Chapter 26: Stormwater

Quick Start Summary

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1 Who needs to know about these requirements

The requirements of Stormwater apply to workers, supervisors, field construction managers, project managers, area/building managers, subcontractors, ESH coordinators, the stormwater program manager, Facilities and Operations, and Radiation Protection. They cover authorizing discharges to the storm drainage system, handling unauthorized discharges, choosing and implementing best management practices, inspecting and maintaining the storm drainage system, and planning and permitting specific projects.

2 Why

Many SLAC operations, such as vehicle maintenance, landscaping, construction, hazardous materials and waste handling, and other outdoor activities, have the potential to release pollutants and sediment into storm drainage systems and local water bodies if not managed properly.

3 What do I need to know

SLAC’s stormwater discharges are regulated under the California State Water Resources Control Board (SWRCB)’s state-wide industrial general permit (IGP) and construction general permit (CGP) and the National Pollutant Discharge Elimination System (NPDES) Program. Compliance includes development and implementation of SLAC’s Storm Water Pollution Prevention Plan (SWPPP), best management practices (BMPs), and a monitoring program to control pollution sources. In addition to complying with the state-wide permits, certain activities at SLAC may require project-specific permits or plans.

Activities must be managed to prevent pollutants from entering the storm drainage system and impacting downstream waters. Only stormwater and certain approved non-storm water discharges (NSWDs) are permitted into the storm drainage system.

Important Remember: only rain in the drain!

4 When

These requirements take effect 19 April 2023.

5 Where do I find more information

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
  • Chapter 26, “Stormwater”

Or contact the program manager.
1 Purpose

The purpose of this program is to protect surface water quality by ensuring that stormwater discharges comply with applicable rules and regulations, including the state industrial general permit (IGP), and preventing the entry of pollutants into the storm drainage system and receiving water bodies (for example, San Francisquito Creek).

It covers authorizing discharges to the storm drain system, handling unauthorized discharges, choosing and implementing best management practices, inspecting and maintaining the storm drainage system, and planning and permitting specific projects.

It applies to workers, supervisors, field construction managers, project managers, area/building managers, subcontractors, ESH coordinators, the stormwater program manager, Facilities and Operations, and Radiation Protection.

2 Roles and Responsibilities

Functional roles and general responsibilities for each under this program are listed below.

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

- Does not discharge anything other than rain into storm drains without prior approval
- Completes required training
- Follows best management practices (BMPs) for minimizing impacts to surface water
- Reports unauthorized discharges to the storm drain system as spills
- Reports blocked catch basins and areas of erosion or sediment runoff to the stormwater program manager
- Provides recommendations or concerns regarding water quality protection to the stormwater program manager
2.2 Supervisor / Line Management

- Completes required training
- Notifies the stormwater program manager of proposed non-stormwater discharges (NSWDs)
- Ensures BMPs are implemented and stormwater requirements are met within their areas of responsibility
- Ensures personnel under their supervision receive required training and resources to implement BMPs and minimize impacts to surface water

2.3 Project Manager / Field Construction Manager

- Completes required training
- Contacts the stormwater program manager to review projects that may impact stormwater
- Ensures BMPs and other mitigation measures are implemented by SLAC and subcontractors to minimize project impacts to surface water
- Ensures that subcontractor has the proper stormwater permits and plans in place before work starts (see Stormwater: Construction Requirements)

2.4 Area / Building Manager

- Completes required training
- Periodically inspects area to ensure BMPs are implemented and are adequate to minimize impacts to surface water (see Stormwater: General Inspection Checklist for guidance)
- Practices good housekeeping at outside material and waste storage areas
- Requests that Facilities removes significant obstructions or debris observed in storm drains or stormwater conveyances
- Notifies the stormwater program manager of proposed NSWDs or changes in building/area processes that may affect surface water
- Reports contained stormwater to Facilities for prompt removal

2.5 Subcontractor

- Develops plans, obtains permits, and implements BMPs and other mitigation measures to minimize project impacts to surface water (see Stormwater: Construction Requirements)

2.6 ESH Coordinator

- Completes required training
- Ensures good housekeeping at outside material and waste storage areas
- Reports significant storm drain obstructions or debris to area/building manager
2.7 Facilities and Operations Division

- Maintains and repairs all SLAC buildings, grounds, and utilities, which includes the following:
  - Maintains an inspection and maintenance program for the storm drain system, including drainage channels and inlets/outfalls
  - Completes street sweeping and other measures to minimize sediment in runoff
  - Performs landscaping
  - Provides janitorial services
  - Ensures these and other activities meet the requirements of this program (see Stormwater: General Requirements and Stormwater: Construction Requirements)

- Pumps, treats with carbon filtration, and reuses rainwater collected from secondary containments and vaults

- Maintains structural BMPs, including annually replacing catch basin inserts associated with general site activities at locations specified by the stormwater program manager

2.8 Radiation Protection Department

- Works with the stormwater program manager to develop, implement, and review BMPs for radiological protection
- Reviews the SWPPP and other program documentation and reports to ensure radiological protection is addressed
- Monitors stormwater discharges as needed for ensuring radiological protection

2.9 Stormwater Program Manager

- Act as SLAC’s primary point of contact with regulatory agencies regarding stormwater permit applications and approvals
- Provides stormwater awareness training (ESH Course 298)
- Maintains SLAC’s Storm Water Pollution Prevention Plan (SWPPP)
- Monitors stormwater discharges and evaluates the effectiveness of SLAC’s BMPs through sampling, monthly inspections, and annual comprehensive compliance evaluations
- Prepares and submits required reports to regulatory agencies
- Works with project managers and Facilities to identify activities and projects that require separate stormwater permitting and reviews project prepared permits as necessary
- For construction projects, reviews design and required reports, plans, permits, and BMPs and regularly inspects construction sites to ensure proper implementation
- Investigates reports of unplanned or unauthorized surface water or storm drain releases, and notifies federal, state, and local authorities in a timely manner, as required
3 Procedures, Processes, and Requirements

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

- **Stormwater: General Requirements** (SLAC-I-750-0A16S-014). Describes requirements for authorizing discharges, handling unauthorized discharges, choosing and implementing best management practices, and inspecting and maintaining the storm drainage system.

- **Stormwater: Construction Requirements** (SLAC-I-750-0A16S-009). Describes requirements for planning, permitting, conducting, and completing construction, soil excavation, and grading activities that may affect stormwater.

- **Stormwater: Best Management Practices Index** (SLAC-I-750-0A16V-001). Lists stormwater best management practice (BMP) categories and which apply for specific activities.

These are the forms and tools for this program:

- **Stormwater: General Inspection Checklist** (SLAC-I-750-0A16J-006). Recommended checklist for guiding periodic inspections/walkthroughs by area and building managers to ensure best management practices are being implemented and are adequate.

- **Stormwater: Erosion and Sedimentation Control Plan Form** (SLAC-I-750-0A16J-007). Form for documenting erosion and sedimentation control measures to be taken for construction projects that disturb less than one acre of soil but have the potential to impact stormwater. To be completed by project manager or field construction manager.

- **Stormwater: Contained Water Release Form** (SLAC-I-750-0A16J-004). Form to be completed for discharges of temporarily stored or contained stormwater from containments such as secondary containments, vaults, and sumps to the storm drainage system. To be completed by area and building managers.

- California Environmental Protection Agency, State Water Resources Control Board. Notice of Intent (NOI) under the California Construction General Permit (CGP). To be submitted by the project manager for projects that disturb more than one acre of soil. Available from SMARTS.


These are other program documents and resources:

- **Storm Water Pollution Prevention Plan (SWPPP)** (SLAC-I-750-0A16M-002). Identifies facility stormwater pollution sources and describes implementation of practices to reduce pollutants in discharges as required under the state industrial general permit.

- Storm Water Monitoring Implementation Plan (SLAC-I-750-2A15C-004) (in the Storm Water Pollution Prevention Plan). Describes how SLAC complies with the state industrial general permit and measures the effectiveness of best management practices in reducing or preventing pollutants from entering storm drainage system and non-stormwater discharges.
4 Training

Anyone who performs or supervises work outdoors that may impact stormwater runoff must complete the following course:

- ESH Course 298, Stormwater Awareness Training ([ESH Course 298](#)) (every 36 months)

This requirement applies specifically to

- Personnel who conduct inspections, sampling, and visual observations in support of the stormwater program
- Personnel who manage stormwater, or stormwater pollution prevention devices such as sediment traps, catch basin inserts, and/or the storm drainage system
- Building and area managers
- ESH coordinators
- FCMs
- Personnel who conduct or manage outdoor activities that may pose a threat to stormwater, including
  - Outdoor fabrication
  - Facilities or equipment maintenance
  - Chemical or materials storage
  - Ground maintenance
  - Construction

5 Definitions

Authorized non-stormwater discharge (NSWD). Source of non-stormwater conditionally allowed into the storm drainage system under the industrial general permit.

Best management practice (BMP). A technique, process, activity, or structure used to reduce the pollutant content of a stormwater discharge. BMPs include simple, non-structural methods, such as good housekeeping and preventive maintenance. BMPs may also include sophisticated, structural modifications, such as the installation of sediment basins.

Bioswale. A low-gradient, vegetated, open channel through which surface runoff is directed. The bioswale decreases the speed of flows.

Catch basin insert. A device placed in a catch basin to remove pollutants from surface runoff. This prevents such items as trash, debris, and sediment from entering the storm drainage system.

Construction general permit (CGP). A National Pollutant Discharge Elimination System (NPDES) permit that regulates discharges associated with projects that disturb one or more acres of soil or projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres set forth by the California State Water Resources Control Board (SWRCB) Order 2022-0057-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the
ground such as stockpiling or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

*erosion and sedimentation control plan (ESCP).* Plan documenting measures for the conservation of soil and water resources

*industrial general permit (IGP).* A *National Pollutant Discharge Elimination System (NPDES)* general permit that regulates discharges of stormwater associated with industrial activities (excluding construction activities) set forth by the California State Water Resources Control Board (SWRCB) Order 2014-0057-DWQ, and its amendments

*industrial/support activity area.* An area identified within the *storm water pollution prevention plan (SWPPP)* that has the potential to pollute stormwater with industrial or support activities. Office buildings and associated parking lots are not considered industrial/support activity areas.

*National Pollutant Discharge Elimination System (NPDES).* Permit program that addresses water pollution by regulating point sources that discharge pollutants to waters of the United States ([40 CFR 122](https://www.ecos.gov/.

*notice of intent (NOI).* A form sent to the *state water resources control board (SWRCB)* to initiate the implementation of stormwater pollution prevention requirements as specified in the general industrial permit or the construction general permit

*notice of termination (NOT).* A form sent to the *regional water quality control board (RWQCB)* that allows the board to terminate coverage under the general permit *numeric action level (NAL)*

*numeric action level (NAL).* Quantitative guidelines listed in the *industrial general permit (IGP)* for various parameters in stormwater discharge (for example, total suspended solids, pH, oil and grease, metals). Dischargers that exceed the IGP’s NAL thresholds are required to take mitigatory action.

