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1.1  REGULATORY BACKGROUND

This Sewer System Management Plan (SSMP) is required under Waste Discharge Requirements (WDR) Order No. 2006-0003, issued by the State Water Resources Control Board (SWRCB), now referred to as the State Water Board. The WDR stipulates that the enrollees, which include the University of California San Diego (UC San Diego), must develop and implement a Management Plan in order to reduce sanitary sewer overflows. Additionally, the Management Plan provides measures to ensure efficient and effective response to overflows, and implement source control measures to minimize the introduction of grease and oils, and other materials that may cause blockages. This Management Plan satisfies the requirements specified in the WDR Order No. 2006-0003.

The State Water Board adopted WQO No. 2006-0003, Statewide General Discharge Requirements for Sanitary Sewer Overflows, (SSOs) on May 2, 2006 and then later issued the Revised Monitoring and Reporting Program (MRP) WQ 2008-0002-EXEC on February 20, 2008. The State Water Board developed this WDR to promote uniformity in the management of California’s wastewater collection systems and reduce SSOs. The State Water Board found that districts that have implemented SSMPs similar to this have been effective not only in improving spill reporting, but also in mitigating SSO impacts on public health and the environment. Data also supported the conclusion that better collection system management will benefit water quality and prolong the life of sanitary sewer systems. The Revised MRP WQ 2008-002-EXEC was implemented to reduce the time allowed to report an overflow, in order to ensure that first responders are notified in a timely manner of SSOs discharged into state waters and to allow response agencies to take action as soon as possible to protect public health and the waters of state.

The Revised MRP WQ 2008-0002-EXEC was then superseded by the amended requirements set forth in the Revised MRP WQ 2013-0058-EXEC that became effective on September 9, 2013. This Revised MRP 2013-0058-EXEC was written to address compliance and enforceability in the previously existing MRP, and to improve monitoring, reporting, record keeping, and public notification requirements for Order 2006-0003-DWQ.

1.2 PURPOSE AND GOALS OF THE SSMP

This document has been developed to comply with WQO No. 2006-0003 and WQ 2013-0058-EXEC. The goal for the UC San Diego SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system, as well as to identify effective notification and response procedures that will be used to address SSOs. This will help to reduce and prevent SSOs and mitigate any SSOs that do occur. Specific goals for the plan include:

- Minimize and prevent sanitary sewer overflows;
- Prevent public health hazards;
- Mitigate SSOs that do occur;
- Preserve Ocean Water Quality;
- Use funds available for sewer operations in the most efficient manner;
- Protect the large investment in collection systems by maintaining adequate capacities and extending useful life;
- Provide adequate capacity to convey peak flows;
- Minimize inconveniences by responsibly handling interruptions in service;
- Perform all operations in a safe manner to avoid personal injury, environmental impact and property damages.

Sanitary sewer overflows are overflows from sanitary sewer systems of domestic, industrial, and/or commercial wastewater. SSOs may cause a public nuisance, particularly when untreated wastewater is discharged to waters designated for contact recreation. Many SSOs can be prevented with adequate and appropriate facilities, source control measures, and operation and maintenance of the sanitary sewer system.
1.3 CLEAN WATER UTILITY WORKING GROUP

UC San Diego has created a Clean Water Utility Working Group (CWUWG) consisting of representatives from key departments to facilitate the implementation, monitoring, and updating of the SSMP. Members of the CWUWG include the following departments and groups:

- Environment, Health and Safety (EH&S);
- Capital Program Management (CPM);
- Facilities Management (FM);
- Housing, Dining, Hospitality (HDH); and

The CWUWG’s responsibilities for the SSMP include the following:

- Monitor and measure implementation of the plan and make modifications as necessary.
- Make recommendations for changes to SSMP based on the assessment of plan implementation.
- Review and evaluate response to overflows. As appropriate, update Overflow Emergency Response Plan.
- Prioritize and create Repair and Rehabilitation projects and Capital Improvement projects.

Implement a time schedule for reviewing the SSMP and ensure communication between all parties involved in the review and implementation of the SSMP.
2.0 ORGANIZATION

2.1 THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

The University of California is governed by The Regents, a 26-member board, as established under Article IX, Section 9 of the California Constitution. The President of the Regents is the current Governor of California, Governor Gavin Newsom. The Board of Regents appoints the President of the University and the Officers of The Regents; the General Counsel; the Treasurer; the Secretary and Chief of Staff; and the Chief Compliance and Audit Officer.

2.2 ADMINISTRATION AND MAINTENANCE ORGANIZATION

The administrative responsibility for the UC San Diego sanitary sewer system is shared among several departments including EH&S, FM, and CPM. The responsibilities of each department are summarized below, and an organizational chart is included as Figure 2-1.

**EH&S**: The Director of EH&S is considered the permittee for the sanitary sewer system. The Environmental Affairs Division Manager is the signatory authority. The implementation of permit requirements and reporting to regulatory agencies is the responsibility of the EH&S Environmental Affairs program manager, which includes tracking of all SSOs.

**FM**: The Assistant Director of Facilities Building Operations is responsible for the overall operation and maintenance of the system including oversight of any contractor making repairs on the system.

**CPM**: The Associate Vice Chancellor of CPM is responsible for the management of the design and construction of additions, rehabilitations, or modifications to the sanitary sewer system.
Administrative Responsibilities of UC San Diego Sewer System Flow Chart- Information Break Down

Sanitary Sewer Permittee - Director Environment, Health, and Safety: Corey Singleton (858) 822-4923

Oversight - Manager Environmental Affairs: Kathryn M. Phin (858)534-1563

Reporting - Compliance Specialist Environmental Affairs: Valerie Fanning (858)534-9695

Design and Construction - Asst. VC Capital Program Management: Eric Smith (858) 246-2657

Director of Engineering Services Capital Program Management: Eric Wolff (858)534-8622

Project Manager/Civil Engineer Capital Program Management: Roland Bartsch (858)246-0795

Operation and Maintenance - Interim Director Facilities Management: Jason Kayne (858)534-1389

Assistant Director/Building Operations of Facilities Management: Richard M. Cota (858)822-1061

Senior Superintendent Facilities Management: Jose Moret (858)534-3350
2.3 MONITORING SYSTEM AND REPORTING SSOS

Members of the University community who observe an SSO may call the campus emergency dispatch phone line at 858-534-4357 to report the incident. Campus dispatch immediately notifies FM as the campus first responder for SSOs.

The campus first responder is responsible for immediately investigating any overflow and determining the appropriate response. All overflows are reported to EH&S, which is the department responsible for reporting the overflows to the appropriate regulatory agency. The chain of communication for reporting SSOs is shown in Figure 2-2. The response to SSOs is described in Section 6: Overflow Emergency Response Plan.
FIGURE 2-2: CHAIN OF COMMUNICATION FOR REPORTING SSOs

UC San Diego
Sewer System Management Plan
SSO Chain of Communication
2.4 FACILITY DESCRIPTION

The UC San Diego campus is one of 10 University of California campuses governed by the Regents of the University of California and is an internationally recognized public teaching and research institution. Founded in 1960, the University of California, San Diego is one of the nation’s most accomplished research universities, widely acknowledged for its local impact, national influence and global reach. Ideally located near the Pacific Ocean, the U.S.-Mexico border and at the edge of the Pacific Rim, UC San Diego is renowned for its collaborative, diverse and cross-disciplinary ethos that transcends traditional boundaries in science, arts and the humanities. The university’s award-winning scholars are experts at the forefront of their fields with an impressive record of accomplishment for achieving scientific, medical and technological breakthroughs. A leader in climate science research, UC San Diego is one of the greenest universities in the nation and promotes sustainability solutions throughout the region and the world. A map of the campus, including Scripps Institution of Oceanography (SIO) is provided in Appendix B.

2.5 SANITARY SEWER SYSTEM DESCRIPTION

The UC San Diego sanitary sewer system provides sewage disposal for the campus via a gravity flow system, with some minor exceptions. Two smaller sewer pump stations are located on campus to serve the UC San Diego Extension Center and the Campus Services Complex. Wastewater from the West Campus typically flows from north to south in the UC San Diego collection system into four major trunk sewer lines that connect to a City main line in La Jolla Village Drive. The four trunk sewer lines are identified as the Gilman Drive Trunk, Villa La Jolla Drive Trunk, Matthews Lane/I-5 Trunk and the Mesa Housing Trunk. The system ultimately feeds to the City of San Diego Point Loma wastewater treatment plant.

There are no upstream or northerly connections to the sewer before serving the campus. The sewer lines total just over 25 miles and are constructed with either vitrified clay pipe or plastic, ranging from six to fifteen inches in diameter. Original pipe has been replaced or relined as repairs are made, upgrades are required, or new facilities have been constructed.

Sanitary and industrial sewage is collected from campus buildings that house
administration, classroom, research, residential, restaurant, and dining hall facilities. An estimated 60 percent of the potable water flow to the campus is discharged to the sewers. The remaining 40 percent is lost to irrigation, industrial and other miscellaneous uses.

The UC San Diego campus and the areas served by the UC San Diego sanitary sewer system are shown on the map provided in Appendix B.
3.0 LEGAL AUTHORITY

The Regents of the University of California is a Constitutional Corporation, organized under Article IX, Section 9 of the California Constitution, with full authority over governance and management of the University operations. Under this authority, the University of California has legal authority to:

Prevent illicit or illegal discharges into its system (e.g., storm water or chemical dumping).

Control infiltration and connections from inflow sources, including satellite systems.

Require that sewers and connections be properly designed and constructed.

Ensure access for maintenance, inspection, or repairs of all portions of the system operated by UC San Diego.

Ensure proper installation, testing, and inspection of new and rehabilitated sewers (such as new or rehabilitated collector sewers and new or rehabilitated laterals).

Limit fats, greases, and other debris that may cause blockages in the collection system.

Enforce any violations of its sewer maintenance and operation policies.
4.0 OPERATION AND MAINTENANCE PROGRAM

In order to reduce and prevent SSOs the SSMP establishes measures and activities to facilitate the proper management, operation, and maintenance of all parts of the sanitary sewer system. Measures and activities include maintaining system maps, scheduling routine maintenance, identifying, and addressing system deficiencies, providing public education in a timely manner, and describing fiscal resources and training.

4.1 MAPPING OF SEWER SYSTEM

The maps of the sewer system and storm water conveyance system are in AutoCAD, ArcMap (GIS) and hard copy. This information is hosted on Latitude 33 UC San Diego’s ArcMap website. EH&S coordinates with CPM, and FM to track map updates, changes, repairs, and new construction in the Latitude 33 website. The sewer system maps are located in Appendix B and storm water conveyance system maps are located in Appendix E of this SSMP.

4.2 PREVENTATIVE MAINTENANCE PROGRAM

UC San Diego has measures in place to keep the system in good repair and prevent excessive infiltration/inflow, service interruptions, and system failures. This is done through regular, scheduled maintenance and cleaning of the collection system, which is summarized below. The routine maintenance is tracked through the FM work order system.

4.2.1 Routine Inspections

Each year selected segments of the system will be inspected using video technology. CPM also inspects sewer lines that will be affected during new construction. Lift stations are inspected monthly for proper operation and repair as necessary. This includes motors, piping and alarms. Inspections are documented through our Computer Maintenance Management System (CMMS) Maximo.
4.2.2 Routine Maintenance

Root Control: Maintenance from root intrusion is conducted on an as-needed basis, from the results of routine inspections.

Overall System: The system is cleaned using a hydro jet or vacuum in selected targeted areas based on the information obtained through routine inspections.

4.3 REHABILITATION AND REPLACEMENT PLAN

Environment, Health & Safety is responsible for maintaining a detailed record of all Sanitary Sewer Overflows on campus. Wastewater overflows of any amount are required to be reported to EH&S, where the frequency and volumes of overflows are tracked. This information is used to coordinate with FM and CPM to prioritize maintenance needs, reduce and prevent SSOs, as well as prepare plans for repair and rehabilitation.

UC San Diego’s Capital Improvement Plan, Rehabilitation and Repair, and System Evaluation Schedule can be found in Appendix D of this SSMP.

4.3.1 Ranking of Deficiencies

The CWUWG prioritizes the noted deficiencies from the routine inspections at the regularly scheduled meetings. Information from CPMs construction inspections is also used to create a priority list of project areas. SSOs that have occurred are prioritized and scheduled by the CWUWG for repair.

4.3.2 Short Term

Short-term actions are taken on an as-needed basis depending on information gathered during routine inspections. Work orders are set up through FM or CPM depending on the type of project. The appropriate department will develop a scope and subsequently implement the project. Short-term actions implemented through this method include the following:

- Identification and replacement of laterals
- Manhole replacement
- Reverse grade and root intrusion corrections
- Relining and repair of lines
Work Orders are used to schedule rehabilitations and repair projects and to track activities, schedule, and completion. See Appendix D for the schedule.

4.3.3 Long Term

UC San Diego has evaluated the utility infrastructure of the campus, including the sanitary sewer as part of the Campus Executive Engineering Utility Mapping and Modeling Project. Phase 1, Mapping, Field Surveys and Video was completed in the fall of 2013. Phase II commenced in 2014 and included the modeling and capacity portions of the System. Boyle Engineering Corporation evaluated the sanitary sewer system in 1991. (*UCSD University of California, San Diego Sewer System Analysis* Boyle Engineering 1991). At that time, no deficiencies were found.

4.3.4 Capital Improvement

Capital Improvement projects for existing infrastructure are determined by the CWUWG and added to the project schedule. Information gathered from the Campus Executive Engineering project will be used to prioritize needed Capital Improvement projects. New sewer infrastructure for Repair and Rehabilitation projects are included in the Clean Water Utility Operations and Maintenance Budget (CWU O&M). The CWU O&M budget is distributed each fiscal year.

4.3.5 Training

Training is conducted by both EH&S and FM. These two departments are responsible for training staff in the following areas:

**EH&S**
- Provides yearly exposure control training for applicable FM staff.
- Provides yearly response training for applicable FM staff responding to sewer spills.

**FM**
- Provides technical training to operators of new systems when they are installed.

4.3.6 Equipment and Replacement Parts

A stock room of appropriate parts and equipment, including emergency pumps,
lights, and generators is maintained by FM. Repairs that require equipment or materials beyond existing capabilities are executed by an outside contractor via a service agreement contract. Current contractors with service agreements are:

  West-Tech Contracting Inc. – (760) 233-2570
  Barrett Engineered Pumps – (619) 232-7867
  Sancon Engineering Inc. – (800) 726-2664
  Pro-Pipe – (800) 574-4445
  AJW Restoration Services – (858) 429-5641
  APEX Contracting and Restoration – (858) 987-1800
  Affordable Pipeline Services – (858) 689-4000
  USA Jetting Drain Pros, Inc. – (619) 666-6066
  Atlas Pumping – (800) 491-7867
5.0 DESIGN AND PERFORMANCE PROVISIONS

UC San Diego has adopted the Sewer Design Guide (2015) (SDG) prepared by the City of San Diego Metropolitan Wastewater Department. These guidelines are located on the web at http://www.sandiego.gov/mwwd/pdf/sewerdesign.pdf. UC San Diego also has project specific guidelines for sewerage and packaged pump stations as part of the Master Specifications sections 02530 and 02532, respectively.

