

# Chapter 16

## Spills

### Chapter Outline

1	Overview	2
	1.1 Hazards/Impacts	2
2	Scope	3
3	Standards	4
4	Definitions	5
5	Requirements	6
	5.1 General	6
	5.1.1 Prevention	6
	5.1.2 Planning	6
	5.1.3 Responding	7
	5.1.4 Reporting	8
	5.1.5 Equipment	9
	5.1.6 Personnel	9
	5.1.7 Roles and Responsibilities	10
	5.2 Procedures and Specific Requirements	12
	5.2.1 Initial Spill Response	13
	5.2.2 Non-emergency Spill Response	13
	5.2.3 Emergency Spill Response	13
	5.2.4 Radioactive Spill Response	13
	5.2.5 Cleanup	14
	5.2.6 Reporting	14
	5.3 Training	14
	5.3.1 General Training	14
	5.3.2 Hazardous Materials Training	14
	5.3.3 Stormwater Pollution Prevention Awareness	15
	5.3.4 Radiological Worker Training	15
6	Exhibits	15
7	References	16

8	Implementation	17
9	Ownership	18

# 1 Overview

A *spill* is the release of any material that results in an increased risk or potential risk to human health, the environment, and/or property. This chapter presents the requirements for the prevention, response to, and reporting of spills at SLAC.

Spill prevention minimizes the risk of environmental and safety consequences from spills. This is a combination of reducing the probability of having a spill and mitigating the effects. Reducing the probability is accomplished through the use of various engineering and administrative controls such as minimizing chemical inventories and using less hazardous chemicals, where feasible. Mitigating the effects of spills is realized through primary and secondary containment, proper work practices and housekeeping, and effective spill response. Rapid, safe and effective emergency response minimizes adverse impacts to personnel, the environment, the general public, and SLAC operations. Reporting consists of notifying internal and external parties and the DOE as appropriate.

In the event of a spill, personnel will respond appropriately to mitigate the hazards and the spill will be evaluated and reported. (See Spills: Initial Spill Response Procedure<sup>1</sup> and Spills: Spill Response Flow Chart<sup>2</sup> for what to do if a spill occurs.)

## 1.1 Hazards/Impacts

The most common kinds of spills and their associated hazards are

- Hazardous materials and wastes
  - Workers may be exposed to hazards from unknown material such as corrosives, flammables, and toxics
  - Workers may be exposed to slip hazards if the material spilled is an oil product
  - The soil, waterways, and/or groundwater may be impacted by the release of material/waste
- Biohazards
  - Workers may be exposed to biohazards such as sewage or biological materials
  - Waterways and/or groundwater may be impacted by the release of sewage
- Hazardous atmospheres

---

1 Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

2 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

- Workers may be exposed to hazards such as suffocation, chemical exposure, or explosion if the spill releases gases into the atmosphere
- The atmosphere may be impacted by a release of hazardous gas
- Non-hazardous material
  - Animals living in San Francisquito Creek may be impacted by a release of domestic or low conductivity water to the storm drain system
- Radiation
  - Workers may be exposed to radioactive water or material
  - The soil, water, or air may be impacted by a release of radioactive material/waste

## 2 Scope

The requirements of this chapter apply to all personnel, including SLAC employees, subcontractors, users, and visitors.

This chapter covers spills of all types including radioactive material and waste, hazardous material and waste, as well as spills potentially harmful to the environment, such as domestic water and sewage that enters the storm drain system.

- Detailed requirements concerning storage tanks, required under Title 40, *Code of Federal Regulations*, Section 112.2, “Oil Pollution Prevention” (40 CFR 112.2), are contained in the *SLAC Spill Prevention, Controls, and Countermeasures Plan*.<sup>3</sup>
- For requirements concerning the storage and handling of hazardous materials, see Chapter 40, “Hazardous Materials”,<sup>4</sup> which includes a description of the *Consolidated Chemical Contingency Plan* and secondary containment requirements.<sup>5</sup>
- Storage and handling of hazardous waste and associated requirements are discussed in Chapter 17, “Hazardous Waste”.<sup>6</sup>
- Requirements for radioactive material and waste management are provided in Chapter 9, “Radiological Safety”.<sup>7</sup>
- Requirements for emergency preparedness and response are provided in Chapter 37, “Emergencies”.<sup>8</sup>

---

3 *SLAC Spill Prevention, Controls, and Countermeasures Plan* (SLAC-I-750-0A16M-001), [https://www-internal.slac.stanford.edu/esh/documents\\_internal/SPCC.pdf](https://www-internal.slac.stanford.edu/esh/documents_internal/SPCC.pdf)

4 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

5 *Consolidated Chemical Contingency Plan* (SLAC-I-730-3A86H-008), <http://www-group.slac.stanford.edu/esh/documents/CCCP.pdf>

6 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 17, “Hazardous Waste”, [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

7 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 9, “Radiological Safety”, [http://www-group.slac.stanford.edu/esh/general/radiological\\_safety/policies.htm](http://www-group.slac.stanford.edu/esh/general/radiological_safety/policies.htm)

## 3 Standards

The spills program has adopted the following standards:

- Title 33, *United States Code*, “Navigation and Navigable Waters”, Chapter 26, “Water Pollution Prevention and Control”, Section 1251 and following (33 USC 1251)<sup>9</sup>
- Title 29, *Code of Federal Regulations*, “Labor”, Chapter 17, “Occupational Safety and Health Administration, Department of Labor”
  - Section 1910.119, “Process Safety Management of Highly Hazardous Chemicals” (29 CFR 1910.119)<sup>10</sup>
  - Section 1910.120, “Hazardous Waste Operations and Emergency Response” (29 CFR 1910.120)<sup>11</sup>
- Title 40, *Code of Federal Regulations*, “Protection of the Environment”, Chapter 1, “Environmental Protection Agency”<sup>12</sup>
  - 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)
- *California Health and Safety Code*, Division 20, “Miscellaneous Health and Safety Provisions”
  - Chapter 6.67, “Aboveground Storage of Petroleum” (HSC 25270–25270.13)<sup>13</sup>
- *California Water Code*, Division 7, “Water Quality”
  - Chapter 4, “Regional Water Quality Control”, sections 13200–13272 (WC 13200–13272)<sup>14</sup>
- International Conference of Building Officials (ICBO), *Uniform Fire Code* (ICBO UFC-1997)<sup>15</sup>
  - Article 79, “Flammable Liquids”
  - Article 80, “Hazardous Materials”

8 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 37, “Emergencies”, <http://www-group.slac.stanford.edu/esh/emergency/chapter/policies.htm>

9 “United States Code: Main Page”, <http://www.gpoaccess.gov/uscode/index.html>

10 [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9760](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9760)

11 [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9765](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765)

12 “Code of Federal Regulations: Main Page”, <http://www.gpoaccess.gov/cfr/>

13 “Official California Legislative Information”, <http://www.leginfo.ca.gov/calaw.html>

14 “Official California Legislative Information”, <http://www.leginfo.ca.gov/calaw.html>

15 See the SLAC Library, <http://www.slac.stanford.edu/library/>, for available standards. A hard copy of ICBO UFC-1997 is available; see <http://www.slac.stanford.edu/spires/find/books/www?key=253910>.

## 4 Definitions

*Consolidated chemical contingency plan.* Plan developed to integrate various regulatory requirements for hazardous material, including hazardous waste and emergency planning into a single functional document

*Emergency responder.* Person(s) with the training and medical surveillance required to respond to chemical releases which 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

*Facility emergency plan.* Plan including information on spill response capability for each listed facility

*Hazardous material.* 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

*Material safety data sheet.* A document produced by chemical manufacturers and importers to relay chemical, physical, and hazard information about specific substances

*Responder.* Person(s) who discovers spill and takes appropriate actions to minimize impacts of spill

*Secondary containment.* A safeguarding method used to prevent unplanned releases of toxic or hazardous materials. Secondary containment is external to and separate from primary containment

*Spill.* A *spill* is 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 into one of three groups:

- *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
  - 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.
- *Radioactive.* The spill involves any radioactive material.