*riparian.* Of or pertaining to streams or rivers

*sediment.* Solid material, including mineral and organic, that can be mobilized by rain and then settle to the bottom of channels and basins

*sensitive (critical) habitat.* Habitats that either support sensitive species (species listed or proposed to be listed as threatened, endangered, or of special concern) or are designated as a sensitive natural community in local or regional plans, polices, regulations, or by California Department of Fish and Game or the United States Fish and Wildlife Service

*state water resources control board (SWRCB).* The state agency that issues the industrial and construction general permits

*regional water quality control board (RWQCB).* SLAC falls under the jurisdiction of the San Francisco Bay RWQCB, which ensures compliance with SWRCB general permits

*stormwater pollution prevention plan (SWPPP).* A site-specific plan that identifies potential sources of stormwater, pollutant mitigations, *best management practices (BMPs)*, and pollutant monitoring to verify the effectiveness of BMPs
6 References

6.1 External Requirements

  - Chapter 18, “Watershed Protection and Flood Prevention” (*16 USC Chapter 18*)

  - Section 1311, “Effluent Limitations” (*33 USC 1311*)
  - Section 1317, “Toxic and Pretreatment Effluent Standards” (*33 USC 1317*)
  - Section 1318, “Records and Reports; Inspections” (*33 USC 1318*)

  - Section 1341, “Certification” (*33 USC 1341*) (Clean Water Act [CWA] Section 401)
  - Section 1344, “Permits for Dredged or Fill Material” (*33 USC 1344*) (Clean Water Act [CWA] Section 404)


  - Part 320, “General Regulatory Policies” (*33 CFR 320*)
  - Part 322, “Permits for Structures or Work in or Affecting Navigable Waters of the United States” (*33 CFR 322*)
  - Part 323, “Permits for Discharges of Dredged or Fill Material into Waters of the United States” (*33 CFR 323*)
  - Part 328, “Definition of Waters of the United States” (*33 CFR 328*)
  - Part 330, “Nationwide Permit Program” (*33 CFR 330*)

  - Part 122, “EPA Administered Permit Programs: The National Pollutant Discharge Elimination System” (*40 CFR 122*)
  - Part 131, “Water Quality Standards” (*40 CFR 131*)

– Chapter 3, “State Water Quality Control” (WAT 13100–13197.5)
– Chapter 4, “Regional Water Quality Control” (WAT 13200–13286.9)
– Chapter 5.4, “Nonpoint Source Pollution Control Program” (WAT 13369)

- California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ)
- California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Industrial Activities (Order 2014-0057-DWQ) (as amended)
- California Environmental Protection Agency, San Francisco Bay Regional Water Quality Control Board. Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)

### 6.2 Related Documents

**SLAC Environment, Safety, and Health Manual** (SLAC-I-720-0A29Z-001)
- Chapter 2, “Work Planning and Control”
- Chapter 16, “Spills”
- Chapter 11, “Excavation Safety”
- Chapter 43, “Industrial Wastewater”
- Chapter 59, “Biological Resources Protection”

Other SLAC Documents
- **Water Resources**

Other Documents
- California Environmental Protection Agency, State Water Resources Control Board. [Industrial Stormwater Program](#)
- California Environmental Protection Agency, State Water Resources Control Board. [Construction Stormwater Program](#)
- California Department of Transportation, Division of Environmental Analysis, Stormwater Program. [Construction Site Best Management Practices Manual](#) (CTSW-RT-17-314.18.1)
Chapter 26: Stormwater

General Requirements

1 Purpose

The purpose of these requirements is to protect surface water quality by ensuring that stormwater discharges comply with applicable rules and regulations. They cover authorizing discharges to the storm drainage system, handling unauthorized discharges, choosing and implementing best management practices, inspecting and maintaining the storm drainage system, and planning and permitting specific projects. They apply to workers, supervisors, field construction managers, project managers, area/building managers, subcontractors, the stormwater program manager, and Facilities and Operations.

For requirements specific to construction activities, please also refer to Stormwater: Construction Requirements.

2 Requirements

Stormwater flowing through industrial/support activity areas, such as those on the SLAC site, has the potential to carry pollutants into local water bodies if upstream sources are not properly managed. Sediment in runoff is also considered a pollutant and must be controlled and minimized. Receiving water bodies must be protected so that their functions as wildlife habitat, drinking water sources, and recreational areas are not unduly impaired. SLAC’s storm run-off discharges directly into San Francisquito Creek, which ultimately drains into San Francisco Bay.

SLAC’s stormwater discharges are regulated under the California State Water Resources Control Board (SWRCB)’s state-wide industrial general permit (IGP) and construction general permit (CGP) and the National Pollutant Discharge Elimination System (NPDES) Program. Compliance includes development and implementation of SLAC’s Storm Water Pollution Prevention Plan (SWPPP), best management practices (BMPs), and a monitoring program to control pollution sources and prevent pollutants from entering the storm drainage system. In addition to complying with the state-wide permits, certain activities at SLAC may require project-specific permits or plans.

Many SLAC operations, such as vehicle maintenance, landscaping, construction, hazardous materials and waste handling, and any other activity that may release pollutants to the environment, must be managed in accordance with permit requirements. These include the proper implementation of BMPs to keep pollutants from entering the storm drainage system.

Below are the requirements that apply generally to activities that may impact stormwater discharges. (Detailed requirements can be found in the SWPPP and BMPs.)
2.1 Authorized Discharges

Under the state-wide IGP only stormwater and certain approved non-stormwater discharges (NSWDs) are permitted into the storm drainage system.

**Important** Under the state-wide IGP stormwater is the only material universally authorized for discharge into the storm drainage system. Certain approved NSWDs are conditionally authorized only with prior approval from the stormwater program manager.

The NSWDs conditionally authorized include the following:

- Fire sprinkler and hydrant flushing
- Potable water
- Drinking fountain water
- Atmospheric condensates, including refrigerate, air conditioning, and compressor condensate
- Landscape watering
- Groundwater
- Foundation or footing drainage

These discharges are authorized only if certain conditions are met as outlined in the SWPPP and *Stormwater: Category 18 BMPs – Non-stormwater Discharges*. If one or more of the above types of discharges is planned, the person discharging the water must notify and work with the stormwater program manager to ensure the discharge meets all requirements and that all necessary documentation is completed.

2.2 Unauthorized Discharges and Spill Response

Unauthorized discharges include any that do not fall within the conditional discharges described in the previous section, including vehicle or equipment wash water, concrete slurry, spills, and other similar discharges to the storm drainage system. These discharges are not allowable under the IGP and must be treated as a spill.

Any worker observing non-stormwater materials entering a storm drain, including water from sources such as water line breaks, should promptly report it as described in Chapter 16, “Spills”.

2.3 Disposal of Contained Stormwater

Containments (for example, sumps and outdoor secondary containments) must be promptly emptied of stormwater. Contained stormwater can only be released to storm drains if the water is confirmed to be free of pollutants, including oil sheens. See (*Stormwater: Category 14 BMPs – Rainwater Management* for complete instructions.) Facilities is responsible for pumping contained stormwater for reuse or and proper disposal. Contained stormwater discharges to storm drains must be documented using *Stormwater: Contained Water Release Form*. Copies of the form must be sent to the stormwater program manager.
2.4 Best Management Practices

Stormwater best management practices (BMPs) are techniques, processes, activities, or structures meant to eliminate sources of pollutants that may enter the storm drainage system. They are required by the IGP and are critical for complying with stormwater permits. SLAC has adopted BMPs covering a range of activities, from metal finishing and cooling tower water flushing to landscaping and building maintenance.

BMPs can include both structural features such as catch basin inserts, wattles, sediment traps, and bioswales, and behavioral actions such as good housekeeping and placing covers on materials stored outdoors. For a list of BMPs and guidance on which may apply to a given activity, see the Stormwater: Best Management Practices Index.

All workers are encouraged to review and understand the BMPs that apply to their work areas, and to inform the stormwater manager of any BMPs in need of attention or improvement.

Area and building managers are encouraged to carry out periodic inspections/walkthroughs of their area to ensure BMPs are being properly implemented and are adequate. (The Stormwater: General Stormwater Checklist is provided to guide these inspections.)

Common BMPs that apply to all work areas include the following:

- Keep outdoor areas tidy and free of trash.
- Minimize items and equipment stored outdoors, especially chemicals. Keep outdoor items covered wherever possible.
- Remove fluids from out-of-service equipment.
- Report BMP deficiencies in your area to the stormwater program manager. These include areas of sediment runoff or erosion, blocked storm drains or catch basins, and observations of non-stormwater materials entering the storm drainage system.

2.5 Inspections

On a monthly basis, the stormwater program manager inspects areas where storm drains are exposed to potential industrial activity to ensure stormwater is not exposed to pollutant sources. The stormwater program manager conducts a comprehensive annual site evaluation to ensure no new areas have potential pollutant sources due to industrial activities. Detailed requirements, including documentation and recordkeeping, for these inspections are covered in the SWPPP.

BMP implementation and storm drainage system maintenance is evaluated during periodic inspections and work orders placed for any items in need of maintenance or repair. Any worker observing a component of the storm drainage system in need of maintenance should promptly report it to the stormwater program manager.

2.6 System Operation, Maintenance, and Inspection

The Facilities and Operations Division is responsible for operation of SLAC’s storm drainage system, including storm drain catch basins, pipes, drainage channels (both concrete lined and unlined), culverts, ...
riprap, bioretention basins, sediment traps, weirs, sumps, and other stormwater conveyance devices. These responsibilities include system inspections, preventative maintenance, sediment removal, and repairs.

The storm drainage system is inspected by Facilities annually in September/October and before/after major storm events to identify potential problems and implement mitigations.

Maintenance activities completed by Facilities include the following:

- **Stormwater sumps:**
  - Provides preventative maintenance to sumps

- **Streets:**
  - Completes street sweeping on a regular schedule, at least annually in August or September before the wet season begins

- **Containment behind Cooling Tower 1701, “the Duck Pond”:**
  - Maintains carbon filters

- **Storm drains:**
  - Develops and maintains a storm drain management program
  - Keeps surface grates and areas around storm drains clean
  - Installs wattles, storm drain inserts, and flow redirection devices as necessary to reduced sediment and debris from entering storm drains

- **Catch basins:**
  - Clears blockages
  - Periodically cleans out catch basins (including dredging accumulated sediments) so that accumulated pollutants do not wash down the storm drains
  - Replaces catch basin inserts annually

- **Drainage channels:**
  - Regularly inspects, cleans, and maintains drainage channels
  - Clears vegetation debris from drainage channels
  - Removes accumulated sediment from concrete-lined drainages to prevent flooding
  - Clears blockages in drainage channels
  - Ensure work in drainage channels follows biological resources requirements (see Chapter 59, “Biological Resources Protection”)

- **Hillsides and vegetated areas:**
  - Minimizes sediment in runoff through implementation of BMPs
  - Stabilizes and repairs erosion, preferably using biodegradable materials

*Note*  In addition to the systems maintained by Facilities, the Environmental Restoration Group of the Environmental Protection Department maintains a hydrodynamic separator that removes sediment from stormwater at IR-6.
2.6.1 Sampling

Samples are collected from specified industrial activity areas and at the frequency described in the SWPPP. The results are used to verify that the storm drainage system is working properly, BMPs are effective, and discharges meet all applicable conditions. Sampling under the IGP is the responsibility of the stormwater program manager.

3 Forms

The following forms and systems are required by these requirements:

- **Stormwater: General Inspection Checklist** (SLAC-I-750-0A16J-006). Recommended checklist for guiding periodic inspections/walkthroughs by area and building managers to ensure best management practices are being implemented and are adequate.

- **Stormwater: Contained Water Release Form** (SLAC-I-750-0A16J-004). Form for documenting discharges of temporarily stored or contained stormwater from such containments as secondary containments, vaults, and sumps to the storm drainage system. To be completed by area and building managers.

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- Records of IGP-required monthly and annual inspections are to be kept by the stormwater program manager.

- Records of storm drainage system inspections and maintenance are to be kept by Facilities.

Other recordkeeping requirements may be found in the SWPPP.

