Chapter 16: Spills

Quick Start Summary

Product ID: 498 | Revision ID: 1871 | Date published: 4 October 2016 | Date effective: 4 October 2016
URL: http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsQuickstart.pdf

1 Who needs to know about these requirements

The requirements of Spills apply to workers, supervisors, the Waste Management Group and Environmental Protection and Radiation Protection departments, the Facilities and Operations Division, SLAC Site Security, and the local fire department.

2 Why

Spills, defined as the release of any material that results in an increased risk or potential risk to human health, the environment, and/or property, must be contained and cleaned up in a manner that minimizes risk to human health, the environment, and/or property, and reported in compliance with Department of Energy (DOE) requirements and state and federal regulations.

3 What do I need to know

Workers are authorized to respond to spills only if all these conditions are met:
1. Handling the spilled material is already in their work planning and control documentation.
2. The appropriate personal protective equipment (PPE) and spill response material is available.
3. It is safe to do so.

Properly trained responders will handle all other spills. All spills must be reported, using SLAC’s incident notification procedure: for emergencies call 911, then SLAC Site Security (ext. 5555), then supervisor; for non-emergencies, call supervisor, then SLAC Site Security (security immediately if supervisor is unavailable). This ensures that management will be notified, the spill will be cleaned up safely, waste materials will be disposed of properly, and all reporting and recordkeeping requirements will be met.

4 When

The requirements of this chapter take effect 4 October 2016.

5 Where do I find more information

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- “Chapter 16, Spills”

Or contact the program manager.
1 Purpose

The purpose of this program is to ensure all spills, defined as the release of any material that results in an increased risk or potential risk to human health, the environment, and/or property, are contained and cleaned up in a manner that minimizes potential risk and are reported in compliance with Department of Energy (DOE) requirements and state and federal regulations.

It covers spill response from discovery through notification, assessment, response, cleanup, and reporting for all types of spills, from those of domestic water or sewage that enters the storm drain system to radioactive and hazardous materials and waste. It applies to all workers discovering and responding to spills and their supervisors, the Waste Management Group and Environmental Protection and Radiation Protection departments, the Facilities and Operations Division, SLAC Site Security, and the local fire department.

2 Roles and Responsibilities

Functional roles and general responsibilities for each are listed below. More detailed responsibilities and when they apply are provided in the procedure and requirements.

The roles may be performed by one or more individuals and one individual may play more than one role, depending on the structure of the organizations involved. Responsibilities may be delegated.

2.1 Worker

- Reports all spills using SLAC’s incident notification procedure: for emergencies calls 911, then SLAC Site Security (ext. 5555), then supervisor; in non-emergencies, calls supervisor, then SLAC Site Security (security immediately if supervisor is unavailable)
- Follows proper spill response actions and never attempts to control or cleanup a spill that poses a risk to human health, for which he or she is unsure of hazards posed or ways to mitigate them, or for which he or she has not already been authorized via work planning and control to handle the spilled material
- Wears appropriate personal protective equipment (PPE) and uses compatible spill response material

2.2 Supervisor

- Ensures workers know the notification protocol and carry it out
- Ensures workers know how to assess spills and are aware of which types of spills they are authorized to address
- Ensures that workers’ work planning and control documentation includes spill hazards and mitigation measures applicable to their job description and that workers complete required training

2.3 Subcontractor
- In addition to all responsibilities of a worker, reports all spills to the SLAC project manager and/or field construction manager (FCM) immediately or as soon as reasonably possible

2.4 Project Manager / Field Construction Manager
- Includes spill hazards and mitigation measures in relevant work planning and control documentation

2.5 SLAC Site Security
- Carries out required notifications whenever a spill is reported (may include notifying the facility manager, facility manager designee, spills program manager, the Waste Management Group, the Radiation Protection Department, and other appropriate support personnel)
- Provides traffic control and/or cordon off a spill area as needed
- Assists emergency responders as needed

2.6 Local Fire Department
- Provides professional spill response and containment

2.7 Waste Management Group
- Provides containers, cleanup material, and equipment to contain spills
- Provides guidance for spill equipment
- Arranges cleanup of non-emergency spills as needed
- Responds to spills during business hours and provide backup during non-business hours
- Provides oversight of subcontracted spill responders
- Assists emergency responders as needed

