Perform Sampling, Repackaging and Shielding of Waste Packages

Tank Farm Plant Operating Procedure

BURIAL & WASTE

USQ # GCX-2

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<th>Change History (≤ last 5 Rev-Mods)</th>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the sampling of radiological and hazardous chemical contents, and the return of unused sample residuals. It also provides instructions for the repackaging, shielding and verification of waste packages.

1.2 Scope

1.2.1 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.

1.2.2 This procedure applies to waste sampling, repackaging, shielding, and verification activities performed by Waste Operations.

1.2.3 This procedure applies to mixed, hazardous, low-level, non-regulated and unknown waste streams.

1.2.4 This procedure does not apply to sampling of liquid tank waste, high level radioactive waste streams, and Waste Tank Sampling (WTS) activities.
2.0 INFORMATION

2.1 Terms and Definitions

- Waste Operation (WO) - Group responsible for issuing, delivering, handling, and pick up of Tank Farm waste containers.
- Waste Technical Services (WTS) - Technical Authority for handling and packaging of tank farm waste.

2.2 General Information

2.2.1 A pre-job briefing must be conducted prior to the start of this procedure. The pre-job briefing must cover, where applicable, Waste and Recyclable Material Handling, chemical product MSDSs, and RWP information for the planned activity.

2.2.2 A post-job briefing may be conducted upon completion of work performed in accordance with this procedure.

2.2.3 Sampling methods and equipment used to acquire samples may vary according to waste types.

2.2.4 Tasks in this procedure performed by Operations and Radiological Control personnel may be performed concurrently as long as all steps are completed.

2.2.5 Tank Farm Sampling Operations and/or Groundwater Sampling Operations perform RCRA sampling with the support of Waste Operations.

2.2.6 When in reference to waste package, a package includes the waste container and the waste.

2.2.7 If desired, an environmental shelter may be used to provide protection from the elements while performing this procedure. This shelter is not a radiological enclosure by itself, however, the shelter may contain radiological posting as needed to properly control the work area.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

WARNING - Gas generation from radiolytic or biological decomposition may result in pressurization and the presence of combustible gas in waste containers that may cause injury to personnel.

3.2 Radiation and Contamination Control

3.2.1 When this procedure is worked in radiological areas, an approved radiological work permit (RWP) is required. If radiological conditions or work performed falls outside the scope of the RWP, all work activities must be discontinued until a new or revised RWP has been issued in accordance with TFC-ESHQ-RP_RWP-C-03, ALARA Work Planning.

3.2.2 When sampling radioactive liquids or HEPA filter waste packages, an approved work package must be developed and reviewed by Radiological Control per the ALARA Work Planning procedure TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Notification

3.3.1 In the event of a spill or release to the environment, the Shift Manager must be notified. The Shift Manager will make appropriate notifications to Environmental personnel.

3.3.2 Spills or releases regardless of the quantity of the hazardous substance, hazardous materials, dangerous/hazardous waste, mixed waste, and radioactive waste must be reported to Environmental per on call list so that it may be reported in accordance with TFC-ESHQ-ENV_FS-C-01.

3.4 Limits

ALARACT (HNF-4327)

ALARACT 04.1 Tank Farm ALARCT Demonstration for Packaging and Transportation of Waste
4.0 **PREREQUISITES**

NOTE - Waste Operations management at the pre-job meeting, may specify additional equipment, supplies and tools.

