

**ATTACHMENT E – NOTICE OF INTENT
ORDER WQ 2014-0174-DWQ
GENERAL PERMIT NO. CAG990002**

**RECEIVED
JUN 2 5 2015**

DIVISION OF WATER QUALITY

**STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT FOR DISCHARGES FROM UTILITY VAULTS AND UNDERGROUND
STRUCTURES TO WATERS OF THE UNITED STATES**

I. NOTICE OF INTENT STATUS (See Instructions)

MARK ONLY ONE ITEM	1. <input type="checkbox"/> New Discharger	2. <input checked="" type="checkbox"/> Existing Discharger	<i>WDID# 5000000001</i>
	3. <input type="checkbox"/> Change of Information: WDID # _____		
	4. <input type="checkbox"/> Change of ownership or responsibility: WDID# _____		

II. OWNER/OPERATOR (If additional owners/operators are involved, provide the information in a supplemental page.)

A. Name Sacramento Municipal Utility District (SMUD)		Owner/Operator Type (Check One)		
		1. <input type="checkbox"/> City	2. <input type="checkbox"/> County	3. <input type="checkbox"/> State
		4. <input checked="" type="checkbox"/> Gov. Combo	5. <input type="checkbox"/> Private	
B. Mailing Address P.O. BOX 15830				
C. City Sacramento	D. County Sacramento	E. State CA	F. Zip Code 95852-1830	
G. Contact Person Suzette Villanueva		H. Title Environmental Management Specialist	I. Phone (916) 732-6101	
J. Email Address suzette.villanueva@smud.org				

Additional Owners _____

III. BILLING ADDRESS (Enter information only if different from II. above)

Send to: <input checked="" type="checkbox"/> Owner/Operator <input type="checkbox"/> Other	A. Name Patrick Durham	B. Title Director, Environmental and Real Estate Services		
	C. Mailing Address			
D. City	E. County	F. State	G. Zip Code	

IV. RECEIVING WATER INFORMATION

<p>A. Attach a project map(s) that shows (1) the service area within the a specific Regional Water Board boundary and maps of(2) the corresponding major surface water(s) bodies and watersheds to which utility vault or underground structure water may be discharged. Map features must also include ASBS boundaries, MS4 discharge points to the ASBS, and major roadways.</p> <p>Please see map in the PLAN</p>
<p>B. Regional Water Quality Control Board(s) where discharge sites are located List the Water Board Regions where discharge of wastewater is proposed, i.e. Region(s) 1, 2, 3, 4, 5, 6, 7, 8, or 9:</p> <p>Region 5</p>

V. LAND DISPOSAL/RECLAMATION

The State Water Resources Control Board's water rights authority encourages the disposal of wastewater on land or re-use of wastewater where practical. You must evaluate and rule out this alternative prior to any discharge to surface water under this Order.

Is land disposal/reclamation feasible for all sites? Yes No

Is land disposal/reclamation applicable to a portion of the total number of sites? Yes No

If **Yes** to one or both questions, you should contact the Regional Water Board. This Order does not apply if there is no discharge to surface waters. If **No** to either or both questions, explain:

Most of the underground structures are in urban or developed areas where discharge to land or re-use may not be feasible.

VI. VERIFICATION

Have you contacted the appropriate Regional Water Board or verified in accordance with the appropriate Basin Plan that the proposed discharge will not violate prohibitions or orders of that Regional Water Board? Yes No

VII. TYPE OF UTILITY VAULT OR UNDERGROUND STRUCTURE (Check All That Apply)

Electric Natural Gas Telecommunications Other: _____

VIII. POLLUTION PREVENTION PLAN CONTACT INFORMATION

Each Discharger is required to provide a copy of their PLAN with their completed NOI. The PLAN requirements are provided in Section VII.C.3 of the Order. In the space below, provide the contact information for the person responsible for the development of the PLAN.

A. Company Name Sacramento Municipal Utility District		B. Contact Person Suzette Villanueva	
C. Street Address Where PLAN is Located 4401 Bradshaw Road		D. Title of Contact Person Environmental Management Specialist	
E. City Sacramento	F. County Sacramento	G. State CA	H. Zip Code 95827
I. Phone (916) 732-6101		J. Email Address suzette.villanueva@smud.org	

IX. DESCRIPTION OF DISCHARGE(S)

Describe the discharge(s) proposed. List any potential pollutants in the discharge. Attach additional sheets if needed.

