Sulfuric Acid/Acid Solution Spill Cleanup

Tank Farm Plant Operating Procedure Effluent Treatment Facility

USQ Not Required - ETF is a <Hazard Category 3 Radiological Facility

<table>
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<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<tr>
<td>A-2</td>
<td>09/20/2018</td>
<td>User driven updates</td>
<td>Update to the scope, revised RadCon statement, additional performance documents cited, and updated records section.</td>
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<td>Inconsequential change</td>
<td>Updated records section.</td>
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<td>New Procedure; Supersedes ETF-PRO-OP-51562 (POP-85B-001)</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the safe cleanup of sulfuric acid or acidic process water spills at ETF.

1.2 Scope

This procedure is performed only when directed by one of the following procedures:

- ETF-ERP-85B-003, Emergency Spill or Release at ETF
- ETF-AOP-85B-003, Response to ETF Spills or Releases.

This procedure applies to cleanup of a sulfuric acid (H₂SO₄) or acidic process water (radioactive or non-radioactive) spill as a recovery action when directed by the ERP or the AOP.

2.0 INFORMATION

2.1 General Information

2.1.1 TFC-OPS-OPER-C-24, Occurrence Reporting, requires notification of spills and unplanned releases within 30 minutes of discovery to the Hanford Emergency Operations Center (EOC) Shift Office at 376-2900. EOC can provide review of the spill information to help with classification or regarding what further reporting requirements or contacts may need to be initiated.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

**WARNING** - Sulfuric acid/acid solution causes eye irritation and may cause skin and respiratory tract irritation.

3.1.1 Do not add water to concentrated sulfuric acid. Use of flushing water on sulfuric acid spills requires specific approval by the SOM.

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.

3.2.2 If spill contains radioactive material, cleanup work will require an RWP.

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.

3.3.2 Spilled process chemicals shall not be reused without prior approval from the SOM.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:

**Recommended PPE**
- Chemical resistant suit (e.g., Tychem)
- Chemical resistant tape
- Chemical resistant boots
- Chemical caustic-resistant gloves (e.g., Butyl)
- Tight-fitting goggles and face shield.

**Optional equipment**
- Pogo Pump or other portable pump and hose
- Warning signs
- Absorbent pads or pillows (pink pigs)
- Neutralizers (e.g., Spill-X-A or sodium bicarbonate for acid spills)
- Hazardous waste containers
- Poly bags - 10 mil
- pH or litmus paper
- Hazardous waste labels
- Commercial universal spill kit
- Spark proof plastic shovel
- Nylon bristle broom
- Water spray can or bottle
- Anti-contamination clothing.
4.2 Performance Documents

The following documents may be needed to perform this procedure:
- ETF-60K-001, Operate Waste Storage/Accumulation Areas
- ETF-65D-003, Package Waste
- GHS for sulfuric acid (H₂SO₄)
- TFC-OPS-OPER-C-24, R Occurrence Reporting.

4.3 Field Preparations

4.3.1 ENSURE the following are completed:
- Spill area is isolated
- Boundaries are identified
- Affected area is posted.

4.3.2 IDENTIFY the spill as sulfuric acid or acidic process water.

4.3.3 CONTACT Safety and Health for the following requirements:
- Air monitoring
- Heat stress.

4.3.4 CONTACT Waste Technical Services for waste packaging requirements.
5.0 PROCEDURE

NOTE - SOM has the responsibility to determine the appropriate method(s) for spill cleanup. The method(s) chosen should minimize waste generation to the maximum extent possible.

5.1 General Spill Cleanup Requirements

5.1.1 (SOM) **COMPLETE** Attachment 1.

NOTE - The RWP and job-specific radiological controls will be established at this time.

5.1.2 (SOM) **PERFORM** a pre-job briefing, including:

- Personnel assignments
- Review of RWP
- MSDS/SDS for information relevant to hazards, neutralizing agents, and PPE
- Safety equipment
  - Safety shower location
  - PPE
  - Spill kit cleanup equipment.
- Procedures or actions
- Waste handling and packaging; contact Waste Technical Services
- General cleanup techniques and methods
- Actions to perform if unanticipated problems arise (e.g., a person becomes contaminated [unprotected skin, eyes, or clothing] with sulfuric acid/acid solution):
  - Emergency medical assistance (911 or 509-373-0911 from cell phone) or HAZMAT support.
- Heat/cold stress consideration (i.e., Safety and Health).
5.1 General Spill Cleanup Requirements (Cont.)

