

Chapter 43: [Wastewater](#)

General Requirements

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URL: <https://www-esh.slac.stanford.edu/eshmanual/references/wastewaterReqGeneral.pdf>

1 Purpose

The purpose of these requirements is to ensure that any material (*wastewater*) that enters the sanitary sewer system (*discharges*) at SLAC complies with applicable rules and regulations.

They cover routine, non-routine, prohibited, and delayed discharges; screening discharges for radiological concerns; spill response; inspecting and maintaining the sanitary sewer system; changes to waste streams; sewer entitlement, and sampling.

They apply to workers, supervisors/line management, process owners, construction managers, area/building managers, subcontractors, the wastewater program manager, Environmental Protection, Radiation Protection, Chemical and Waste Management, Mechanical Fabrication, and Facilities and Operations.

2 Requirements

SLAC's on-site [sanitary sewer system](#) consists of approximately nine miles of sewer lines and several sanitary sewer lift stations owned by the Department of Energy (DOE) and maintained by SLAC. The SLAC sanitary sewer system is connected to West Bay Sanitary District (WBSD) system lines, which transport the wastewater to the WBSD recycled water plant at the Sharon Heights Country Club as well as to the Silicon Valley Clean Water (SVCW) Treatment Plant.

Note The WBSD recycled water plant is sensitive to certain wastewater constituents, which can disrupt plant operations. These include water treated with chemicals such as biocides and anti-corrosives, and water high in *total dissolved solids (TDS)*. Accordingly, some wastewater discharges need to be coordinated with WBSD. During the hours of 12 AM to 2 AM, SLAC wastewater is on a bypass to the SVCW wastewater treatment plant; SLAC's wastewater permit includes requirements for certain waste streams to be discharged only during these hours.

SLAC's wastewater discharges are regulated under California's state-wide sanitary sewer system general order ([Order 2022-0103-DWQ](#)) and the wastewater permit ([WB 211216](#)) issued to SLAC by SVCW and WBSD. Wastewater discharges from on-site hazardous waste treatment facilities are also regulated by California's Tiered Permit Program.

Compliance includes development and implementation of SLAC's [Sanitary Sewer Management Plan \(SSMP\)](#), wastewater guidelines, and a monitoring program. In addition to complying with these requirements, certain activities at SLAC may require project- and activity-specific discharge permits.

Below are the requirements that apply generally to wastewater discharges. Detailed information concerning how the sanitary sewer system is operated and maintained can be found in the [SSMP](#) and related documents. (See Section 5.)

Wastewater requirements for specific activities are given in separate documents. (See Section 5.)

2.1 Routine Discharges

Routine wastewater discharges are those characterized in the current [wastewater permit](#) and itemized in [Permitted Wastewater Generating Activities Reference](#). SVCW and WBSD characterize acceptable routine discharges to the sanitary sewer in terms of type and flow.

Each category of routine wastewater discharge has an associated discharge limit in gallons per day, realized over an annual averaging period. If wastewater will be generated above the specified permit limit or from a source/category not listed in the permit, the process owner must coordinate with the [wastewater program manager](#) to obtain approval before discharge.

Process owners must report any process change that significantly affects the constituents, strength, volume, temperature, or discharge period of a routine wastewater stream to the wastewater program manager. The wastewater program manager will characterize all new routine discharges and arrange to add them to the permit as needed.

2.2 Non-routine Discharges

Non-routine wastewater discharges are those that are not covered under the existing wastewater permit, including discharges of routine waste streams in excess of the daily discharge limit.

Important Discharges of wastes listed in the permit in quantities greater than the daily limits (such as boiler draining) require at least 48 hours advance notice to SVCW and WBSD and must be discharged within a pre-approved time coordinated with the agencies.

Depending on discharge characteristics, certain non-routine discharges require a *non-routine discharge permit* from SVCW and WBSD. The permit will include constraints on quantity and timing of discharge. Obtaining a permit requires sampling the waste stream and paying a fee, which will be charged to the process owner. Approval must be obtained before discharge. The process owner must work with the [wastewater program manager](#) to characterize the non-routine wastewater, apply for the permit, and coordinate the discharge with SVCW and WBSD. (See Figure 1 for the determination process.) Process owners may initiate the process by submitting the [Wastewater Discharge Request Form](#).