CPM is responsible for ensuring the design and performance standards are implemented on campus. There are two categories of design and performance provisions specified in WDR No. 2006-0003, discussed below.

5.1 STANDARDS FOR INSTALLATION, REHABILITATION AND REPAIR

The City of San Diego Sewer Design Guide outlines construction specifications for installing new sewer systems, pump stations, and other appurtenances; and for rehabilitation and repair of existing sewer systems. Design criteria include specifications for items such as pipe materials, minimum sizes, minimum cover, strength, minimum slope, trench and backfill, structure standards, and other factors. Any new construction, rehabilitation, or repair of the sanitary sewer system will adhere to CPM Master Specifications and the City of San Diego current SDG.

5.2 STANDARDS FOR INSPECTION AND TESTING OF NEW AND REHABILITATED FACILITIES

Inspection and testing of new or rehabilitated facilities ensures that the established standards are being implemented in the field. These standards are included in the CPM and City of San Diego Standards. Testing for gravity sewers can include low-pressure air test or water test to identify leakage, mandrel test to identify deflection of flexible pipe, water or vacuum test of manholes to identify leakage, and television inspection to identify grade variations or other construction defects. UC San Diego adheres to the standards for inspection and testing of new or rehabilitated facilities that are outlined in the SDG.
6.0 OVERFLOW EMERGENCY RESPONSE PLAN

The Overflow and Emergency Response Plan (OERP) is an integral part of the UC San Diego SSMP to establish guidelines and measures to protect public health and the environment in case of an accidental overflow. The UC San Diego OERP Field Guide, containing information about notification, spill response, volume estimation, spill clean-up, and sampling procedures can be found in Appendix C of this SSMP.

6.1 OBJECTIVE AND PURPOSE

The OERP is developed as part of the UC San Diego Sewer System Management Plan. The purpose of the plan is to establish guidelines and measures to protect public health and the environment in case of an accidental overflow.

In the case of an overflow, UC San Diego shall dispatch the appropriate crews to investigate, identify the cause, and provide appropriate service to minimize the effects of the overflow on public health and quality of surface waters. The OERP further specifies the required notification and reporting that is necessary for local and state agencies.

All Clean Water Utility personnel will be required to read the OERP and familiarize themselves with the procedures. The OERP should be kept in an easily available location for all utility personnel and public access reference. Detailed information regarding the OERP, notification procedures and emergency contacts can be found in Appendix C - Overflow and Emergency Response Field Guide.

6.2 ROLES AND RESPONSIBILITIES

The departments of Environment, Health & Safety – Environmental Affairs Division (EH&S), and Facilities Management (FM) are the campus entities responsible for implementing the OERP. The responsibilities of the departments are specified below.

6.2.1 ENVIRONMENT, HEALTH & SAFETY-ENVIRONMENTAL AFFAIRS (EH&S)

EH&S is responsible for:
a) External agency notification,
b) Exposure/hazard assessment and control, and
c) Interface with external regulatory agencies.

6.2.2 FACILITIES MANAGEMENT (FM)

FM is responsible for:

a) Acting as a first responder;
b) Providing and coordinating the operational aspects of the emergency in order to control and mitigate the overflow;
c) Coordinating the cleanup and disinfection, if needed, of the overflow including streets and storm drains; and,
d) Establishing preventive measures in order to minimize future accidental releases

6.3 OVERFLOW EMERGENCY RESPONSE PLAN

The OERP presents a strategy for UC San Diego to respond to potential overflows with appropriate personnel, materials, tools and equipment. An appropriate response will help to correct or repair any condition, which may cause or contribute to an un-permitted discharge from the sanitary sewer. Appendix C includes a detailed response guide and procedures that are used to respond to sanitary sewer overflows in a timely and effective manner.

6.4 RECEIPT OF INFORMATION REGARDING AN OVERFLOW

Overflows are typically detected and reported in one of two ways:

1. By FM personnel during daily routines - FM personnel who discover a potential overflow during their daily operations are responsible for immediately notifying the proper supervisor and taking appropriate action

2. By the campus - Members of the university community who observe a sanitary sewer overflow (SSO) may also call the campus emergency dispatch phone line at 534-HELP (4357). Emergency response is available 24 hours
per day, every day.

6.5 DISPATCH RESPONSIBILITY

When the dispatch personnel receive calls from the campus, they will obtain, if possible, all relevant information available regarding the possible overflow including:

1) Time and date the call was received,

2) Specific location of possible overflow,

3) Time when the caller first noticed the overflow,

4) Description of the problem, and

5) Caller’s name and call back phone number if possible.

Campus dispatch immediately notifies the designated campus first responder for SSOs, who is a member of the FM staff. Response time to an SSO will be as quickly as possible.

6.6 FIRST RESPONDER ASSESSMENT OF OVERFLOW

The FM first responder will respond to the failure of any element of the sanitary sewer system that threatens to cause or causes an SSO. The first responder’s responsibility is to isolate and correct the problem.

The first responder will:

1) Assess the failure of equipment or overflow release,

2) Call for assistance (if needed) including additional personnel, materials, supplies, and equipment. If the spill is larger than they can adequately respond to, an outside contractor will be called,

3) Use appropriate Personal Protective Equipment,

4) Use appropriate safety precautionary measures including Lockout/Tagout protocol,
5) Obtain necessary equipment to respond to spill. FM maintains a supply of materials to mitigate spills. Available equipment includes sand bags, waddles, bypass pumps, hoses, emergency generators, and heavy equipment,

6) Assess if the overflow occurred onto private property. Be aware that UC San Diego could face increased liability for further damages inflicted to private property during such instances, and

7) Coordinate with EH&S hazardous materials response if there is a suspicious substance (e.g. oil sheen, foam) observed on the ground surface. Additionally, if there is a suspicious odor (e.g. gasoline) not common to the sewer system, the hazardous materials response team should be contacted.

Internal Notification Procedures

Based on the professional judgment of the FM staff, other parties are notified. EH&S is notified for all spills by the first responder or their supervisor.

Internal contact phone numbers:

**EH&S**
- 8:00 am to 4:00 pm, Monday - Friday: (858) 534-3660
- After hours: (858) 534-HELP (4357) Police Dispatch will alert proper after-hours responders

**FM**
- 8:00 am to 4:00 pm, Monday - Friday: (858) 534-2930
- After hours: (858) 967-2210 (Dispatch non-emergency line)

### 6.7 OVERFLOW CORRECTION, CONTAINMENT, AND CLEAN-UP

Blocked sewers, pipe failures, or mechanical malfunctions can cause SSOs. The following are specific actions to be performed by the response crews during an SSO. In addition, there should prompt notification of regulatory agencies and affected entities when the incident occurs.

1) Protect water bodies or the storm drain; divert the flow away from streets and paved areas; stop the overflow. If the failure is at a lift station, take the
malfunctioning pump off line,

2) If necessary secure the affected area and post warning signs,

3) Contain the wastewater discharged to the maximum extent possible by utilizing spill containment devices,

4) Determine the location and cause of the overflow. Assessment will include a check of the lift station pumps and upstream and downstream manholes,

5) Implement appropriate corrective actions. This may include the use of vacuum trucks, emergency pumps, stand-by force main, emergency generators,

6) Clean and sanitize the affected area(s),

7) Finalize the incident documentation,

8) Review overall response with the Responding Parties, and

9) Sample as necessary and when spills of 50,000 gallons or greater reach surface waters. Any sampling performed will be coordinated with the San Diego County Department Environmental Health Services. The sampling methodology will be consistent with the sampling requirements outlined in the RWQCB’s Sewage Spill Reporting Guidance.

Overflow correction, response, and documentation requirements have been compiled in the Overflow and Emergency Response Field Guide (Appendix C).

A contingency plan for overflows that occur at sanitary sewer pump stations can be found in Appendix F - Contingency Plans for UC San Diego Sanitary Sewer Pump Stations and Force Mains.

6.7.1 Contractor List for Additional Response

AJW Restoration services – (858) 429-5641

APEX Contracting and restoration – (858) 987-1800
6.8 REGULATORY NOTIFICATION PROCEDURES

If a SSO occurred, it is required that certain regulatory agencies be contacted. The following reporting criteria explain when notifications should be sent, and the various forms that are required. Regulatory notification procedures are administered by EH&S-Environmental Affairs.

6.9 OES NOTIFICATION REQUIREMENTS

Sewage spills greater than or equal to 1,000 gallons that result in a discharge to surface waters or that have entered and are not recovered from a storm drain must be reported to the California Office of Emergency Services (Cal OES) at (800) 852-7550 within 2 hours from the initial spill discovery. Cal OES will notify the local agencies such as the San Diego Regional Water Quality Control Board and the San Diego Department of Environmental Health Services. Within 24 hours, the RWQCB will be emailed the time/day that the Regional Board, OES, and appropriate health department were called and any appropriate reference number to RBSSO@waterboards.ca.gov

6.10 ELECTRONIC REPORTING REQUIREMENTS

A draft report must be entered into the CIWQS Online SSO Database within 3 business days for any spill volume that reached surface waters, was not recovered from a storm drain or was greater than 1,000 gallons (Category 1 and Category 2 spills). These draft reports must be certified within 15 calendar days of the end date of the SSO.

Spills that are 50,000 gallons or greater require a technical report, including water quality results from samples that were taken within the first 48 hours of the spill, to be submitted to CIWQS within 45 days of the end of the spill.
All other spills (Category 3) need to be reported and certified in the CIWQS Online SSO Database within 30 days from the end of the month in which the spill occurred.

6.11 SANITARY SEWER OVERFLOW RECORD KEEPING REQUIREMENTS

Environment, Health & Safety is required to maintain detailed documentation of SSOs for at least five years. Maintaining these records will help EH&S track the number of spills and their volumes, as well as measure the effectiveness of the OERP. Based on the information collected EH&S can determine which areas of the sewer system need to be prioritized and if the OERP needs to be updated in order to improve response activities.

For each SSO these records must include, but are not limited to:

- Records documenting each sanitary sewer overflow event;

- Complaint records, if applicable, documenting how FM and EH&S responded to all notifications of possible or actually sanitary sewer overflows, both during and after business hours, including complaints that do not result in a sanitary sewer overflow;

- Records documenting steps and/or remedial actions taken. Spill response activities taken;

- Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated;

- Electronic monitoring records relied upon for documenting sanitary sewer overflow events and/or estimating the sanitary sewer overflow volume discharged;

- Whether or not health warnings were posted;

- Steps that have, and will be, taken to prevent the SSO from recurring and a schedule to implement those steps;

- Work orders, work completed, and any other maintenance records that are associated with responses and investigations of system problems related to SSOs;
- Record of Certified report, as submitted to the online SSO database;
- Historical maintenance records for the failure location;
- Records of samples taken and the regulatory agency that received samples if applicable.

### 6.12 ADDITIONAL EXTERNAL NOTIFICATION

The following agencies should also be notified when an overflow has occurred:

The Department of Fish and Wildlife is notified if there is a spill to any water way. The Department of Fish and Wildlife will investigate the spill and make a determination if there are any deleterious effects of the spill.

California Department of Fish and Wildlife (South Coast Region, Region 5)

3883 Ruffin Road San Diego, CA 92123

858-467-4201

The Regional Water Quality Control Board and the San Diego County Department of Environmental Health Services will be notified if there is any violation of a discharge prohibition.

Regional Water Quality Control Board

2375 Northside Drive, Suite 100 San Diego, CA 92108-2700

(619) 516-1990

San Diego Department of Environmental Health Services

P.O. Box 129261 San Diego, CA 92112-9261

(858) 505-6700

(858) 253-9933

Any discharge of sewage into or onto a waterway must be reported to Cal OES:
6.13 TRAINING REQUIREMENTS

Training will be conducted on a regular basis for members of the departments that are responsible for implementing the OERP, which includes applicable EH&S and FM staff, as well as contractors involved in the project. EH&S is responsible for providing exposure control training for FM staff. FM is responsible for providing technical training for FM staff responding to sewer spills.

6.14 OVERFLOW EMERGENCY RESPONSE PLAN UPDATE

OERP is reviewed on an annual basis by EH&S and FM. Interim changes are incorporated into the document by EH&S as needed. Comments, updates, and other relevant information should be submitted to EH&S for review, consideration, and incorporation into OERP and the Overflow and Emergency Response Field Guide (Appendix C).
7.0 FOG CONTROL PROGRAM

The UC San Diego campus has minimal problems with respect to fats, oil and grease (FOG). There have been no reported SSOs from buildup of fats, oils or grease since the WDR was executed. Therefore, an extensive FOG Control Program is not necessary.

7.1 BACKGROUND

UC San Diego requires vendors to have a grease and oil source control program in place. The purpose of the program is to reduce the amount of fats, oils, and grease discharged to the wastewater collection system.

Grease blockages will be identified through routine inspections of the sanitary sewer system. The inspections are conducted as part of the regular scheduled maintenance and cleaning of the sewer system, which is outlined in Section 4.

7.2 POLICIES

UC San Diego requires all restaurants and dining areas to have outside grease interceptors installed.

BMPs are in place to prevent the introduction of grease and fats into the sanitary sewer and include training. Training occurs by the kitchen manager upon hiring new employees.

Kitchen staff is trained on bulk grease practices to ensure it is not washed into the sanitary sewer. Additionally, grease in pans or fryers when cleaned are not washed down the drain. Excess grease that is generated from grilling or frying is collected in a dedicated container. A grease rendering company collects the container contents on a scheduled frequency.
8.0 SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

Background

The first sewer master plan undertaken by UC San Diego was part of a comprehensive infrastructure assessment in 1991 (Boyle Engineering Corporation - 1991) to ensure adequate infrastructure capacity to support the expected increase in student and staff populations. The assessment focused on observations of existing conditions, estimations of future loads, and proposed capital improvements necessary for the sanitary sewer system to meet future loads. The University has since then undertaken numerous evaluations of the sanitary sewer systems which address many “neighborhoods or sewer basins” on the campus. The sewer capacity assessment completed as part of each study is based on the results of the hydraulic modeling performed for the collection system in each report and is summarized in the following sections. These evaluations identify additional future needs and assist in undertaking a concept design and cost estimate for future funding.

