Perform Field Inspection and Loading of On-Site Transfer Casks During Core Sampling Operations

Tank Farm Plant Operating 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>
</tr>
</thead>
<tbody>
<tr>
<td>I-1</td>
<td>12/03/2018</td>
<td>Periodic Review</td>
<td>Updates to record section and clarifications to Data Sheet 1.</td>
</tr>
<tr>
<td>I-0</td>
<td>07/13/2016</td>
<td>Periodic Review</td>
<td>No changes.</td>
</tr>
<tr>
<td>H-4</td>
<td>06/30/2016</td>
<td>Inconsequential change</td>
<td>Updated Record section.</td>
</tr>
<tr>
<td>H-3</td>
<td>03/02/2016</td>
<td>Address WRPS-PER-2016-0207</td>
<td>Added new Step 2.2.4 to reference TFC-OPS-WM-C-11 and DOE/RL-2001-36.</td>
</tr>
<tr>
<td>H-2</td>
<td>10/21/2015</td>
<td>Revision to 49CFR</td>
<td>Revise RadCon boilerplate statement. Add RadCon statement regarding CA. Delete 4.3.3 regarding Ignition Source controls. Update Data Sheet to comply with 49CFR changes.</td>
</tr>
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5.0 PROCEDURE

5.1 Inspect/Load New Sampler into Cask

5.2 Prepare Loaded Cask for Shipping

5.3 Prepare Field Blank

5.4 Prepare Lithium Bromide Blank

5.5 Complete Chain of Custody Record

5.6 Records

Data Sheet 1 - Cask Inspection
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the inspection of samplers and casks, and loading of samples into Onsite Transfer Casks (OTC) during core sampling operations.

1.2 Scope

1.2.1 This procedure applies to OTC and samplers used for core sampling.

1.2.2 This procedure shall be used only in conjunction with an approved sampling and/or setup procedure when inside the facility's boundaries.

1.2.3 This procedure can be used to support inspection and loading of OTC at Tank Operations Contractor (TOC) tank farms.

1.2.4 This procedure can be performed in multiple locations. A work area and/or location specific hazard analysis must be performed prior to starting the activity per TFC-ESHQ-S_SAF-C-02.
2.0 INFORMATION

2.1 Terms and Definitions

- OTC - Onsite Transfer Cask

2.2 General Information

2.2.1 Vehicle operations are covered by TO-080-090.

2.2.2 This procedure identifies activities or components, as defined by RPP-24398, that have been deemed important to safety with a Quality Level (QL) 1 or QL 2. The steps or checklist items containing the activity or component have the words (RPP-24398).

2.2.3 A hazard assessment was completed on Lithium Bromide (LiBr) 0.3 M aqueous solution that determined the required PPE is covered under the GHA for chemicals use.

2.2.4 This procedure implements the requirements of TFC-OPS-WM-C-11, Surveillance and Maintenance of Reusable Radioactive Material Packaging which in turn establishes and implements the requirements for the surveillance and maintenance process for U.S. Department of Transportation, U.S. Department of Energy (DOE), U.S. Department of Defense, or U.S. Nuclear Regulatory Commission reusable radioactive material packaging as required by DOE/RL-2001-36, Hanford Sitewide Transportation Safety Document (TSD).
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

WARNING - Placing fingers inside sampler may result in severe finger injury.

3.2 Radiation and Contamination Control

3.2.1 An approved work package must be developed which is reviewed by Radiological Control per ALARA work planning procedure TFC-ESHQ-RP_RWP-C-03.

3.2.2 Radiological areas MAY be DOWN-POSTED based on HPT surveys. These areas will be re-posted and adjusted as conditions and work activities require.

3.2.3 This procedure shall be performed within a posted Contamination Area (CA).

3.3 Environmental Compliance

Immediately report any spills or releases to Environmental per the Environmental On-Call list in accordance with TFC-ESHQ-ENV_FS-C-01. This includes liquid containing Lithium Bromide if spilled at any time, regardless of location inside or outside of a Tank Farm.