*Spill prevention, controls, and countermeasures plan.* Plan developed to provide information to prevent, control, or mitigate the discharge of oil or oil products

# 5 Requirements

## 5.1 General

The requirements for spill prevention, spill response, and spill reporting are listed below.

### 5.1.1 Prevention

Spill prevention relies on primary and secondary containment, proper work practices and housekeeping. For hazardous materials, these are covered in Chapter 40, “Hazardous Materials”.<sup>16</sup> Chapter 17, “Hazardous Waste”,<sup>17</sup> describes hazardous waste management. Best management practices for protecting the storm drain system from spills is provided in Chapter 26, “Stormwater”.<sup>18</sup> (See Spills: Spill Prevention Guidelines.<sup>19</sup>)

#### 5.1.1.1 Secondary Containment

Secondary containment must be provided for hazardous material and waste at SLAC in compliance with all applicable federal, state, and local regulations, and DOE orders. At the discretion of the responsible department and ES&H, secondary containment may also be provided in cases where it is not specifically called for by regulations, but will reduce health, safety, and environmental risks. Specific secondary containment requirements are provided in Chapter 40, “Hazardous Materials”.<sup>20</sup>

### 5.1.2 Planning

The planning requirement for this program is to maintain the *SLAC Spill Prevention, Controls, and Countermeasures Plan*, updated every three years.<sup>21</sup>

In addition:

- Chapter 17, “Hazardous Waste”,<sup>22</sup> has spill management measures that are part of hazardous waste treatment requirements.

---

16 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

17 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 17, “Hazardous Waste”, [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

18 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 26, “Stormwater”, <http://www-group.slac.stanford.edu/esh/environment/stormwater/policies.htm>

19 Spills: Spill Prevention Guidelines (SLAC-I-750-0A16T-002), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsGuidePrevent.pdf>

20 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

21 *SLAC Spill Prevention, Controls, and Countermeasures Plan* (SLAC-I-750-0A16M-001), [https://www-internal.slac.stanford.edu/esh/documents\\_internal/SPCC.pdf](https://www-internal.slac.stanford.edu/esh/documents_internal/SPCC.pdf)

- Chapter 40, “Hazardous Materials”,<sup>23</sup> requires a *consolidated chemical contingency plan* for the site and the provision of easily accessible *material safety data sheets (MSDS)*.
- Chapter 37, “Emergencies”,<sup>24</sup> requires buildings that have 10 or more occupants or house mission-critical equipment to maintain a *facility emergency plan*. This plan includes information on spill response capability for each listed facility.

### 5.1.3 Responding

Immediate spill response and cleanup are necessary for the protection of site personnel and the environment. However, unmitigated risks must never be taken. For example, spills of unknown materials must be treated as hazardous until confirmed otherwise. In the event of a spill, personnel must follow the plan-do-check process of five core functions of ISEMS by classifying the spill, identifying and mitigating the hazards and risks, then responding appropriately. Personnel must only respond to a spill if handling the spilled material is included in their routine or non-routine job hazard analysis and mitigation (JHAM) documentation and doing so will not result in an exposure risk to human health. If it is not in their JHAM, there is a risk, or they are uncertain of the risks, they must report the spill immediately, and not attempt to contain the spill (see Spills: Spill Response Flow Chart<sup>25</sup>).

#### 5.1.3.1 Emergency Response

Spill response requirements are provided in 29 CFR 1910.120, which defines emergency response as an uncontrolled release of a hazardous substance, with the following two exceptions:

1. Incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel
2. Responses to releases of hazardous substances where there is no potential safety or health hazard.

Spill response requirements provided in 29 CFR 1910.120 also list specific training requirements for emergency response. It does not provide any specific requirements for non-emergency responses as defined above. SLAC does not offer emergency response training, beyond first responder awareness level. When an emergency response is needed, SLAC-contracted emergency responders are used. First responder awareness level training is described in Section 5.3, “Training”.

#### 5.1.3.2 Classifying

Spills are divided into three groups, non-emergency, emergency, and radioactive. Requirements for responding vary by group as follows:

- 
- 22 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 26, “Stormwater”, <http://www-group.slac.stanford.edu/esh/environment/stormwater/policies.htm>
  - 23 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)
  - 24 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 37, “Emergencies”, <http://www-group.slac.stanford.edu/esh/emergency/chapter/policies.htm>
  - 25 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

1. *Non-emergency* spills are releases of non-hazardous material, or incidental spills of hazardous material where the spill can be controlled at the time of release and there is no potential safety or health hazard. Response to these spills can be performed by anyone provided they have the proper personal protective equipment (PPE) and any hazards associated with the response are mitigated as indicated in the responders JHAM. For example, response to a controllable spill of hazardous material will only be performed by someone who uses and handles that material on a regular basis and is therefore aware of the hazards and mitigations.
2. *Emergency* spills are uncontrollable spills of hazardous material or non-hazardous material which poses an imminent threat to the environment. Emergency spills fall into two subclasses, *life threatening* when the incident has resulted in serious injury or threat of serious injury and *non-life threatening*. Response to all emergency spills must be performed by outside contractors such as the Palo Alto Fire Department or the SLAC emergency response contractor.
3. *Radioactive* spills are releases in which the material is known or suspected to be radioactive. These spills may be non-emergency or emergency spills depending on the levels of radioactivity, if they also contain hazardous materials, and/or if they are controllable.

#### 5.1.3.3 Containment and Cleanup

Responders to a spill must ensure it is, first, properly contained, then, second, properly cleaned up. Appropriate PPE and spill response equipment must be used. These will be determined based on the material spilled, using such means as MSDS. (See Chapter 40, “Hazardous Materials”,<sup>26</sup> and Chapter 17, “Hazardous Waste”;<sup>27</sup> additional guidance on equipment can also be found in Spills: Spill Cleanup Equipment Guidelines.<sup>28</sup>)

### 5.1.4 Reporting

#### 5.1.4.1 Internal

All spills must be reported immediately to the Waste Management Group, even those contained and cleaned up by the person(s) who finds them. The Waste Management Group will prepare the spill report and contact the spills program manager.

Subcontractors must report spills immediately to their project manager/university technical representative, who will then contact the Waste Management Group to initiate reporting.

The spills program manager will notify immediately the chief operating officer and/or special assistant to the chief operating officer of all spills.

The spills program manager will record and track all spills and ensure they are entered in the Basic Incident Investigation (BII) Database.

---

26 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

27 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 17, “Hazardous Waste”, [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

28 Spills: Spill Cleanup Equipment Guidelines (SLAC-I-750-0A16T-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsGuideEquip.pdf>

#### 5.1.4.2 External

Spills that exceed reportable quantities must be reported to external regulatory agencies. The spills program manager will make this determination, based on criteria provided by external agencies and regulations. If it does exceed the limits, the spills program manager will report it through the appropriate means within 24 hours of the spill. If the spill is radioactive, RP will submit notification to the appropriate regulators.

In addition, all externally reportable spills require the spills program manager to prepare a preliminary notification report (PNR) with the help of the Chemical and General Safety (CGS) Department and submit it to the Occurrence Reporting Processing System (ORPS) program manager. The ORPS program manager will determine whether the spill should be reported in ORPS. (See Chapter 28, “Incident Investigation”, for details on incident reporting.)<sup>29</sup>

#### 5.1.5 Equipment

Spill response equipment, such as spill kits and PPE, must be readily available in areas where hazardous materials and waste are used or stored. The equipment kept in these areas and all equipment used for spill containment and cleanup must be compatible with the material they will be used on. Decontaminate or dispose of equipment after each use. Spill response equipment should be inventoried regularly and restocked as needed (see Spills: Spill Cleanup Equipment Guidelines<sup>30</sup>).