- University of California, San Diego, Sewer System Analysis (Boyle Engineering Corporation - May 1991)


- City of San Diego University of California – San Diego Sewer Improvements (Latitude 33 Planning and Engineering—April 2017)

- University of California San Diego 2018 Long Range Development Plan Update Sewer Study (Latitude 33 Planning & Engineering – May 2018)

8.1 UCSD SEWER STUDIES SYSTEM EVALUATIONS

Description of Studies

The following sections provide a compilation of brief descriptions, system evaluations, and system findings and recommendations for each study.
8.1.1 University of California, San Diego Sewer System Analysis

Description: UC San Diego had a Sewer System Analysis prepared by Boyle Engineering Corporation in May of 1991. The report evaluated the entire campus, both east and west side, with the primary purpose to evaluate UC San Diego’s existing sewage collection system at the time and to define improvements required to accommodate planned growth for the next 20 years.

System Evaluation: Boyle Engineering used BSWAN, a sewer analysis computer program, to analyze the capacities in UC San Diego’s sewage collection system. Using sewer data provided, the capacity of each individual pipe section, the average and peak flows, and the flow velocity was computed. In the event there was a deficiency, the program recommended a parallel relief pipe or a replacement pipe.

Design Criteria: Since the campus sewer metering data showed no evidence of any storm water influencing flows, the flows carried in the campus sewers are solely a function of the building size and water use factors that were derived from a previous utilities study. Peak flow was calculated using a peak factor of 3.0 multiplied by an average flow using dementors factor (Ro) of 1.0. Average sewage flows are estimated as 70% of the water consumed at each building. For future pipes, maximum depth to diameter ratios (d/D) are 0.50 for pipe size 8” and smaller and 0.75 for pipe size 10” and larger. For existing pipes, d/D are 0.75 for 8” and smaller, and 1.00 for 10” and larger.

8.1.2 Clean Water Utility Initiative Projects for State Water Revolving Fund

Description: This request for funds from the State includes several projects. The first is a Clean Water Utility Master Plan that consists of preparing a comprehensive Clean Water Utility Master Plan of UC San Diego’s wet utility systems. This covers potable water, recycled water, sewer, storm water and seawater. The sewer component will include location, size, materials and age of the existing pipeline collection network including manholes, meters, and connection points to the City of San Diego’s sewer system. The plan will include as-needed sewer televising and flow monitoring program to assess current condition and flows and will determine if the infrastructure can support future development relative to hydraulic criteria conforming to municipal standards. The remaining projects are for sewer rehabilitation and
replacement.

- The Revelle Sewer Rehabilitation will update the 40-year-old clay pipe system and correct slopes and remove root intrusion. The work will consist of design and construction to rehabilitate the existing sewer.

- The Pepper Canyon Trunk Sewer Replacement will include design and construction to replace the existing pipeline.

- The Muir College Replacement needs to be replaced due to its age and condition. Flow velocities are slower than standard minimum velocities. The work will consist of design and construction of a new sewer to replace the existing pipeline.

- Gilman Drive Trunk Sewer Replacement needs to be replaced due to its age and condition. The work will consist of design and construction of a new trunk sewer to replace the existing pipeline. *This project has been completed.*

- Mesa Housing Sewer Replacement also needs to be replaced due to its poor condition. The work will consist of design and construction of a new sewer to replace the existing pipeline.

**System Evaluation:** The projects selected for the State Water Revolving Fund (SWRF) were compiled by UC San Diego construction and maintenance departments from other studies and videoing of sewer lines condition. This project list was submitted for ARRA funding administered through the SWRF. The request is on the SWRF Project Priority List.

### 8.1.3 City of San Diego University of California - San Diego Sewer Improvements (Latitude 33 Planning and Engineering—April 24, 2017)

**Description:** This sewer study analyzes the City of San Diego’s facilities for the planned growth of the UC San Diego campus and the other non-UC contributors. Serving the flows from UC San Diego’s Main Campus and East Campus are the City Sewer Mains in La Jolla Village Drive, and Gilman Drive, which are at or near dry-weather capacities. This study identifies and recommends sewer improvements required to meet the design criteria set
forth by the City of San Diego. The specific areas being study include the area bounded by North Torrey Pines Road/Genesee Avenue to the North, Towne Centre Drive to the East, North Torrey Pines Road to the West, and La Jolla Village Drive to the south.

**System Evaluations:** This study evaluates the public and private sewer system by analyzing the existing condition, near term condition including the University’s active construction projects, and the horizon year condition based on UCSD’s 2018 Long Range Development Plan (LRDP) and the City zoning projections which assumes maximum potential flow in the horizon year projections. The analysis includes following elements;

- Review current land uses of all non-UCSD properties within the City sewer basins that also serve the UCSD campus
- Review current and proposed land uses for UCSD
- Identify existing facilities which contribute sewage to the UCSD Campus
- Determine estimated sewer generation rates for all UCSD and non-UCSD contributing parcels; based on City of San Diego planning criteria
- Determine improvements to the public and private sewer systems necessary to provide adequate sewerage services for UCSD buildings currently under construction, and at the horizon year development; based upon the conservative assumptions made in the 2018 LRDP.

**Design Criteria:** Projected sewer generation rates were developed by applying sewer generation factors to each zoning area within the sewer basin. For non-UCSD parcels, the density conversion table in City of San Diego Sewer Design Guide was utilized to estimate equivalent dwelling units (EDU) and equivalent populations (EP) for each parcel within the sewer basin. For UCSD residential sites, each existing campus development was assigned an acreage for its approximate site to establish an approximate dwelling units per acre value. For the remaining UCSD campus, land use factors from the City of San Diego Sewer Design Guide were applied to estimate EDU and EP. Campus land uses not applicable to the design guide were converted using conservative land use factors listed in the design guide. The flow rates were calculated by applying a conversion factor of 80 gallons per capita per day in the Sewer Design Guide to the calculated EP to generate a gallons-per-day flow rate. Depth of flow over pipe diameter ratio (dn/D) of 0.75 was used to identify current and future deficiencies in the system.
This project finished construction in 2019.

8.1.4 University of California San Diego 2018 Long Range Development Plan Update Sewer Study (Latitude 33 Planning & Engineering, May 1, 2018)

Description: This sewer study is a part of UCSD’s Long Range Development Plan (LRDP), which is a campus wide land use plan used to guide the physical development of the campus based on projected construction goals and population growth over the next 30 years. This study analyzes the entire UCSD campus including Scripps Institution of Oceanography (SIO), and it supersedes all past reports that evaluated the campus basins covered in this report.

System Evaluation: The purpose of this sewer system analysis is to evaluate the capacity of the existing and future onsite system. The intent is to assess sewer demands from a planning level perspective for the following development stages; existing, 0-5 year build-out, 6-10 year build-out, and 11-30 year build-out. The analysis includes the following elements;

- Complete campus wide system investigation
- Review existing sewer demands based on water meter data
- Determine estimated domestic water demands for each development stage
- Determine on-site improvements necessary for the sewer system in each development stage (if any)
- Determine alternative measures (if any) that can be taken to offset required improvements for future demand loads

A review of sewer outfall readings over the course of a typical year show minimal evidence of infiltration during rain events and therefore a wet weather peaking factor was not used in this report.

This report utilizes the hydraulic modeling software Autodesk Storm and Sanitary Analysis.

Design Criteria: For existing conditions, the study utilizes domestic water meter demands for sewer generation rates per building. Because UCSD meters domestic and irrigation feeds separately, 100% of building domestic
water demand was used to calculate sewer generation rates. Peaking factor of 3.0 was used to calculate a peak flow rate for continuity from the previous campus wide study from 1991. For proposed conditions, average water demand per square foot was used for each building use type. In order to establish these values, a review of existing building usage was conducted with UCSD Planning Department staff. These building usages were then compared with existing water meter data to generate an average gallons per day per square foot for each usage. Maximum normal depth to diameter ratio (dn/D) was used to design and analyze the pipe capacity. The dn/D ratios used are 0.50 for pipe size 8” and smaller, and 0.75 for 10” and larger.

8.2 CAPACITY ENHANCEMENT MEASURES

UC San Diego’s capital improvement projects (Buildings, Housing, etc.) include sewer enhancements that are assessed during the project design phase based on the recommendations from the 2018 LRDP sewer study. Additional sewer projects were identified for ARRA funding and the SWRF project list. These projects were submitted on March 5, 2009, for economic stimulus funding through the Clean Water State Revolving Loan Fund. UC San Diego’s application, which included a total of $9.6 million of Clean Water Utility sewer projects, was assigned a project manager from the State Water Board.

The State Water Board identified $35.5 million in projects from the March 5, 2009 list that meet their funding criteria (all related to waste water discharges and storm water pollution prevention).

Deficiencies identified in 2018 LRDP are carefully reviewed and prioritized based on their severity and urgency. The severity and urgency are typically determined from either UCSD’s Facility Management department, or the magnitude of the capacity exceedance. Deficiencies that impact the existing system are given the highest priority in the que of necessary improvements. Deficiencies that will impact the system in the near future are given the next highest priority. Depending on the severity, the deficiencies will become either a standalone project; or if their locations are in the vicinity of a design project (current or near future) they will then be incorporated into that project scope. If there is no current deficiency but the particular system is anticipated to exceed allowable capacity due to a planned development per the LRDP, then the capacity enhancement improvements will be a part of the planned development project design.
Capacity enhancement for the sewer main in Basin 600 recommended in the LRDP has been incorporated and installed in 2018.

Construction of a new 12-inch pipe to accommodate the new development Living and Learning Neighborhood, which was identified and recommended in the LRDP, was incorporated in the project scope, and is currently under construction in 2019.

Privatization of the City of San Diego sewer main running through Scripps Institution of Oceanography (SIO) is currently under City of San Diego’s review and pending approval. The proposed improvements include constructing a new public sewer main within La Jolla Shores Drive, which will accept the public flow from La Jolla Estates, as well as NOAA Southwest Fisheries. This new public sewer main will offload flows from the privatized SIO sewer main, providing the adequate capacity to convey existing flows, as well as future flows anticipated from the planned developments for the next 30 years.

The Office of the President (UCOP) Capital Planning manages review and approval processes for the university's capital program, serving as a central point of contact for the state, campuses, other units and the regents on issues related to development, coordination, justification and funding of capital projects. We provide guidance on the rationale of project proposals and work with other units to ensure that projects comply with state and university policy and procedures.

8.3 CAPITAL IMPROVEMENT PLAN

The University of California Captital Financial Plan for 2018-2028 can be found at https://www.ucop.edu/capital-planning/_files/capital/2018-28cfp/cfp2018-28_revised.pdf. This plan includes ten year plans for the campus. San Diego’s capital financial plan balances new construction, renovation, building system upgrades, and the renewal and expansion of infrastructure. Private gifts and grants, industry partnerships, and federal grants and contracts will continue to provide important capital funding to complement State funding.

Capital Improvement Plans for Sewer Capacity Assurance that are not part of the Consolidated State – Non-State Capital Projects list are funded through the CWU Budget. Repair and Rehabilitation projects are also funded by the CWU
Budget. The CWU Budget is funded annually through the Campus Budget office.

8.4 SCHEDULE

The CWUWG meets regularly to schedule and prioritize sewer system projects for repair, rehabilitation and capacity. The CWU Program’s current sewer system project list can be found in Appendix D- CIP, Repair and Rehabilitation, and System Evaluation Schedule.
9.0 MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS

The CWUWG will monitor the effectiveness and implementation of the SSMP by reporting updates to the group through meetings, conference calls, or by email. This communication will allow the CWUWG to gauge how well the SSMP is working and being executed on campus. Each element of the SSMP will be reviewed by CWUWG biannually in order to evaluate if all elements of the SSMP are effective and are being implemented. Program elements will be updated, as appropriate, based upon monitoring or performance evaluation. The plan will be available for audit at all times.

9.1 RECORD KEEPING REQUIREMENTS

UC San Diego is required to maintain relevant information that can be used to establish and prioritize appropriate SSMP activities, as well as identify SSO trends, including: frequency, location, and volume of spills. These records can be used to determine the effectiveness of preventative maintenance and to create a maintenance schedule to prevent future SSOs.
10.0 SSMP PROGRAM AUDITS

The CWUWG will assess the effectiveness of the SSMP by conducting periodic internal audits. These audits will occur every two years at a minimum, and will be conducted by EH&S Environmental Affairs. Through this review, the CWUWG will evaluate effectiveness of the SSMP, including its deficiencies, and recommend steps to correct them.
11.0 COMMUNICATION PROGRAM

UC San Diego EH&S department will communicate with the campus community regarding the development, implementation, and performance of the SSMP. The Sewer System Management Plan is posted on the UC San Diego EH&S website http://blink.ucsd.edu/safety/environment/outdoor/SSMP.html and the campus community is encouraged to review and provide comments on the plan.

The SSMP will be updated at least biannually to describe any significant changes in proposed actions or implementation schedules. The update will include available information on the performance of measures that have been implemented. UC San Diego will communicate with interested parties regarding implementation and performance of the SSMP. Interested parties include:

- Campus Population,
- City of San Diego,
- County of San Diego, and
- SWRCB
12.0 REFERENCES

http://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

Environmental Protection Agency  
http://www.epw.senate.gov/water.pdf

City of San Diego  
2013 Sewer Design Guide, Metropolitan Wastewater Department, City of San Diego  

Sewer Construction and Development  

Regional Water Quality Control Board  
Regional Board Order No. R9-2007-0005  

State Water Resources Control Board  

2008 WDR Order No. WQ 2008-0002-EXEC  

2013 WDR Order No. WQ 2013-0058-EXEC  

University of California, San Diego (UCSD)  
UCSD 2004 Long Range Development Plan  
http://physicalplanning.ucsd.edu/plans/lrdp.html
UCSD 2004 Long Range Development Plan Environmental Impact Report
http://physicalplanning.ucsd.edu/environmental/lrdpeir.html

2008 FD&C Master Design Specifications Sanitary Sewerage (Section 02530)

2008 FD&C Master Design Specifications Packaged Pumping Stations (Section 02532)

Boyle Engineering Corporation
1991 UCSD University of California, San Diego, Sewer System Analysis
Office of the President

TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

ACTION ITEM – CONSENT

For Meeting of July 17, 2019

CERTIFICATION OF UPDATED SEWER SYSTEM MANAGEMENT PLANS

EXECUTIVE SUMMARY

Beginning in 2006, the California State Water Resources Control Board requires all public entities that own or operate more than one linear mile of sanitary sewer lines to prepare a Sewer System Management Plan (SSMP). The purpose of the plan is to prevent or mitigate overflows from sanitary sewer lines and provide a plan to manage, operate, and maintain sanitary sewer systems for reliable service in the future. Following initial approval, SSMPs are required to be updated and recertified every five years. The Regents initially approved most campus’ SSMPs in July 2009 and recertified updated plans in July 2014. All UC campuses and medical centers are subject to this requirement except UC San Francisco and UC San Diego, Hillcrest Campus because they maintain less than one linear mile of sanitary sewer lines.