3.4 Limits

TECHNICAL SAFETY REQUIREMENTS

RPP-24398 Package Specific Safety Document On-Site Transfer Cask

<table>
<thead>
<tr>
<th>Controls</th>
<th>Specification Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological Limitations</td>
<td>The limits are 10 mSv/h (1,000 mrem/h) total for the sum of up to 3 OTCs, 2 mSv/h (200 mrem/h) at the edges of the vehicle surface or top of load and 0.1 mSv/h (10 mrem/h) at 2 m (80in) from vehicle surface. There is an additional limit of 0.05 mSv/h (5 mrem/h) in any normally occupied space for qualified radiation workers, or 0.02 mSv/h (2mrem/h) for non-radiation workers. Supplemental shielding shall be used as required to meet the above radiological limits for the driver space and edges of the vehicle. (RPP-24398)</td>
</tr>
<tr>
<td>Time Restrictions</td>
<td>Based upon the results on flammable gas generation analysis, a shipping window of 99 hours is established for the OTC. After 99 hours, the OTC must be vented before further transport. (RPP-24398)</td>
</tr>
</tbody>
</table>
4.0 PREREQUISITES

4.1 Performance Documents

The following procedures may be required to perform this procedure:
- TO-080-090, Transfer The Onsite Transfer Cask
- TO-100-052, Perform Waste Generation, Segregation, Accumulation and Clean up

4.2 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure:
- Torque Wrench
- Cycling tool used in Step 5.1.1.1
- Review of GHS-SDS and/or MSDS for Lithium Bromide.

4.3 Field Preparation

4.3.1 ENSURE an approved Industrial Hygiene Sample Plan (IHSP) is in place.

4.3.2 ENSURE a work area and/or a location specific hazards analysis has been performed per TFC-ESHQ-S_SAF-C-02.
5.0 PROCEDURE

5.1 Inspect/Load New Sampler into Cask

NOTE - All steps of this section may be performed in any logical order with the exception of Step 5.1.6, which must be performed last.

5.1.1 PERFORM the following to cycle sampler:

5.1.1.1 USE cycling tool or other Engineering approved method AND CYCLE pintle rod.

WARNING
Placing fingers inside sampler may result in severe finger injury.

5.1.1.2 VISUALLY CONFIRM piston moved with pintle rod.

5.1.1.3 RETURN pintle rod to original position.

5.1.1.4 CONFIRM pintle guide is fully engaged by the ball detents.

5.1.2 IF knife edge seal is dented or bent, DO NOT USE sampler AND INFORM Field Work Supervisor (FWS) of sampler condition.

5.1.3 ENSURE cask is in an upright position. (RPP-24398)

5.1.4 COMPLETE Pre-Use Inspection portion of Data Sheet 1.

5.1.5 IF rust is noticed on cask body, DOCUMENT rusted condition on Work Record.

NOTE - Installation of sampler is not necessary if sampler is hand loaded or if taking first sample.

5.1.6 LOAD empty sampler into cask.
5.2 Prepare Loaded Cask for Shipping

5.2.1 PERFORM Pre-Ship Inspection portion of Data Sheet 1.

5.2.2 INSTALL waste tank sample seal on cask.

5.3 Prepare Field Blank

5.3.1 IF directed by FWS, PERFORM Section 5.3, OTHERWISE GO TO Section 5.4.

5.3.2 CYCLE piston on sampler 1/3 to 1/2 stroke.

5.3.3 FILL sampler 1/3 to 1/2 full with de-ionized water from laboratory.

5.3.4 TRANSFER contents of sampler into clean bottle (approximately 100 ml) AND

RETURN sampler piston to original position.