#### 5.1.6 Personnel

Qualifications for spill response depend on spill type:

- Non-emergency spills may be addressed by any personnel if they have the appropriate PPE and spill response equipment, there is no exposure risk to human health, or risk of fire or explosion, and they feel that they can contain, clean, and dispose of the material safely. Personnel responding to non-emergency spills of hazardous materials may only do so if they have received training on proper handling and hazard awareness of hazardous materials (see Chapter 40, “Hazardous Materials”,<sup>31</sup> for training requirements of handling hazardous materials). If they are unsure of the hazards and/or do not have the proper training to handle the material, they should contact the Waste Management Group for assistance.
- Emergency spills, as defined by 29 CFR 1910.120, require emergency responders. These are spills of hazardous material that are uncontrollable and/or pose a potential health and safety hazard. Emergency response will be performed by the Palo Alto Fire Department or qualified subcontractors. Cleanup of such spills will be conducted by qualified subcontractors under the Waste Management Group.
- Radioactive spills that are not life-threatening may only be contained and cleaned by personnel who have Radiological Worker II Training (RWTII). All response to spills containing or suspected to contain radioactive material should be coordinated with the Radiation Protection Department.

---

29 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 28, “Incident Investigation”, <http://www-group.slac.stanford.edu/esh/general/accidents/policies.htm>

30 Spills: Spill Cleanup Equipment Guidelines (SLAC-I-750-0A16T-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsGuideEquip.pdf>

31 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

## 5.1.7 Roles and Responsibilities

### 5.1.7.1 Spills Program Manager

The spills program manager will

- Minimize spills through prevention activities
- Assist personnel in identifying spill prevention measures
- Review construction plans for spill prevention controls
- Document and evaluate the environmental impact of spills
- Meet internal notification and tracking requirements
- Report non-radioactive spills to regulatory agencies, as needed
  - Submit a preliminary notification report (PNR) to the ORPS Program Manager
- Prepare required/follow-up written reports
- Complete corrective actions

### 5.1.7.2 Radiation Protection Department

The Radiation Protection Department will

- Respond to radioactive material spills
- Act as the ES&H environmental contact for radioactive issues
- Report radioactive material spills to regulatory agencies, as needed
- Submit a preliminary notification report (PNR) if a spill is reported to regulators
- Prepare required/follow-up written reports

### 5.1.7.3 Waste Management Group

The Waste Management Group will

- Respond to spills during business hours
- Provide backup during non-business hours
- Contract and provide oversight of emergency responders
- Assist emergency responders as needed
- Provide cleanup material and equipment
- Provide guidance for spill equipment
- Initiate a spill report and forward it to the spills program manager

### 5.1.7.4 SLAC Safeguards and Security

SLAC Safeguards and Security will

- Coordinate communication during a spill response incident

- Notify the Waste Management Group for response, materials, and technical support
- Cordon off the area of a spill
- Provide traffic control at the scene of a spill
- Notify appropriate support personnel as needed
- Assist emergency responders as needed

#### 5.1.7.5 Palo Alto Fire Department

Palo Alto Fire Department will

- Respond to any spill when requested
- Notify the Waste Management Group for spill cleanup coordination
- Contact emergency responder contractor if the Waste Management Group is not available

#### 5.1.7.6 Conventional and Experimental Facilities Department

The Conventional and Experimental Facilities (CEF) Department will

- Respond to water and sewage spills caused by broken pipes or back-ups
- Shut off valves to minimize the spill
- Contact the Waste Management Group to report the spill
- Contact sanitary sewer plumbing subcontractor as needed to clear pipes
- Assist in the cleanup of spills

#### 5.1.7.7 Chemical and General Safety Department

The CGS Department will

- Provide the Spills Program Manager with a PNR number and assist with the PNR report, as needed

#### 5.1.7.8 ORPS Program Manager

The ORPS Program Manager will

- Determine whether or not the spill is ORPS reportable

#### 5.1.7.9 Project Managers and University Technical Representatives

Project managers and/or UTRs must

- Know how to prevent spills through proper storage and handling of material and waste
- Never attempt to control or cleanup a spill poses a risk to human health or one in which they are unsure of the hazards it poses or ways to mitigate the hazards
- Include spill hazards and mitigation measures in their JHAM and JSA
- Know how to classify spills
- Follow proper spill-response actions based on the spill classification

- Know the location of spill cleanup equipment and how to use it
- Report all spills to the Waste Management Group

#### 5.1.7.10 Managers and Supervisors

Managers and supervisors are responsible for ensuring that

- Personnel are aware of proper spill-response actions
- Personnel know how to classify spills
- Personnel who work with hazardous material or waste have completed required training
- Secondary containment is provided where required
- Spill cleanup equipment is available in areas where hazardous material or waste is stored or used

#### 5.1.7.11 Personnel

Personnel who work with hazardous materials and waste must

- Know how to prevent spills through proper storage and handling of material and waste
- Never attempt to control or cleanup a spill poses a risk to human health or one in which they are unsure of the hazards it poses or ways to mitigate the hazards
- Include spill hazards and mitigation measures in their JHAM
- Know how to classify spills
- Follow proper spill-response actions based on the spill classification
- Know the location of spill cleanup equipment and how to use it
- Wear appropriate PPE
- Report all spills to the Waste Management Group

#### 5.1.7.12 Subcontractors

Subcontractors will

- Report all spills to the Project Manager and/or UTR as soon as possible

## 5.2 Procedures and Specific Requirements

In the event of a spill, personnel must follow the plan-do-check process of five core functions of ISEMS by classifying the spill, identifying and mitigating the hazards and risks, then responding appropriately. Unmitigated risks must never be taken. For example spills of unknown materials must be treated as hazardous until it is confirmed otherwise. Personnel must only respond to a spill if the work to be performed is included in their routine or non-routine JHAM and it will not result in an exposure risk to human health.

The following procedures are required for spills. For the full procedures, see Section 6, "Exhibits".

### 5.2.1 Initial Spill Response

Criteria used to assess and classify spills and whom to call in the event of an emergency spill (see Spills: Initial Spill Response Procedure<sup>32</sup> and Spills: Spill Response Flow Chart<sup>33</sup>)

### 5.2.2 Non-emergency Spill Response

Steps to take to stop and contain non-emergency spills (see Spills: Non-emergency Spill Cleanup Flow Chart<sup>34</sup> and Spills: Non-emergency Spill Response Procedure<sup>35</sup>)

### 5.2.3 Emergency Spill Response

Emergency spill response is divided into two categories, life-threatening and not life-threatening.

#### 5.2.3.1 Life-threatening Emergency Spill Response

Steps to take in the event of a life-threatening emergency spills (see Spills: Life-threatening Emergency Spill Response Procedure<sup>36</sup>)

#### 5.2.3.2 Non-life-threatening Emergency Spill Response

Steps to take in the event of a non-life-threatening emergency spills (see Spills: Non-life-threatening Emergency Spill Response Procedure<sup>37</sup>)

### 5.2.4 Radioactive Spill Response

Steps to take to stop and contain radioactive spills (see Spills: Radioactive Spill Response Procedure<sup>38</sup>)

*Note This procedure applies only to non-emergency spills.*

---

32 Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

33 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

34 Spills: Non-emergency Spill Cleanup Flow Chart (SLAC-I-750-0A16S-005), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowCleanup.pdf>

35 Spills: Non-emergency Spill Response Procedure (SLAC-I-750-0A16C-002), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedNonemergency.pdf>

36 Spills: Life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyLT.pdf>

37 Spills: Non-life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyNLT.pdf>

38 Spills: Radioactive Spill Response Procedure (SLAC-I-750-0A16C-005), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedRad.pdf>

### 5.2.5 Cleanup

Basic steps for cleaning up spill-impacted media (see Spills: Spill Cleanup Procedure<sup>39</sup>)

*Note* Cleanup requirements will vary depending on the material spilled and the impacted media (for example, pavement, soil, and storm drain lines).

### 5.2.6 Reporting

Steps for required internal and external reporting (see Spills: Spill Reporting Procedure<sup>40</sup>)

*Note* All spills must be reported immediately to the Waste Management Group (or Radiation Protection Department for spills of radioactive material), even those contained and cleaned up by the person(s) who finds them. The Waste Management Group/Radiation Protection Department will initiate a spill report and contact the spills program manager who will determine whether external reporting to regulatory agencies is required.

## 5.3 Training

Rigorous training requirements for responding to emergency spills are defined in 29 CFR 1910.120. However, because SLAC subcontracts that work, it does not provide emergency spill response training. There are no specific training requirements for the spills program that are not required for other programs, described below.