4.1 **Special Tools, Equipment and Supplies**

The following supplies may be needed to perform this procedure:

- Container markings and labels
- Communication device (Two-way radio, cellular phone, etc.)
- Sampling equipment and containers
- Emery Cloth
- Box Knife
- Packaging material
- Permanent, black ink marker
- Radiation monitoring equipment
- Scissors
- Shielding material (lead blankets, lead sheets)
- Smear Material
- Socket wrench (15/16) with ratchet
- Tape
- Bags.
4.2 Performance Documents

The following documents may be needed to perform this procedure:

- TO-100-052, Perform Waste Generation, Segregation, Accumulation and Clean-up
- TO-100-065, Operate and Inspect Waste Pad Areas and Perform Supporting Tasks
- 6-Point Survey Form (Boxes) (A-6003-376)
- 6-Point Survey Form (Drums) (A-6003-377)
- Chain Of Custody/Sample Analysis Request (A-6003-432)
- Groundwater Sampling Organization Chain of Custody (A-6001-774) or (A-6004-842)
- Generator Certification (A-6003-117)
- Generator Knowledge Information Form (A-6002-990)
- Generator Radiation Survey Form (A-6003-375)
- Radiological Release Certification Form (A-6003-131)
- Tank Farm Contractor Chain-Of-Custody (A-6003-962).

4.3 Field Preparations

4.3.1 ENSURE a work area and/or a location specific hazards analysis has been performed per TFC-ESHQ-S-SAF-C-02.

4.3.2 ENSURE safety shower and eyewash stations are available prior to beginning sampling activities.

4.3.3 ENSURE all equipment, supplies, and tools identified in pre-job meeting are available at work site.

4.3.4 IF pressurization and/or the presence of combustible gas is suspected in waste package, STOP AND NOTIFY Supervisor/Lead.

4.3.5 MOVE waste packages identified in pre-job to work site as needed.

4.3.6 ENSURE work area radiological postings are correct when radiological work is being performed.

4.3.7 ENSURE all prerequisites are met.
5.0 PROCEDURE

NOTE - Sections 5.1 through 5.5 may be performed in any logical order.

5.1 Sampling Performed In Conjunction with Other Organizations

WARNING
Gas generation from radiolytic or biological decomposition may result in pressurization and the presence of combustible gas in waste containers that may cause injury to personnel.

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5.1.1 OPEN package designated for sampling.

5.1.2 WORK with other sampling organization personnel to obtain sample.

5.1.3 WHEN sampling of package is completed, or before leaving work area, ENSURE each package that was opened is securely closed.

5.1.4 NOTIFY WO Supervisor/Lead when sampling activities are complete.
5.2 **Perform Radiological Characterization/Smear Sampling**

**NOTE** - A composite sample is obtained from more than one source. The following steps are applied to each source and combined to make composite sample.

- All items with removable contamination of > 100,000 dpm/100 cm² beta-gamma, > 2,000 dpm/100 cm² alpha or with unknown levels of contamination are required to be double bagged by generator prior to acceptance by WO.

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5.2.1 **IF** items are found with removable contamination at one of the following levels, **ENSURE** items are double bagged

- > 100,000 dpm/100 cm² beta-gamma, and > 2,000 dpm/100 cm² alpha
- With unknown levels of contamination.

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5.2.2 **SURVEY** source of the sample. (HNF-4327)

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**WARNING**

Gas generation from radiolytic or biological decomposition may result in pressurization and the presence of combustible gas in waste containers that may cause injury to personnel.

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5.2.3 **REMOVE** individual item to be sampled.

5.2.4 **LOCATE** areas of highest radioactivity in or on item.

5.2.5 **MAKE** a small opening in waste bag at location identified in Step 5.2.4.

5.2.6 **USE** a technical smear filter **AND**

**SMEAR** item through opening in waste bag until filter is believed to retain representative radiological activity.

5.2.7 **SURVEY** filter.

5.2.8 **IF** filter is > 5000 dpm per 100cm squared beta-gamma, **PLACE** it in a pre-labeled Petri dish **AND**

**SEAL** Petri dish closed.

5.2.9 **RESEAL** the cuts in the waste bags in a secure manner.
Perform Sampling, Repackaging and Shielding of Waste Packages

5.2 Perform Radiological Characterization/Smear Sampling (Cont.)

____ 5.2.10 SURVEY both the outside of the sample and the original waste bag.

____ 5.2.11 DECONTAMINATE outside of sample container and/or waste bag as needed.

____ 5.2.12 PLACE resealed waste bag into a new bag AND

SEAL with a J-Seal.