5.3.5 INSTALL waste tank sample seal on bottle AND CONFIRM seal must be broken to reopen bottle.

5.3.6 ENSURE sampler serial number used for field blank is recorded in COMMENT BLOCK of Chain of Custody form.

WARNING
Placing fingers inside sampler may result in severe finger injury.
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5.4 Prepare Lithium Bromide Blank

5.4.1 IF directed by FWS, PERFORM Section 5.4.

5.4.2 FILL small sample bottle with 100 (70-130) ml from same batch used during sampling.

5.4.3 ENSURE waste tank sample seal is installed on sample bottle and cap.

5.5 Complete Chain of Custody Record

5.5.1 ENSURE preliminary sections on CHAIN OF CUSTODY RECORD FOR WTS (BC-6001-326) for each sample are complete per instructions on back of form.
5.6 Records

5.6.1 Perform the following for records identified within this procedure.

5.6.1.1 Record the number of times the record was generated in applicable column

OR

PLACE a check mark (✓) in the N/A column.

5.6.1.2 Submit the package for verification of completed records.

<table>
<thead>
<tr>
<th>Records Submittal Checklist</th>
<th>Number of times completed</th>
<th>N/A (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 Complete Chain of Custody Record</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Sheet 1 - Cask Inspection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FWS/OE/Shift Manager SEND the completed records to the Central Shift Office for records retention

________________________________________ / ______________________________________ / _____________

Signature Print (First & Last) Date

FWS/OE/Shift Manager

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.
Perform Field Inspection and Loading of On-Site Transfer Casks During Core Sampling Operations

Data Sheet 1 - Cask Inspection

<table>
<thead>
<tr>
<th>TANK#</th>
<th>RISER#</th>
<th>CORE#</th>
<th>WORK PKG#</th>
<th>Operator</th>
<th>QC Verification</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
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<td></td>
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</tbody>
</table>

**PRE-USE INSPECTION** VERIFY THE FOLLOWING (CHECK if satisfactory)

- QA inspection on cask is current (see stamp below flange) (RPP-24398)  
- No broken welds are found (RPP-24398)  
- No punctures > 1/4" that could affect containment are found (RPP-24398)  
- No lid distortions (RPP-24398)  
- Lid serial # matches cask #  
- Cask is free of foreign material  
- Review Radiological Support Survey (RSR) by cask serial number prior to opening cask. (Survey is performed prior to shipment from 222-S laboratory per ATS-LO-161-172).**  
- Ensure cask smearable (removable) internal contamination does not exceed the following: beta-gamma 50,000 dpm/LAW(swab), alpha 70dpm/LAW(swab).**  
- New liner is in cask, is in good condition (no perforations or rust) and has counter bore present (RPP-24398)  
- All bolts are in good condition (no galled threads, suspect head markings, or cracks) and are free of corrosion (discoloration acceptable) (RPP-24398)  
- INITIAL and DATE

**PRE-SHIP INSPECTION** VERIFY THE FOLLOWING (CHECK if satisfactory)

- New rubber stopper (thermos) is in good condition (no degradation of rubber) (RPP-24398)  
- Rubber stopper (thermos) installed and tightened by hand. (RPP-24398)  
- DATE/TIME  
- Matching numbered flange and new gasket installed (pliable, no cracks, no cuts, or discoloration). (RPP-24398)  
- Ensure flange bolts are ASTM A193 grade B7 by verifying bolts have B7 on them or from Green/Transfer tag (with QL-1/Full Quality).  
- Cask lid to cask body bolts installed and torqued in alternating manner to 35 (30-40) ft-lbs. (RPP-24398)  
- Ensure lifting bail is operable and welded joints are not corroded. (RPP-24398)  
- Lifting bail is raised, locked and bolted. (RPP-24398)  
- Bottom plug is in place and torqued to 19 ft-lb (15 to 23 ft-lb) or 25.76 N-m (20.34 to 31.18 N-m). (RPP-24398)  
- INITIAL, DATE AND TIME OTC SEALED. (RPP-24398)

** Radioactive material label/tag including internal survey data, signature and date satisfies requirement as long as acceptance criteria is met. This inspection ensures smearable (removable) internal contamination does not exceed the following: beta-gamma 24000 dpm/cm², alpha 2400 cpm/cm² (RPP-24398).