Discharge of water that collects in underground utility structures such as vaults and manholes. Potential pollutants include: suspended solids, oil and grease, and petroleum hydrocarbons from runoff from surface streets and parking lots. Additional information is presented in the PLAN.

X. REMINDERS

- | | | |
|--|---|---|
| A. Have you included service territory/watershed map(s) with this submittal? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Separate maps must be submitted for each Regional Water Board where a proposed discharge will occur. | | |
| B. Have you included payment of the filing fee (for first-time enrollees only) with this submittal? | <input type="checkbox"/> Yes | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |
| C. Have you included your PLAN? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

XI. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment."

A. Printed Name: Francis McDermott

B. Signature: 

C. Date: 6-9-15

D. Title: Chief Generation and Grid Assets Officer

PLEASE SUBMIT THE NOI, FIRST ANNUAL FEE, PLAN, AND MAP
TO THE FOLLOWING ADDRESS:

UTILITY VAULTS NOI
NPDES UNIT
DIVISION OF WATER QUALITY
STATE WATER RESOURCES CONTROL BOARD
P.O. BOX 100
SACRAMENTO, CA 95812-0100

STATE USE ONLY

WDID:	Regional Board Office	Date NOI Received:	Date NOI Processed:
Case Handler's Initial:	Fee Amount Received: \$	Check #:	

POLLUTION PREVENTION PLAN

GENERAL NPDES PERMIT FOR DISCHARGE FROM UTILITY VAULTS AND UNDERGROUND STRUCTURES TO WATERS OF THE UNITED STATES

**ORDER WQ 2014-0174-DWQ
GENERAL PERMIT No. CAG990002**

Prepared By:

Sacramento Municipal Utility District
Environmental Management Services
6201 S Street
Sacramento, California 95817



Powering forward.
Together.

June 2015
Version 1.0, Rev. 0

In accordance with Section V.B.1 of the Permit No. CAG990002, SMUD issues the following certification statement:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [40 C.F.R. §122.00(d)]

Signature:  Date: 6/8/15
Francis McDermott
SMUD Chief Generation and Grid Assets Officer

CONTACT INFORMATION

Primary Environmental Contact:

Suzette Villanueva
Environmental Management Specialist
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817
(916) 732-6101
suzette.villanueva@smud.org

Alternate Environmental Contact:

Brad Gacke
Supervisor, Environmental Management
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817
(916) 732-5434
brad.gacke@smud.org

Pollution Prevention Plan Location:

SMUD East Campus Operations Center
4401 Bradshaw Road
Sacramento, CA 95827

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SACRAMENTO MUNICIPAL UTILITY DISTRICT
POLLUTION PREVENTION PLAN

ATTACHMENTS

Attachment A: Notice of Intent

Attachment B: SMUD Service Territory and Surface Water/Watershed Map

Attachment C: Vault and Manhole Water Discharge Procedure

Attachment D: PLAN Revision Log

Attachment E: Utility Vault and Underground Structure NPDES Permit

SACRAMENTO MUNICIPAL UTILITY DISTRICT POLLUTION PREVENTION PLAN

1.0 INTRODUCTION

The Clean Water Act (Federal Water Pollution Control Act) enacted in 1972 prohibits any point source discharge to the waters of the United States unless the discharge complies with a National Pollutant Discharge Elimination System (NPDES) Permit. The State of California has a NPDES Program approved by the United States Environmental Protection Agency (EPA) and is administered by the State Water Resources Control Board (SWRCB) along with the Regional Water Quality Control Boards (RWQCBs). The SWRCB has issued state-wide General NPDES Permit No. CAG990002 (Order WQ 2014-0174-DWQ) for discharges from utility vaults and underground structures by utility companies to waters of the United States. This permit specifically covers the short-term intermittent discharges of waters from utility vaults and other utility underground structures.