The Regents are being asked to certify and approve the updated Sewer System Management Plans for all campuses except UC San Francisco and UC San Diego, Hillcrest Campus (see list of Attachments for all campuses with SSMPs to be approved).

RECOMMENDATION

The President of the University recommends that, following review and consideration of the Sewer System Management Plans pursuant to the California Environmental Quality Act (CEQA), the Finance and Capital Strategies Committee recommend that the Regents:

A. Determine that the Sewer System Management Plans are exempt from CEQA.

B. Certify and approve the updated Sewer System Management Plans for the following locations: Berkeley; Berkeley, University Village Albany; Berkeley Global Campus at Richmond Bay; Davis; UC Davis Health; Irvine; Los Angeles; Merced; Riverside; San Diego; Santa Barbara; Santa Cruz; and the Kearney Research and Extension Center.
BACKGROUND

The California State Water Resources Control Board (SWRCB) adopted Order No. 2006-0003-DWQ on May 2, 2006, which requires all municipalities and other public entities to adopt a Sewer System Management Plan (SSMP) if the public entity owns or operates more than one linear mile of sewer line. The SWRCB Order requires that SSMPs be certified and approved by the governing body of the public entity at a public meeting. The order further requires that the plans be updated every five years, and be recertified and approved. In accordance with the SWRCB Order, the University has prepared updated SSMPs for the facilities listed at the end of this item. UC San Francisco is served by the City of San Francisco’s sewer system, and given the length of UC-owned sewer lines, is not subject to the requirement for a plan. Similarly, the UC San Diego Hillcrest campus is not required to have an SSMP because it does not have one mile of sewer lines or greater.

The SSMPs are intended to achieve three main objectives:

- Provide a plan and schedule to properly manage, operate and maintain all parts of the sanitary sewer system in order to provide reliable service in the future.
- Minimize infiltration/inflow of groundwater into the sewer systems and to reduce and prevent sanitary sewer overflows.
- Help mitigate any sanitary sewer overflows that may occur.

Sanitary sewer overflows may cause a public nuisance, particularly when untreated wastewater is discharged to waters of the State or the United States. The elements of each SSMP are mandated by the SWRCB Order and are designed to identify potential weaknesses in existing sanitary sewer lines and to provide a plan and schedule to update and correct deficiencies that may exist in current systems. Some of the measures included in the SSMPs are: preparation of an accurate map of sanitary sewer lines; procedures for the inspection and repair of sewer lines; procedures to detect and remedy any sanitary sewer overflows which may occur; development of a capital improvement plan that addresses proper management and protection of infrastructure assets; and to develop programs to handle fat, oil, and grease from campus food service facilities.

2018-2019 Updates

The updated SSMPs have been prepared under State Water Resources Control Board Order No. 2006-0003-DWQ and Order No. WQ 2013-0058-EXEC. There have been no regulatory changes since the last 2014 SSMP update and any significant updates are on a per-collection system basis. If any updates were made, they will be identified in the campus’ SSMP. Changes may reflect the following:

- Updated contact information
- Updates to the operations and maintenance program
- Updated emergency response procedures/programs
- Updated system evaluation and capacity assurance plans
CEQA COMPLIANCE

The proposed SSMPs are primarily plans for the operations and maintenance of existing sewer systems. While the SSMPs may articulate the need for replacement or construction of new facilities, the plans do not constitute design approval for such facilities. Each campus will propose specific capital projects necessary to implement its SSMP that will include evaluation pursuant to the California Environmental Quality Act (CEQA) at the time of design approval. Therefore, approval of the updated SSMPs is exempt from CEQA under the “common sense” exemption, CEQA Guidelines Section 15061(b)(3), which applies when it can be seen with certainty that there is no possibility that the project may have a significant effect on the environment. On a separate and independent basis, management activities under the plans are categorically exempt under CEQA Guidelines Section 15301, Existing Facilities, which allows for the operation and maintenance of existing public facilities with negligible or no expansion of use.

Key to Acronyms:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>SSMP</td>
<td>Sewer System Management Plan</td>
</tr>
<tr>
<td>SWRCB</td>
<td>State Water Resources Control Board</td>
</tr>
</tbody>
</table>

ATTACHMENTS:

- Attachment 2: Berkeley, University Village Albany: [https://ehs.berkeley.edu/sites/default/files/lines-of-services/environmental-protection/ssmp/2019.05.10.sw.uva.ssmp.pdf](https://ehs.berkeley.edu/sites/default/files/lines-of-services/environmental-protection/ssmp/2019.05.10.sw.uva.ssmp.pdf)
- Attachment 3: Berkeley Global Campus at Richmond Bay: [https://ehs.berkeley.edu/sites/default/files/lines-of-services/environmental-protection/ssmp/2019.05.10.sw.bgc.ssmp.pdf](https://ehs.berkeley.edu/sites/default/files/lines-of-services/environmental-protection/ssmp/2019.05.10.sw.bgc.ssmp.pdf)
- Attachment 5: UC Davis Health: [https://health.ucdavis.edu/sustainability/documents/UCDMC%20SSMP%20Updated%20Feb%202019_FINAL.pdf](https://health.ucdavis.edu/sustainability/documents/UCDMC%20SSMP%20Updated%20Feb%202019_FINAL.pdf)
- Attachment 7: Los Angeles: [https://ucla.app.box.com/s/kgf6gsxqwq3cp1cvl2a5m2mz6gjtrkr](https://ucla.app.box.com/s/kgf6gsxqwq3cp1cvl2a5m2mz6gjtrkr)
<table>
<thead>
<tr>
<th>Attachment 9:</th>
<th>Riverside: <a href="https://ehs.ucr.edu/environmentalprograms/UCR%20SSMP_Apr%202019%20revision.pdf">https://ehs.ucr.edu/environmentalprograms/UCR%20SSMP_Apr%202019%20revision.pdf</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment 12:</td>
<td>Santa Cruz: <a href="https://ehs.ucsc.edu/programs/environmental/documents/ssmp.pdf">https://ehs.ucsc.edu/programs/environmental/documents/ssmp.pdf</a></td>
</tr>
<tr>
<td>Attachment 13:</td>
<td>Kearney Research and Extension Center: <a href="http://kare.ucanr.edu/files/300637.pdf">http://kare.ucanr.edu/files/300637.pdf</a></td>
</tr>
</tbody>
</table>
APPENDIX B

SEWER MAPS
SANITARY SEWER OVERFLOW EMERGENCY RESPONSE FIELD GUID
UC San Diego

Sanitary Sewer Overflow
Emergency Response

Field Guide

Updated April 2019
Overflow Notification Procedures

When an overflow is detected:

- Immediately notify proper supervisor

8:00 am to 4:00 pm, Monday - Friday: Notify EH&S for all spills at 858-534-3660
After hours: Call 858-534-HELP (4357) and Police Dispatch will alert proper after-hours responders

Determine extent of spill—see definitions on page 8

- Category 1 SSOs that are **1,000 gallons or greater** that result in a discharge to a surface water, and Category 1 SSOs that are **1,000 gallons or greater** that result in a discharge to, and are not fully recovered from, a storm drain
- Spill occurs where public contact is likely
- Category 1 and Category 2 SSOs
- Category 3 SSOs and all other spills
- SSOs that have **50,000 gallons or greater** spilled to surface waters

Category 1 SSOs that are **1,000 gallons or greater** that result in a discharge to a surface water, and Category 1 SSOs that are **1,000 gallons or greater** that result in a discharge to, and are not fully recovered from, a storm drain

- Notify the California Office of Emergency Services (OES) at 800-852-7550 within the first 2 hours
- Continue with Category 1 spill protocol.

Spill occurs where public contact is likely

- Draft reports shall be submitted to the CIWQS Online SSO Database within 3 business days of becoming aware of the SSO
- Final reports shall be certified through the CIWQS Online SSO Database within 15 calendar days of the SSO end date

Category 1 and Category 2 SSOs

- Enter an electronic certified report to CIWQS* within 30 calendar days from the end of the month in which the spill occurred
- Enter an SSO Technical Report to CIWQS within 45 calendar days of the SSO end date

Category 3 SSOs and all other spills

- Enter an electronic certified report to CIWQS* within 30 calendar days from the end of the month in which the spill occurred
- Enter an SSO Technical Report to CIWQS within 45 calendar days of the SSO end date

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*California Integrated Water Quality System – If CIWQS is not available, you must FAX to San Diego Regional Water Quality Control Board: Fax 858-571-6972

If you have any questions about the contents of this OERP Field Guide, please contact Valerie Fanning at (858) 534-9695 or vfanning@ucsd.edu
**UCSD SSO Report Form**

**Location of Spill:**

<table>
<thead>
<tr>
<th>Exact Latitude: (6 decimal points)</th>
<th>Exact Longitude: (6 decimal points)</th>
</tr>
</thead>
</table>

**What DAY and TIME was FM notified?**  
What DAY and TIME did FM arrive on scene?  

**SPILL START DATE (MM/DD/YY)**  
**SPILL START TIME (AM / PM)**  

**SPILL END DATE (MM/DD/YY)**  
**SPILL END TIME (AM / PM)**  

What day and time was the SSO Cleared?  

**Who initially reported the spill?**  
Report NA if information is not available  
(Name)  
(Number)  

**Who is filling out this SSO Report Form?**  
(Name)  
(Number)  

**Estimated Spill Volume**  
(gal)  

**Estimated Spill Rate**  
(gal/min)  

**Estimated Volume of Spill Recovered**  
(gal)  

**Spill Dimensions:**  
Were photos taken?  

**What method(s) were used to estimate spill volume?** (Circle all that apply)  
- Eyeball Method  
- Drop Bucket Method  
- Open Channel Spill Estimation  
- Calculations from Spill Dimensions  
- Calculations Based on Pipe Size  
- Duration and Flow Rate  
- Flow from Vent or Pick Holes  
- Flow around Manhole Cover  
- Flow from Manhole w/o a Cover  

Refer to Volume Estimation forms to document spill dimensions, shapes and other information.

**Did the spill reach a storm drain system?**  
YES  
NO  

**Did the spill discharge to surface waters?**  
YES  
NO  

**Did the spill discharge to land?**  
YES  
NO  

**Final Spill Destination**  
(Circle all that apply):  
Paved Surface  
Building / Structure  
Unpaved Surface  
Storm Drain  
Surface Water  
Beach  
Street / Curb / Gutter  
Other:  

**Cause of Spill (options on back):**  

**Where are the spill appearance points?** (options on back):  

**Where did the failure occur?** (options on back):  

**Complete both sides of form**
<table>
<thead>
<tr>
<th>Spill Response Activities (circle all that apply):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaned up</td>
</tr>
<tr>
<td>Contained all or portion of spill</td>
</tr>
<tr>
<td>Inspected sewer using CCTV</td>
</tr>
<tr>
<td>Returned all or portion of spill to sanitary sewer system</td>
</tr>
<tr>
<td>Mitigated Effects of Spill</td>
</tr>
<tr>
<td>Returned all or portion of spill to sanitary sewer system</td>
</tr>
<tr>
<td>Returned all or portion of spill to storm drain</td>
</tr>
<tr>
<td>Returned all or portion of spill to storage tank</td>
</tr>
<tr>
<td>Restored Flow</td>
</tr>
<tr>
<td>Returned all or portion of spill to sanitary sewer system</td>
</tr>
<tr>
<td>Returned all or portion of spill to storm drain</td>
</tr>
<tr>
<td>Returned all or portion of spill to storage tank</td>
</tr>
<tr>
<td>Property Owner Notified</td>
</tr>
<tr>
<td>Other Enforcement Agency Notified</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spill Corrective Actions Taken (circle all that apply):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added Sewer to Preventative Maintenance Program</td>
</tr>
<tr>
<td>Adjusted Schedule / Method of Preventative Maintenance</td>
</tr>
<tr>
<td>Enforcement Action Against FOG Source</td>
</tr>
<tr>
<td>Inspected Sewer Using CCTV</td>
</tr>
<tr>
<td>Plan rehabilitation or replacement of sewer</td>
</tr>
<tr>
<td>Repaired Facilities or Replaced Defect</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

**Cause of spill:**
- Air relief valve (ARV) Failure
- Blow-off Valve (BOV) Failure
- Construction Diversion Failure
- CS Maintenance Caused Spill/ Damage
- Damage by others not related to CS-
  - Construction/ Maintenance (specify type below)
- Debris from Construction
- Debris from Lateral
- Debris-General
- Debris- Rags
- Flow exceeded capacity (Separate CS only)
- Grease Deposition (FOG)
- Inappropriate discharge to CS
- Natural Disaster
- Non-Dispersibles
- Operator Error
- Other (specify)
- Pipe Structural Problem/ Failure Installation
- Pump Station Failure- Controls
- Pump Station Failure- Mechanical
- Pump station Failure- Lower
- Rainfall Exceeded Design, I and I (Separate CS Only)
- Root Intrusion
- Siphon Failure
- Surcharged Pipe (Combined CS Only)
- Vandalism

**Spill Appearance Point (circle all that apply):**
- Force Main
- Gravity Mainline
- Inside Building or Structure
- Lateral Clean-Out
- Lower Lateral
- Manhole
- Other Sewer System Structure
- Pump Station
- Upper Lateral

**Where did failure occur:**
- Air relief valve (ARV)
- Blow- off Valve (BOV)
- Force Main
- Gravity Mainline
- Lower Lateral (Public)
- Manhole
- Other (specify below)
- Pump Station- Controls
- Pump Station- Mechanical
- Pump Station- Power
- Siphon
- Upper Lateral (public)

**Work Order Numbers:**

**Additional Notes and Documentation**

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Complete both sides of form
Overflow Emergency Response Plan

Dispatch Responsibility

When a call is received from the public, dispatch personnel obtain:

- **Time and date** of call
- **Specific location** of possible overflow
- **Description** of problem
- Caller’s **name** and **call back number**

First Responder Assessment of Overflow

**Always Remember…**

- Use appropriate **Personal Protective Equipment**
- Use appropriate **safety precautionary measures**

<table>
<thead>
<tr>
<th>When?</th>
<th>Assessment Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately</td>
<td>Assess failure of equipment or overflow release</td>
</tr>
<tr>
<td>Immediately</td>
<td>Assess if overflow left UC San Diego property</td>
</tr>
<tr>
<td>If needed</td>
<td>Call for assistance</td>
</tr>
<tr>
<td>After primary assessment</td>
<td>Obtain necessary equipment to respond to spill (e.g. sandbags, waddles, bypass pumps, emergency generators, etc.)</td>
</tr>
<tr>
<td>If spill too large to be adequately controlled</td>
<td>Call outside contractor</td>
</tr>
<tr>
<td>If there is a suspicious substance (e.g. oil sheen, foam)</td>
<td>Coordinate with UCSD EH&amp;S hazardous materials response</td>
</tr>
<tr>
<td>If there is a suspicious odor (e.g. gasoline)</td>
<td>Coordinate with UCSD EH&amp;S hazardous materials response</td>
</tr>
</tbody>
</table>
Overflow Correction, Containment, and Clean-up