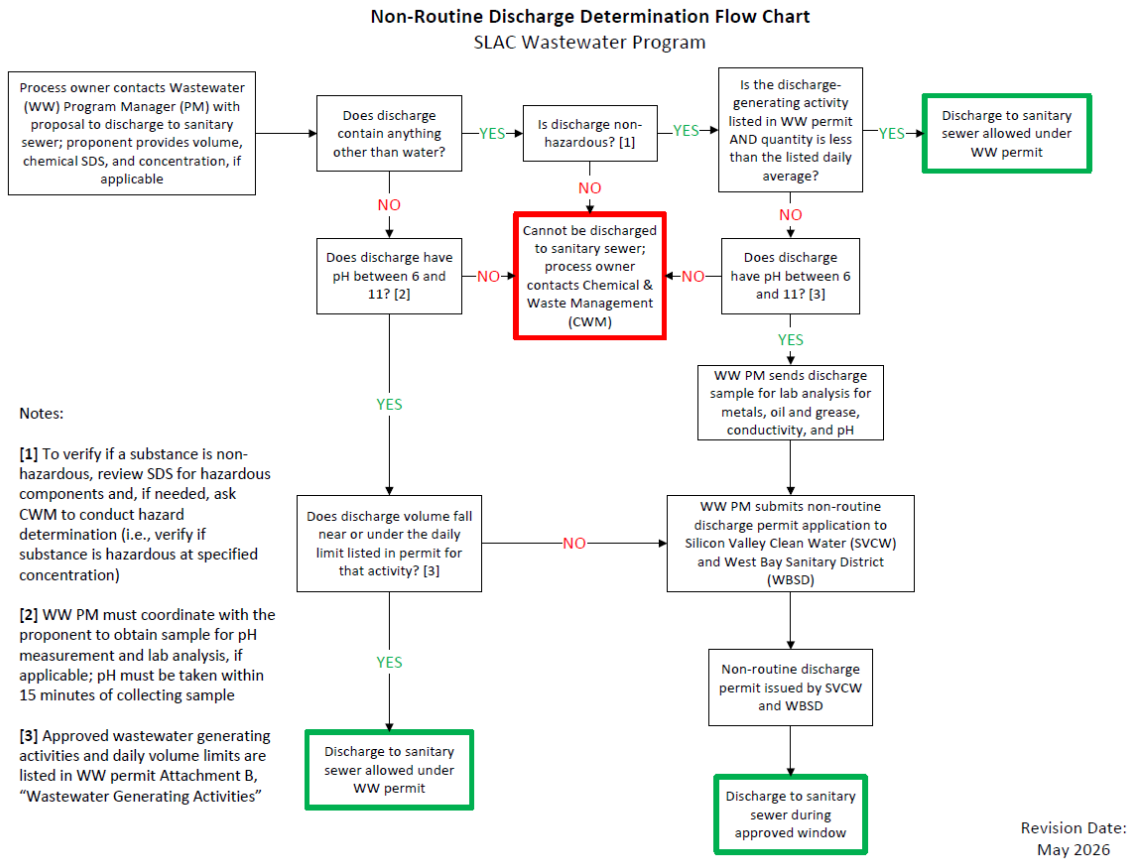


Figure 1 Non-routine Discharge Determination Flow Chart

2.3 Prohibited Discharges

Prohibited wastewater discharges are those explicitly prohibited under the terms of the permit. These discharges cannot be sent to the sanitary sewer and instead should be coordinated with [Chemical and Waste Management](#) for proper disposal. Prohibited discharges are those that may cause any of the following:

- Danger to human life or safety
- Fire or explosion
- Discharge of hazardous waste to the sanitary sewer
- Odors, air pollution, or any noxious, toxic, or malodorous gas or substance, or gas-producing substances
- Flow obstruction or injury to the sewerage facilities
- Interference or overloading of the wastewater treatment or reclamation process, or sewerage facilities, or excessive costs, or use of a disproportionate share of the capacity of the sewerage facilities

- A detrimental environmental impact or nuisance (for example, any discharge with detectable concentrations of polychlorinated biphenyls)
- Dilution of a discharge of waste or wastewater as a substitute for adequate treatment
- Inhibition of maintenance or operation of the sewerage facilities
- Any adverse action that impacts the ability of the sewage treatment plant to protect the San Francisco Bay

Additionally, discharges above the following concentrations are prohibited:

- United States Environmental Protection Agency listed total toxic organic (TTO) compounds >2.13 mg/L
- pH <6.0 or >11.0
- Metals, VOCs, or conductivity in concentrations that will cause SLAC to exceed permit mass loading limits

2.4 Delayed Discharges

SLAC's wastewater permit includes requirements for time-delayed discharges of certain waste streams that are significant contributors of TDS. Discharges from the IR-2 and IR-8 PEP Tunnel sumps may only be discharged to the sanitary sewer during a nightly window from 12 AM to 2 AM.

Important Discharge from either of these sources outside of the approved discharge window without providing advance notice to WBSD is a permit violation.

Facilities is responsible for ensuring that discharges from these sources occur only during the approved discharge windows. The [wastewater program manager](#) must be promptly notified of any failure to maintain delayed discharge.

2.5 Radiological Concerns

Water collected from certain locations and sources at SLAC may contain radiation. [Radiation Protection \(RP\)](#) has created a [list of locations](#) and requirements for discharge, including in some cases collection of samples and RP approval before discharge. The requirements must be adhered to before discharging wastewater to the sanitary sewer.

2.6 Cafeteria Discharges

Wastewater from SLAC's cafeteria has the potential for the presence of food, oil, and grease, which can clog sewer pipes and interfere with the proper operation of the recycled water plant. To reduce the presence of these constituents, the following practices are required:

- Garbage grinders must have the capacity to shred waste so that waste particles are carried freely into and through the sewerage facilities under normal flow conditions.
- Food-preparation sinks and dishwashers must be plumbed to grease traps that are inspected and pumped on a regular basis.
- The cafeteria grease interceptor must be cleaned and serviced on a quarterly basis. F&O is responsible for arranging these cleanings.

2.7 Spill Response

All spills or discharges to the sanitary sewer system that are non-routine must be reported to the [wastewater program manager](#), who will ensure the spill or discharge is reported to SVCW and WBSD as required. (For more information, see the [Slug Discharge Control Plan](#).)

These non-routine discharges to sanitary sewer include:

- A non-routine discharge due to a pipe break or similar event
- Any release with a pH less than six or greater than 12.5
- Any spill that may contain radioactivity (also report this to RP)
- Any treatment process upset that may allow a discharge outside of the permit conditions (such as high or low pH, discharge prior to treatment, equipment failure or operator error)
- Any release of fuel or oil
- Any release of chemicals or hazardous waste

In addition, any spills of wastewater from the sanitary sewer system into buildings or into the environment must be reported to the wastewater program manager, who will determine whether the sanitary sewer spill is reportable to the state (See [Sanitary Sewer Spill Emergency Response Plan \(SERP\)](#) for more details).

For more information on handling spills in general, see [Chapter 16, "Spills"](#).

2.8 Sanitary Sewer Inspections and Maintenance

Constructing and maintaining an adequate [sanitary sewer system](#) is critical for wastewater protection. Facilities is responsible for the operation and maintenance of the sanitary sewer system. This includes all gravity and forced main piping, sewer lift stations, and forced main valves.

To ensure continuous operation, a preventative maintenance program is used. Maintenance tasks are scheduled and tracked via a computerized management system and carried out by Facilities or subcontractors. Preventative maintenance activities include

- Regular maintenance tasks on sewer lift stations, wastewater pumps, force mains, and back-up generators
- Regular cleaning of flow flumes
- Quarterly cleaning of selected gravity sewer lines and root control activities by an outside subcontractor

Regular inspections are conducted by Facilities to ensure proper system operation. These include

- Visual inspections of sanitary sewer lift stations
- Automated monitoring of lift station status by the Distributed Control System (DCS)

For more information, see the [SSMP](#).

2.9 Changes to Sanitary Sewer Waste Streams

Any changes to *routine wastewater discharges*, including the addition of new wastewater streams or changes in the quantity or composition of existing wastewater streams, must be coordinated in advance with the [wastewater program manager](#). These changes may require an amendment to SLAC's [wastewater permit](#).

2.10 Sewer Entitlement

SLAC is subject to a sewer capacity entitlement (i.e., cap on average gallons of discharge per day) that the site must continue to remain below while accommodating new construction across SLAC's campus.

Facilities is responsible for evaluating proposed construction projects to ensure SLAC's sewer has sufficient capacity.

2.11 Sampling

Samples are collected as described in the [wastewater permit](#). The results are used to verify that the sanitary sewer system is working properly and discharges meet all applicable conditions.

3 Forms

The following forms and systems are required by these requirements:

- [Wastewater Generating Activity Characterization Form](#). Form for documenting the characterization of proposed new or changing wastewater generating activities at SLAC that will occur following project completion
- [Wastewater Discharge Request Form](#). Form for requesting approval to discharge wastewater into SLAC's sanitary sewer

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- Records relating to the permits are to be kept by the wastewater program manager.
- Records of system maintenance and inspection are to be kept by Facilities.

Details on sampling, regulatory reporting, and so on may be found in the [SSMP](#).

5 References

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

- [Chapter 43, “Wastewater”](#)
 - [Wastewater Non-routine Discharge Determination Flow Chart](#)
 - [Wastewater: Construction Requirements](#) (SLAC-I-750-0A16S-019)
 - [Wastewater: Wet or Chemical Labs Requirements](#) (SLAC-I-750-0A16S-016)
 - [Wastewater: Treatment of Pipe Flushing Water Requirements](#) (SLAC-I-750-0A16S-017)
 - [Wastewater: Floor Drain Requirements](#) (SLAC-I-750-0A16S-018)
 - [SLAC Permitted Wastewater Generating Activities Mandatory Wastewater Discharge Permit No. WB 211216 - Attachment B](#)
 - [Sanitary Sewer Management Plan \(SSMP\)](#) (SLAC-I-750-0A16M-004)
 - [Slug Discharge Control Plan](#) (SLAC-I-750-0A16M-006)
 - [Solvent Management Plan \(SMP\)](#) (SLAC-I-750-0A03M-004)
 - [Permit by Rule Waste Analysis Plan](#) (SLAC-I-750-1A16M-004)
- [Chapter 16, “Spills”](#)
 - [Sanitary Sewer Spill Emergency Response Plan \(SERP\)](#) (SLAC-I-750-0A16M-009)
- [Chapter 26, “Stormwater”](#)
- [Chapter 58, “Laboratory Safety”](#)
 - [Laboratory Safety: Non-hazardous Waste Sink Disposal Procedure](#) (SLAC-I-730-0A09C-009)

Other SLAC Documents

- [Environment Resources](#)
- [Chemical and Waste Management](#) (SharePoint)
- [Radiation Protection](#)
- [Low Conductivity Water Status Sheet](#)
- [SLAC Utilities GIS](#)

Other Documents

- California Environmental Protection Agency, State Water Resources Control Board. Statewide Waste Discharge Requirements (WDR), General Order for Sanitary Sewer Systems, Order 2022-0103-DWQ ([Order 2022-0103-DWQ](#)) (as amended)
- Silicon Valley Clean Water and West Bay Sanitary District. Mandatory Wastewater Discharge Permit No. WB 211216 ([WB 211216](#))
- Silicon Valley Clean Water. [Regulations of Silicon Valley Clean Water](#)
- West Bay Sanitary District. [Code of General Regulations of the West Bay Sanitary District](#)