As part of the application to obtain coverage under the permit, the Sacramento Municipal Utility District (SMUD) must file a Notice of Intent (NOI; Attachment A) and submit service territory/watershed map(s), and a Pollution Prevention Plan (PLAN) to the SWRCB that addresses SMUD's operating procedures for minimizing polluted discharges from electrical system underground structures.

Each discharger is required to develop a PLAN that includes Best Management Practices (BMPs) designed to prevent or control the discharge of pollutants as a result of vault dewatering activities. The PLAN must include procedures for evaluating potential pollutant sources and conditions at a vault or underground structure (and the discharge path to the nearest storm drain or surface water) and prescribe the appropriate measures that will be implemented, as necessary, to prevent and control the discharge of pollutants. Other components of the PLAN include: PLAN Administration and Employee Training, Identification of Potential Pollutant Sources, Drainage Map, Pollutant Assessment, Procedures for Discharging from Utility Vaults and Underground Structures, Pollution Control Measures, Waste Disposal Procedures, Annual PLAN Evaluation and Revision, and Monitoring and Reporting Requirements.

This PLAN prepared for SMUD operations is designed to be consistent with the requirements of the NPDES permit. The PLAN will be updated as necessary to be compliant with the NPDES permit. A copy of the NPDES permit is provided in Attachment E. A copy of the PLAN shall be made available for inspection by any authorized representative of a state, regional, or local storm water oversight agency. Copies of the PLAN and any revisions of the PLAN will be kept at SMUD's East Campus Operations Center (4401 Bradshaw Road, Sacramento, CA 95827) to enable accessibility by field crews and at SMUD's Environmental Management Services location (1708 59th Street, Building H, Sacramento, CA 95819).

2.0 DESCRIPTION OF SMUD UNDERGROUND ELECTRICAL FACILITIES

2.1 General

SMUD began serving California's capital region in 1946 and is now the nation's sixth-largest public electric utility. SMUD is governed by a seven-member board of directors that sets policy and appoints the CEO/General Manager, who is responsible for SMUD's daily operations. SMUD's electricity comes from varied sources such as hydro, natural-gas-fired generators, renewable resources, and power purchased on the wholesale

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market. SMUD serves Sacramento County and small portions of Placer and Yolo Counties with a 900-square mile service area providing electricity for a population of 1.5 million.

There are two main types of structures in underground electrical facilities: cable/splicing manholes and electrical service equipment vaults. Manholes contain high voltage cables and splices (no transformers), and usually include a solid cover as general protection from irrigation and storm water runoff and debris accumulation. Water does accumulate to some degree, primarily from street runoff and rain infiltration through the keyhole and around the edges of the cover. Water can also infiltrate through groundwater seepage.

Electrical equipment service vaults are generally larger than manholes and may contain from two to five large transformers. The vaults are covered with locked hinged metal grates that allow for circulation of air to aid in cooling the transformers. Water accumulation generally comes from rainfall, irrigation and storm water runoff. Some vaults may be subject to groundwater intrusion/seepage.

SMUD's underground electrical distribution system is primarily located in the downtown area of the City of Sacramento and is known as the Downtown Underground Network (DUN). Most of the downtown area system of underground utility structures is located in the drainage area of the Downtown Sacramento combined storm sewer system. Vaults are only located in the DUN. There are also manholes systems located in areas outside of the City of Sacramento for undergrounding of utilities. These manholes are located in Sacramento County areas such as Greenhaven/Pocket area, the newer parts of the Cities of Folsom and Elk Grove, in the Carmichael area from Auburn and Watt Avenue to Carmichael Substation (Locust and Manzanita Avenue) to Orangevale Substation (Sunrise Blvd.), Sacramento International Airport, and former Mather and McClellan Air Force Bases.

2.2 Downtown Underground Network

SMUD has over 1,000 underground structures (i.e., vaults and manholes) within the DUN where water may be discharged from a portion of these structures. Most of the vaults and manholes located in the DUN will discharge to the City of Sacramento combined sewer storm drain system and are not regulated under this permit. Discharges from vaults and manholes in the Old Sacramento area of the DUN will enter storm drains that discharge to the Sacramento River and will be regulated by this permit. For the purposes of this PLAN, the Old Sacramento area of the DUN will be referred to as the Regulated DUN or RDUN.