### 5.3.1 General Training

All personnel at SLAC are given basic spill awareness training as part of their orientation training (see Chapter 24, “Training”).<sup>41</sup> Personnel who have received this training may stop, contain, and clean up spills of non-hazardous material. This training covers

- Whom to notify in the event of a spill
- Spill classification
- Stormwater pollution prevention awareness

### 5.3.2 Hazardous Materials Training

SLAC personnel handling, storing, or managing hazardous materials or hazardous waste are required to complete appropriate training (see Chapter 40, “Hazardous Materials”,<sup>42</sup> and Chapter 17, “Hazardous

---

39 Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>

40 Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>

41 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 24, “Training”, <http://www-group.slac.stanford.edu/esh/training/chapter/policies.htm>

Waste”<sup>43</sup>), both general and material specific. This training includes responder awareness training which has the following elements: what hazardous substances are and the risks associated with them in an incident; potential outcomes associated with an emergency created when hazardous substances are present; how to recognize hazardous substances and their presence in an emergency; an understanding of the role of the first responder; and the ability to realize the need for additional resources and make appropriate notifications. This training is required for responding to non-emergency spills of hazardous materials.

### 5.3.3 Stormwater Pollution Prevention Awareness

Personnel performing activities outdoors that may have the potential to impact stormwater run-off are required to complete ES&H Course 298, Stormwater Awareness Training,<sup>44</sup> which includes guidance on how to minimize any spills from entering the storm drain system (see Chapter 26, “Stormwater”<sup>45</sup>).

### 5.3.4 Radiological Worker Training

Personnel who require unescorted access into radioactive contamination areas, perform any machine operations on radioactive materials, or handle radioactively contaminated materials are required to complete ES&H Course 250, Rad Worker II Training<sup>46</sup> (see Chapter 9, “Radiological Safety”<sup>47</sup>).

## 6 Exhibits

- Spills: Implementation Plan (SLAC-I-750-0A16M-004)<sup>48</sup>
- Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004)<sup>49</sup>
- Spills: Non-emergency Spill Cleanup Flow Chart (SLAC-I-750-0A16S-005)<sup>50</sup>
- Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001)<sup>51</sup>

---

42 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

43 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 17, “Hazardous Waste”, [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

44 ES&H Course 298, Stormwater Awareness Training, [https://www-internal.slac.stanford.edu/esh-db/training/slaonly/bin/catalog\\_item.asp?course=298](https://www-internal.slac.stanford.edu/esh-db/training/slaonly/bin/catalog_item.asp?course=298)

45 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 26, “Stormwater”, <http://www-group.slac.stanford.edu/esh/environment/stormwater/policies.htm>

46 ES&H Course 250, Rad Worker II Training, [https://www-internal.slac.stanford.edu/esh-db/training/slaonly/bin/catalog\\_item.asp?course=250](https://www-internal.slac.stanford.edu/esh-db/training/slaonly/bin/catalog_item.asp?course=250)

47 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 9, “Radiological Safety”, [http://www-group.slac.stanford.edu/esh/general/radiological\\_safety/policies.htm](http://www-group.slac.stanford.edu/esh/general/radiological_safety/policies.htm)

48 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsPlanImplement.pdf>

49 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

50 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowCleanup.pdf>

51 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

- Spills: Non-emergency Spill Response Procedure (SLAC-I-750-0A16C-002)<sup>52</sup>
- Spills: Life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-003)<sup>53</sup>
- Spills: Non-life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-004)<sup>54</sup>
- Spills: Radioactive Spill Response Procedure (SLAC-I-750-0A16C-005)<sup>55</sup>
- Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006)<sup>56</sup>
- Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007)<sup>57</sup>
- Spill Report Form (SLAC-I-750-0A16J-003)<sup>58</sup>
- Spills: Spill Cleanup Equipment Guidelines (SLAC-I-750-0A16T-001)<sup>59</sup>
- Spills: Spill Prevention Guidelines (SLAC-I-750-0A16T-002)<sup>60</sup>
- *SLAC Spill Prevention, Controls, and Countermeasures Plan* (SLAC-I-750-0A16M-001)<sup>61</sup>
- “MSDS Sources”<sup>62</sup>
- “Facility Emergency Plans”<sup>63</sup>
- “Spill Supplies”<sup>64</sup>

## 7 References

*SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001)<sup>65</sup>

- Chapter 5, “Industrial Hygiene”<sup>66</sup>

- 
- 52 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedNonemergency.pdf>
  - 53 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyLT.pdf>
  - 54 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyNLT.pdf>
  - 55 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedRad.pdf>
  - 56 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>
  - 57 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>
  - 58 <http://www-group.slac.stanford.edu/esh/forms/>
  - 59 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsGuideEquip.pdf>
  - 60 <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsGuidePrevent.pdf>
  - 61 [https://www-internal.slac.stanford.edu/esh/documents\\_internal/SPCC.pdf](https://www-internal.slac.stanford.edu/esh/documents_internal/SPCC.pdf)
  - 62 <http://www-group.slac.stanford.edu/esh/groups/cgs/cms/msds.html>
  - 63 <https://www-internal.slac.stanford.edu/esh/emergency/fep/>
  - 64 [http://www-group.slac.stanford.edu/esh/groups/ep/hwm/supplies/spill\\_materials.htm](http://www-group.slac.stanford.edu/esh/groups/ep/hwm/supplies/spill_materials.htm)
  - 65 <http://www-group.slac.stanford.edu/esh/eshmanual/>
  - 66 [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/industrial\\_hygiene/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/industrial_hygiene/policies.htm)

- Chapter 9, “Radiological Safety”<sup>67</sup>
- Chapter 17, “Hazardous Waste”<sup>68</sup>
- Chapter 19, “Personal Protective Equipment”<sup>69</sup>
- Chapter 22, “Waste Minimization and Pollution Prevention”<sup>70</sup>
- Chapter 24, “Training”<sup>71</sup>
- Chapter 26, “Stormwater”<sup>72</sup>
- Chapter 28, “Incident Investigation”<sup>73</sup>
- Chapter 37, “Emergencies”<sup>74</sup>
- Chapter 40, “Hazardous Materials”<sup>75</sup>
- Chapter 43, “Industrial Wastewater”<sup>76</sup>
- Chapter 46, “Blood-borne Pathogens”<sup>77</sup>

#### Other SLAC documents

- *Consolidated Chemical Contingency Plan* (SLAC-I-730-3A86H-008)<sup>78</sup>

#### Other

- *California Spill Reporting Manual*. Timms, Jr, Charles F., and Waddell, Sandra H. Rockville, Maryland: Government Institutes, Inc, June 1996

## 8 Implementation

The requirements of this chapter will be implemented according to Spills: Implementation Plan.<sup>79</sup>

---

67 [http://www-group.slac.stanford.edu/esh/general/radiological\\_safety/policies.htm](http://www-group.slac.stanford.edu/esh/general/radiological_safety/policies.htm)

68 [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

69 <http://www-group.slac.stanford.edu/esh/general/ppe/policies.htm>

70 [http://www-group.slac.stanford.edu/esh/environment/pollution\\_prevention/policies.htm](http://www-group.slac.stanford.edu/esh/environment/pollution_prevention/policies.htm)

71 <http://www-group.slac.stanford.edu/esh/training/chapter/policies.htm>

72 [http://www-group.slac.stanford.edu/esh/environment/hazardous\\_waste/policies.htm](http://www-group.slac.stanford.edu/esh/environment/hazardous_waste/policies.htm)

73 <http://www-group.slac.stanford.edu/esh/general/accidents/policies.htm>

74 <http://www-group.slac.stanford.edu/esh/emergency/chapter/policies.htm>

75 [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

76 [http://www-group.slac.stanford.edu/esh/environment/industrial\\_wastewater/policies.htm](http://www-group.slac.stanford.edu/esh/environment/industrial_wastewater/policies.htm)

77 [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/bloodborne/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/bloodborne/policies.htm)

78 <http://www-group.slac.stanford.edu/esh/documents/CCCP.pdf>

# 9 Ownership

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

---

79 Spills: Implementation Plan (SLAC-I-750-0A16M-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsPlanImplement.pdf>

# Spills: Implementation Plan

Department: Environmental Protection

Program: Spills

Owner: Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

The requirements of Chapter 16, “Spills”, will be phased in according to the following schedule.