____ 5.2.13 PLACE sample into a waste bag AND

SEAL waste bag closed.

____ 5.2.14 NOTIFY WO Supervisor/Lead when sampling activities are complete.

____ 5.2.15 PERFORM a post job radiological survey. (HNF-4327)
5.3 Perform Radiological Composite Sampling of Soils

NOTE - All items with removable contamination of > 100,000 dpm/100 cm$^2$ beta-gamma, > 2,000 dpm/100 cm$^2$ alpha or with unknown levels of contamination are required to be double bagged by the generator prior to acceptance by Waste Operations (WO).

5.3.1 IF items are found with removable contamination at one of the following levels, ENSURE items are double bagged
- > 100,000 dpm/100 cm$^2$ beta-gamma, and > 2,000 dpm/100 cm$^2$ alpha
- With unknown levels of contamination.

5.3.2 REVIEW RWP for special requirements for soil sampling.

5.3.3 PERFORM a radiological survey of the source package. (HNF-4327)

5.3.4 OPEN package AND
LOCATE areas of radioactivity within the soil to be sampled.

5.3.5 IDENTIFY these areas from which to take the sample.

5.3.6 REMOVE soil bags from container AND
MAKE a small opening in bags at location identified earlier.

NOTE - Mixing of the composite soils is important. Soils may be placed in a clean bowl or stirred within the sample jar if sufficient headspace is available.

5.3.7 USE a clean spoon or trowel AND PERFORM the following:

5.3.7.1 REMOVE a small amount of soil from each targeted location.

5.3.7.2 PLACE in a waste bag.

5.3.8 MIX gently to blend soil.

5.3.9 IF a bowl or other container is used for mixing the composite soils, USE a spoon or trowel AND
ENSURE sample container is FILLED to laboratory requirements.

5.3.10 WIPE sample container clean after closing.
### 5.3 Perform Radiological Composite Sampling of Soils (Cont.)

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<tr>
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<tr>
<td>5.3.11</td>
<td><strong>SEAL</strong> opening in each waste bag previously opened with tape.</td>
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<tr>
<td>5.3.12</td>
<td><strong>DECONTAMINATE</strong> outside of sample container and/or waste bag.</td>
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<tr>
<td>5.3.13</td>
<td><strong>PLACE</strong> waste bag into a second waste bag, <strong>SEAL</strong> with a J-Seal.</td>
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<tr>
<td>5.3.13.1</td>
<td><strong>PLACE</strong> waste bags back into the container.</td>
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<tr>
<td>5.3.14</td>
<td><strong>PERFORM</strong> a post work radiological survey. <em>(HNF-4327)</em></td>
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<td>5.3.15</td>
<td><strong>IDENTIFY</strong> any additions or changes to contents on container inventory sheet.</td>
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<tr>
<td>5.3.16</td>
<td><strong>NOTIFY</strong> WO Supervisor/Lead when sampling activities are complete.</td>
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</table>
5.4 Prepare Samples for Transport

_____ 5.4.1 OBTAIN sample and all related paperwork.

_____ 5.4.2 FOR radiological samples only, PERFORM the following. (HNF-4327)

_____ 5.4.2.1 PERFORM a radiological survey of exterior of sample container.

_____ 5.4.2.2 ATTACH shipment information AND APPLY radioactive material tag to outer most container.

_____ 5.4.2.3 PLACE sample into a waste bag AND SEAL waste bag closed,

OR

PREPARE according to pre-job instructions.

NOTE - The following completed and signed forms must accompany the sample(s) from sample point to the lab:

- Chain-Of-Custody/Sample Analysis Request,
- Groundwater Sampling Organization Chain of Custody
- And/or Tank Farm Contractor Chain-Of-Custody
- Generator Knowledge information.