2.2.1 Electrical Equipment Vaults in the RDUN

Generally, water is removed from electrical equipment vaults in the RDUN as soon as possible. Because these systems are critical to the maintenance of the power supply to the Sacramento downtown area, they are either pumped manually, or in some cases automatically by in-place submersible pumps. Water is removed during or after rainfall, or other types of events that cause water to accumulate in the vaults.

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2.2.2 Manholes in the RDUN

There are approximately 70 manholes within the RDUN. Water is removed from the manholes by using a portable submersible pump, and is usually removed only when it is necessary to enter the manhole.

2.3 Underground Electrical Facilities Outside of the DUN

Discharge of water from manholes outside of the DUN is far less frequent and is done only when access is needed for inspection/maintenance of cables/splices.

3.0 PLAN ADMINISTRATION

3.1 Pollution Prevention Team

SMUD's Pollution Prevention Team (PPT) consists of individuals that are responsible for developing the PLAN, assisting SMUD field crews with vault/manhole dewatering and decontamination activities, PLAN training, emergency response activities, PLAN monitoring and reporting program, and PLAN revision.

Name	Title and Responsibilities	Contact Information
Francis McDermott	<i>Chief Generation and Grid Assets Officer</i> – Responsible for certifying the PLAN/NOI.	(916) 452-3211
Patrick Durham	<i>Director of Environmental and Real Estate Services</i> – Certifies Annual Reports and provides general oversight of the PLAN.	(916) 732-6327
Brad Gacke	<i>Environmental Management (EM) Supervisor</i> – Overall coordination of PLAN development and implementation. Assigns responsibilities to the EM Specialists and tracks monitoring/reporting and compliance activities and PLAN revisions.	(916) 732-5434
Tony Steelman	<i>Substation Asset Supervisor</i> – Oversight of network crews dewatering activities to ensure compliance with the PLAN and the permit.	(916) 732-7473
Mark Raley	<i>Substation Asset Supervisor</i> – Oversight of line crews dewatering activities to ensure compliance with the PLAN and the permit.	(916) 732-5796

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Name	Title and Responsibilities	Contact Information
Suzette Villanueva	<i>Lead Environmental Management Specialist</i> – Develops PLAN in accordance with the permit, coordinates employee training, assists crews with dewatering activities, tracks compliance with the PLAN and permit, keeps records, evaluates PLAN effectiveness, makes recommendations for PLAN revision, and coordinates sampling and reporting activities.	(916) 732-6101
Ryder Couch	<i>Hazardous Waste Foreman</i> – Assist field crews with contractor coordination, monitoring and sampling, pollution control, and waste disposal.	(916) 732-5817
Dustin La Vallee	<i>Associate Civil Engineer</i> - Assist field crews with contractor coordination, monitoring and sampling, pollution control, and waste disposal.	(916) 732-6825
Derrick McCarthy	<i>Environmental Management Specialist</i> - Assist field crews with contractor coordination, monitoring and sampling, pollution control, and waste disposal	(916) 732-5335
Laura Fisher	<i>Environmental Management Specialist</i> - Assist field crews with contractor coordination, monitoring and sampling, pollution control, and waste disposal.	(916) 732-5803

3.2 Employee Training

Annual PLAN training is conducted by SMUD's Environmental Management Specialists for all employees involved in the discharge of water from vaults and manholes. Training topics include the following:

- Overview of the permit and PLAN
- Vault and manhole inspections
- Record keeping
- Water discharge evaluation and recording
- Sediment and erosion control
- Oil and effluent spill response reporting procedures
- Vault and manhole safety and personal protective equipment
- Proper waste disposal

4.0 IDENTIFICATION OF POTENTIAL POLLUTANT SOURCES

4.1 Description of Potential Pollutant Sources

Potential pollutants that may be present in underground service vaults and manholes are suspended solids, petroleum hydrocarbons, oil and grease, copper, lead, and zinc.