Section Number	Section Title	Requirement Note	Effective Date	Schedule Note
5	Requirements			
5.1	General			
5.1.1	Prevention			
5.1.1.1	Secondary Containment		Immediate	
5.1.2	Planning		Immediate	
5.1.3	Responding			
5.1.3.1	Emergency Response		Immediate	
5.1.3.2	Classifying		Immediate	
5.1.3.3	Containment and Cleanup		Immediate	
5.1.4	Reporting			
5.1.4.1	Internal	Set up web-based input to the BII system	3/31/2007	
5.1.4.2	External		Immediate	
5.1.5	Equipment		Immediate	
5.1.6	Personnel		Immediate	
5.1.7	Roles and Responsibilities			

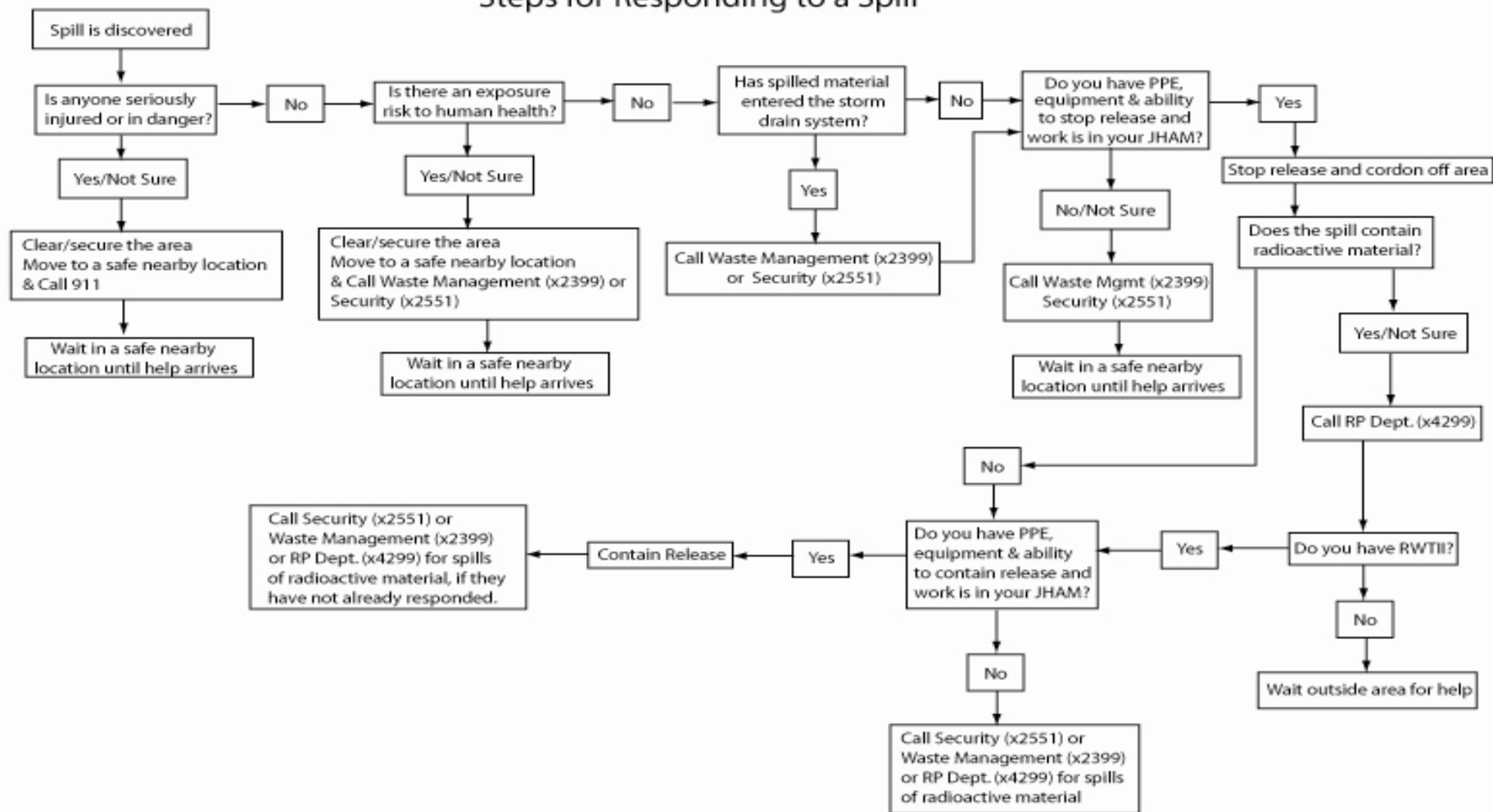
## Spills: Implementation Plan

Section Number	Section Title	Requirement Note	Effective Date	Schedule Note
5.1.7.1	Spills Program Manager		Immediate	
5.1.7.2	Radiation Protection Department		Immediate	
5.1.7.3	Waste Management Group		Immediate	
5.1.7.4	SLAC Safeguards and Security		Immediate	
5.1.7.5	Palo Alto Fire Department		Immediate	
5.1.7.6	Conventional and Experimental Facilities Department		Immediate	
5.1.7.7	Chemical and General Safety Department		Immediate	
5.1.7.8	ORPS Program Manager		Immediate	
5.1.7.9	Project Managers and University Technical Representatives		Immediate	
5.1.7.10	Managers and Supervisors		Immediate	
5.1.7.11	Personnel		Immediate	
5.1.7.12	Subcontractors		Immediate	
5.2	Procedures and Specific Requirements			
5.2.1	Initial Spill Response		Immediate	
5.2.2	Non-emergency Spill Response		Immediate	
5.2.3	Emergency Spill Response			
5.2.3.1	Life-threatening Emergency Spill Response		Immediate	
5.2.3.2	Non-life-threatening Emergency Spill Response		Immediate	
5.2.4	Radioactive Spill Response		Immediate	
5.2.5	Cleanup		Immediate	

## Spills: Implementation Plan

Section Number	Section Title	Requirement Note	Effective Date	Schedule Note
5.2.6	Reporting		Immediate	
5.3	Training			
5.3.1	General Training		Immediate	
5.3.2	Hazardous Materials Training		Immediate	
5.3.3	Stormwater Pollution Prevention Awareness		Immediate	
5.3.4	Radiological Worker Training		Immediate	