_____ 5.4.3 ENSURE WO Engineering has completed the following applicable documents that must accompany the sample(s) from the sample point to the lab:

- Chain-Of-Custody/Sample Analysis Request (A-6003-432)
- Groundwater Sampling Organization Chain of Custody (A-6001-774 or A-6004-842)
- And/or Tank Farm Contractor Chain-Of-Custody (A-6003-962)
- Generator Knowledge Information Form (A-6002-990).

_____ 5.4.4 PLACE sample and all related paperwork in the holding area defined in pre-job meeting to await transport.
Perform Sampling, Repackaging and Shielding of Waste Packages

5.5 Waste Repackaging and Verification

_____ 5.5.1 PERFORM work activity according to WO Engineering instructions.

_____ 5.5.2 UPDATE container inventory sheets to reflect repackaging changes.

_____ 5.5.3 NOTIFY Supervisor/Lead when repackaging activities are complete.

_____ 5.5.4 RETURN all completed paperwork to WO dispatch.
5.6 Shielding of Waste Packages

NOTE - In order to account for variation in dose rate instrument readings, an administrative limit for tank farms solid waste is set at 80 mrem/hr at 30 cm (11.8 in.) and 180 mrem/hr at contact.

5.6.1 IF dose rate of any package is 80 mrem/hr at 30 cm (11.8 in.) or 180 mrem/hr at or greater than contact, NOTIFY WO Supervisor/Lead.

5.6.2 IF more or different shielding is required, OBTAIN a shielding plan from WO Engineering to meet transport requirements AND FOLLOW shielding instructions per shielding plan.

5.6.3 LIST all shielding material added on the Waste Inventory Sheet.

5.6.4 PERFORM and complete a 6-Point Survey when shielding limits are met.

5.6.5 DELIVER the following documents to WO Dispatch:

- 6-Point Survey Form (Boxes) (A-6003-376)
- 6-Point Survey Form (Drums) (A-6003-377)
- Generator Certification (A-6003-117)
- Waste Inventory Sheet (A-6002-936).
5.7 Securing Work Area

_____ 5.7.1 RETURN packages to their assigned storage areas.

_____ 5.7.2 CLEAN AND REMOVE any debris from work area AND RETURN supplies and equipment to their appropriate storage areas.

_____ 5.7.3 NOTIFY WO Supervisor/Lead that the work area is secure.
Perform Sampling, Repackaging and Shielding of Waste Packages

5.8 Restoration

None
5.9 Records

5.9.1 PERFORM the following for records identified within this procedure.

5.9.1.1 RECORD the number of times the record was generated in applicable column

OR

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

5.9.1.2 PLACE the complete records in the PIN file,

OR

SUBMIT the package to the record custodian.

Records Submittal Checklist

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<tr>
<th>Records Submittal Checklist</th>
<th>Number of times completed</th>
<th>N/A (✓)</th>
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<tr>
<td><strong>Section 4.3 Field Preparations</strong></td>
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<td>Step 4.3.1</td>
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<tr>
<td><strong>Work Records</strong></td>
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<tr>
<td>Completed Working Copy of this procedure</td>
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<tr>
<td><strong>Forms</strong></td>
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<tr>
<td>A-6003-376, 6-Point Survey Form (Boxes)</td>
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<tr>
<td>A-6003-377, 6-Point Survey Form (Drums)</td>
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<td>A-6003-131, Radiological Release Certification Form</td>
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### 5.9 Records (Cont.)

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<td><strong>Forms (Cont.)</strong></td>
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<tr>
<td>A-6002-936, Tank Farm Waste Inventory Sheet Form</td>
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<tr>
<td>A-6003-962, Tank Farm Contractor Chain-Of-Custody Form</td>
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<tr>
<td>Record Custodian <strong>RETAIN</strong> the completed records per Waste Management procedures.</td>
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<tr>
<td>_______________________________/ _______________________________/ ____________</td>
<td>Signature</td>
<td>Print (First and Last)</td>
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<tr>
<td>Record Custodian</td>
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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.