WARNING
Sulfuric acid/acid solution causes eye irritation and may cause skin and respiratory tract irritation.

5.1.3 DON PPE as directed by SOM:
- Chemical resistant suit (e.g., Tychem)
- Chemical resistant tape
- Chemical resistant boots
- Chemical caustic-resistant gloves (e.g., Butyl)
- Tight-fitting goggles and face shield.

5.1.4 COMPLETE spill cleanup in accordance with the following:
- Pre-job briefing
- Recovery plan (Attachment 1)
- Designated RWP.

NOTE - Calls for emergency medical assistance require entry into TFC-OPS-OPER-C-24.

5.1.5 IF conditions develop outside the boundaries of the pre-job briefing, recovery plan (Attachment 1), or RWP, PERFORM the following:

5.1.5.1 SUSPEND work.

5.1.5.2 EXIT spill area.

5.1.5.3 CONTACT SOM for directions.

5.1.6 DISPOSE of all waste generated during cleanup activities in accordance with established waste handling procedures.

5.1.7 CLEAN all tools used in cleanup activities AND STOW in appropriate location.

5.1.8 UPON completion of cleanup, WASH with soap and water.
5.2 Clean Up Spill by Absorption

5.2.1 COMPLETE Steps 5.1.1 through 5.1.3 AND PROCEED with spill cleanup by absorption.

5.2.2 CIRCLE the spill using socks or other absorbent material provided in spill kit.

5.2.3 PLACE absorbent material over spill.

5.2.4 PLACE saturated absorbent materials into disposal bag.

5.2.5 (HPT) IF in a radiological area, PERFORM radiological surveys on bag.

5.2.6 DISPOSE of waste in accordance with approved waste handling procedures.

5.2.7 REPEAT Steps 5.2.3 to 5.2.6 until all liquid is absorbed and absorbents are placed into approved waste container.

5.3 Neutralize Spill Residue

5.3.1 COVER spill area with a dusting of neutralizing agent identified in recovery plan (e.g., soda ash, etc.).

5.3.2 PLACE neutralized mixture into waste bags AND DISPOSE of in accordance with established waste handling procedures.

5.3.3 (HPT) IF in a radiological area, PERFORM radiological surveys on bag.
5.4 Check pH of Spill Area

5.4.1 MOISTEN several locations in spill area.

5.4.2 PLACE a piece of pH or litmus paper at the moistened locations.

5.4.3 IF pH is less than 6.0, GO TO Section 5.3 for neutralization.

5.4.4 IF pH is between 6.0 and 8.0, ABSORB excess liquid with absorbents AND
GO TO Section 5.5.

5.4.5 IF pH is greater than 8.0, CONTACT SOM for further direction.

5.4.6 CLEAN all tools used in cleanup activities AND
STOW in appropriate location.

5.4.7 UPON completion of cleanup, WASH with soap and water.

5.5 Restore Spill Area to Normal

5.5.1 REMOVE spill containment barriers.

5.5.2 RELEASE the area.

5.5.3 ENSURE the following are complete:

- Spill information is recorded in the Facility Spill and Release Log (in accordance with ETF-ERP-85B-003)
- Recovery plan is attached, if generated (Attachment 1).

5.5.4 DOCUMENT cleanup activities in ETF Control Room Logbook.
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>Forms</td>
<td></td>
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<td>Attachment 1 - Recovery Plan - Short Form</td>
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FWS/OE/Shift Manager SEND the completed records to the Central Shift Office for records retention.

_________________________________________ / ______________________________ / ____________
Signature                             Print (First and Last)            Date

FWS/OE/Shift Manager

The record custodian identified in the Company Level Record Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
1.0 OBJECTIVE

Restore spill area to normal.

2.0 EXPECTED CONDITIONS

Spilled Material: ________________________________

Quantity of spilled material: ________________________________

Spill Area Boundaries: ________________________________

Expected Hazards: ________________________________

Industrial Hygiene recommendations: ________________________________

Tools/Equipment: ________________________________

Protective Equipment: ________________________________

Clean Up Method: ________________________________

Waste Disposition: ________________________________

Personnel and Assignments: ________________________________
Schedule: ____________________________________________________________

Overview of Activities: ________________________________________________

____________________________________________________________________

3.0 REQUIRED ATTACHMENTS

- MSDS/SDS for suspected spill material(s)
- MSDS/SDS for neutralizing agent, if used
- Radiation Work Permit, if used.

____________________________________________________________________

Signature / Print / Date

SOM Approval

4.0 WASTE HANDLING & PACKAGING

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________