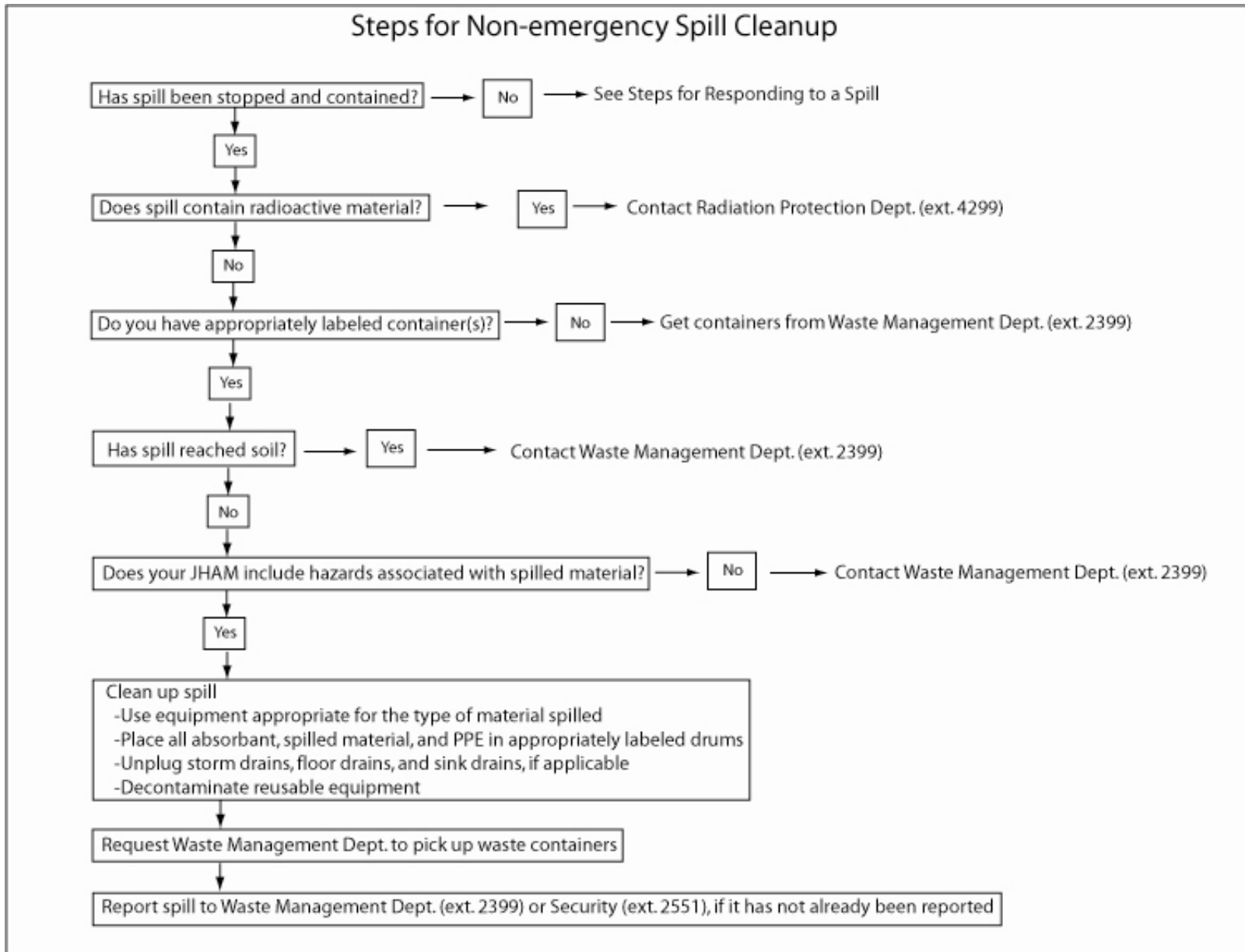
## Steps for Responding to a Spill



Spills: Spill Response Flow Chart  
 Department: Environmental Protection  
 Owner: Program Manager, Michael Hug

Program: Spills  
 Authority: ES&H Manual, Chapter 16, Spills

## Steps for Non-emergency Spill Cleanup



Spills: Non-emergency Spill Cleanup Flow Chart  
 Department: Environmental Protection  
 Owner: Program Manager, Michael Hug

Program: Spills  
 Authority: ES&H Manual, Chapter 16, Spills



# Spills: Initial Spill Response Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

MSDS = material safety data sheet

Responder = person witnessing and first responding to spill

RP = Radiation Protection Department

WM = Waste Management Group

## Initial Response

The first person (“responder”) noticing a spill must take the following actions immediately (see Spills: Spill Response Flow Chart):<sup>1</sup>

Step	Person	Action
1.	Responder	Ensures own safety. At all times minimizes exposure to chemical or radioactive contamination
2.	Responder	Assesses the spill by determining <ul style="list-style-type: none"><li>• Has anyone been seriously injured or is there a danger to anyone</li><li>• What has been spilled</li><li>• How much</li><li>• What are the safety and environmental hazards (check MSDS, if readily available)</li></ul>
3.	Responder	Has anyone been seriously injured or is there danger to anyone? If yes, or unsure, this is an emergency life-threatening spill. Clears the area to a safe location and calls 911 (9-911 from a SLAC phone) Begins Spills: Life-threatening Emergency Spill Response Procedure <sup>2</sup>
4.	Responder	Is there a risk of exposure to human health that is not life threatening or an uncontrollable, imminent threat to the environment (for example, spill has migrated to storm drain)? If yes, or unsure, this is a non-life threatening emergency spill. Clears the area to a safe location and calls WM (Ext. 2399) or

1 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

2 Spills: Life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyLT.pdf>

Spills: Initial Spill Response Procedure

Step	Person	Action
		Safeguards and Security (Ext. 2551). Begins Spills: Non-life-threatening Emergency Spill Response Procedure <sup>3</sup>
5.	Responder	If there is no risk of exposure to human health or imminent threat to the environment, it is a non-emergency spill. Begins Spills: Non-emergency Spill Response Procedure <sup>4</sup>
6.	Responder	If the spilled material is or is suspected to be radioactive, begins Spills: Radioactive Spill Response Procedure <sup>5</sup>

---

3 Spills: Non-life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyNLT.pdf>

4 Spills: Non-emergency Spill Response Procedure (SLAC-I-750-0A16C-002), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedNonemergency.pdf>

5 Spills: Radioactive Spill Response Procedure (SLAC-I-750-0A16C-005), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedRad.pdf>

# Spills: Non-emergency Spill Response Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

PM = program manager

Responder = person witnessing and first responding to spill

WM = Waste Management Group

RP = Radiation Protection Department

## Initial Response

This procedure only applies to non-emergency spills. If the spill is life-threatening or poses an exposure risk to human health, follow one of the following procedures:

- Spills: Life-threatening Emergency Spill Response Procedure<sup>1</sup>
- Spills: Non-life-threatening Emergency Spill Response Procedure<sup>2</sup>

The first person (“responder”) noticing a non-emergency spill must take the following steps immediately (see Spills: Spill Response Flow Chart):<sup>3</sup>

Step	Person	Action
1.	Responder	Ensures own safety. At all times minimizes exposure to chemical or radioactive contamination
2.	Responder	Assesses whether work to be performed is in their JHAM, and PPE, and spill response equipment that are compatible with the spilled material, are available to stop and contain spill. Refers to the material safety data sheets (MSDS), if applicable
3.	Responder	If appropriate response equipment and/or PPE are not available, JHAM does not include this work, or spill cannot be readily stopped or contained, immediately calls WM (Ext. 2399) or Safeguards and Security (Ext. 2551)  Describes the spill, its location, the type of material released (if known), the size, and source. Provides name. Remains in area until help arrives, unless instructed to do otherwise

1 Spills: Life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyLT.pdf>

2 Spills: Non-life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyNLT.pdf>

3 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

## Spills: Non-emergency Spill Response Procedure

The following steps are to be performed by the responder if s/he has the appropriate equipment and PPE and work performed is in his/her JHAM or by WM if they are called to respond:

Step	Person	Action
4.	Responder/ WM	If the spilled material is flammable, eliminates ignition sources
5.	Responder/ WM	Stops the source of the spill
6.	Responder/ WM	Plugs storm drains, floor drains, and sink drains, if necessary
7.	Responder/ WM	Contains the spill: surrounds the perimeter of the spill with absorbent pads, berms, and so on
8.	Responder/ WM	Cordons off the area to control traffic
9.	Responder/ WM	Begins cleanup (Spills: Spill Cleanup Procedure) <sup>4</sup>
10.	WM	Initiates Spills: Spill Reporting Procedure <sup>5</sup>

---

4 Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>

5 Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>

# Spills: Life-threatening Emergency Spill Response Procedure

Department: Environmental Protection  
Program: Spills  
Owner: Program Manager, Michael Hug  
Authority: ES&H Manual, Chapter 16, Spills

## Legend

Responder = person witnessing and first responding to spill

Emergency responder = contract personnel who are trained to respond to chemical releases that could expose them to health hazards

PM = program manager

WM = Waste Management Group

RP = Radiation Protection Department

## Initial Response

The first person (“responder”) noticing a spill that is life-threatening must take the following actions immediately (see Spills: Spill Response Flow Chart):<sup>1</sup>

Step	Person	Action
1.	Responder	Ensures own safety. At all times minimizes exposure to chemical or radioactive contamination
2.	Responder	Follows Spills: Initial Spill Response Procedure <sup>2</sup>
3.	Responder	Clears and secures area and moves to a safe location near the site of the spill
4.	Responder	Calls 911 or 9-911 from a SLAC phone Describes injuries (if any), the location, the spill, the type of material released (if known), the size, and source. Provides name and remain on the phone until the emergency dispatcher instructs to hang up
5.	Responder	Calls Safeguards and Security (Ext. 2551) and WM (Ext. 2399) to report the spill. If spill contains or is suspected to contain radioactive material, calls RP (Ext. 4299)
6.	Emergency	Aids injured persons, secures area, eliminates any ignition

1 Spills: Spill Response Flow Chart (SLAC-I-750-0A16S-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsFlowResponse.pdf>

2 Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

## Spills: Life-threatening Emergency Spill Response Procedure

Step	Person	Action
	Responder*	sources, if spill is of flammable material, protects storm drains, floor drains, sewer manholes
7.	Emergency Responder*	Contains the spill by surrounding the perimeter of the spill with containment material
8.	Emergency Responder*	Begins cleanup (Spills: Spill Cleanup Procedure) <sup>3</sup>
9.	WM	Provides labeled waste containers
10.	WM	Initiates Spills: Spill Reporting Procedure <sup>4</sup>

\* These procedures are meant only to provide an idea of what will be done. The emergency responders will follow their own response procedures.