2.8 Radiation Protection Department
- Responds to radioactive material spills and acts as the ESH contact
- Reports radioactive material spills to regulatory agencies as needed
- Prepares follow-up written reports, as required
2.9 Facilities and Operations Division

- Responds to water and sewage spills caused by broken pipes or back-ups and assist with cleanup
- Shuts off valves to minimize the spill
- Contacts sanitary sewer plumbing subcontractor as needed to clear pipes

2.10 Program Manager

- Assists personnel in identifying spill prevention measures
- Reviews constructions plans for spill prevention controls
- Documents and evaluates the environmental impact of spills
- Confirms proper cleanup completed
- Meets internal notification and tracking requirements, including completing a spill report form and maintaining a record of spill report information
- For non-radioactive spills that exceed reportable quantities, reports spills to regulatory agencies
- Prepares follow-up written reports as required
- Identifies corrective actions resulting from a spills incident investigation

3 Procedures, Processes, and Requirements

These documents list the core requirements for this program and describe how to implement them:

- Spills: Response, Cleanup, and Reporting Procedures (SLAC-I-750-0A16C-006). Describes procedures for response, cleanup, and reporting for all types of spills

4 Training

There is no dedicated course related to reporting or responding to a spill of hazardous or non-hazardous materials at SLAC. There are, however, multiple courses that address this topic as it applies to a broader subject. For example, Chapter 17, “Hazardous Waste”, Chapter 40, “Chemical Lifecycle Management”, Chapter 52, “Hazardous Materials and Waste Transportation”, and Chapter 53, “Chemical Safety”, have training requirements for workers who have responsibilities for hazardous materials or waste; Chapter 26, “Stormwater”, for those who perform activities outdoors that have the potential to impact stormwater run-off; and Chapter 9, “Radiological Safety”, for those entering radiologically controlled areas or who handle radioactive materials. Information on these courses can be found in the “Training” section of these chapters.

Basic spill awareness training is included in the following course:

- ESH Course 219, Environment, Safety, and Health Orientation (ESH Course 219)

Personnel who have completed this course may stop, contain, and cleanup spills of non-hazardous material.
4.1 Emergency Personnel

Emergency spill responders must have training as defined in 29 CFR 1910.120.

5 Definitions

*Discoverer.* Person(s) who discovers spill and takes appropriate actions (compare with *responder* and *emergency responder*)

*Material, hazardous.* Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or threatened hazard to human health and safety or to the environment if released into the workplace or the environment

*Responder.* Person(s) who takes appropriate actions to minimize impacts of spill in accordance with their work planning and control documentation (compare with *emergency responder*)

*Responder, emergency.* Person(s) with the training and medical surveillance required to respond to chemical releases that could expose them to health hazards, such that the releases are controlled and cleaned up in a safe and healthful manner so as not to endanger themselves or other employees. At SLAC, spills emergency responders are generally the local fire department or a subcontracted spills responder

*Sheet, safety data (SDS).* A document produced by chemical manufacturers and importers to relay chemical, physical, and hazard information about specific substances

*Spill.* The release of any material that results in an increased risk or potential risk to human health, the environment and/or property. Spills at SLAC are classified as follows:

- **Non-emergency.** No potential exposure risk to human health, there is no uncontrollable imminent threat to the environment, and
  - The spill consists of a material the nature and potential hazards of which are known (this includes accidental releases of domestic water and low conductivity water)
  - The spill can be cleaned up with readily available spill response cleanup equipment and supplies

- **Emergency.** There is a potential exposure risk to human health or an uncontrollable imminent threat to the environment, and any of the following apply:
  - The spill consists of material that has hazards unfamiliar to personnel
  - The spill is regarded by personnel as posing a potential exposure risk to human health
  - The spill contains a significant amount of hazardous material that cannot be prevented from migrating into a storm drain
  - The spill creates a gas plume with the potential to move off-site into the surrounding community
6 References

6.1 External Requirements

The following are the external requirements that apply to this program:


  - Section 120, “Hazardous Waste Operations and Emergency Response” (29 CFR 1910.120)

  - Part 110, “Discharge of Oil” (40 CFR 110)
  - Part 112, “Oil Pollution Prevention” (40 CFR 112)
  - Part 117, “Determination of Reportable Quantities for Hazardous Substances” (40 CFR 117)