5 References

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

- Chapter 26, “Stormwater”
  - **Stormwater: Construction Requirements** (SLAC-I-750-0A16S-009)
  - **Stormwater: Best Management Practices Index** (SLAC-I-750-0A16V-001) (see for a complete list of stormwater BMPs and their applicability)
  - **Storm Water Pollution Prevention Plan (SWPPP)** (SLAC-I-750-0A16M-002)
  - Storm Water Monitoring Implementation Plan (SLAC-I-750-2A15C-004) (in the **Storm Water Pollution Prevention Plan**)

- Chapter 11, “Excavation Safety”

- Chapter 16, “Spills”

- Chapter 17, “Hazardous Waste”
- Chapter 43, “Industrial Wastewater”
- Chapter 59, “Biological Resources Protection”

Other SLAC Documents
- Water Resources

Other Documents
- Environmental Protection Agency. National Pollutant Discharge Elimination System (NPDES)
- California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Industrial Activities (Order 2014-0057-DWQ) (as amended)
- California Environmental Protection Agency, State Water Resources Control Board. Industrial Stormwater Program
This is a recommended checklist for guiding periodic inspections/walkthroughs by area and building managers to ensure best management practices (BMPs) are being implemented and are adequate. There are no recordkeeping requirements, but if areas for improvement/action items are identified, the form should be submitted to the stormwater program manager for implementation. (See Stormwater: General Requirements [SLAC-I-750-0A16S-014].)

### Division 26: Stormwater General Inspection Checklist

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**This division building/area checklist guides periodic inspections to ensure best management practices are carried out.**

**Section 1: Housekeeping**

<table>
<thead>
<tr>
<th>Division</th>
<th>Building / area</th>
<th>Location</th>
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</table>

- Date Time
- Inspector's name (print)
- Inspector's title

#### Check one
- ☐ Yes
- ☐ No
- ☐ N/A

1. Are outside areas kept neat, clean, and orderly?
   - ☐ Yes ☐ No ☐ N/A

2. Are storm drain inlets labeled NO DUMPING, FLOWS TO BAY?
   - ☐ Yes ☐ No ☐ N/A

3. Are garbage cans, waste bins, and dumpsters covered?
   - ☐ Yes ☐ No ☐ N/A

4a. Has the stormwater conveyance system been recently altered?
   - ☐ Yes ☐ No ☐ N/A

4b. If yes, does the alteration maintain compliance with the [Storm Water Pollution Prevention Plan (SWPPP)](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormChecklistInspectGen.pdf) (SLAC-I-750-0A16M-002)?
   - ☐ Yes ☐ No ☐ N/A

5. Are stormwater drainage paths clear? Grates clean?
   - ☐ Yes ☐ No ☐ N/A

6a. Are vehicles or equipment cleaned at this facility?
   - ☐ Yes ☐ No ☐ N/A

6b. If yes, is wash water being collected and disposed of properly?
   - ☐ Yes ☐ No ☐ N/A

#### Hazardous Material Storage

<table>
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<tr>
<th>Check one</th>
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<tbody>
<tr>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
</tbody>
</table>

8a. Are vehicles fueled at this location?
   - ☐ Yes ☐ No ☐ N/A

8b. If yes, are fuel tanks locked and/or properly operated?
   - ☐ Yes ☐ No ☐ N/A

8c. If yes, are measures taken to protect storm drains from spills?
   - ☐ Yes ☐ No ☐ N/A

Describe

9. Do aboveground tanks (liquid) have secondary containment?
   - ☐ Yes ☐ No ☐ N/A

10. Are containment structures or surface slabs liquid tight?
    - ☐ Yes ☐ No ☐ N/A

11a. Does this site store hazardous materials such as solvents, pesticides, or acids?
    - ☐ Yes ☐ No ☐ N/A

11b. If yes, are containers weathertight or covered?
    - ☐ Yes ☐ No ☐ N/A

11c. If yes, are ignitable or reactive wastes stored at least 50 feet from the property line?
    - ☐ Yes ☐ No ☐ N/A

12a. Has the facility had a hazardous waste spill since the last inspection?
    - ☐ Yes ☐ No ☐ N/A

12b. If yes, was the problem resulting in the spill corrected
    - ☐ Yes ☐ No ☐ N/A
### Other Best Management Practices

<table>
<thead>
<tr>
<th>Practice</th>
<th>Check one</th>
</tr>
</thead>
<tbody>
<tr>
<td>13a. Does this site store hazardous or other materials that could impact the storm drain such as detergent, paint, or powders?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>13b. If yes, are they stored in a manner prohibiting exposure to rain or runoff?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>14. Are waste materials kept on site in closed leak-tight containers?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>15. Are all leaking vehicles or equipment equipped with drip pans?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>16. Are erodible soils uncovered or exposed to rainwater?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>17a. Is the ground surface stained by oil or significant materials?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>17b. If yes, has the source been found and contained?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>18. Are truck unloading areas covered?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>19. Does the facility have wastes, products, salvaged materials, and recyclables stored properly?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>20a. Does the facility have a clarifier / oil / water separator?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>20b. If yes, is it clean and functioning properly?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>21a. Has this facility received a complaint regarding stormwater discharge?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>21b. If yes, has the problem been addressed?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>22. Have personnel received training in stormwater pollution prevention (ESH Course 298)?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
<tr>
<td>23. Are spill response materials available?</td>
<td>☐ Yes ☐ No ☐ N/A</td>
</tr>
</tbody>
</table>

**Check all that apply**

- ☐ Sand
- ☐ Rice hulls
- ☐ Sorbent booms / pillows / blankets
- ☐ Kitty litter
- ☐ Neutralizer
- ☐ Drip pans

**Other (please list)**

<table>
<thead>
<tr>
<th>Practice</th>
<th>Condition</th>
<th>Practice</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Good housekeeping</td>
<td></td>
<td>☐ Containment</td>
<td></td>
</tr>
<tr>
<td>☐ Berms</td>
<td></td>
<td>☐ Leachate collection</td>
<td></td>
</tr>
<tr>
<td>☐ Sand filter</td>
<td></td>
<td>☐ Recycling</td>
<td></td>
</tr>
<tr>
<td>☐ Retention facilities</td>
<td></td>
<td>☐ Silt fence</td>
<td></td>
</tr>
<tr>
<td>☐ Sorbent booms</td>
<td></td>
<td>☐ Spill mitigation</td>
<td></td>
</tr>
<tr>
<td>☐ Oil / water separator</td>
<td></td>
<td>☐ Dead-end sumps</td>
<td></td>
</tr>
</tbody>
</table>

**Other (please list)**

<table>
<thead>
<tr>
<th>Practice</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Drip pans</td>
<td></td>
</tr>
</tbody>
</table>

### Action Items

1. 
2. 
3. 

---

19 April 2023

SLAC-I-750-0A16J-006-R002
This form must be completed any time temporarily stored or contained stormwater from secondary containments, vaults, and sumps is released to the storm drainage system. To be completed by area and building managers, with a copy e-mailed to the stormwater program manager. (See Stormwater: General Requirements [SLAC-I-750-0A16S-014].)

Instructions: Prior to draining any temporarily stored or contained stormwater from such containments as secondary containments, vaults, and sumps, observe the water for the presence of possible contaminants. Indications of potential contaminants include sheen, foam, discoloration, odor, debris, etc. If no contaminants are observed, drain the stormwater, and complete this form. If contaminants are observed, DO NOT DISCHARGE. Contact Waste Management to assist with proper characterization and disposal.

<table>
<thead>
<tr>
<th>Location</th>
<th>Observer’s title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer’s name</td>
<td>Observer’s signature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observation date</th>
<th>Observation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage start date</td>
<td>Drainage start time</td>
</tr>
<tr>
<td>Drainage end date</td>
<td>Drainage end time</td>
</tr>
</tbody>
</table>

Contaminants observed? □ Yes □ No
If yes, DO NOT PROCEED

Observations (stormwater characteristics, issues with containment, etc.)

Approx. quantity discharged (gallons)

Located discharged to

All containment valves resealed/closed following discharge? (if applicable) □ Yes □ No

Other notes or comments:
1 Purpose

The purpose of these requirements is to prevent stormwater pollution from construction activities. They cover planning, permitting, conducting, and completing construction, soil excavation, and grading activities that may affect stormwater runoff at SLAC. They apply to workers, supervisors, project and field construction managers, subcontractors, and the stormwater program manager.

Construction activities include clearing, grading, and disturbances to the ground, such as stockpiling and excavating. Potential impacts to stormwater from construction include spills, sediment, debris, and chemicals or other materials entering the storm drainage system.

2 Requirements

All projects regardless of size must adhere to SLAC’s site-wide industrial general permit, associated best management practices (BMPs), and pertinent federal, state, and local laws and regulations.

The project manager and/or field construction manager (FCM) are responsible for ensuring stormwater requirements are met by subcontractors. (See Chapter 42, “Subcontractor Safety”.)

Both the FCM and the stormwater program manager are responsible for regularly inspecting construction sites to ensure all requirements are being met.

2.1 Plans and Permitting

Construction activities require completion of plans and in some cases obtaining of permits, as detailed below.

2.1.1 Construction General Permit

A construction project that disturbs one or more acres of soil – or projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres – must comply with the requirements of the SWRCB’s construction general permit (CGP).

Construction projects regulated under the CGP require the following:

- A project-specific SWPPP and construction monitoring plan, developed by a qualified SWPPP developer (QSD) and implemented by a qualified SWPPP practitioner (QSP).
· SWPPP preparation should be included in the construction subcontractor’s scope of work. The SWPPP is the plan for mitigating environmental pollution before, during, and after the project.

· A notice of intent (NOI), prepared by the subcontractor and submitted by the SLAC project manager, along with a fee, to the SWRCB via SMARTS at least 10 days before work begins. The stormwater program manager must approve all submissions to the SWRCB.

· Completion of inspections and stormwater monitoring by the subcontractor as required by the CGP.

2.1.2 Erosion and Sedimentation Control Plan

A construction project that disturbs less than one acre of soil or a project that does not disturb soil but otherwise has the potential to impact stormwater or the storm drainage system (including demolition, excavation of asphalt, outdoor construction, outdoor materials fabrication or storage) requires the development of an erosion and sedimentation control plan.

The plan is developed by either the subcontractor or SLAC project manager and submitted to the stormwater program manager using the Stormwater: Erosion and Sedimentation Control Plan Form.

2.1.3 Jurisdictional Waters Permit

Projects that impact jurisdictional water features, for example, San Francisquito Creek, may require permitting from the US Army Corps of Engineers (CWA Section 404) and a water quality certification from the RWQCB (CWA Section 401). These permits may take up to a year to obtain, and planning should be conducted appropriately. Project managers should contact the biological resources protection program manager for assistance in determining whether the water/wetland meets the definition of jurisdictional (that is, is subject to the regulatory requirements of the Clean Water Act). See Chapter 59, “Biological Resources Protection”, for more information.

2.2 Project Design

In addition to obtaining required permits, construction projects must consider the following during the project design and planning phase.

2.2.1 Energy Independence and Security Act Section 438 Requirements

Construction projects that exceed 5,000 square feet must comply with the stormwater runoff requirements of Section 438 of the Energy Independence and Security Act (EISA), which calls for federal developments to maintain or restore pre-development hydrology.

During the design process, the project manager must submit a report to the stormwater program manager documenting how EISA Section 438 requirements will be met or rationale documenting applicability of exemption criteria. The stormwater program manager reviews the report and coordinates with the Department of Energy (DOE) SLAC Site Office (SSO) for approval.

2.2.2 Low-impact Development Design Criteria

Construction projects should incorporate low-impact development (LID) design criteria whenever possible. The goal of LID site design is to reduce the hydrologic impact of development to creeks and streams by
maintaining pre-development drainage patterns. The optimal LID site design minimizes runoff volume and preserves existing flow paths.

2.2.3 Best Available Technology

Construction projects must minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and management practices that achieve BAT (best “economically” available technology) for toxic and non-conventional pollutants and BCT (best conventional “pollution control” technology) for conventional pollutants. Avoid the use of non-biodegradable materials in structural BMPs.

2.2.4 Restoration Design

To prevent erosion following project completion, bare soil must be covered with biodegradable erosion control matting and planting/hydroseeding fast-growing annual and perennial grasses. Such vegetation shields and binds the soil. See SLAC’s Landscape Vegetation and Planting Guidance for details.

2.3 Construction Site Requirements

2.3.1 Before Construction

- The project manager or FCM must collaborate with SLAC employees and subcontractors to plan the project.
- The project manager should appropriately plan for the resources and time required to obtain and implement the applicable environmental permits described herein.
- The project manager must ensure the appropriate plans and obtain permits are developed, as detailed in Section 2.1. This includes obtaining a SLAC excavation permit, if required. (See Chapter 11, “Excavation Safety”)
- The FCM must review with SLAC project personnel and subcontractors the specific required stormwater protection measures that are to be performed before, during, and after the project.

2.3.2 During Construction

The FCM will ensure that the following are implemented properly:

- Project-specific SWPPP, if applicable, or erosion and sedimentation control plan
- Inspection and monitoring requirements of the CGP; if applicable
- Storm drain protection and material handling
- Spill reporting, prevention, and cleanup
- Construction-related best management practices (BMPs) (see especially Stormwater: Category 13 BMPs – Building Repair, Remodeling, and Construction)

Measures to protect storm drains/catch basins in the project area and material staging areas are the responsibility of the subcontractor and include the following:

- Construct diversion dikes to channel runoff around the construction site, as appropriate.
- Remove existing vegetation only when absolutely necessary.
- Protect sloped areas by installing silt fencing, erosion control matting, wattles, or other protective measures.
- Place straw bales, wattles, berms, inserts, or other inlet protection measures to protect storm drain inlets from runoff.
- Maintain a stabilized entrance/exit for all construction sites. Properly grade the entrance/exit and then cover with aggregate. Use gravel approaches to reduce soil compaction and limit the tracking of sediments into streets.
- Maintain good housekeeping. Keep the site free of debris and sweep paved and concrete surfaces regularly.
- Remove debris, excessive sediment build-up, and opportunistic plants from channels and culverts as needed.
- Prevent erosion of channel banks by repairing the bank in a timely manner.
- See Stormwater: Category 19 BMPs – Weed Abatement if herbicide use is planned and Chapter 59, “Biological Resources Protection”, if maintenance work may impact riparian of wetland vegetation.
- On no less than a daily basis, cover all stockpiled soil and excavated materials with secured plastic sheeting, or place the soil and excavated materials in covered bins.
- Dry sweep the entry roadways whenever construction traffic has deposited soil from the construction site.
- Clean the worksite by the end of each day by dry sweeping paved areas. Only use water to wash fine soil onto dirt areas, not down the street. (Never wash soil down storm drains.)
- Inspect each construction site before, during, and after a storm. Remove any buildup of sediment. Ensure that all storm drain protection measures are working properly.
- During the rainy season (October 1 through May 31), cover freshly graded surfaces with temporary vegetation, gravel, mulch, or erosion control blankets.

Project personnel will take the following spill prevention, response, and cleanup measures:
- Maintain all vehicles and heavy equipment.
- Inspect frequently for leaks.
- Conduct all vehicle/equipment maintenance and refueling at one location away from storm drains.
- Use secondary containment, as feasible.
- Promptly report spills to SLAC Site Security at ext. 5555.
- Clean up all discharges into the environment according to the guidance provided in Chapter 16, “Spills”.

### 2.4 After Construction

The following measures must be taken to clean up construction debris and restore the site:
- Inspect all catch basins in the site area.
- Clean the site and remove all construction debris.
- Remove all non-biodegradable BMP measures. All synthetic material used for erosion prevention and other stormwater BMPs, such as wattles encased in plastic netting and synthetic silt fences shall be removed at the end of construction and shall not be part of the final site restoration.
- Prevent erosion by covering bare soil with biodegradable erosion control matting and planting/hydroseeding.
- Plant permanent vegetation as soon as possible after excavating and grading activities are complete.

The following steps must be taken to terminate the project’s construction general permit:
- At the end of the project, the subcontractor must provide SLAC with all SWPPP-related inspection sheets and recordkeeping.
- The stormwater program manager will complete a final site walkthrough with the FCM or delegate.
- The project manager will file the notice of termination (completion) to close out the permit after receiving approval from the stormwater program manager.

### 3 Forms

The following forms and systems are required:
- California Environmental Protection Agency, State Water Resources Control Board. Notice of Intent (NOI) and Notice of Termination (NOT) under the California Construction General Permit (CGP). To be completed by project management for projects that disturb more than one acre of soil. Available from SMARTS.
- California Environmental Protection Agency, State Water Resources Control Board. Stormwater Multiple Application and Report Tracking System (SMARTS). System for construction general and industrial general permit submittals
- Stormwater: Erosion and Sedimentation Control Plan Form (SLAC-I-750-0A16J-007). Form for documenting erosion and sedimentation control measures to be taken for construction projects that disturb less than one acre of soil but have the potential to impact stormwater. To be completed by project manager or field construction manager.

### 4 Recordkeeping

The following recordkeeping requirements apply for these requirements:
- Erosion and sedimentation control plans, project-specific SWPPPs, inspection records, and other project-specific documents are to be available at the project site for the duration of the project.
- The subcontractor must provide copies of all project-specific documents to the stormwater program manager at the conclusion of the project. The stormwater program manager will maintain copies for at least three years from the date generated.

### 5 References

[SLAC Environment, Safety, and Health Manual](SLAC-I-720-0A29Z-001) (SLAC-I-750-0A16S-009-R001)
• Chapter 26, “Stormwater”
  – Stormwater: General Requirements (SLAC-I-750-0A16J-006)
  – Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001) (see for a complete list of stormwater BMPs)
  – Stormwater: Category 13 BMPs – Building Repair, Remodeling, and Construction (SLAC-I-750-0A16E-013)
  – Storm Water Pollution Prevention Plan (SWPPP) (SLAC-I-750-0A16M-002)
• Chapter 11, “Excavation Safety”
• Chapter 16, “Spills”
• Chapter 42, “Subcontractor Safety”
• Chapter 59, “Biological Resources Protection”

Other SLAC Documents
• Water Resources

Other Documents
• Environmental Protection Agency. Office of Water. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (EPA 841-B-09-001)
• Department of Defense, United States Army Corps of Engineers. United Facilities Criteria, Low Impact Development (UFC 3-210-10)
• California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Industrial Activities (Order 2014-0057-DWQ) (as amended)
• California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0099-DWQ)
• California Environmental Protection Agency, State Water Resources Control Board. Construction Stormwater Program
• California Environmental Protection Agency, State Water Resources Control Board. Low Impact Development – Sustainable Storm Water Management
• California Department of Transportation, Division of Environmental Analysis, Stormwater Program. Construction Site Best Management Practices Manual (CTSW-RT-17-314.18.1)
**Chapter 26: Stormwater**

**Erosion and Sedimentation Control Plan Form**

Form for documenting erosion and sedimentation control measures to be taken for construction projects that disturb less than one acre of soil but have the potential to impact stormwater. To be completed by the project manager (PM) or field construction manager (FCM) and submitted via e-mail to the stormwater program manager, for review. (See Stormwater: Construction Requirements [SLAC-I-750-0A16S-009].)

Projects must conform with SLAC’s Storm Water Pollution Prevention Plan (SWPPP) (SLAC-I-750-0A16M-002) regardless of project size. All synthetic material used for stormwater BMPs, such as wattles encased in plastic netting and synthetic silt fences, must be removed at the end of construction and not become part of the final site restoration.

Attach a sketch or map of the project area (include storm drain features and BMPs). (See Caltrans’ Construction Site Best Management Practices Manual for guidance.)

### Project Information

<table>
<thead>
<tr>
<th>Title</th>
<th>Location</th>
<th>Nearest building</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Estimated start date</th>
<th>Estimated end date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PM or FCM</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Best Management Practices To Be Implemented

**Check all best management practices (BMPs) to be implemented (refer to “BMP Glossary”).**

**Erosion Control**

- [ ] Compost blankets
- [ ] Drill seeding
- [ ] Preservation of existing vegetation
- [ ] Mulch (straw or wood)
- [ ] Grassy swales and buffers
- [ ] Permanent / vegetation stabilization
- [ ] Hydroseeding

**Sediment Control**

- [ ] Silt fences
- [ ] Catch basin inserts
- [ ] Sandbag/straw bale barrier
- [ ] Wattles/fiber rolls/compost socks
- [ ] Sediment traps
- [ ] Earthen berm
- [ ] Street sweeping
- [ ] Sediment basin
- [ ] Dust control

**Tracking Control**

- [ ] Stabilized construction entrance and exit

**Non-stormwater Management Control**

- [ ] Clear water diversion

**Materials Pollution Control**

- [ ] Stockpile management (containment / cover)
- [ ] Water management (capture / disposal)

**Materials Management**

- [ ] Material/dumpster covers

**Other (please specify)**

- [ ]
- [ ]
- [ ]
- [ ]
BMP Glossary

Erosion Control

compost blanket. Fiber blanket made of compostable/organic materials, which may include mulch or vegetation/seeds, applied to the top of soil surface

drill seeding. Planting seeds in the soil surface at a uniform rate with proper spacing and depth using mechanized methods

grassy swales and buffers. Gently sloped vegetated channels used to filter and infiltrate stormwater from impervious surfaces

hydroseeding. Spraying layer of slurry (i.e., seed, fertilizer, and mulch, held together by bonding agent) over disturbed area

mulch (straw or wood). Layer of biodegradable materials used to cover disturbed soil areas

permanent/vegetation stabilization. Permanent planting/landscaping on project area, typically as part of established vegetation plan

preservation of existing vegetation. Protecting existing vegetation and vegetation cover (including trees, grasses, and other plants) by preventing disturbance during project activities

Sediment Control

catch basin insert. Storm drain filters placed under drain openings to capture sediment from stormwater runoff

dust control. Control measures, such as water spraying, used to prevent dust from infiltrating into stormwater

earthen berm. Mound of compacted earth/soil with sloping sides to contain flow and/or allow infiltration

sandbag / straw bale barrier. Linear wall using sandbags or straw bales to intercept flow and trap runoff sediment

sediment basin. Temporary basin formed by excavation or embankment construction to detain sediment-laden runoff to allow sedimentation prior to runoff release

sediment trap. Structure, typically concrete, fitted with slotted grate(s) to provide sump below outlet pipe to hold stormwater runoff and allow sedimentation prior to runoff

silt fence. Woven geotextile, sometimes backed by plastic or wire mesh, used as barrier to detain sediment-laden water behind fence to allow sedimentation prior to runoff release

street sweeping. Sweeping project area with a broom or mechanized sweeper to remove dirt, dust, and debris from project area

wattle / fiber roll / compost sock. Long, tubular filtration roll filled with compost material (e.g., straw, wood fiber) used to filter water flowing into drain system

Tracking Control

Stabilized construction entrance and exit. Placement of stabilizing equipment, such as tracking pads, at site entry and exit points to minimize tracking of sediment from vehicles onto roads or near water bodies or drains

Non-stormwater Management Control

Clear water diversion. Intercepting clear surface water runoff upstream of project, transporting it around work area, and discharging it downstream with minimal water quality degradation from project operations

Materials Pollution Control

Stockpile management (containment / cover). Protecting stockpiles from stormwater and precipitation through use of barriers or containment mechanism and/or secure covers

Water waste management (capture / disposal). Preventing discharge of pollutants to storm drainage systems or waterways through use of controlled containment area or device (e.g., holding pit, portable tank) and properly disposing

Materials Management

Material/dumpster cover. Covering materials using a tarp or lid, if contained, to protect materials from precipitation and prevent runoff to storm drainage systems or waterways
Stormwater best management practices (BMPs) are techniques, processes, activities, or structures meant to eliminate sources of pollutants that may enter the storm drainage system. They are required by SLAC’s industrial general permit (IGP). SLAC’s BMPs are grouped into categories, based on the general activity. To find the BMPs that apply to your activity or area:

1. Find your activity or area in Table 1.
2. Note the BMP categories that apply. Note apply Category 1 BMPs – Training and Outreach, to all activities that could potentially impact stormwater.
3. Review the BMP category document listed in Table 2 for the specific BMPs.