---

3 Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>

4 Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>

# Spills: Non-life-threatening Emergency Spill Response Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

Responder = person witnessing and first responding to spill

Emergency responder = contract personnel who are trained to respond to chemical releases that could expose them to health hazards.

PM = program manager

WM = Waste Management Group

## Initial Response

The first person (“responder”) noticing a spill that poses an exposure risk to human health or uncontrollable imminent threat to the environment, but is not life-threatening, must take the following actions immediately:

Step	Person	Action
1.	Responder	Ensures own safety. At all times takes action to minimize exposure to chemical or radioactive contamination
2.	Responder	Follows Spills: Initial Spill Response Procedure <sup>1</sup>
3.	Responder	Stops the source of the spill if it is safe to do so
4.	Responder	Clears and secure area and moves to a safe location near the site of the spill
5.	Responder	Immediately calls WM (Ext. 2399) or Safeguards and Security (Ext. 2551) to report the spill.  Describes the spill, its location, the type of material released (if known), the size, and source. Provides name. Remains in area until help arrives, unless instructed to do otherwise.  If spill contains or is suspected to contain radioactive material calls RP (Ext. 4299)
6.	WM	If it has not been stopped and it is safe to do, stops source of the spill, secures the area, protects storm drain, floor drain, sanitary sewer

1 Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

## Spills: Non-life-threatening Emergency Spill Response Procedure

Step	Person	Action
7.	Emergency Responder	Contains the spill by surrounding the perimeter of the spill with containment material
8.	Emergency Responder	Begins cleanup (Spills: Spill Cleanup Procedure) <sup>2</sup>
9.	WM	Provides labeled waste containers
10.	WM	Initiates Spills: Spill Reporting Procedure <sup>3</sup>

---

2 Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>

3 Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>

# Spills: Radioactive Spill Response Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

PM = program manager

Responder = person witnessing and first responding to spill

RP = Radiation Protection Department

WM = Waste Management Group

## Initial Response

This procedure only applies to non-emergency spills. If the spill is life-threatening or poses an exposure risk to human health, follow one of the following procedures:

- Spills: Life-threatening Emergency Spill Response Procedure<sup>1</sup>
- Spills: Non-life-threatening Emergency Spill Response Procedure<sup>2</sup>

The first person (“responder”) noticing a non-emergency spill that may be radioactive should take the following immediate steps to minimize the spread of radioactive spills. The following steps should be used as a **guide** to be performed by the responder and Radiation Protection staff as appropriate. Every situation is unique and good judgment is necessary to assess the response to each situation.

Step	Person	Action
1.	Responder	Ensures own safety. At all times minimizes exposure to chemical or radioactive contamination
2.	Responder	Warns others in the area of the spill
3.	Responder	Immediately notifies RP (Ext. 4299) or Safeguards and Security (Ext. 2551) or Main Control (Ext. 2151). Describes the spill, its location, the type of material released (if known), the size, and source. Provides name. Remains in area until help arrives, unless instructed to do otherwise.

1 Spills: Life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyLT.pdf>

2 Spills: Non-life-threatening Emergency Spill Response Procedure (SLAC-I-750-0A16C-004), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedEmergencyNLT.pdf>

## Spills: Radioactive Spill Response Procedure

Step	Person	Action
4.	Responder	Assesses whether PPE and spill response equipment that are compatible with the spilled material, are available to stop and contain spill. Refers to material safety data sheets (MSDS), if applicable
5.	Responder/ RP	Stops the cause of the spill, if it is safe to do so. Avoids possible spray or touching the material. For small spills, throws absorbent material on liquid, place containers up-right. For potentially radioactive water systems, securing water systems by knowledgeable personnel may be necessary.
6.	Responder/ RP	Isolates affected area and cordons off the area to control traffic.
7.	Responder/ RP	Plugs storm drains, floor drains, and sink drains, if necessary

The following steps are to be performed by the responder if s/he has RWTII training, the appropriate equipment, and PPE, and a JHAM including this type of work. Otherwise, these steps are performed by RP:

Step	Person	Action
8.	Responder/RP	Contains the spill with absorbent material using the following PPE as a minimum shoe covers and gloves
9.	RP	Takes radiation, contamination, and water sample surveys to assess the radiological hazards. For radiological systems, consults past survey results, and reviews radiological labels before attempting to clean up the spill.
10.	RP	Begins Spills: Spill Reporting Procedure <sup>3</sup> and coordinates cleanup (Spills: Spill Cleanup Procedure) <sup>4</sup>

3 Spills: Spill Reporting Procedure (SLAC-I-750-0A16C-007), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedReporting.pdf>

4 Spills: Spill Cleanup Procedure (SLAC-I-750-0A16C-006), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedCleanup.pdf>

# Spills: Spill Cleanup Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

PM = program manager

Responder = person witnessing and first responding to spill

RP = Radiation Protection Department

WM = Waste Management Group

## Spill Cleanup Procedure

Step	Person	Action
1.	WM/RP	Coordinates cleanup (WM for hazardous material and waste, RP for radioactive)
2.	WM/RP/Responder	Ensures own safety. At all times minimizes exposure to chemical or radioactive contamination
3.	WM/RP/Responder	Uses PPE and spill response equipment that are compatible with the spilled material. Refers to the material safety data sheet (MSDS), if material is known
4.	Responder	Requests appropriate waste container(s) (from WM or RP)
5.	WM/RP/Responder	Cleans up all impacted media. Usually performed by spreading absorbent material on entire spill area
6.	WM/RP/Responder	If spill area includes unpaved areas, removes all impacted soil
7.	PM	May require a confirmation soil sample to ensure all impacted soil has been removed
8.	WM/RP/PM	If spilled material has migrated to storm drain system, may require cleaning of impacted drain lines and analyses of samples to ensure cleaning was complete
9.	WM/RP/Responder	Places all spilled material and absorbent material in the provided waste container(s)  WM/RP may require sample of waste material to determine waste characterization for disposal.