  - Part 300, “National Oil and Hazardous Substances Pollution Contingency Plan” (40 CFR 300)
  - Part 302, “Designation, Reportable Quantities, and Notification” (40 CFR 302)
  - Part 355, “Emergency Planning and Notification” (40 CFR 355)

  - Chapter 6.67, “Aboveground Storage of Petroleum” (HSC Chapter 6.67)

  - Chapter 4, “Regional Water Quality Control”, sections 13200–13272 (WAT 13200–13272)

  - Chapter 34, “Flammable and Combustible Liquids” (24 CCR Part 9, Chapter 34)

6.2 Related Documents

[SLAC Environment, Safety, and Health Manual](SLAC-I-720-0A29Z-001)

- Chapter 9, “Radiological Safety”
- Chapter 17, “Hazardous Waste”
Chapter 16: Spills

- Chapter 26, “Stormwater”
- Chapter 37, “Emergency Management”
- Chapter 40, “Chemical Lifecycle Management”
- Chapter 43, “Industrial Wastewater”
- Chapter 52, “Hazardous Materials and Waste Transportation”
- Chapter 53, “Chemical Safety”

Other SLAC documents

- Hazard Communication and MSDS Resources
- Emergency Management Plan (SLAC-I-730-0A14A-003)
- SLAC Spill Prevention, Controls, and Countermeasures Plan (SLAC-I-750-0A16M-001) (includes detailed requirements concerning storage tanks required under 40 CFR 112.2)
Chapter 16: Spills

Response, Cleanup, and Reporting Procedures

1 Purpose

The purpose of these procedures is to ensure spills, defined as the release of any material that results in an increased risk or potential risk to human health, the environment, and/or property, are handled in a safe manner and properly reported. They cover response, cleanup, and reporting for all types of spills. They apply to all workers discovering and responding to spills and their supervisors; the Waste Management Group and Environmental Protection and Radiation Protection departments, the Facilities and Operations Division, SLAC Site Security, the local fire department, and the program manager.

2 Procedures

The discoverer is the person who discovers a spill. The responder is the person who responds to and/or cleans up a spill. In some cases these two roles are played by the same person, in others by different persons.

It is essential that

- Only workers who have already been authorized via work planning and control to handle the spilled material and completed necessary training act as responders
- Waste Management (WM) Group (or after hours the local fire department) determine spills that require specialized spill responders and arrange for cleanup
- External or internal emergency hazardous materials responders such as the local fire department handle uncontrollable spills with the potential to cause serious harm to human health or the environment

For an overview of spill response, see Figure 1.
Figure 1 Spill Response Flow Chart
2.1 Notification

2.1.1 Emergency Spills

A spill is an emergency when it poses a serious threat to human health or the environment. Emergency spills must be handled by external or internal emergency hazardous materials responders.

<table>
<thead>
<tr>
<th>Step</th>
<th>Person</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Discoverer</td>
<td>Moves to a safe location</td>
</tr>
</tbody>
</table>
| 2.   | Discoverer      | Calls 911 immediately and provides the following information to the operator:  
  ▪ Location  
  ▪ Any injuries  
  ▪ Spilled material description  
  ▪ Quantity spilled  
  ▪ Any potentially radioactive material |
| 3.   | Discoverer      | Calls SLAC Site Security (ext. 5555 or 650-926-5555 from a cell phone) to report the spill |
| 4.   | Discoverer      | Notifies supervisor (subcontractor notifies supervisor and SLAC project manager / field construction manager) |
| 5.   | SLAC Site Security | Notifies required responders as needed, plus  
  ▪ SLAC duty officer  
  ▪ Spills PM, WM and others such as RP and Facilities, as needed |

2.1.2 Non-Emergency Spills

A spill is a non-emergency when it is not life threatening and will not result in serious environmental damage.

<table>
<thead>
<tr>
<th>Step</th>
<th>Person</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Discoverer</td>
<td>Notifies supervisor (subcontractor notifies supervisor and SLAC project manager / field construction manager); goes to step 2 immediately if supervisor is unavailable</td>
</tr>
</tbody>
</table>
| 2.   | Discoverer      | Calls SLAC Site Security (ext. 5555 or 650-926-5555 from a cell phone) to report:  
  ▪ Location  
  ▪ Any injuries  
  ▪ Spilled material description  
  ▪ Quantity spilled  
  ▪ Any potentially radioactive material |
| 3.   | SLAC Site Security | Notifies required responders as needed, plus  
  ▪ Spills PM, WM and others such as RP and Facilities, as needed |
### 2.2 Spill Response and Cleanup

<table>
<thead>
<tr>
<th>Step</th>
<th>Person</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | Discoverer | Proceeds to clean up spill (goes to step 2), only if **all** of the following conditions are met:  
- Is already authorized via work planning and control to handle spilled material  
- Appropriate personal protective equipment (PPE) is available  
- Compatible spill response material is readily available in sufficient quantity  
- Cleaning up the spill is safe  
*If any of these conditions are not met, does not attempt to clean up the spill, stays in a safe area, and waits for specialized responders* |
| 2.   | Responder | Controls access; prevents passersby from entering the spill area  
Takes steps as needed:  
- Requests any needed spill cleanup materials and waste containers from Waste Management (WM)  
- Refers to [safety data sheet (SDS)](#) for applicable PPE and hazard information  
- Refers to spill kit instructions  
- Prevents spilled material from entering storm drains by placing berms or other suitable material  
- Prevents spilled material from entering the sanitary sewer system (floor drains, sinks) by placing absorbent pads or other suitable material |
| 3.   | WM | Provides requested spill cleanup materials and waste containers |
| 4.   | Responder / WM / Radiation Protection Department (RP) | Captures all impacted media:  
- May involve spreading absorbent material on entire spill area  
- If spill area includes hazardous material on an unpaved surface, removes all affected soil  
*Note: sampling may be required to ensure adequate cleanup.* |
| 5.   | Responder / WM / RP | Places all spilled material and absorbent material in provided waste container(s)  
*Note: sample analysis may be required to determine appropriate disposal.* |
| 6.   | Responder / WM | Unplugs storm drains, floor drains, and sink drains, if applicable |
| 7.   | Responder / WM / RP | Ensures PPE and spill cleanup equipment is appropriately managed  
- Decontaminates equipment as needed  
- Places disposables and expendables in appropriate waste containers |
| 8.   | Responder | If needed, requests waste container pickup using the [Hazardous Waste Pick-Up and Empty Container Request Form](#) |
| 9.   | WM / RP | Arranges for waste pickup and management |
| 10.  | Spills program manager | Ensures reporting requirements are met (see below) |
2.3 Reporting

The following reporting requirements apply to all types of spills.

<table>
<thead>
<tr>
<th>Step</th>
<th>Person</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Spills program manager</td>
<td>Confirms proper cleanup completed</td>
</tr>
<tr>
<td>2.</td>
<td>Spills program manager</td>
<td>Evaluates spill to determine regulatory notification requirements and meets them, as listed on the spill report form</td>
</tr>
<tr>
<td>3.</td>
<td>Spills program manager</td>
<td>Completes a spill report form</td>
</tr>
<tr>
<td>4.</td>
<td>Spills program manager</td>
<td>Records spill details</td>
</tr>
<tr>
<td>5.</td>
<td>RP</td>
<td>For spills that involve radioactive materials, meets regulatory agency reporting requirements</td>
</tr>
</tbody>
</table>

3 Forms

The following forms are required by this procedure:

- Spills: Spill Report Form (SLAC-I-750-0A16J-003). Form for recording spill details and notification

4 Recordkeeping

The following recordkeeping requirements apply to all spills:

- For every spill, the spills program manager completes and maintains a spill report form and records the details

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 16, “Spills”
- Chapter 17, “Hazardous Waste”
  - Hazardous Waste Pick-Up and Empty Container Request Form (SLAC-I-800-0A08R-001)

Other SLAC Documents

- Hazard Communication and MSDS Resources
Chapter 16: **Spills**

**Spill Report Form**

Environment, Safety & Health Division

**Product ID:** 280 | **Revision ID:** 1934 | **Date Published:** 9 May 2017 | **Date Effective:** 9 May 2017


**Instructions:** This form is to be completed and retained by the ESH spills program manager following the Spills: Response, Cleanup, and Reporting Procedure (SLAC-I-750-0A16C-006).