If you cannot find your activity listed or are unsure of which BMPs apply, contact the stormwater program manager.

### Table 1 BMPs by Activity and Area

<table>
<thead>
<tr>
<th>Support Activity Description</th>
<th>Applicable BMP Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Above ground storage tanks (ASTs)</strong></td>
<td>15 ASTs (40–10,000 gallon capacity)</td>
</tr>
<tr>
<td>15 ASTs (40–10,000 gallon capacity)</td>
<td>6, 7, 9, 16</td>
</tr>
<tr>
<td>Product filling</td>
<td></td>
</tr>
<tr>
<td>Product removal for fueling</td>
<td></td>
</tr>
<tr>
<td>Temporary double-walled tanks for filling as needed during wildfire season and potential public safety power shutoff (PSPS)</td>
<td></td>
</tr>
<tr>
<td><strong>Assembly and machining activities</strong></td>
<td>10, 12</td>
</tr>
<tr>
<td>Welding</td>
<td></td>
</tr>
<tr>
<td>Sheet metal work</td>
<td></td>
</tr>
<tr>
<td>Vacuum assembly</td>
<td></td>
</tr>
<tr>
<td>Precision machining and assembly</td>
<td></td>
</tr>
<tr>
<td>Electromagnet fabrication</td>
<td></td>
</tr>
<tr>
<td>Leak testing</td>
<td></td>
</tr>
<tr>
<td>Bake out services</td>
<td></td>
</tr>
<tr>
<td>Assembly and machining activities occur indoors</td>
<td></td>
</tr>
<tr>
<td>Occasional outdoor fabrication activities</td>
<td></td>
</tr>
</tbody>
</table>

---

1 Based on [Storm Water Pollution Prevention Plan (SWPPP)](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormIndexBMP.pdf), Table 3: Description of Potential Pollutant Sources
<table>
<thead>
<tr>
<th>Support Activity</th>
<th>Support Activity Area</th>
<th>Activity Description</th>
<th>Applicable BMP Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction activities</td>
<td>Site-wide</td>
<td>• Large and small construction projects occur at SLAC 2, 3, 6, 9, 11, 12, 13, 16, 17</td>
<td></td>
</tr>
<tr>
<td>Contained rainwater</td>
<td>Site-wide</td>
<td>• Management of rainwater that may collect in secondary containments, utility and electrical vaults, and other structures. 14, 18</td>
<td></td>
</tr>
<tr>
<td>Cooling system pipe flushing</td>
<td>Site-wide</td>
<td>• LCW is used for cooling and is transported through copper and aluminum pipes that Periodic pipe flushing with diluted phosphoric acid solution 8, 10, 16</td>
<td></td>
</tr>
<tr>
<td>Cooling towers (CT)</td>
<td>CT-015 CT-101, CT-404, CT-1200, CT-1201, CT-1202, CT-1701, Cryoplant CT</td>
<td>• 7 cooling towers (CTs) Bulk chemical delivery and handling Drift from CTs Basin sludge removal and filter replacement Uncovered 13,000 gal concrete storage containment for water recycling</td>
<td>2, 6, 7, 8, 10, 16</td>
</tr>
<tr>
<td>Dust and particulate generating activities</td>
<td>Site-wide</td>
<td>• Wood and metal cutting and grinding 8, 12, 17</td>
<td></td>
</tr>
<tr>
<td>Fertilizers, pesticide or herbicide application</td>
<td>Site-wide</td>
<td>• Pesticides and herbicides are used on site by landscapers 12, 19</td>
<td></td>
</tr>
<tr>
<td>Master substation and transformers</td>
<td>Master Substation Complex, Linac, B750</td>
<td>• 97 transformers, majority non-PCB per Toxic Substances Control Act (TSCA) definition Mineral oil is primary dielectric fluid 30 – greater than 660 gallons each 5, 8, 14, 16</td>
<td></td>
</tr>
<tr>
<td>Material handling and storage</td>
<td>B081, B447, WAAs, RMSY, MSY, Outdoor storage areas</td>
<td>• Shipping and Receiving Area Hazardous Waste Storage Area RMSY MSY Chemical receiving and storage areas Outdoor storage areas – raw materials, salvage operations, staging areas, storage of reusable/equipment 2, 6, 7, 9, 10, 11, 12, 16, 17</td>
<td></td>
</tr>
<tr>
<td>Metal Finishing Shop and Metal Fabrication Pretreatment Facility</td>
<td>B025, B026, B036, B038, B400</td>
<td>• Metal cleaning and plating operations Pretreatment of plating rinse waters (metals and cyanide removal, pH adjustment) MFPF sludge collection area Outdoor steam cleaning pad 4, 5, 7, 8, 9, 10, 12, 16</td>
<td></td>
</tr>
<tr>
<td>Support Activity Area</td>
<td>Support Activity Area</td>
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**References**

**SLAC Environment, Safety, and Health Manual** (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: General Requirements (SLAC-I-750-0A16S-014)
  - Stormwater: Construction Requirements (SLAC-I-750-0A16S-009)
  - Storm Water Pollution Prevention Plan (SWPPP) (SLAC-I-750-0A16M-002)

**Other SLAC Documents**
- Water Resources
Chapter 26: Stormwater

Category 1 BMPs – Training and Outreach

Category 1 best management practices (BMPs) pertain to appropriate or applicable training to ensure the implementation of the stormwater program. Successful stormwater pollution control relies in large part on proper training and education of employees and contractors. Periodic stormwater compliance training is a requirement of the industrial general permit issued to SLAC by the State of California. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

1.1 All personnel who conduct or supervise activities that could potentially impact stormwater must complete ESH Course 298, Stormwater Awareness Training (ESH Course 298). This course must be retaken every three years to keep abreast of changing requirements.

This requirement applies specifically to

- Personnel who conduct inspections, sampling, and visual observations in support of the stormwater program
- Personnel who manage stormwater or stormwater pollution prevention devices, such as sediment traps, catch basin inserts, and/or the storm drainage system
- ESH coordinators
- Outdoor site managers
- Personnel who conduct or manage outdoor activities that may pose a threat to stormwater, including
  - Outdoor fabrication
  - Facilities or equipment maintenance
  - Chemical or materials storage
  - Ground maintenance
  - Construction

1.2 Supervisors must ensure workers are trained in applicable stormwater BMPs for their work area. ESH subject matter experts are available to assist in activity or area-specific BMP training.

1.3 Building and area managers should periodically (recommended annually, after the rainy season) walk through their areas to identify potential areas of improvement. (For guidance on what to look for, see the Stormwater: General Inspection Checklist.)

1.4 Supervisors should periodically check worker practices to ensure BMPs are implemented properly and must post information and reminder signs. (Check Water Resources for templates and additional resources.)
1.5  Supervisors and building managers should read SLAC Today and other site-wide publications for program updates and seasonal reminders. Check Water Resources periodically for new information and listings.

1.6  Supervisors and building managers must include stormwater protection practices and BMPs in work planning and control (WPC) practices, such as area hazard analyses (AHAs), job safety analyses (JSAs), standard operating procedures (SOPs), and preventive maintenance programs.

1.7  All personnel should know that their input makes a difference. Their operational knowledge makes this program work. Contact the stormwater program manager with observations and ideas.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
  - Chapter 26, “Stormwater”
    - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
    - Stormwater: General Inspection Checklist (SLAC-I-750-0A16J-006)

Other SLAC Documents
  - ESH Course 298, Stormwater Awareness Training (ESH Course 298)
  - Water Resources
  - SLAC Today
Chapter 26: Stormwater

Category 2 BMPs – Improper Discharges to Storm Drains

Category 2 best management practices (BMPs) help eliminate improper discharges to the storm drainage system. Discharge into the storm drain of water that has been exposed to industrial activities or to other discharges is not allowed, as it may inadvertently introduce pollutants into the storm drain and catch basins, or areas that drain to them. Examples of water that must not enter the storm drain include vehicle or equipment wash water, concrete slurry, spills, and water that was used to power wash buildings. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

2.1 Inspect and maintain the storm drainage system. Keep surface grates and areas around storm drains clean. Clean out catch basins so that accumulated pollutants do not wash down the storm drains.

2.2 Consider protecting on-site drains with inserts or filters designed to capture pollutants unique to your operation.

2.3 Allow only authorized non-stormwater discharges (NSWDs) to the storm drainage system. (For details on NSWDs and authorized and unauthorized discharges, see Stormwater: General Requirements and Stormwater: Category 18 BMPs – Non-stormwater Discharges.)

2.4 Take measures to reduce sediment and debris from entering storm drains (such as street sweeping, housekeeping, wattles, storm drain inserts, and flow redirection/infiltration into landscaping).

2.5 Take measures to dissipate or reduce the erosion potential of high flows.

2.6 Take measures to reduce runoff from irrigation.

2.7 Do not allow condensate from compressors or air conditioning units to run across parking lots or other paved surfaces; use a pipe or trench to direct the flow. Label condensate lines for easy identification.

2.8 Treat any unauthorized discharge, those not specifically permitted or authorized in SLAC’s industrial general permit, including illicit connections (improper permanent connections that allow wastewater to enter a storm drain), vehicle or equipment wash water, concrete slurry, spills, and other similar discharges) as a spill.

If you have a discharge that you cannot eliminate, contact the stormwater program manager.
References

**SLAC Environment, Safety, and Health Manual** (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - *Stormwater: Best Management Practices Index* (SLAC-I-750-0A16V-001)
  - *Stormwater: Category 18 BMPs – Non-stormwater Discharges* (SLAC-I-750-0A16E-023)
  - *Stormwater: General Requirements* (SLAC-I-750-0A16S-014)
  - *Storm Water Pollution Prevention Plan (SWPPP)* (SLAC-I-750-0A16M-002)
  - Storm Water Monitoring Implementation Plan (SLAC-I-750-2A15C-004) (in the *Storm Water Pollution Prevention Plan*

Other SLAC Documents
- **Water Resources**
Category 3 best management practices (BMPs) prevent fuel and oil from entering the storm drainage system as a result of fueling fleet vehicles and mobile and stationary equipment. They apply to personnel involved in equipment fueling and managers of vehicle fueling areas. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

3.1 Designate the fueling area and be sure it is designed to capture fuel leaks or spills, reduce contact with rain and run-on, and minimize runoff. Inspect the fueling area often for leaks or spills.