## Spills: Spill Cleanup Procedure

Step	Person	Action
10.	WM/RP/Responder	Unplugs storm drains, floor drains, and sink drains, if applicable
11.	WM/RP/Responder	Decontaminates spill equipment properly. Places all disposable PPE and spill response equipment and any other expendables in waste containers
12.	Responder	Requests pickup of waste containers from WM/RP
13.	WM/RP	Arranges for proper disposal of waste

# Spills: Spill Reporting Procedure

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Legend

BII = Basic Incident Investigation

CGS = Chemical and General Safety Department

FM = facility manager

ORPS = Occurrence Reporting Processing System

PM = program manager

PNR = preliminary notification report

Responder = person witnessing and first responding to spill

RP = Radiation Protection Department

WM = Waste Management Group

## Initial Reporting

Step	Person	Action
1.	Responder	Follows Spills: Initial Spill Response Procedure <sup>1</sup> All spills requiring additional responders must be reported immediately to the PM, via WM The reporting of all spills, regardless of type and response, is strongly encouraged
2.	WM	Completes a Spill Report Form <sup>2</sup> and submits to PM
3.	PM	Evaluates spill and determines if regulatory notification is required
4.	PM	Immediately notifies the chief operating officer and/or the special assistant to the chief operation officer of all spills
5.	PM	Records and tracks spill and ultimately enters it in the BII

1 Spills: Initial Spill Response Procedure (SLAC-I-750-0A16C-001), <http://www-group.slac.stanford.edu/esh/eshmanual/references/spillsProcedInitial.pdf>

2 Spill Report Form (SLAC-I-750-0A16J-003), <http://www-group.slac.stanford.edu/esh/forms/>

**Spill Notification to Regulators**

Step	Person	Action
1.	PM	Evaluates the spill to determine notification responsibilities (if the spill is radioactive, RP will submit notification to the appropriate regulators)
2.	PM	Notifies the appropriate external regulatory agencies within 24 hours of spill

**Spill Notification to the Occurrence Reporting Processing System (ORPS)**

Step	Person	Action
1.	PM	Whenever a spill is reported to an external regulatory agency:
2.	PM	Prepares a PNR with assistance from CGS, as needed
3.	PM	Obtains a PNR from CGS and forwards to ORPS Program Manager
4.	ORPS Program Manager	Determines if the spill should be included in ORPS

**Spill Notification to Basic Incident Investigation (BII) Database**

Step	Person	Action
1.	PM	Prepares a report for the BII
2.	PM	Submits report to BII

See Chapter 28, “Incident Investigation”, for additional information on reporting.<sup>3</sup>

<sup>3</sup> *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 28, “Incident Investigation”, <http://www-group.slac.stanford.edu/esh/general/incident/policies.htm>

# SLAC Spill Report Form

Environmental Protection Department

**Spill Report Number**

## General Report Information

Identity of the substance(s) released	CAS No. (if applicable)	Approx. Quantity released	Reportable Quantity (RQ) (if applicable)
---------------------------------------	-------------------------	---------------------------	--

Person completing form (print): \_\_\_\_\_

OCCURRENCE	DISCOVERY	REPORTING
Date: _____ Time: _____ Duration: _____	Date: _____ Time: _____	Date: _____ Time: _____
Continuous flow <input type="checkbox"/> Intermittent flow <input type="checkbox"/> Discrete release <input type="checkbox"/>	Was the release ongoing at the time of discovery? YES <input type="checkbox"/> NO <input type="checkbox"/>	To: WMG <input type="checkbox"/> x3586      (indicate all that apply) EP <input type="checkbox"/> x4042      RP      x 4299 Security <input type="checkbox"/> x2551      J. Dabney x3603 MCC <input type="checkbox"/> x2150 PAFD <input type="checkbox"/> 9-911 CEF <input type="checkbox"/> x8901

## Location of spill

Building or Area Name	Building Number (if spill is outside, closest building number)	Room number (if applicable)
-----------------------	--	-----------------------------

## Person who discovered spill

First	Last	Extension	Department / Group Name
-------	------	-----------	-------------------------

## Person who reported spill

First	Last	Extension	Department / Group Name
-------	------	-----------	-------------------------

## Please describe the source and circumstances of the spill / release

Did the primary mass contact...	YES	NO	Unknown	If YES, approximate extent of area
asphalt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
concrete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
soil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
air? (for gasses)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Did the primary mass enter...	YES	NO	Unknown	if YES, estimate volume
sewer?*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ Catch basin # _____
storm drain?*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ Catch basin # _____
creek?*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
atmosphere? (for gasses)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

# Corrective Actions Taken to Control or Contain Material

## Location Map

Draw map with scale, north arrow, and nearby buildings for reference.  
 Also, indicate the closest downgradient catch basin and distance from spill.

**For EP Dept. use only-----**

### Internal Notification

1. Notify Janice Dabney immediately.
2. Unless told otherwise, contact the Facility Manager Deputy, ESH Associate Director, and Operations Associate Director.

### External Notification

1. If spill exceeds the RQ, immediately notify the appropriate regulatory agency and provide information by phone.
2. Submit written report if requested.

Substance	Reportable Quantity*	Agency
Oil	42 gallons	SMC,OES
Mercury	1 pound	OES
Chemicals	check MSDS	OES
Sewage (into storm drain)	1,000 gallons	SMC
Water (into storm drain)	1,000 gallons	SMC

BAAQMD 415-749-4979  
 SMC 650-599-1600  
 OES 800-852-7550  
 RWQCB 510-622-2411  
 Hug 650-926-4042  
 pg. 650-849-9625  
 Security 650-926-2551  
 WM day 650-849-9493  
 wk 650-849-9484  
 CEF 650-926-8901  
 Dabney 650-926-3603  
 pg. 650-849-9416  
 Fac Mng. 650-804-5465

\* If necessary, consult the red spill reporting binder in B. 24, rm. 120.

Have offsite organizations been notified? 
 Yes  
 No  
 Unknown

Agency	Contact	Phone #	Time	Date

Name of EP staff providing notification \_\_\_\_\_

Distribution: Send original to EP Department, MS 77 or Hug@slac.stanford.edu

# Spills: Spill Cleanup Equipment Guidelines

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

## Resources

Cleanup equipment for spills of hazardous materials must be readily available in areas where hazardous materials and waste are stored and/or used.

Where hazardous materials are present, material safety data sheets (MSDS) must be available (see Chapter 40, "Hazardous Materials"<sup>1</sup>). MSDSs describe physical properties, hazards to personnel, fire and explosion potential, safe handling recommendations, health effects, fire fighting techniques, and proper disposal.<sup>2</sup>

Most buildings, along with some areas, have facility emergency plans (FEPs), showing the location and type of spill response equipment available (see Chapter 37, "Emergencies"<sup>3</sup>). FEPs can be found in the building life safety box (yellow box) and online.<sup>4</sup>

Personnel should be familiar with the MSDSs of hazardous materials they use routinely and the building FEP to determine the location of proper spill response equipment for the specific hazards in the area.

## Typical Equipment

Spill cleanup equipment typically consists of the following:<sup>5</sup>

- Absorbent material (for example, spill litter and spill blankets)
- Neutralizers
- Berms/dikes
- Storm drain covers
- Towels
- Shovels (non-sparking for flammable material)
- Brooms
- Dust pans
- Pens
- Ziplock bags
- Hazardous waste containers (provided by the Waste Management Group)
- Appropriate chemical-resistant PPE (see Chapter 40, "Hazardous Materials")

---

1 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, "Hazardous Materials", [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)

2 "MSDS Sources", <http://www-group.slac.stanford.edu/esh/groups/cgs/cms/msds.html>

3 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 37, "Emergencies", <http://www-group.slac.stanford.edu/esh/emergency/chapter/policies.htm>

4 "Facility Emergency Plans", <https://www-internal.slac.stanford.edu/esh/emergency/fep/>

5 "Spill Supplies", [http://www-group.slac.stanford.edu/esh/groups/ep/hwm/supplies/spill\\_materials.htm](http://www-group.slac.stanford.edu/esh/groups/ep/hwm/supplies/spill_materials.htm)



## Spills: Spill Prevention Guidelines

Department: Environmental Protection

Program: Spills

Owner: Program Manager, Michael Hug

Authority: ES&H Manual, Chapter 16, Spills

To prevent the hazards associated with spills, the following controls, where feasible, should be implemented:

- Ensuring secondary containment of hazardous materials
- Utilizing double-walled containers
- Installing alarms on containers
- Installing overfill prevention on tanks
- Performing regular non-destructive integrity testing on above ground diesel storage tanks and utility pipes
- Performing regular visual inspections of hazardous material and waste containers
- Utilizing proper material handling practices (see Chapter 40, “Hazardous Materials”<sup>1</sup>)
- Using drip pans under hoses during hazardous material delivery or hazardous waste removal
- Performing regular inspections of equipment and vehicles for leaks and worn piping
- Never pouring, or allowing material to flow, into a storm drain
- Installing storm drain gates that can be closed while loading/unloading hazardous materials

---

1 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, [http://www-group.slac.stanford.edu/esh/hazardous\\_substances/haz\\_materials/policies.htm](http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm)