables 5-2, 6-1, 7-4 and 8-6)

5.1.19.6 DOCUMENT action in the comment section of the Data Sheet for equipment history records.

5.1.20 IF an emergency light has been repaired or replaced, PERFORM Section 5.0 for that emergency light.
5.2 Restoration

5.2.1 **ENERGIZE** unit(s) AND **CHECK** charge indication is functioning.

5.2.2 **IF** performing Annual inspection **RECORD** charger condition (PASS/FAIL) on Annual Data Sheet.

5.2.3 **DISPOSE** of any batteries that failed inspections as follows:

5.2.3.1 **CONTACT** RadCon Management AND **REQUEST** HPT assistance.

5.2.3.2 **COMPLETE** site forms A-6004-227.

5.2.3.3 **CONTACT** Waste Operations at 372-1208 **AND** **MAKE** arrangements to turn failed batteries over to them.

5.3 Acceptance Criteria

5.3.1 **IF** applicable, **REPAIR OR REPLACE** emergency light(s) found deficient within 24 hours

**OR**

**PROVIDE** portable emergency lighting in the affected area(s) until the permanent fixture(s) are repaired or replaced.

5.3.2 **CONFIRM** light is operational at the end of the 90 minute test for Annual.

**OR**

**CONFIRM** light is operational at the end of the 30 Second test for Monthly.
5.4 Review

5.4.1 INFORM FWS test is complete.

5.4.2 FWS REVIEW AND CONFIRM 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

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.