3.2 Protect storm drains if needed. Protective measures include temporary placement of absorbent material, covering storm drains, or shutting valves off.

3.3 Equip designated fueling areas with dry cleanup materials and spill kits. This equipment should be available at both vehicle-fueling areas and on trucks used to fuel construction vehicles and stationary equipment located at remote locations.

3.4 Clean up gasoline overflows and spills using dry methods. Do not allow spills to run off or evaporate. Spread absorbent material, sweep it up with a broom, and dispose of as a hazardous waste. Use a damp cloth on pumps and a damp mop on the pavement for routine cleaning. Minimize the volume of potentially contaminated water: **do not spray with a hose!**

3.5 Fueling activities must be attended by personnel who have been trained in spill response procedures. Subcontractors responsible for refilling fuel tanks must follow all BMPs and safety procedures.

3.6 Post fueling instructions. These should prohibit topping off or overfilling gas tanks.

3.7 In the event of any spill or release refer to Chapter 16, Spills.

3.8 Provide a clearly labeled spill kit at or near the fueling area. Periodically inspect the spill kit to ensure contents are replenished.

3.9 Regularly remove and properly dispose of water that collects in secondary containments and the fueling area collection gutter.

3.10 Select a concrete slab or paved area for fueling – never refuel on ground. Concrete is preferred because fuel and oils cause asphalt to deteriorate.

References

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

- Chapter 26, “Stormwater”
– Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  ▪ Chapter 16, “Spills”

Other SLAC Documents
▪ Water Resources
Chapter 26: Stormwater

Category 4 BMPs – Vehicle and Equipment Washing and Steam Cleaning

Category 4 best management practices (BMPs) describe proper management of wastewater resulting from vehicle and equipment washing and steam cleaning. Such cleaning may only be done in the designated steam cleaning facilities of the Plating Shop and at Fleet Services or other areas where all wastewater is contained. Wastewater resulting from washing and steam cleaning is discharged to the sanitary sewer if it is within permit limits; it must never enter the storm drainage system. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

4.1 Do not permit steam cleaning wash water to enter the storm drain.
4.2 Wash equipment and vehicles at designated areas only.
4.3 Designated wash areas must be paved with concrete and designed for wash water and rainwater collection and separation.
4.4 Washing of personal vehicles on site is prohibited.
4.5 Wastewater resulting from washing sampling equipment (for example, from subsurface investigations) must be handled and disposed of properly; do not pour onto the ground or allow to enter the storm drain.
4.6 Wash concrete and gardening equipment in a designated, contained percolation area. Do not use soaps or detergents in this area! Trimmings and debris must be removed and disposed of properly.
4.7 Post instructions for proper use of cleaning equipment.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)

Other SLAC Documents

- Water Resources
Chapter 26: Stormwater

Category 5 BMPs – Vehicle and Equipment Maintenance and Repair

Category 5 **best management practices (BMPs)** prevent or reduce the amount of pollutants entering the storm drainage system from vehicle and equipment maintenance and repair operations. (For activities to which these and other BMP categories apply, see [Stormwater: Best Management Practices Index](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP05VehicleMaintain.pdf).)

**Best Management Practices**

5.1 Prohibit discharge of any wastewater to the ground and storm drains. Do not pour material down drains or hose down work areas; instead use dry sweeping or mopping.

5.2 Prevent excessive buildup of oils and grease on equipment.

5.3 Perform equipment and vehicle maintenance only in designated areas. Use drip pans under equipment.

5.4 Routinely inspect vehicles and equipment for leaks. Inspect all vehicles entering the vehicle service area.

5.5 Use secondary containment for hazardous liquid products and liquid wastes.

5.6 Maintenance of personal vehicles on-site is prohibited.

5.7 Clean small leaks with rags or absorbent and use damp mops for general cleanup. Manage the generated waste as appropriate. Consult the [Waste Management (WM) Group](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP05VehicleMaintain.pdf) if you are not sure what to do with the waste product.

5.8 In the event of any spill or release, refer to [Chapter 16, “Spills”](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP05VehicleMaintain.pdf).

5.9 Provide required training for personnel who handle hazardous materials and generate hazardous waste.

5.10 Use non-toxic solvents whenever feasible.

5.11 Completely drain and crush oil filters before recycling.

5.12 Clean maintenance area storm drain grates and catch basins regularly.

5.13 Collect and properly manage used grease, oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids, and tires. (See [Chapter 17, “Hazardous Waste”](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP05VehicleMaintain.pdf).)

**References**


- Chapter 26, “Stormwater”
– **Stormwater: Best Management Practices Index** (SLAC-I-750-0A16V-001)
  - Chapter 16, “Spills”
  - Chapter 17, “Hazardous Waste”

Other SLAC Documents

- **Water Resources**
- **Hazardous Waste Management**
Chapter 26: **Stormwater**

**Category 6 BMPs – Transportation and Outdoor Loading / Unloading of Material**

Product ID: 345 | Revision ID: 2553 | Date published: 19 April 2023 | Date effective: 19 April 2023

URL: https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP06MaterialTransport.pdf

Category 6 *best management practices (BMPs)* help prevent or reduce the amount of pollutants entering the storm drain due to material transportation and outdoor loading and unloading. (For activities to which these and other BMP categories apply, see *Stormwater: Best Management Practices Index*.)

**Best Management Practices**

6.1 Reduce exposure of potentially polluting material to rain by loading/unloading under a roof or by covering material with tarps or plastic sheets.

6.2 Comply with forklift training requirements. (See Chapter 48, “Industrial Trucks”.)

6.3 Park forklifts under a roof when not being used.

6.4 Comply with Department of Transportation (DOT) packaging requirements for off-site transportation of hazardous materials and hazardous waste. (See Chapter 52, “Hazardous Material and Waste Transportation”.)

6.5 Determine and use specified transport routes.

6.6 Provide required training for personnel who handle hazardous materials and who generate hazardous waste. (See Chapter 17, “Hazardous Waste” and Chapter 40, “Chemical Lifecycle Management”.)

6.7 Protect storm drains by redirecting or filtering flow, placing absorbent material as needed, covering storm drains, or using available shut-off valves.

6.8 Clean up minor spills immediately. Maintain good housekeeping practices. (See Chapter 16, “Spills”.)

6.9 Ensure loading and tie-down requirements are met.

6.10 Equip loading/unloading areas and hazardous material and waste transportation vehicles with spill kits appropriate to the material handled.

6.11 Park tank trucks or delivery vehicles away from unprotected storm drains or manholes, or provide temporary storm drain protection.

6.12 Retrofit or equip (by grading or berming) major loading and unloading areas to prevent storm water run-on.

6.13 Place roof down-spouts to direct water away from loading and unloading areas.

6.14 The person who signs for the delivery is responsible for inspecting for spills, leaks, and debris before the truck leaves.
6.15 Have an agreed upon procedure outlining whose responsibility (outside subcontractor or SLAC) it is for cleaning up after unloading or before departing with a full load.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
- Chapter 16, “Spills”
- Chapter 17, “Hazardous Waste”
- Chapter 40, “Chemical Lifecycle Management”
- Chapter 48, “Industrial Trucks”
- Chapter 52, “Hazardous Material and Waste Transportation”

Other SLAC Documents
- Water Resources
Category 7 BMPs – Outdoor Container Storage of Liquids

Best Management Practices

7.1 Protect materials from rainfall, run-on, runoff, and wind dispersal by using one or more of the following practices (where practical):

- Store material indoors.
- Cover outdoor containers with a tarp or outdoor storage areas with a roof.
- Minimize storm water run-on by enclosing the area with a berm or similar engineering control.
- Keep containers securely closed when not actively loading or unloading.

7.2 Meet SLAC standards for storage of oil, hazardous material, and waste. (See Chapter 17, “Hazardous Waste”, and Chapter 40, “Chemical Lifecycle Management”.) These include ensuring the availability of the following:

- Secondary containment
- Proper segregation
- Inspections
- Spill kits
- Contingency plans
- Employee training

7.3 Provide secondary containment for oil products and liquid hazardous material/waste containers.

7.4 Provide required training for personnel who handle hazardous materials and generate hazardous waste. (See Chapter 17, “Hazardous Waste” and Chapter 40, “Chemical Lifecycle Management”.)

7.5 Regularly remove and properly dispose of water that collects in secondary containment.

7.6 Place roof downspouts to direct water away from storage areas.
References

**SLAC Environment, Safety, and Health Manual** (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
- Chapter 17, “Hazardous Waste”
- Chapter 40, “Chemical Lifecycle Management”

Other SLAC Documents
- Water Resources
Category 8 best management practices (BMPs) prevent or reduce the discharge of pollutants to stormwater from outdoor process equipment or operations. These BMPs pertain particularly to items that must remain outdoors, such as most transformers. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

8.1 Minimize contact with storm water and prevent run-on by berming, providing a drainage route, or covering the equipment.

8.2 Use drip pans and secondary containment to capture equipment leaks until they can be repaired.

8.3 In the event of any spill or release, refer to Chapter 16, “Spills”.

8.4 Regularly inspect secondary containments and pump rainwater before containment capacity is exceeded. Manage collected water according to the requirements of the Storm Water Pollution Prevention Plan (SWPPP).

References

- SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
  - Chapter 26, “Stormwater”
    - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
    - Storm Water Pollution Prevention Plan (SWPPP) (SLAC-I-750-0A16M-002)
  - Chapter 16, “Spills”
  - Chapter 17, “Hazardous Waste”
  - Chapter 40, “Chemical Lifecycle Management”

Other SLAC Documents

- Water Resources
Chapter 26: Stormwater

Category 9 BMPs – Outdoor Material Storage and Handling

Best Management Practices

9.1 During the wet season, store the material in one of these ways:

- Store on a paved surface with a roof or covering so no direct rainfall contacts them, with appropriate berms or mounding, or store on pallets, to prevent run-on of stormwater.

- Where a roof is not feasible, store material on a paved area that is designed to minimize water pooling (1.5 percent slope). Prevent runoff and run-on with berms or curbs. Material known to pollute stormwater must be stored in areas with blind sumps where water can be tested and documented before release.

- As a temporary measure, place material on a paved surface and cover with tarps or plastic sheeting, secured with weights or ropes. Use sandbags and/or wattles to create temporary berms or place material on pallets to prevent run-on of stormwater through the material. Move the material to permanent storage as soon as possible.

9.2 Maintain outdoor storage containers and covers in good condition. Inspect them periodically for signs of deterioration and remedy as needed.

9.3 Implement good housekeeping practices in outdoor storage areas. Such practices include keeping the area clean by sweeping and removing debris and staying organized by placing small items in containers and avoiding indefinite storage of unused items.

9.4 In the event of any spill or release, refer to Chapter 16, “Spills”.

9.5 Provide required training for personnel who handle hazardous materials and generate hazardous waste. (See Chapter 17, “Hazardous Waste” and Chapter 40, “Chemical Lifecycle Management”.)

9.6 Protect any material that could release particles through sloughing or corrosion or be mobilized by rain or wind from rain, wind dispersal, run-on and runoff using the BMPs outlined above or at least equally effective other measures.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- **Chapter 26, “Stormwater”**
  - *Stormwater: Best Management Practices Index* (SLAC-I-750-0A16V-001)
  - *Stormwater: Construction Requirements* (SLAC-I-750-0A16S-009)

- **Chapter 11, “Excavation Safety”**

- **Chapter 16, “Spills”**

- **Chapter 17, “Hazardous Waste”**

- **Chapter 40, “Chemical Lifecycle Management”**

**Other SLAC Documents**

- [Water Resources](#)
Category 10 best management practices (BMPs) prevent the discharge of pollutants to the storm drainage system that could result from improper waste handling and disposal. For this set of BMPs, waste includes all classes of waste, from office waste, salvage materials, scrap metal, cafeteria food waste, process waste, hazardous waste, and radiological waste. Also included are chemical waste and wastewater (such as discarded chemicals and chemical solutions; secondary containment wastewater; and purge water from environmental activities, and oil and grease from cutting fluids). (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

10.1 Provide supervision and training in proper waste-handling practices.

10.2 Store waste in one of these ways:

- Store waste on a paved surface with a roof or covering to keep rain out. Provide appropriate berms or mounding, or store waste on pallets to prevent run-on of stormwater.

- Where a roof is not feasible, store waste on a paved area that is designed to minimize water pooling (1.5 percent slope). Prevent runoff and run-on with berms or curbs. Waste known to pollute stormwater must be stored in areas where water can be contained, tested, and released to the sanitary sewer.

- Areas where drains are allowed must lead to catch basins or drainage areas protected through design or modifications to remove potential pollutants of concerns. For example, salvage yards require sediment traps and/or inserts to remove metal particles from stormwater before it enters the storm drainage system.

- Store waste in enclosed, covered, or lidded containers, hoppers, or bins. Keep containers closed or covered.

- As a temporary measure, place material on a paved surface and cover with tarps or plastic sheeting, secured with weights or ropes. Use sandbags and/or wattles to create temporary berms or place material on pallets to prevent run-on of stormwater through the waste. Dispose of or move the waste to a permanent storage place as soon as possible.

10.3 Maintain outdoor storage containers and covers in good condition. Inspect them periodically (at least monthly or as required by state and local regulations) for signs of deterioration and remedy as needed.

10.4 Cover or use lidded bins and containers for trash, recycled material, or scrap metal stored outside. Keep the bins or containers closed or covered.
10.5 Remove sources of pollutants – for example remove oil, fluids, or mercury switches from salvaged equipment. Protect items from rain by closing lids to trash receptacles or bins and covering items such as scrap metal.

10.6 Implement good housekeeping practices in outdoor waste storage areas. Such practices include keeping the area clean by sweeping and removing debris and storing small items or wire and cable scrap in containers.

10.7 Routinely inspect waste accumulation areas for spills and leaks. (For more information, see Chapter 17, “Hazardous Waste”.)

10.8 In the event of any spill or release, refer to Chapter 16, “Spills”.

10.9 Provide required training for personnel who handle hazardous materials and generate hazardous waste. (See Chapter 17, “Hazardous Waste” and Chapter 40, “Chemical Lifecycle Management”.)

10.10 Provide secondary containment for hazardous material containers that could threaten human health or the environment if the container is breached.

10.11 Equip waste handling and storage areas with spill kits. Use only containers provided by the Waste Management (WM) Group for hazardous waste.

10.12 Properly manage purge water from environmental investigations and environmental monitoring activities.

10.13 Maintain an active waste-minimization program that includes such strategies as material substitution, recycling, and process equipment modification.

10.14 Segregate and separate waste to preclude compatibility problems.

10.15 Cover, enclose, or berm wastewater management areas to prevent contact with run-on or runoff.

10.16 Minimize spills and fugitive losses from waste handling systems.

10.17 Whenever practicable, containerize radioactive waste to prevent contact with rain, wind dispersal, run-on, or runoff.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
- Chapter 16, “Spills”
- Chapter 17, “Hazardous Waste”
- Chapter 40, “Chemical Lifecycle Management”

Other SLAC Documents

- Water Resources
- Hazardous Waste Management
Chapter 26: Stormwater

Category 11 BMPs – Contaminated or Erodible Surface Area Management

Category 11 best management practices (BMPs) prevent or reduce the discharge of pollutants to stormwater from contaminated or erodible surface areas, such as disturbed or stockpiled soil. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

11.1 Preserve natural vegetation, especially trees and shrubs, if possible, during and after construction or earth moving activities.

11.2 Cover excavated soils.

11.3 Revegetate disturbed areas as soon as possible by using such processes as hydro-seeding and landscaping.

11.4 Use biodegradable jute netting or wattles wherever appropriate to prevent erosion.

11.5 Remove contaminated soils and dispose of properly.

11.6 Routinely remove sediment deposits from eroding areas before they enter the storm drain.

11.7 Mulch and vegetate exposed soil for long-term stabilization and to minimize sediment mobilization.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  - Stormwater: Construction Requirements (SLAC-I-750-0A16S-009)

- Chapter 11, “Excavation Safety”

Other SLAC Documents

- Water Resources
Chapter 26: Stormwater

Category 12 BMPs – Building and Grounds Maintenance (Housekeeping)

Category 12 best management practices (BMPs) apply to outdoor maintenance, which includes cleaning walkways, parking lots, and streets (street sweeping); maintaining landscaping (plants, trees, vegetation, lawns, and shrubbery); clearing weeds; and maintaining drainage channels and unoccupied open areas. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

General

12.1 Do not allow wash or mop water to enter the storm drain or to percolate into the ground.
12.2 Help prevent litter by providing and routinely emptying outdoor waste and cigarette butt containers. Keep such containers covered.
12.3 Manage chemical wastes by recycling, reusing, or disposing of as hazardous waste, as appropriate.
12.4 Clean debris without water whenever possible by wiping or sweeping. If water is necessary, wash with as little water as possible. Do not allow debris, spills, or wash water to reach the storm drain.

Paved Areas and Buildings

12.5 Routinely clean and sweep areas that collect potentially polluting debris. This includes paved areas, building entry and exit ways, and areas where paint may be peeling, such as near bulk tanks, sea trains, sheds, and building exteriors.
12.6 Sweep roads and parking lots at least annually in August or September before the wet season begins.
12.7 Characterize and properly dispose of piled sweepings as soon as possible.
12.8 Report and repair peeling paint on tanks, equipment, or buildings. Characterize paint to determine proper disposal.
12.9 Dispose of water from pressure washing outdoor surfaces properly. During pressure washing, storm drains must be temporarily blocked and the resulting wash water recovered for discharge to the sanitary sewer.
12.10 If possible, arrange rooftop drains or downspouts so they do not drain directly on to paved surfaces or across bare soil. Connect them directly to a storm drain, infiltration trenches, or allow flow onto a grassy surface.
Landscaping

12.11 Preserve existing native pest-resistant trees, shrubs, and plants to reduce water, fertilizer, and pesticide needs.

12.12 Select pest-resistant plants adapted to the area.

12.13 Employ integrated pest management (IPM) methods before using chemical pesticides to treat a pest problem. Examples of IPM are biological or physical controls. If pesticides are necessary, only use EPA-approved pesticides and choose the least toxic one available. Avoid organophosphates such as diazinon and chlorpyrifos (Dursban) as well as copper-based pesticides. Use only EPA-approved fertilizers. Only use certified applicators for fertilizer and pesticides.

12.14 Follow the manufacturer’s instructions for mixing and applying materials, do not apply excess pesticide, and spray only where the infestation exists.

12.15 Properly sweep up spilled fertilizers or pesticides. Do not wash away or bury such spills.

12.16 Mulch or plant bare exposed soil. Apply 2 to 4 inches of mulch or geo-textiles to exposed soils to stabilize soil and prevent weed growth.

12.17 Design the landscape to promote efficient irrigation and drainage.

12.18 Design the landscape to conform to natural drainage patterns.

12.19 Prevent runoff from irrigation by applying only the required amount of water. Routinely field check irrigation systems to ensure that water is directed as designed and is not overspraying.

12.20 Apply pesticides at the appropriate time to maximize their effectiveness and minimize the likelihood of discharging un-degraded pesticides into runoff. Except for pre-emergent pesticides, avoid application if rain is expected.

Open Space and Drainage Channels

12.21 Regularly inspect, clean, and maintain drainage channels.

12.22 Report unauthorized dumping to SLAC Site Security.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  - Stormwater: Construction Requirements (SLAC-I-750-0A16S-009)

Other SLAC Documents
- Water Resources
Category 13 best management practices (BMPs) help meet requirements for keeping pollutants associated with building repair and remodeling, utility line replacement, resurfacing, and construction out of the storm drainage system. Note that projects involving one acre or more require the following before any construction begins:

- A project-specific construction stormwater pollution and prevention plan (SWPPP) (to be developed by the subcontractor)
- A separate construction general permit from the State Water Resources Control Board

See Stormwater: General Requirements and Stormwater: Construction Requirements for more information on construction requirements, including obtaining construction general and other permits. For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.

Best Management Practices

General

13.1 Never dump any waste liquids down a storm drain – only clean stormwater and authorized non-stormwater discharges may enter the storm drainage system. Cleaning brushes and dumping paint or other hazardous substances into storm drains is prohibited.

13.2 Use soil erosion control techniques if ground will be temporarily laid bare.

13.3 Use permanent soil erosion control techniques with biodegradable materials if buildings will be cleared and not replaced.

13.4 Keep the work site clean and orderly by removing debris in a timely manner.

13.5 In the event of any spill or release, refer to Chapter 16, “Spills”.

13.6 Inform on-site subcontractors of all BMPs for wastes and discharges and ensure that they are followed.

13.7 Maintain good housekeeping practices for management and disposal of waste, discharges, and spills. Ensure that appropriate provisions are written into contracts to enforce these policies.

13.8 Protect nearby storm drains to minimize chances of inadvertent disposal of residual paint or liquid and sediment.
Building Materials and Waste Storage

13.9 Store building material under cover or in contained areas. For outdoor storage at a construction site:

- Minimize dust and debris from piles of wood, gravel, soil, or other materials.
- Use weighted tarps or other appropriate measure to protect from rain.
- Keep the storage area clean every day.
- Protect nearby storm drains.

13.10 Store generated waste in proper containers and keep the containers closed. Dispose of waste properly. (See Chapter 17, “Hazardous Waste”.)

Painting

Meet the following requirements when painting.

Before Painting

13.11 When scraping to remove old paint, spread a tarp to collect dust and paint chips. If the paint contains lead or tri-butyl tin, dispose of the paint chips as hazardous waste. (See Chapter 17, “Hazardous Waste”.)

13.12 Mix paints indoors before starting work, when possible.

13.13 Use tarps while you paint and place in-use paint buckets in a pan or on plastic sheeting.

13.14 At the end of the workday, store paint buckets and barrels of materials away from contact with stormwater.

During Paint Cleanup

13.15 If water-based paints are used, clean brushes and equipment in a sink connected to the sanitary sewer. Never discharge paint or rinse water to the storm drain or ground.

13.16 If oil-based paints are used, solvents used for cleaning brushes and equipment must be managed as a hazardous waste and may not be poured down the sink or to a storm drain.

13.17 Keep leftover paint, solvents, and other supplies for a later use, or deliver unused paints to a SLAC approved recycler or contact the Waste Management (WM) Group for disposal.

13.18 Empty paint cans and other containers may be a hazardous waste. Latex paint cans are not hazardous waste if the paint is dry. Contact WM for guidance.

Spray Painting

13.19 Use temporary scaffolding to hang drop cloths or draperies to shield you from the wind and to collect overspray. Arrange the draperies to minimize the spreading of windblown materials.

13.20 Be aware of air quality restrictions on spray paints that use volatile chemicals. Consider a water-based spray paint for better air quality compliance.
Outdoor Surface Treatments

13.21 Wood preservatives, pavement seal coating, and other outdoor surface treatments commonly contain metals, pesticides, solvents, or polymers that are hazardous materials. Handle and dispose of them properly, as follows:

- Apply only as much of the chemical as the surface can absorb or as needed to cover the paved area.
- Soak up excess chemicals with absorbent material or rags rather than allowing them to flow to the storm drains or soak into the soil.
- If the chemicals spill, clean up promptly using techniques described in Chapter 16, “Spills”.
- When sealing pavement, prevent the sealant from reaching the gutters or drains. Use absorbent booms, or stuff rags into storm drain openings.
- When treating a roof with wood preservative or sealant, line the gutters with rags. Dispose of the rags properly, as hazardous waste if the substances you are using are hazardous.
- If cleaning a roof or sidewalk before applying preservative, sweep thoroughly to remove loose particles first and then wash with water if necessary. Any wash water will need to be collected and discharged to the sanitary sewer, pending SLAC approval.
- Collect wash water from downspouts or drains where possible and remove particles.
- Avoid applying surface treatment chemicals during the wet weather season.

Concrete

13.22 Advise concrete truck drivers of the designated washout areas before they start the job.

13.23 Allow washout of concrete mixers only in designated washout areas. These must be away from storm drains and waterways. Whenever possible, recycle washout by pumping it back into mixers for reuse. Dispose or recycle settled, hardened concrete. Never dispose of washout into the street, storm drains, drainage ditches, or streams.

13.24 Secure bags of cement after they are open. Keep windblown cement powder away from gutters, storm drains, rainfall, and runoff.

13.25 When cleaning up after driveway or sidewalk construction use dry methods whenever possible. If water is needed, make sure runoff does not reach gutters or storm drains. If necessary, divert runoff with temporary berms.

13.26 Prevent aggregate wash from driveway/patio construction from entering storm drains. Either

- Hose aggregate wash onto dirt areas and spade into dirt;
- Drain onto a bermed surface, pump and dispose of it properly; or
- Block a storm drain inlet and vacuum wash water from a catchment.

13.27 Protect nearby storm drain inlets or channels when saw cutting to prevent concrete particles from entering the storm drainage system. Collect saw cutting fluids for proper disposal.

13.28 Protect applications of fresh concrete and mortar from rainfall and runoff until the material has dried.
Sand Blasting

13.29 Sand blasting can be controlled to keep particles off paved surfaces and out of storm drains as follows:

- Place tarps beneath the area being cleaned to capture the blasting medium and particles.
- Hang tarps or drop cloths to enclose the work area, using temporary scaffolding if necessary. Arrange the drop cloths to protect the work area from wind, and to capture airborne particles.
- Curtail operations during rainy or windy conditions.
- Collect dust and particles from the drop cloths frequently, before producing a pile too large to handle easily.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  - Stormwater: General Requirements (SLAC-I-750-0A16S-014)
  - Stormwater: Construction Requirements (SLAC-I-750-0A16S-009)
- Chapter 11, “Excavation Safety”
- Chapter 16, “Spills”
- Chapter 17, “Hazardous Waste”

Other SLAC Documents

- Water Resources
- Hazardous Waste Management
Chapter 26: Stormwater

Category 14 BMPs – Managing Collected Rainwater in Containments, Sumps, and Vaults

Category 14 **best management practices (BMPs)** describe how to manage rainwater that may collect in secondary containments, utility and electrical vaults, and other structures. (For activities to which these and other BMP categories apply, see [Stormwater: Best Management Practices Index](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP14RainwaterManage.pdf).)

**Best Management Practices**

14.1 Reduce the amount of rain that collects in containments, sumps, and vaults where possible. Place a roof over open utility shafts and install angle irons or equivalent to prevent run-on from entering utility tunnels and vaults. Inspect and repair annually prior to the wet season.

14.2 Periodically clean utility containments, tunnels, and vaults of debris and sediment.

14.3 Containments must be monitored to the degree necessary to ensure that secondary containment capacity is maintained and that collected rainwater does not overflow and enter the storm drainage system.

    Monitoring will be conducted by SLAC Site Security during off-hours and shut-down conditions, and by the Facilities and Operations (F&O) Division and/or area/building managers during business hours to ensure that collected rainwater is not allowed to overflow to the storm drain outside the restrictions of the industrial general permit.

14.4 Pump all containments as soon as reasonably possible after each storm event during the wet season (October through May). Special provisions must be made for off-hours and shut-down periods (such as pumping prior to off-time, back-ups that can pump during off-hours, or emergency call-in capability.)

14.5 Contact Facilities to arrange for collection of contained or accumulated water for reuse or discharge to the sanitary sewer.

    - If Facilities is unable to collect the contained water, evaluate contained water for presence of expected contaminants, include oil sheens.
    - If contaminants or oil sheens are present, contact [Waste Management](https://www-group.slac.stanford.edu/esh/eshmanual/references/wasteManagement.html) for assistance with containerization and disposal.
    - If no pollution is present, and if meeting water quality objectives, the water may be discharged to the storm drain.
    - Contained water discharged to the storm drain must be observed and documented at the time of discharge, using the [Stormwater: Contained Water Release Form](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormBMP14RainwaterManage.html). Contact the [stormwater program manager](https://www-group.slac.stanford.edu/esh/eshmanual/references/stormwaterProgramManager.html) for guidance.
14.6 Containments that overflow will be treated as a possible release and documented following the procedures in Chapter 16, “Spills”. Samples may be required to verify the containment discharge is not a potential pollutant source.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  - Stormwater: Contained Water Release Form (SLAC-I-750-0A16J-004)
- Chapter 16, “Spills”

Other SLAC Documents
- Water Resources
- Hazardous Waste Management
Category 15 best management practices (BMPs) apply to cafeterias and food service operations, which can be a source of oil, grease, trash, food debris, cleaning materials, and mop water. To prevent or reduce the discharge of pollutants to the storm drainage system, follow the BMPs listed below. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

15.1 Do not dump any waste liquids, such as mop water, down the storm drain. Only stormwater may enter the storm drain.

15.2 Do not clean kitchen mats outdoors. Instead, rinse mats so the water enters a drain that discharges to the sanitary sewer.

15.3 Clean up debris and trash from outdoor events in a timely manner.

References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)

Other SLAC Documents
- Water Resources
Chapter 26: Stormwater

Category 16 BMPs – Spill Response

Category 16 best management practices (BMPs) describe how to prepare for and handle spills so they do not enter the storm drainage system. Small spills can have cumulative effects that add up to a significant source of potential pollutants in stormwater discharge. The best approach is prevention: maintain a regular inspection and repair schedule and correct potential spill situations before a spill can occur.

When a spill does occur, quick and effective response is the best way to prevent pollutants from reaching stormwater. Refer to Chapter 16, “Spills”, for additional information, including detailed response procedures. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

16.1 Include storm water protection in your emergency pre-plan that addresses your area’s specific hazards.

16.2 Know and follow SLAC’s spill response procedures (see Chapter 16, “Spills”).

16.3 Provide required training for personnel who handle hazardous materials and generate hazardous waste. (See Chapter 17, “Hazardous Waste” and Chapter 40, “Chemical Lifecycle Management”.)

16.4 Spills must be cleaned up promptly and not allowed to evaporate.

16.5 Procedures should specify cleaning up leaks, drips, and other spills without water whenever possible.

16.6 Sanitary sewer back-ups need to be handled to prevent employee exposure to biohazards and kept from entering the storm drain. Contact SLAC Site Security at ext. 5555 at the first sign that there may be a back-up through a sewer manhole or pipe.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)

- Chapter 16, “Spills”
- Chapter 17, “Hazardous Waste”
- Chapter 40, “Chemical Lifecycle Management”

Other SLAC Documents

- Water Resources
- SLAC Pre-incident GIS (pre-plans)
Chapter 26: Stormwater

Category 17 BMPs – Inspections, Evaluations, and Quality Assurance

SLAC conducts its activities within an integrated safety and environmental management system (ISEMS), which allows for and encourages incremental improvement over time through a process of evaluation, feedback or inspections, and improvement. Category 17 best management practices (BMPs) describe how the ISEMS approach is used to meet the goals of the stormwater program. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

17.1 Include stormwater protection practices and BMPs in other practices such as area hazard analysis (AHA), job safety analysis (JSA), standard operating procedures (SOPs), and preventive maintenance programs.

17.2 Use BMPs as conditions in contracts with subcontractors.

17.3 Include BMPs in area and building safety inspections.

17.4 Make it your job and your employees’ jobs to protect the environment by inclusion in job descriptions and performance reviews.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)

- Chapter 2, “Work Planning and Control”

Other SLAC Documents

- Water Resources
Chapter 26: Stormwater

Category 18 BMPs – Non-stormwater Discharges

Non-stormwater discharges (NSWDs) are those that are not composed entirely of rainfall, including those from potable water sources or process water discharges. (For details on NSWDs and authorized and unauthorized discharges, see Stormwater: General Requirements.) Category 18 best management practices (BMPs) prevent pollution by preventing or minimizing contact between potential pollutants in NSWDs and stormwater. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

Best Management Practices

18.1 Ensure personnel are properly trained in stormwater protection protocol so that no unauthorized discharges are made into the storm drain.

18.2 Protect on-site drains with inserts or filters to capture potential pollutants.

18.3 Do not allow condensate from air conditioning units, refrigeration units, or compressors to run across paved surfaces on which it may contact pollutants on the way to the storm drain.

18.4 Do not allow discharges from piping/plumbing systems to enter the storm drain.

18.5 Label storm drain inlets and catch basins NO DUMPING – FLOWS TO SAN FRANCISQUITO CREEK.

18.6 Provide 24-hour spill response capability.

18.7 Wash equipment and vehicles at designated areas only.

18.8 Regularly inspect vehicles and facilities for leaks and other fluid discharges.

18.9 Divert water used during/generated from site activities away from culverts or storm drains.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
  - Stormwater: General Requirements (SLAC-I-750-0A16S-014)

Other SLAC Documents

- Water Resources
Chapter 26: Stormwater

Category 19 BMPs – Weed Abatement

Category 19 best management practices (BMPs) describe different types of vegetation management strategies and how to use herbicides more safely on site at SLAC when removing invasive plants species or weeds. Improper use of herbicides may result in stormwater runoff pollution, especially in or near drainage areas. (For activities to which these and other BMP categories apply, see Stormwater: Best Management Practices Index.)

The best approach to preventing stormwater pollution from herbicide application is to use physical vegetation abatement methods in lieu of chemical methods. If herbicides are being used, there are effective techniques to mitigate the risk of impact to stormwater runoff.

Best Management Practices

19.1 Use physical methods of weed abatement whenever possible. This includes mowing, hand removal, or removal with tools.

19.2 If herbicides are needed, use only Roundup or other similar glyphosate-containing herbicides. Roundup is the herbicide recommended by both the US Environmental Protection Agency and San Mateo County.

19.3 Do not use herbicides in or near (on the banks of) drainage channels, wetlands, or waterways.

19.4 Before using an herbicide, consider the weather and time of year. Avoid use of herbicides 24–48 hours before predicted rainfall to minimize the risk of the chemical entering stormwater runoff and avoid applying the herbicide when it is windy to prevent the herbicide from drifting away from the desired location.

19.5 Use precise, targeted application of the herbicide. Broadcast spraying can result in the herbicide impacting nearby non-target plant species and increases the risk of the herbicide entering stormwater.

19.6 Document which plant species are treated with herbicide and how effective the product is at removing the species (for example, how long the plant is suppressed after application). This can help to determine the minimum amount and frequency of product application that is necessary when controlling vegetation to ensure that only invasive species and weeds are being treated by the herbicide.

References

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

- Chapter 26, “Stormwater”
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001)
Other SLAC Documents

- Water Resources

Other Documents

- San Mateo County Department of Public Works. Vegetation Management