<table>
<thead>
<tr>
<th>Always…</th>
<th>If applicable…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect water bodies and storm drains by</td>
<td>If failure is at a lift station, take the</td>
</tr>
<tr>
<td>diverting flow away from streets and</td>
<td>malfunctioning pump off line</td>
</tr>
<tr>
<td>paved areas</td>
<td></td>
</tr>
<tr>
<td>Determine location and cause of overflow</td>
<td>Secure the affected area and post</td>
</tr>
<tr>
<td></td>
<td>warning signs (also see “Traffic and Crowd Control”</td>
</tr>
<tr>
<td></td>
<td>below)</td>
</tr>
<tr>
<td>Implement appropriate corrective actions</td>
<td>Sample as necessary (coordinate with the</td>
</tr>
<tr>
<td>(e.g. sandbags, waddles, emergency</td>
<td>San Diego County Department</td>
</tr>
<tr>
<td>generators, bypass pumps, etc.)</td>
<td>Environmental Health Services)*</td>
</tr>
<tr>
<td>Clean and sanitize affected area(s)</td>
<td></td>
</tr>
<tr>
<td>Finalize the incident documentation</td>
<td></td>
</tr>
<tr>
<td>Review overall response with Responding</td>
<td></td>
</tr>
<tr>
<td>Parties</td>
<td></td>
</tr>
</tbody>
</table>

*Sampling methodology needs to be consistent with the requirements outlined in the SSO Sampling Protocol

Traffic and Crowd Control

If spill happens in an area with a public access road or where the spill may come into contact with the public:

<table>
<thead>
<tr>
<th>Traffic/ Crowd Control Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Set up cones and warning signs</td>
</tr>
<tr>
<td>• Set up warning signs to inform public of hazards</td>
</tr>
<tr>
<td>• Close affected entrances and exits from facilities</td>
</tr>
<tr>
<td>• Perform lane closures as necessary</td>
</tr>
<tr>
<td>• Use caution tape and barricades to prevent public access</td>
</tr>
<tr>
<td>• Inform UCSD Police of any law enforcement necessary for roadway closures/ traffic control</td>
</tr>
</tbody>
</table>
# Emergency Contact List

<table>
<thead>
<tr>
<th>Agency/ Official</th>
<th>Agency Contact</th>
<th>Reason(s) to Notify</th>
<th>When to Notify</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCSD Environment, Health, and Safety</td>
<td>858-534-3660</td>
<td>Any sewage spill</td>
<td>Immediately</td>
</tr>
<tr>
<td>California Office of Emergency Services (OES)</td>
<td>800-852-7550 Or 916-845-8911</td>
<td>Category 1 SSOs that are <strong>1,000 gallons or greater</strong> that result in a discharge to a surface water, and Category 1 SSOs that are <strong>1,000 gallons or greater</strong> that result in a discharge to, and are not fully recovered from, a storm drain</td>
<td>Within 2 hours of detection</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>858-467-4201</td>
<td>Sewage spill entered waterway(s)</td>
<td>As soon as practicable</td>
</tr>
<tr>
<td>Regional Water Quality Control Board</td>
<td>858-637-5581</td>
<td>Violation of discharge prohibition</td>
<td>As soon as practicable</td>
</tr>
<tr>
<td>San Diego County Department of Environmental Health</td>
<td>858-495-5579</td>
<td>Violation of discharge prohibition</td>
<td>As soon as practicable</td>
</tr>
</tbody>
</table>

# Contractor List for Additional Response

- J&M Keystone Inc. (800) 368-2757
- Affordable Pipeline Services (858) 689-4000
- NRC Environmental Services (800) 337-7455
- Clean Harbors Environmental, Inc. (800) 645-8265
- Atlas Pumping (800) 491-7867
SSO Category Definitions

Category 1- Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee’s sanitary sewer system failure or flow condition that:

a. Reach surface water and/or reach a drainage channel tributary to a surface water; or
b. Reach an MS4 (Storm Drain System) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

Category 2- Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee’s sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 (if the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly, then a Category 3).

Category 3- All other discharges of untreated or partially treated waste water resulting from an enrollee’s sanitary sewer system failure or flow condition.
Water Quality Monitoring Requirements

The SSO Water Quality Monitoring Program is meant to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled into surface waters.

- Utilize SSO Sampling Protocol shown below*
- When sampling account for spill travel time in the surface water.
- All samples being tested for indicators are to be analyzed in an accredited or certified laboratory.
- When analyzing samples, only use monitoring instruments and devices that have been properly maintained and calibrated.
- Within 48 hours of the enrollee becoming aware of the SSO, water quality sampling must, at a minimum, test for ammonia and appropriate bacterial indicators.

SSO Sampling Protocol*

For SSOs that reach surface waters, monitoring and testing activities may include:

- Obtaining water quality samples.
- Gathering samples upstream and downstream of any location where SSO reached surface water.
- Logging the sample location, time, and water temperature on the chain of custody form.
- Creating a map of the sample locations so that follow-up testing can be performed.
- Collecting samples at the location where the SSO entered the water. When taking the sample, submerge the bottle below the surface of the water with the cap on. Once the bottle is under the surface, remove the cap and fill the bottle. Gloves should be worn while sampling to avoid infecting any open wounds.
- Analyzing the sample for at least the following constituents:
  - Ammonia Nitrogen;
  - Biochemical Oxygen Demand (BOD);
  - Dissolved Oxygen (DO);
  - Enterococci, Total Fecal Coliform;
  - Total Suspended Solids (TSS); and
  - Additional sampling requirements as imposed by the SDRWQCB (could include VSS, pH, turbidity, Oil & Grease, etc.)

*Sampling protocol taken from SD County SSMP and CA SWRCB website
Estimating Spill Volume

Methods:

1) Eyeball Estimate and Kick Bucket Method
   Best for small spills 100 gallons or less, that can be visually approximated

2) Estimating Volume Based on Spill Dimensions
   Larger spills that are no longer flowing and can be measured

3) Duration and Flow Rate
   Good for large spills where dimensions cannot be measured, but the flow rate can be calculated

4) Open Channel Spill Estimation
   Good for large flowing spills where dimensions cannot be measured, but the flow rate can be calculated

5) Drop Bucket Method
   Best for small flowing spills where the entire flow can be captured in a bucket

6) Calculating Spill Volume Based on Pipe Size
   Best for spills where pipe and flow information is known

7) Determine Spill Volume From Vent or Pick Holes
   Best for spills originating from vent or pick holes in the ground/ manhole

8) Determine the Volume of a Spill from Around the Rim of a Manhole Cover
   Best for spills originating from a manhole with a cover

9) Determine the Volume of a Spill from a Manhole without a Cover
   Best for spills originating from a manhole without a cover
Method 1: Eyeball Estimate
(http://sdcounty.ca.gov/dpw/engineer//engineerpdf/SewerSystemMgtPlan_Jun2010.pdf)

- Imagine amount of water that would spill from bucket or barrel
- Bucket = 5 gal, barrel = 50 gal
- This method is only useful for spills up to 100 gal

Kick Bucket Method
(http://www.slocity.org/utilities/download/cweapresentations2012/sept2012spillestimating.pptx2.pdf)

- Can be used to estimate the volume of spills on asphalt, concrete, sloped surfaces, and flat surfaces.
- One gallon spill on a sloped surface. (left: spill only, right: spill with a point of reference)
- Two gallon vs. one gallon spill on a slope (two gallons left, one gallon right).
- Two gallon spill on a very slight slope.

- Five gallon spill- forty feet in length.
Method 1: Eyeball Method and Kick the Bucket Volume Measurement Worksheet

Manhole/ Pipe Number: _______________
Date: ________________________________

Name of Estimator: ________________ Telephone: ____________________________

Exact Location of Spill (address): ______________________________________
Exact Latitude: ________________ Exact Longitude: ________________

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length _______ Width _______ Depth _______

Shape of spill: RECTANGLE TRiANGLE CIRCLE

Estimated spill volume: ____________ gal

Estimated volume of spill recovered: ____________ gal

Please sketch spill with dimensions:

Was the measurement tested? YES NO

Was a reference image used? YES NO

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured.):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Method 2: Estimating Volume Based on Spill Dimensions
(http://sdcounty.ca.gov/dpw/engineer//engineerpdf/SewerSystemMgtPlan_Jun2010.pdf)

- If not raining, the shape, dimensions, and depth of spill may be used to estimate volume
  1. Sketch shape of spill
  2. Measure/pace off dimensions
  3. Measure depth in several locations; take average
  4. Convert all dimensions to feet
  5. Calculate area of spill based on approximate shape:
     - Rectangle: Area = length x width
     - Circle: Area = diameter x diameter x 0.785
     - Triangle: Area = base x height x 0.5
  6. Multiply area x depth to get volume
  7. Multiply volume x 7.5 to convert into gallons

- Using a spill footprint to get surface area and sample sketch

- Calculate average depth to get a depth measurement
**Method 2: Spill Volume Estimation Worksheet Based on Spill Dimensions**

<table>
<thead>
<tr>
<th>Manhole/ Pipe Number:</th>
<th>Date:</th>
</tr>
</thead>
</table>

Name of Estimator: ___________________  Telephone: ___________________

<table>
<thead>
<tr>
<th>Exact Location of Spill (address):</th>
<th>Exact Latitude:</th>
<th>Exact Longitude:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Picture taken?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

Shape of spill: RECTANGLE  TRIANGLE  CIRCLE

Please sketch spill in zones with dimensions:

<table>
<thead>
<tr>
<th>Area # 1</th>
<th>% Wet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area # 2</td>
<td>% Wet</td>
</tr>
<tr>
<td>Area # 3</td>
<td>% Wet</td>
</tr>
<tr>
<td>Area # 4</td>
<td>% Wet</td>
</tr>
<tr>
<td>Area # 5</td>
<td>% Wet</td>
</tr>
<tr>
<td>Area # 6</td>
<td>% Wet</td>
</tr>
</tbody>
</table>

Please Calculate Average Depth:

Estimated Spill Surface Area: ___________ square feet

Number of Depth Measurements Used: ________  Average Depth: ________ inches

Estimated Spill Volume: ___________ gal

Estimated volume of spill recovered: ___________ gal

Additional Notes and Documentation (please describe how the spill volume was calculated/measured. Please show calculations.):

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Method 3: Duration and Flow Rate

If area/ depth is impossible to measure, use duration and flow rate estimate

Duration: time elapsed from start to end of SSO

To estimate **start time**, use one of the following methods:

1. Compare hourly data on a downstream flow meter to find changes in flow. Typically the daily flow peaks are flattened by the loss of flow.
2. Observe conditions at the SSO site. Initially there will be limited deposits of grease and toilet paper. After a few days to a week, the grease forms a light colored residue. After a few weeks to a month the grease turns dark. In both cases the quantity of toilet paper and other materials of sewage origin increase in amount. These changes with time can be used to estimate the start time in the absence of other information.

To estimate **end time**, observe the “blow down” that occurs when blockage is removed or observe “blow down” on flow meters.

Flow Rate: average flow left in sewer system during time SSO stopped, estimated using one of the following three ways:

1. Use data from **flow meter** to estimate flow rate for the spill (better for large SSOs).
2. Estimate based on up-stream connections. Once the location of the SSO is known, the number of upstream connections can be determined from system maps. Multiply the number of connections by 200 to 250 gallons per day per connection, or 8 to 10 gallons per hour per connection, or other flow rates that are consistent with the City’s data for its connections.
   - **Example:** 22 upstream connections x 9 gallons per hour per connection = 198 gallons per hour / 60 minutes per hour = 3.3 gallons per minute. Multiply the gallons per minute times the number of minutes the spill occurred for the total volume of the spill.
3. Refer to the **Reference Sheet for Estimating Sewer Spills** to estimate flow rate based on images obtained from tests below.

Volume of SSO is the product of the duration (in hours or days) x flow rate (in gallons per hour or gallons per day). (ft3= 7.48 gal)
Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

All estimates are calculated in gallons per minute (gpm)

5 gpm

25 gpm

50 gpm

100 gpm

150 gpm

200 gpm

225 gpm

250 gpm

275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.
Method 3: Spill Volume Estimation Based on Duration and Flow Rate

Manhole/ Pipe Number: 
Date: 

Name of Estimator: 
Telephone: 

Exact Location of Spill (address): 

Exact Latitude: 
Exact Longitude: 

Estimated spill start date/time: 
Estimated spill end date/time: 
Spill duration: 
Flow rate: 

How was flow rate determined? 

Estimated spill volume (duration x flow rate): 
Estimated volume of spill recovered: 

Picture taken? 

Dimensions of spill (in ft. or paces): Length Width Depth 

Shape of spill: 

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Method 4: Open Channel Spill Estimation
(http://www.ocsd.com/Home/ShowDocument?id=12868)

- For ditches, channels, gutters, etc.
  1. Measure the cross sectional dimensions (to determine the area) of the channel and determine the velocity of the flow.
  2. Velocity can be measured by dropping a floating object into the flow and timing the object over a measured distance.
  3. Flow (Q), ft³/sec = Velocity (V), ft/sec X Area (A), ft²
  4. Flow times duration equals amount of spill
  5. Multiply by 7.48 (number of gallons in one cubic foot) to convert to gallons
Method 4: Spill Volume Estimation Based on Open Channel Spills

Manhole/ Pipe Number: ______________
Date: _____________________________

Name of Estimator: ________________ Telephone: ___________________________

Exact Location of Spill (address): ____________________________________________
Exact Latitude: _______________ Exact Longitude: ___________________________

Estimated spill start date/time: ____________ (MM/DD/YY) ________ (HR:MIN)
Estimated spill end date/time: ____________ (MM/DD/YY) ________ (HR:MIN)
Spill duration: ________ min
Velocity: _________ ft./min

Cross Sectional Area of Ditch, Channel, or Gutter:
Depth: _______________ ft. Width: __________ ft. Area: _______________ ft²

Flow rate (velocity x Area): _________ ft³/min

Estimated spill volume (duration x flow rate x 7.48): _______________ gal
Estimated volume of spill recovered: _______________ gal

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length __________ Width __________ Depth __________
Shape of spill: RECTANGLE TRIANGLE CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Method 5: Drop Bucket Method
(http://www.ocsd.com/Home/ShowDocument?id=12868)

- Can be used for small spills where the entire flow stream can be captured in a bucket.
  1. Place bucket so that it captures the entire flow stream and time how long it takes to fill the bucket.
  2. Dividing the volume of the bucket (in gallons) by the elapsed time to fill the bucket (in minutes) equals the flow rate in gallons per minute (gpm).
    - Example: If it takes 30 seconds to fill a 5-gallon bucket and the spill has occurred for 20 minutes the total spill volume would be 200 gallons (5gal/.5min = 10gpm X20min = 200gal).
Method 5: Spill Volume Estimation Based on Drop Bucket Method

Manhole/ Pipe Number: __________
Date: ________________________

Name of Estimator: ______________ Telephone: ________________________

Exact Location of Spill (address): ____________________________
Exact Latitude: ________________ Exact Longitude: ________________

Volume of bucket used to determine volume: _________________ gal
Time needed for flow to fill bucket: ____________________________ min
Flow rate: _________________ gal/min
Spill duration: _____________ min

Estimated spill volume (duration x flow rate): ____________________ gal
Estimated volume of spill recovered: ________________ gal

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length _________ Width _________ Depth _________
Shape of spill: RECTANGLE TRIANGLE CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
Method 6: Calculating Spill Volume Based on Pipe Size
(http://www.ocsd.com/Home/ShowDocument?id=12868)

- Volume of a spill can be measured using the flow rate in a pipe before and after the blockage is clear.
  1. Need to know the size of the pipe
  2. Need a flow calculation chart
  3. Measure the depth of the flow downstream of the blockage
  4. Measure the depth of flow again after the blockage has been cleared and flow stabilized
  5. Use flow calculation chart to determine the flow rate of the pipe

<table>
<thead>
<tr>
<th>Flow Depth Inches</th>
<th>8&quot; PIPE 20 GPM</th>
<th>10&quot; PIPE 25 GPM</th>
<th>12&quot; PIPE 30 GPM</th>
<th>15&quot; PIPE 35 GPM</th>
<th>18&quot; PIPE 40 GPM</th>
<th>21&quot; PIPE 45 GPM</th>
<th>24&quot; PIPE 50 GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>85</td>
<td>95</td>
<td>105</td>
<td>125</td>
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<tr>
<td>2</td>
<td>110</td>
<td>125</td>
<td>135</td>
<td>160</td>
<td>175</td>
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<td>180</td>
<td>200</td>
<td>235</td>
<td>250</td>
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</tr>
<tr>
<td>4</td>
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<td>240</td>
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<tr>
<td>10</td>
<td>715</td>
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<td>1130</td>
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<td>11</td>
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<td>1520</td>
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<td>1850</td>
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<td></td>
</tr>
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<td>13</td>
<td>1105</td>
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<td>1650</td>
<td>1850</td>
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<tr>
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<td>1495</td>
<td>1760</td>
<td>1990</td>
<td>2110</td>
<td>2385</td>
<td>2620</td>
<td></td>
</tr>
</tbody>
</table>

Example: A Spill was reported at 3:50 pm and was corrected at 6:25 pm on the same day. Calculate the volume of the spill for a 10 inch pipeline with 1 inch of downstream flow before correction and 5 inches of flow after correction and stabilization of flow.

Time reported – 3:50 pm
Time Corrected – 6:25 pm
Duration of spill – 2:35 or 155 minutes
Depth of flow before – 1 inch
Depth of flow after – 5 inches

From Chart:
Flow after stabilization = 240 gpm
Flow downstream before = 25 gpm
Net Flow = 240 -25 = 215 gpm
SPILL VOLUME = 215 (gpm) X 155 (m) = 33,325 gallons
Method 6: Spill Volume Estimation Based on Pipe Size

Manhole/ Pipe Number: ___________________

Date: _____________________________

Name of Estimator: ___________________ Telephone: __________________

Exact Location of Spill (address): ____________________________________________

Exact Latitude: ___________________ Exact Longitude: ___________________

Estimated spill start date/time: __________ (MM/DD/YY) __________ (HR:MIN)

Estimated spill end date/time: __________ (MM/DD/YY) __________ (HR:MIN)

Spill duration: ________________ min

Pipe size: __________ inches

Depth of flow before correction: __________ inches

Depth of flow after correction: __________ inches

| Flow Depth | 8" PIPE 10" PIPE 12" PIPE 15" PIPE 18" PIPE 21" PIPE 24" PIPE |
|------------|----------|----------|----------|----------|----------|----------|
| 1          | 20 GPM   | 25 GPM   | 30 GPM   | 35 GPM   | 40 GPM   | 45 GPM   |
| 2          | 100      | 125      | 150      | 175      | 200      | 225      |
| 3          | 150      | 200      | 250      | 300      | 350      | 400      |
| 4          | 200      | 300      | 400      | 500      | 600      | 700      |
| 5          | 300      | 450      | 550      | 650      | 750      | 850      |
| 6          | 400      | 600      | 700      | 800      | 900      | 1000     |
| 7          | 500      | 800      | 900      | 1000     | 1100     | 1200     |

Flow before stabilization (from chart): ______________ gpm

Flow after stabilization (from chart): ______________ gpm

Net flow (after- before stabilization): ______________ gpm

Estimated spill volume (duration x net flow): __________ gal

Estimated volume of spill recovered: __________ gal

Picture taken? YES NO

Dimensions of spill (in ft. or paces): Length __________ Width __________ Depth __________

Shape of spill: RECTANGLE TRIANGLE CIRCLE

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.): ________________________________

______________________________

______________________________

______________________________
Method 7: Determine Spill Volume from Vent or Pick Holes
(http://www.ocsd.com/Home/ShowDocument?id=12868)

- If spill is coming from vent or pick holes:
  1. Count the number of holes
  2. Measure the height of the water exiting from the holes

3. Refer to pick hole chart to determine the volume from each hole (below)
4. Multiply the number of holes times the flow rate times the duration of the spill to determine spill volume
Method 7: Spill Volume Estimation Based on Spill from Vent or Pick Holes

Manhole/ Pipe Number: _______________
Date: ________________________________

Name of Estimator: __________________ Telephone: __________________

Exact Location of Spill (address): ________________________________________
Exact Latitude: ___________ Exact Longitude: _____________________________

Estimated spill start date/time: _________ (MM/DD/YY) _______ (HR:MIN)
Estimated spill end date/time: ___________ (MM/DD/YY) _______ (HR:MIN)
Spill duration: ___________ min

Number of Pick of Vent Holes: ________________
Size of Pick or Vent Holes (diameter): ___________ inches

Height of water exiting pick or vent holes: ___________ inches
Flow rate from each hole (chart): ___________ gal/min

Estimated spill volume (duration x flow rate x number of holes): ___________ gal
Estimated volume of spill recovered: ___________ gal

Picture taken? YES  NO
Dimensions of spill (in ft. or paces): Length _________ Width _________ Depth _________
Shape of spill: RECTANGLE  TRIANGLE  CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

UC San Diego
Overflow Emergency Response Field Guide APPENDIX C-27
Method 8: Determine the Volume of a Spill from Around the Rim of a Manhole Cover (http://www.ocsd.com/Home/ShowDocument?id=12868)

- If manhole cover is in place:
  1. Find the area of the gap (diameter of the cover from the diameter of the inside of the ring)
  2. Find the velocity (ft/sec) of the spill by measuring the height of the sewage plume
  3. Area times the velocity (ft/sec) times the duration of the spill times (448.8 for gpm/cfs) equals the total spill volume in gallons

**TABLE 'A'
ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE**

<table>
<thead>
<tr>
<th>Height of spout above M/H rim (inches)</th>
<th>SSO Flow Q (gpm) in M/H</th>
<th>Min. Sewer size in which these flows are possible</th>
<th>Height of spout above M/H rim (inches)</th>
<th>SSO Flow Q (gpm) in M/H</th>
<th>Min. Sewer size in which these flows are possible</th>
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<td>1/4</td>
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<td>3</td>
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<td>1/2</td>
<td>4</td>
<td>0.006</td>
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<td>3/4</td>
<td>6</td>
<td>0.008</td>
<td>3/4</td>
<td>8</td>
<td>0.012</td>
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<td>1 1/2</td>
<td>24</td>
<td>0.025</td>
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<td>37</td>
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<td>0.134</td>
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<td>357</td>
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<td>620</td>
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<td>773</td>
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Method 8: Spill Volume Estimation Based on Spill Around the Rim of a Manhole Cover that is in Place

Manhole/ Pipe Number: _______________
Date: ____________________

Name of Estimator: _______________ Telephone: ____________________

Exact Location of Spill (address): __________________________________________
Exact Latitude: _______________ Exact Longitude: ____________________

Estimated spill start date/time: _____________ (MM/DD/YY) ___________ (HR:MIN)
Estimated spill end date/time: _____________ (MM/DD/YY) ___________ (HR:MIN)
Spill duration: _______________ min

Area of gap (diameter of the cover from the diameter of the inside ring): ________ ft2
Height of sewage plume: _____________ inches
Velocity (chart): _______________ ft./sec

Estimated spill volume (duration min x velocity ft./sec x area ft2 x 448.8 gpm/cfs):
______________________gal
Estimated volume of spill recovered: ___________________gal

Picture taken? YES NO
Was reference photo used? YES NO
Dimensions of spill (in ft. or paces): Length ___________ Width ___________ Depth ___________

Shape of spill: RECTANGLE TRIANGLE CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
Method 9: Determine the Volume of a Spill from a Manhole without a Cover
(http://www.ocsd.com/Home/ShowDocument?id=12868)

- If manhole cover is not in place:
  1. Find the area of the manhole opening \( \text{Area} = 3.14 \times R^2 \)
  2. Find the velocity (ft/sec) of the spill by measuring the height of the sewage plume

3. Area times the velocity (ft/sec) times the duration of the spill times (448.8 gpm/cfs) equals the total spill volume in gallons.

### TABLE 'B'

**ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED**

<table>
<thead>
<tr>
<th>Water Height above M/H frame (H in inches)</th>
<th>SSO Flow Q in gpm</th>
<th>Min. Sewer size in which these flows are possible (in MOD)</th>
<th>24&quot; FRAME</th>
<th>36&quot; FRAME</th>
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<tr>
<td>1/8</td>
<td>0.88</td>
<td>6&quot;</td>
<td>6.46</td>
<td>8.62</td>
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<td>3/8</td>
<td>3.28</td>
<td>8&quot;</td>
<td>4.94</td>
<td>6.89</td>
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<tr>
<td>5/8</td>
<td>6.21</td>
<td>10&quot;</td>
<td>2.91</td>
<td>4.44</td>
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<tr>
<td>7/8</td>
<td>10.34</td>
<td>12&quot;</td>
<td>1.98</td>
<td>3.12</td>
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<tr>
<td>9/8</td>
<td>14.50</td>
<td>15&quot;</td>
<td>1.43</td>
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<td>1 1/8</td>
<td>18.57</td>
<td>18&quot;</td>
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<td>2.13</td>
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<td>1 3/8</td>
<td>22.64</td>
<td>21&quot;</td>
<td>1.30</td>
<td>2.01</td>
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<td>24&quot;</td>
<td>1.26</td>
<td>1.91</td>
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<td>30.58</td>
<td>27&quot;</td>
<td>1.23</td>
<td>1.87</td>
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<td>34.55</td>
<td>30&quot;</td>
<td>1.20</td>
<td>1.84</td>
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<td>6 3/8</td>
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<td>1.06</td>
<td>1.60</td>
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<td>62.34</td>
<td>60&quot;</td>
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<td>66.31</td>
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<td>94.10</td>
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<td>0.85</td>
<td>1.24</td>
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UC San Diego  
Overflow Emergency Response Field Guide  
APPENDIX C-30
Method 9: Spill Volume Estimation Based on Spill from a Manhole without a Cover

Manhole/ Pipe Number: ________________
Date: ________________________________

Name of Estimator: ________________ Telephone: ________________________________

Exact Location of Spill (address): ________________________________________________
Exact Latitude: ________________ Exact Longitude: ________________________________

Estimated spill start date/time: ____________ (MM/DD/YY) ________ (HR:MIN)
Estimated spill end date/time: ____________ (MM/DD/YY) ________ (HR:MIN)
Spill duration: ____________ min

Area of manhole opening (A=3.14 r^2): ____________ ft^2
Height of sewage plume: ____________ inches
Velocity (chart): ________________ ft./sec

Estimated spill volume (duration min x velocity ft./sec x area ft^2 x 448.8 gpm/cfs):

__________________________gal
Estimated volume of spill recovered: ____________gal

Picture taken? YES NO
Was reference photo used? YES NO

Dimensions of spill (in ft. or paces): Length ____________ Width ____________ Depth ____________
Shape of spill: RECTANGLE TRIANGLE CIRCLE

Please Sketch Spill with Dimensions:

Additional Notes and Documentation (please describe how the spill volume was calculated/ measured. Please show calculations.):

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
APPENDIX D

UC SAN DIEGO CLEAN WATER UTILITY
REPAIR-REHABILITATION AND CAPITAL
IMPROVEMENT SUMMARY
<table>
<thead>
<tr>
<th>WO OR PO ISSUE DATE</th>
<th>DESCRIPTION</th>
<th>Project Budget for Open Work Orders and Purchase Orders</th>
<th>Department</th>
<th>Project Completed? (Y/N)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1 5/29/2012</td>
<td>Pepper Canyon Sewer PM (6 months preventative maintenance)</td>
<td>20,000.00</td>
<td>CPM</td>
<td>N</td>
<td>Ongoing PM</td>
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<tr>
<td>2 5/1/2014</td>
<td>Campus Utility CCTV and Cleaning</td>
<td>50,000.00</td>
<td>CPM</td>
<td>N</td>
<td>Ongoing</td>
</tr>
<tr>
<td>3 1/22/2014</td>
<td>University Center Sewer Main Repair</td>
<td>95,000.00</td>
<td>CPM</td>
<td>N</td>
<td>Line approx 1000LF of sewer from Geisel to Price Center. Scheduled for 7/2015</td>
</tr>
<tr>
<td>4</td>
<td>Pepper Canyon Sewer Repairs</td>
<td>85,000.00</td>
<td>CPM</td>
<td>N</td>
<td>7 additional manholes to be lined. May 2015</td>
</tr>
<tr>
<td>5 9/21/2016</td>
<td>Jet Sewer Lines</td>
<td>100,000.00</td>
<td>FM</td>
<td>N</td>
<td>Sewer lines and storm drain lines to be cleaned and jetted by FM staff, including SIO. Sewer lines that are jetted need to be documented for state reporting requirements.</td>
</tr>
<tr>
<td>6 10/18/2016</td>
<td>CCTV equipment for cameraing sanitary sewer and storm water pipes</td>
<td>11,433.13</td>
<td>FM</td>
<td>n/a</td>
<td>Equipment purchase for sanitary sewer and storm water pipe cameraing for jetting</td>
</tr>
<tr>
<td>7 11/23/2016</td>
<td>Sewer Manhole Covers</td>
<td>2,000.00</td>
<td>FM</td>
<td>N</td>
<td>Replace manhole in sewer system near Geisel that is labeled storm drain with a &quot;sewer&quot; manhole. Order several sewer manholes as needed. NTE $2000. FM contact Jose Diaz and Jose Moret.</td>
</tr>
<tr>
<td>8</td>
<td>Pepper Canyon Sewer lining</td>
<td>50,000.00</td>
<td>CPM</td>
<td>N</td>
<td>New sewer lining project in Pepper Canyon for some older 12&quot; VCP that we could like to address prior SANDAG importing fill. The total project cost for 400LF of 12&quot; sewer lining is $50k.</td>
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<tr>
<td>9 1/1/2019</td>
<td>Sewer Cleaning and CCTV</td>
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<td>CPM</td>
<td>N</td>
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<td>10 3/12/2019</td>
<td>Camera and Jet the Student Services Center Sewer Lines</td>
<td>$15,000</td>
<td>FM</td>
<td>N</td>
<td>Camera and Jet the Student Services Center sewer lines. Install a clean-out on the east side of the yogurt shop.</td>
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<tr>
<td>11 10/22/2019</td>
<td>Rerout IRPS Cooling Tower discharge to sewer</td>
<td>$25,000</td>
<td>FM</td>
<td>N</td>
<td>This project is to reroute the discharge from the cooling tower near IRPS to sewer.</td>
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<tr>
<td>12 10/1/2019</td>
<td>Price Center Sewer Repairs</td>
<td>$1,200,000</td>
<td>CPM</td>
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**SUBTOTAL** 1,753,433.13

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<th>FUTURE CAPITAL IMPROVEMENT PROJECTS</th>
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<td>13 SIO Sewer Improvements</td>
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<td>14 5/1/2012 North Campus Ridgwalk Sewer Replacement</td>
</tr>
<tr>
<td>15 5/1/2012 Epoxy Coating/Lining Manholes 40 per year $5,000 each (20 year project)</td>
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<tr>
<td>16 5/1/2012 H&amp;DH Laterals - Repair Cleanouts and repair materials</td>
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<td>17 Student Center / Gilman Drive sewer main lining</td>
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**SUBTOTAL** 6,675,000.00
## Clean Water Utility Program Sanitary Sewer Management Projects
### (Updated May 10, 2019)

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<th>WO or PO Issue Date</th>
<th>Description</th>
<th>Project Budget for Open Work Orders and Purchase Orders</th>
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<th>Notes</th>
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<td>1</td>
<td>2/8/2010 Seaweed Canyon Sewer - T46 Section: Camera, inspect and repair or rel ine segment</td>
<td>22,322.22</td>
<td>FM</td>
<td>Y</td>
<td>Manhole Repaired</td>
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<td>2/8/2010 Sewer line Sequoyah Hall: Camera, inspect &amp; repair or rel ine sewer line</td>
<td>100,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>$40k remaining to be transferred back</td>
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<td>3</td>
<td>2/8/2010 Sewer line Gilman to Muir: Inspect &amp; camera sewr line. NTE $20K</td>
<td>20,000.00</td>
<td>FM</td>
<td>Y</td>
<td>FD&amp;C request--camera inspect 11/1/10</td>
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<td>4</td>
<td>2/10/2010 Sewer line Old USE Credit Union: Inspect, camera, repair/replace blocked sewer line at old USE</td>
<td>12,909.90</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
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<td>5</td>
<td>7/8/2010 ECEC Development Center sanitary sewer system inspection/camera and necessary repairs</td>
<td>20,524.42</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>6</td>
<td>2/18/2012 Sanitary sewer relining project near the new housing building on Muir Campus (Tioga Hall)</td>
<td>130,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>7</td>
<td>3/16/2012 Gilman Sanitary Sewer Repair (new cage washing facility)</td>
<td>175,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>8</td>
<td>5/14/2012 Pepper Canyon Manhole repair</td>
<td>20,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>9</td>
<td>3/6/2012 Bonner Hall acid pit marble chip removal</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>10</td>
<td>3/6/2012 Pacific Hall acid pit marble chip removal</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>11</td>
<td>7/16/2012 Sewer Manhole at Gilman Drive Parking Structure</td>
<td>12,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>12</td>
<td>7/16/2012 Muir: Expose and raise two buried manholes</td>
<td>25,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>13</td>
<td>7/16/2012 Repair manhole trough at Scholars Lane</td>
<td>8,500.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>14</td>
<td>8/20/2012 Connect sewer line at Super Computer Center Expansion</td>
<td></td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>15</td>
<td>9/18/2012 Camera, assess the sanitary sewer system, and implement repairs at MARFAC</td>
<td>50,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>16</td>
<td>5/29/2013 Manhole at Blake Hall - West side</td>
<td>9,500.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>17</td>
<td>4/19/2013 York Lane Sewer Repair</td>
<td>8,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>18</td>
<td>6/11/2013 CUP Sewer Drain Piping Backup Repair</td>
<td>1,584.00</td>
<td>CUP</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>19</td>
<td>7/31/2013 Installation of new sensor for the sewer back wash tank</td>
<td>2,750.00</td>
<td>BAS</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>20</td>
<td>11/14/2013 Main Sewer Line at Hillcrest (CTF) Repair</td>
<td>46,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed, Money Transferred Back to FM Jan 2014</td>
</tr>
<tr>
<td>21</td>
<td>8/23/2013 Installation of new sewerline at Porter's Pub and replacement of line &amp; 2 manholes</td>
<td>97,330.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Completed</td>
</tr>
<tr>
<td>22</td>
<td>2/8/2010 Sewer line Galbraith Hall: Camera, inspect &amp; repair or rel ine sewer line</td>
<td>100,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Project Closed</td>
</tr>
<tr>
<td>23</td>
<td>5/1/2012 Pepper Canyon Sewer Improvement - Repair of segment south of Sixth</td>
<td>100,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Completed. Need to close out</td>
</tr>
<tr>
<td>24</td>
<td>11/25/2012 Repair Coast Apartment Sewer Line Sag</td>
<td>90,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Completed. Need to Close out</td>
</tr>
<tr>
<td>25</td>
<td>1/30/2013 SFO sewer flow study, includes repairs of sewer laterals</td>
<td>45,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Completed. Need to close out</td>
</tr>
<tr>
<td>26</td>
<td>5/1/2012 Video Sewer Lines</td>
<td>50,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Project Closed</td>
</tr>
<tr>
<td>27</td>
<td>11/6/2013 Economics Building Sewer Repair</td>
<td>93,800.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Project Closed</td>
</tr>
<tr>
<td>28</td>
<td>11/6/2013 Urey Hall Sewer Repair</td>
<td>89,500.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Project Closed</td>
</tr>
<tr>
<td>29</td>
<td>1/6/2014 Student Center B Additional Lining for Porter's Pub Project</td>
<td>90,200.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Project Closed</td>
</tr>
<tr>
<td>30</td>
<td>5/24/2012 Routine CCTV and cleaning of sewer lines and manholes</td>
<td>105,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Completed</td>
</tr>
<tr>
<td>31</td>
<td>1/20/2015 University Center 401</td>
<td>25,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Line approx 180LF of 4&quot; lateral from UC400/UC401. Work completed on 3/2015</td>
</tr>
</tbody>
</table>
# CLEAN WATER UTILITY PROGRAM SANITARY SEWER MANAGEMENT PROJECTS
## COMPLETED
### (UPDATED May 10, 2019)

<table>
<thead>
<tr>
<th>WO OR PO ISSUE DATE</th>
<th>DESCRIPTION</th>
<th>Project Budget for Open Work Orders and Purchase Orders</th>
<th>PM</th>
<th>Project Completed? (Y/N)</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>REPAIR AND REHABILITATION PROJECTS (COMPLETED)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 3/6/2012</td>
<td>York Hall acid pit marble chip removal</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Completed</td>
</tr>
<tr>
<td>33 3/6/2012</td>
<td>NSB acid pit marble chip removal</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Completed</td>
</tr>
<tr>
<td>34 10/26/2013</td>
<td>CMMIE and NSB Acid Pit Removal</td>
<td>26,542.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>35 11/1/2013</td>
<td>York Hall acid pit marble chip removal</td>
<td>30,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>36 3/16/2009</td>
<td>SIO: Installation of backflows, irrigation meters</td>
<td>250,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>37 1/29/2014</td>
<td>Acid Pit Cleaning at Stein Clinical Research Building Area</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>38 1/29/2014</td>
<td>Acid Pit Cleaning and Marble Chip Removal at Urey Hall</td>
<td>20,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>39 1/29/2014</td>
<td>Muir Biology Building Manhole Repair</td>
<td>10,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>40 3/4/2014</td>
<td>6131 Engineering Building Unit I (EBU1) Acid Pit Cleaning and Marble Chip Removal</td>
<td>25,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>41 3/4/2014</td>
<td>Warren Lecture Hall Acid Pit Cleaning and Marble Chip Removal</td>
<td>15,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>42 3/4/2014</td>
<td>Center for Magnetic Recording Research Area Acid Pit Cleaning and Marble Chip Removal</td>
<td>15,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>43 4/21/2014</td>
<td>Installation of 23 water mizers and 99 valves</td>
<td>75,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>44 1/12/2015</td>
<td>Manhole lining at Elliott Field</td>
<td>50,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>45 12/18/2012</td>
<td>Upgrade Biology Field Station CSC Pump Station</td>
<td>200,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>46 6/4/2015</td>
<td>UNEX sewer pump station replacement</td>
<td>50,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work has been completed</td>
</tr>
<tr>
<td>47 7/20/2015</td>
<td>Sewer Line at UC 401</td>
<td>50,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Run the sewer line at UC 401</td>
</tr>
<tr>
<td>48</td>
<td>CUP Emergency Sewer Repair</td>
<td>76,000.00</td>
<td>FM &amp; Schultz</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>49 9/23/2016</td>
<td>Central Plant Sewer Piping Deteriorated</td>
<td>64,254.00</td>
<td>Cooly</td>
<td>N</td>
<td>Included is some inspection time for concrete, epoxy, backfill, and plumbing inspection and time included for shop support.</td>
</tr>
<tr>
<td>50</td>
<td>Sewer repair near acid pit at York hall</td>
<td>7,189.05</td>
<td>FM / Moret</td>
<td>Y</td>
<td>A section of the old clay pipe just south of the old acid waste pit was crack below grade. It was found while snaking the drains. Work Completed.</td>
</tr>
<tr>
<td>51 2/8/2010</td>
<td>UCTR Sewer line, SHC to Chancellor's Complex: Camera, inspect &amp; repair. Re-route sewer line</td>
<td>250,000.00</td>
<td>CPM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td><strong>2,813,705.59</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAPITAL IMPROVEMENT PROJECTS (Completed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52 6/20/2011</td>
<td>Gilman Trunk Line</td>
<td>450,000.00</td>
<td>FD&amp;C</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>53 1/1/2018</td>
<td>Repair to UNEX Sewer Pump Station - University Extension Area</td>
<td>35,000.00</td>
<td>FM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>54 5/1/2012</td>
<td>North Campus Sewer Trunk Lining</td>
<td>593,000.00</td>
<td>CPM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td>55 5/1/2012</td>
<td>Mesa Housing Sewer Upsize</td>
<td>1,000,000.00</td>
<td>CPM</td>
<td>Y</td>
<td>Work Completed</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td><strong>12,478,000.00</strong></td>
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<td></td>
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</tr>
</tbody>
</table>
APPENDIX E

STORM DRAIN MAPS
CONTINGENCY PLANS FOR UC SAN DIEGO SANITARY SEWER PUMP STATIONS AND FORCE MAINS
Appendix F

Contingency Plans for UC San Diego Sanitary Sewer Pump Stations and Force Mains

Pump Stations

UC San Diego’s sanitary sewer system has 3 pump stations identified as UNEX, Biology Field Station and ERC Housing. The pump stations have redundant pumps, as well as visual and audible alarms. In the event one pump fails the second unit will energize through controls built in the pump station system. In the event of complete failure of either unit, UC San Diego facilities staff will secure the buildings facilities, rest rooms, and kitchens to keep from discharging into these pump stations. UC San Diego also has a contractor on call or on standby (Affordable Pipelines) to respond in the event of an emergency to assist in pumping out the wet well to keep all discharges contained until repairs can be completed.

In the event of a power outage the ERC Housing and the Biology Field pump stations have stationary emergency backup generators that will be used to power the pumps, and the UNEX pump station will be connected to a portable emergency generator or the facility will be shut down until power can be restored.

In case of a pump station overflow or alarm the campus community should contact:

- Facilities Management Customer Relations Help Desk (858) 534-2930
  or
- UC San Diego Police Department (858) 534-4357

The map on the following page identifies the locations of the three pump stations.