### SPILL / RELEASE DESCRIPTION

<table>
<thead>
<tr>
<th>Substance released:</th>
<th>CAS No. (if available)</th>
<th>Approx. quantity released</th>
<th>Reportable quantity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Spill date (mo/day/yr)</th>
<th>Spill start time:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a.m.</td>
<td>p.m.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spill end time:</th>
<th>Continuous flow</th>
<th>Intermittent flow</th>
<th>Discrete release</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occurring at time of discovery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary mass contacted (check all that apply)</th>
<th>The primary mass entered (check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>Soil</td>
</tr>
<tr>
<td>Concrete</td>
<td>To atmosphere</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location (area, building number, room no. if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attach photos and/or spill area diagram to the report.</td>
</tr>
</tbody>
</table>

Describe the circumstances leading to the spill.

List immediate actions taken to stop / control / contain the spill and describe the results. (calls made, equipment used)

Proper cleanup completed? [ ] Yes [ ] No Initials of the reviewer: ____________

Cleanup method used:

### CONTACT INFORMATION

Person reporting spill (name): [ ] Title: [ ] Directorate / Dept: [ ] Ext: [ ] Mailstop:

Person initiating form (name): [ ] Title: [ ] Directorate / Dept: [ ] Ext: [ ] Mailstop:

### NOTIFICATION AND REPORTING

If a spill exceeds a reportable quantity, the ESH spills program manager will immediately notify the appropriate regulatory agency (contact information below).

Provide details by phone or website and follow up with a report, as required.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reportable Quantity</th>
<th>State Office of Emergency Services (OES)</th>
<th>State Water Resources Control Board (SWRCB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals</td>
<td>See 40 CFR 302</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Mercury (into environment)</td>
<td>1 pound</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Oil (in or on state waters)</td>
<td>42 gallons</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Sewage</td>
<td>Any</td>
<td>See SSO flowchart</td>
<td>See SSO flowchart</td>
</tr>
</tbody>
</table>

Other spills: See spill reporting binder (red) in Building 041, Room 1044 (EP Library) EPA I.D. No. CA8890016126

**Agency Contact Log (to be completed by the ESH spill program manager)**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Contact</th>
<th>Contact Person</th>
<th>EP Contact Person</th>
<th>Time</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Office of Emergency Services (OES)</td>
<td>800-852-7550</td>
<td>OES control #</td>
<td>ciwqs.waterboards.ca.gov/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Causal Analysis

<table>
<thead>
<tr>
<th>Design / engineering</th>
<th>Equipment / material</th>
<th>Human performance / error</th>
<th>Management</th>
<th>Other: describe</th>
<th>Significance Level</th>
<th>Responsibility for Spill</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
<td>Serious</td>
<td>Non-SLAC</td>
</tr>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
<td>Important</td>
<td>Subcontractor</td>
</tr>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
<td>Minor</td>
<td>SLAC Department</td>
</tr>
</tbody>
</table>

9 May 2017

SLAC-I-750-0A16J-003-R003

1 of 2
Sanitary Sewer Overflow (SSO) Reporting Requirements

Did SSO enter channel or surface water (or unable to recover from drain system)?

- **No**
  - Greater than 1000 gallons?
    - **No**
    - Category 1 SSO
      - Greater than 1000 gallons?
        - **Yes**
          - Within 2 hours, notify CalOES: (800) 852-7550
        - **No**
          - Greater than 50,000 gallons?
            - **No**
              - Category 2 SSO
                - Draft report required via CIWQS within 3 business days. Certified report required via CIWQS within 15 calendar days of the SSO end date.
            - **Yes**
              - Water quality sampling is required within 48 hours. Submit technical report via CIWQS within 45 calendar days of the SSO end date.
    - **Yes**
      - Greater than 1000 gallons?
        - **Yes**
          - Greater than 50,000 gallons?
            - **Yes**
              - Certified report required via CIWQS within 30 calendar days of end of calendar month in which SSO occurs.
            - **No**
              - Category 3 SSO

Abbreviations and contact information:

Cal OES = California Office of Emergency Services, (800) 852-7550
CIWQS = California Integrated Water Quality System, [https://ciwqs.waterboards.ca.gov](https://ciwqs.waterboards.ca.gov)
SSO = sanitary sewer overflow

The Water Resources Control Board order on which this flow chart is based is available here: [http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0058exec.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2013/wqo2013_0058exec.pdf)