Force Mains

In the event of a force main failing, alarms will notify UC San Diego facilities staff. Impacted buildings will be secured to prevent overflows and any discharges will be contained. UC San Diego also has a contractor on call or on standby (Affordable Pipelines) to respond in the event of an emergency to assist in recovering any overflows and evacuating contents of impacted systems to allow for repairs.
APPENDIX G

SEWER SYSTEM MANAGEMENT PLAN
CHARGE LOG
## Appendix G: Sewer System Management Plan Change Log

<table>
<thead>
<tr>
<th>Section Changed</th>
<th>Subsection Changed</th>
<th>Page Changed</th>
<th>Change Made</th>
<th>Date of Change</th>
<th>Author of Change</th>
<th>Who Authorized Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSMP Section 1: Goals</td>
<td>Section 1.1: Regulatory Background</td>
<td>Page 1-1</td>
<td>Information regarding the new Revised MRP WQ 2013-0058-EXEC was added to the regulatory background section of the plan. Also historical information about the Revised MRP WQ 2008-002-EXEC was added.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 1: Goals</td>
<td>Section 1.2: Purpose and Goals of the SSMP</td>
<td>Page 1-1</td>
<td>Effective SSO notification and response procedures were added to the goals of the SSMP.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 1: Goals</td>
<td>Section 1.3: Clean Water Utility Working Group</td>
<td>Page 1-2</td>
<td>Updated CWUWG responsibilities to include prioritizing and creating Repair and Rehabilitation projects and Capital Improvement Projects.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 2: Organization</td>
<td>Section 2.5: Sanitary Sewer System Description</td>
<td>Page 2-2</td>
<td>Statement “The remaining 40 percent is lost to irrigation, industrial and other miscellaneous uses.” was added to address potable water flow.</td>
<td>5/30/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 2: Organization</td>
<td>Section 2.6: Organizational Chart</td>
<td>Page 2-3</td>
<td>Updated Figure 2-1: Organizational Chart of the SSMP to reflect changes in campus staff and new contact numbers.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 2: Organization</td>
<td>Section 2.7: Chain of Communication for Reporting SSOs</td>
<td>Page 2-4</td>
<td>Updated Figure 2-2: Chain of Communication for Reporting SSOs chart of the SSMP to reflect changes in the names and phone numbers or required reporting agencies.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>Section Changed</td>
<td>Subsection Changed</td>
<td>Page Changed</td>
<td>Change Made</td>
<td>Date of Change</td>
<td>Author of Change</td>
<td>Who Authorized Change</td>
</tr>
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<td>----------------------------------------------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>SSMP Section 4: Operation and Maintenance Program</td>
<td>Section 4.1: Mapping of the Sewer System</td>
<td>Page 4-1</td>
<td>Facilities Information System webpage link and name were updated.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 4: Operation and Maintenance Program</td>
<td>Section 4.1: Mapping of the Sewer System</td>
<td>Page 4-1</td>
<td>Information about where sewer system and storm water conveyance system maps can be found was added.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 4: Operation and Maintenance Program</td>
<td>Section 4.3: Rehabilitation and Replacement Plan</td>
<td>Page 4-1</td>
<td>Information regarding EH&amp;S’s record keeping responsibilities and the application of these records in the coordination with FM and FD&amp;C to prioritize campus needs were added. Also reference to Appendix D (CIP, Rehabilitation and Repair, and System Evaluation Schedule) was added.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 4: Operation and Maintenance Program</td>
<td>Section 4.3.3: Long Term</td>
<td>Page 4-2</td>
<td>Information about Latitude 33 Phase I completion was updated.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 6: Overflow Emergency Response Plan</td>
<td>SSMP Section 6: Overflow Emergency Response Plan</td>
<td>Page 6-1</td>
<td>Reference to OERP Field Guide (Appendix C) was added to direct readers to detailed information regarding spill notification, response, volume estimation, clean-up and sampling procedures.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section 6: Overflow Emergency Response Plan</td>
<td>Section 6.1: Objective and Purpose</td>
<td>Page 6-1</td>
<td>Added reference to Appendix C (Overflow and Emergency Response Field Guide) for more information regarding detailed notification procedures and emergency contacts to be used in the event of a sewer spill.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>SSMP Section</td>
<td>Subsection Changed</td>
<td>Page Changed</td>
<td>Change Made</td>
<td>Date of Change</td>
<td>Author of Change</td>
<td>Who Authorized Change</td>
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</tr>
<tr>
<td>6: Overflow Emergency Response Plan</td>
<td>Section: 6.7: Dispatch Responsibility</td>
<td>Page 6-2</td>
<td>Updated the information that dispatch is supposed to collect from callers to meet new requirements outlined in WQ 2013-0058-EXEC.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>6: Overflow Emergency Response Plan</td>
<td>Section 6.9: Overflow Correction, Containment, and Clean-Up</td>
<td>Page 6-4</td>
<td>Added a reference to Contingency Plans for UC San Diego Sewer Pump Stations and Force Mains (Appendix F) to direct readers to information regarding spills or failures at pump stations or force mains.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>6: Overflow Emergency Response Plan</td>
<td>Section 6.9: Overflow Correction, Containment, and Clean-Up</td>
<td>Page 6-4</td>
<td>Added additional information regarding sampling protocol for spills of 50,000 gallons or more that reach surface waters. Also added a reference to Appendix C (Overflow and Emergency Response Field Guide) for additional information about spill response protocol.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>6: Overflow Emergency Response Plan</td>
<td>Section 6.12: Written Report</td>
<td>Page 6-4 to 6-5</td>
<td>Updated SSO written report timeline information to meet the requirements outlined in the WQ 2013-0058-EXEC order.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>6: Overflow Emergency Response Plan</td>
<td>Section 6.13: Sanitary Sewer Overflow Record Keeping Requirements</td>
<td>Page 6-5</td>
<td>Section 6.13 was added to the SSMP to indicate spill records that EH&amp;S is required to keep about overflows.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
</tr>
<tr>
<td>8: System Evaluation and Capacity Assurance Plan</td>
<td>Section 8.0: System Evaluation and Capacity</td>
<td>Page 8-1</td>
<td>Updated information on Latitude 33 Phase I completion in the Fall of 2013.</td>
<td>5/30/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 8: System Evaluation and Capacity Assurance Plan</td>
<td>Section 8.2: System Findings and Recommendations</td>
<td>Page 8-7</td>
<td>Updated information on Latitude 33 Phase I completion.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 8: System Evaluation and Capacity Assurance Plan</td>
<td>Section 8.4: Capital Improvement Plan</td>
<td>Page 8-9</td>
<td>Section 8.4 was added and link for 2013-2023 Capital Financial Plan was updated.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 9.0: Monitoring Measurement and Program Modifications</td>
<td>Section 9.1: Record Keeping Requirements</td>
<td>Page 9-1</td>
<td>Section 9.1 was added to reference the record keeping requirements, and how these records can be used to determine the effectiveness of the SSMP.</td>
<td>5/22/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 11: Communication Program</td>
<td>Section 11.1: Communicating Plan Information and Updates</td>
<td>Page 11-1</td>
<td>Updated the link for the EH&amp;S website where the SSMP is posted.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<tr>
<td>Appendix C</td>
<td>Overflow Emergency Response Plan: SSO Category Definitions</td>
<td>Page 8</td>
<td>Updated Field Guide to meet new requirements, addition of SSO Category Definitions in the Overflow Emergency Response Plan.</td>
<td>09/09/13</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>Appendix C</td>
<td>Overflow Emergency Response Plan: Overflow Notification Procedures Chart</td>
<td>Page 1 &amp; 6 of the Overflow Emergency Response Guide</td>
<td>Updated the Overflow Notification Procedures Chart and inserted it as the first page of the Overflow Emergency Response Plan.</td>
<td>5/27/14</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>SSMP Appendix F</td>
<td>Contingency Plans for UC San Diego Sanitary Sewer Pump Stations and Force Mains</td>
<td>Appendix F Page 1-2</td>
<td>An Appendix F: Contingency Plans for UC San Diego Sanitary Sewer Pump Stations and Force Mains was added to the SSMP.</td>
<td>5/21/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>SSMP Appendix G</td>
<td>Change Log</td>
<td>Appendix G Page 1</td>
<td>An Appendix G: Sanitary Sewer Management Plan Change Log was added to the SSMP to meet new regulations outlined in WQ 2013-0058-EXEC.</td>
<td>5/9/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<tr>
<td>Appendix C</td>
<td>Overflow Emergency Response Field Guide: SSO Report Form</td>
<td>Pages 2 and 3 of the OERP Field Guide</td>
<td>Updated SSO Report Form to include work order information</td>
<td>7/31/2014</td>
<td>Monica Esswein</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 4.0: Operation and Maintenance Program</td>
<td>Section 4.3.3: Long Term</td>
<td>Page 4-2</td>
<td>Update to phase commencement</td>
<td>2017</td>
<td>Valerie Fanning</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.11: OES Notification Requirements</td>
<td>Page 6-4</td>
<td>Addition of 24-hour notification to RWQCB.</td>
<td>2017</td>
<td>Valerie Fanning</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 8.0: System Evaluation and Capacity Assurance Plan</td>
<td>Section 8.4: Capital Improvement Plan</td>
<td>Page 8-9</td>
<td>Updated Financial Plan to 2014-24.</td>
<td>2017</td>
<td>Valerie Fanning</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 1.0 &amp; Section 8.0</td>
<td>Section 1.1 Regulatory Background Section 8.2: Capacity Enhancement Measures</td>
<td>—</td>
<td>State Water Resources Control Board (SWRCB) is now referred to as the State Water Board.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Sections 1, 2, 4, &amp; 5, Figure 2-1</td>
<td>Sections: 1.3, 2.2, 4.1, 4.2.1, 4.3, 4.3.1, 4.3.2, 5.0, 5.1, 5.2</td>
<td>—</td>
<td>Facilities, Design and Construction (FD&amp;C) is now referred to as Capital Program Management or CPM</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 2.0: Organization</td>
<td>Section 2-1: The Regents of The University of California</td>
<td>Page 2-1</td>
<td>Added name of current CA governor.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 2.0: Organization</td>
<td>Section 2.4: Facility Description</td>
<td>Page 2-6</td>
<td>Changed the phrase “track record” to “record of accomplishment”.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 2.0: Organization</td>
<td>Section 2.5: Sanitary Sewer System Description</td>
<td>Page 2-6</td>
<td>The sentence “Original pipe has been replaced…” was rephrased and moved to help the paragraph flow better.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 2.6: Figure 2-1: Organizational Chart</td>
<td>Figure 2-1: Organizational Chart</td>
<td>Page 2-3</td>
<td>Updated positions and contact information.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 4.0: Operation and Maintenance Program</td>
<td>Introduction</td>
<td>Page 4-1</td>
<td>Addition to wording of “in a timely manner”.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 4.0: Operation and Maintenance Program</td>
<td>Section 4.1: Mapping of Sewer System</td>
<td>Page 4-1</td>
<td>This paragraph was reworded for better paragraph flow.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 4.0: Operation and Maintenance Program</td>
<td>Section 4.3.3: Long Term</td>
<td>Page 4-3</td>
<td>Added the sentence “Phase II commenced in 2014..” and reworded the sentence “Boyle Engineering Company evaluated…” sentence for better paragraph flow.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 4.0: Operation and Maintenance Program</td>
<td>Section 4.3.6: Equipment and Replacement Parts</td>
<td>Page 4-4</td>
<td>Update to contact information.</td>
<td>5/10/2019</td>
<td>Jesus Ortiz</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Entire Section ToC &amp; Pages 6-1 through 6-9</td>
<td></td>
<td>Re-organized sections for better flow. All information is the same, only the numbering changed.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.7: Overflow Correction, Containment, and Clean Up</td>
<td>Page 6-5</td>
<td>Addition of requirement for prompt notification is now included.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.7.1: Contractor List for Additional Response</td>
<td>Page 6-6</td>
<td>Update to contact information.</td>
<td>5/10/2019</td>
<td>Jesus Ortiz</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.9: OES Notification Requirements</td>
<td>Page 6-6</td>
<td>“Within 24 hours” added.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.12: Additional External Notification</td>
<td>Page 6-8 to 6-9</td>
<td>Updated location and contact information.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<tr>
<td>SSMP Section 6.0: Overflow Emergency Response Plan</td>
<td>Section 6.13: Training Requirements</td>
<td>Page 6-9</td>
<td>Addition of training on a regular basis; contractors also included.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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</table>
| SSMP Section 8.0: System Evaluation and Capacity Assurance Plan | SSMP Section 8.0: System Evaluation and Capacity Assurance Plan - Background | Page 8-1 to 8-6 | Re-worded Background paragraph for better flow. Eliminated four sewer studies from the plan because they were not applicable studies for this plan due to the 2018 Long Range Development Plan Update Sewer Study. The sewer studies removed include:  
- Sewer Flow Calculations for Repair and Replacement of 8-in Sewer Within Discovery Way at UCSD-SIO (Boyle Engineering Corporation - April 2000)  
- University of California, San Diego Revelle-Muir College Sewer Study (Nasland Engineering - June 2010) | 5/10/2019 | Eriko Kobayashi | Valerie Fanning |
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<td>SSMP Section 8.0: System</td>
<td>Section 8.1:</td>
<td>Pages 8-2 to</td>
<td>Re-organization of sewer studies and their corresponding descriptions. Descriptions were updated to add “System Evaluations” and the “System Findings and Recommendations” was renamed “Design Criteria”.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<td>Evaluation and Capacity</td>
<td>UCSD Sewer Studies</td>
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<td>SSMP Section 8.0: System</td>
<td>Section 8.1.1:</td>
<td>Page 8-2</td>
<td>The “System Evaluation” and “Design Criteria” for this study was re-written by CPM to clarify the study summary in the plan.</td>
<td>5/10/2019</td>
<td>Eriko Kobayashi</td>
<td>Valerie Fanning</td>
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<td>Diego Sewer System</td>
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<td>SSMP Section 8.0: System</td>
<td>Section 8.1.3:</td>
<td>Pages 8-3 to</td>
<td>This study was renamed from “San Diego, East Campus Master Infrastructure plan” to “City of San Diego University of California – San Diego Sewer Improvements”. The study’s “Description” section, “System Evaluation” section, and “Design Criteria” were re-written by CPM to clarify the study summary in the plan.</td>
<td>5/10/2019</td>
<td>Eriko Kobayashi</td>
<td>Valerie Fanning</td>
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<td>(Latitude 33 Planning and Engineering—April 24, 2017)</td>
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<td>SSMP Section 8.0: System</td>
<td>Section 8.1.4:</td>
<td>Pages 8-5 to</td>
<td>A new sewer study from 2018 was added to the plan. This new study analyzes the entire UCSD campus and supersedes all past reports that evaluated the campus basins covered in this report and any old plans were removed.</td>
<td>5/10/2019</td>
<td>Eriko Kobayashi</td>
<td>Valerie Fanning</td>
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<td>Sewer Study</td>
<td>Section 8.2: Capacity Enhancement Measures</td>
<td>Pages 8-6 to 8-7</td>
<td>This section was updated to reflect the new 2018 LRDP sewer study. The Revelle/Muir Study and the East Campus study were both removed and the summary of the new study included in this section.</td>
<td>5/10/2019</td>
<td>Eriko Kobayashi</td>
<td>Valerie Fanning</td>
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<td>SSMP Section</td>
<td>Section 8.3: Capital Improvement Plan</td>
<td>Page 8-7</td>
<td>Updated the University of California Capital Financial Plan from the 2014-2024 version to the newer 2018-2028 version and updated the website location.</td>
<td>5/10/2019</td>
<td>Eriko Kobayashi</td>
<td>Valerie Fanning</td>
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<td>8.0: System</td>
<td>Section 10.0: SSMP Program Audits</td>
<td>Page 10-1</td>
<td>“Effectiveness” added to description.</td>
<td>5/10/2019</td>
<td>Kendall Woken</td>
<td>Valerie Fanning</td>
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<td>Evaluation and</td>
<td>Appendix B: Sewer Maps</td>
<td></td>
<td>Latitude 33 Planning and Engineering updated the Campus Sewer Maps to reflect current sewer pipes.</td>
<td>5/10/2019</td>
<td>Kyle Boyce</td>
<td>Valerie Fanning</td>
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<td>Capacity</td>
<td>Appendix C: Sanitary Sewer Overflow</td>
<td></td>
<td>Updated Field Guide includes updated report form from a 2018 update.</td>
<td>5/10/2019</td>
<td>Amanda Loeper</td>
<td>Valerie Fanning</td>
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<td>Appendix E: Storm Drain Maps</td>
<td>Appendix E: Storm Drain Maps</td>
<td></td>
<td>Latitude 33 Planning and Engineering updated the Campus Storm Drain Maps to reflect current storm drain pipes.</td>
<td>5/10/2019</td>
<td>Kyle Boyce</td>
<td>Valerie Fanning</td>
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