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POLLUTION PREVENTION PLAN

- Suspended solids result from the accumulation of dust, dirt, leaves, etc., over a period of time.
- Petroleum hydrocarbons and oil and grease may be present due to leaking of dielectric mineral oil used in electrical equipment for cooling purposes, petroleum lubricants used to aid in pulling electrical cables through ducts, or runoff from parking and road surfaces.
- Copper may be present due to a core of copper contained in most cables that may be released into vaults and manholes when repair work is done.
- Lead may be present due to lead shielding on some cables that can cause metallic lead to be released during repair work. In addition, lead may be residually present as a result of leaded gasoline previously used in motor vehicles.
- Zinc may be present as many of the fittings on electrical equipment and cables are galvanized.
- Residue of PCBs may be present at electrical utility facilities, however; SMUD no longer has any PCB impacted equipment in underground facilities.
- Waste water effluent that may leak into underground vaults or manholes as a result of leaking sewage pipes.

4.2 Drainage Maps

SMUD's utility vault and manhole structures map is presented in Attachment B, and are located within the boundary of the Central Valley RWQCB. Also on the map are the major surface water bodies and watersheds to which these underground structures may discharge, an outline of the City of Sacramento combined sewer storm drain system, and major roadways.

4.3 Pollution Assessment

The following identifies the potential pollutants and sources that may be present in SMUD's underground vaults and manholes and describes control measures that will be used to control the discharge of pollutants:

Potential Pollutants and Sources	<ul style="list-style-type: none">• Petroleum hydrocarbons from parking lots or road surface runoff and oil and grease residue on transformers and electrical equipment.• Sediments and debris from vegetation and roadways may enter vaults with grated tops.
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<p>Control Measures:</p> <ul style="list-style-type: none"> • All transformer oil is contained within the sealed and operating electrical transformers and switches. • Transformers and electrical conduit are sealed to prevent damage from storm water and/or groundwater seepage. • Some vaults have raised concrete curbing that may prevent surface runoff pollutants from entering the vaults. • Annual inspection of underground vaults/manholes in the DUN. • Maintenance and/or replacement of all leaking transformers. • All known transformers impacted with PCBs in the DUN removed from service. • Cleanup of all oil releases during inspections and maintenance activities. • Evaluation of all accumulated vault/manhole water for the presence of oil sheens, suspended solids, odors, and discoloration prior to discharge (see discharge procedure). • Automatic sump pumps will have oil sensors and periodic removal of sediments and accumulated debris from vaults prior to rainy season and during rainy season. Routine inspection and maintenance of oil sensing pumps. Filter socks will be used when accumulated waters in underground structures are only impacted with low amounts of sediments. • Emergency contractor services will be used to remove any contaminated water or water not suitable for discharge to a storm drain with appropriate characterization and disposal of the water. 	
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<p>Potential Pollutants and Sources</p>	<ul style="list-style-type: none"> • Copper from the presence of a core of copper contained in most insulated cables. Excess cable is not stored in vaults and manholes. • Lead from lead shielding on some cables. • Zinc from the galvanized fittings on electrical equipment and cables.
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<p>Control Measures:</p> <ul style="list-style-type: none"> • Annual inspection of underground vaults/manholes in the DUN. • Removal of all metal debris from vaults and manholes upon completion of maintenance activities. • Insulation of all high voltage electrical wiring/cables. • An initial case study of discharge water from select vaults (sampled in 1998 and submitted in the PLAN in 2007) and manholes was conducted to evaluate the presence of copper, lead, and zinc. Analysis indicated that these materials were not detected at or above laboratory detection limits. • Evaluation of all accumulated vault/manhole water for the presence of oil sheens, suspended solids, odors, and discoloration prior to discharge (see discharge procedure). • Automatic sump pumps will have oil sensors and periodic removal of sediments and accumulated debris from vaults prior to rainy season and during inspections during the rainy season. Routine inspection and maintenance of oil sensing pumps. Filter socks will be used when accumulated water in underground structures are only impacted with low amounts of sediments. • Emergency contractor services will be used to remove any contaminated water or water not suitable for discharge to a storm drain with appropriate characterization and disposal of the water. 	
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As part of the Annual Sampling and Reporting Program for the previous NPDES permit, annual samples were collected from at least five vaults/manholes within SMUD service territory as feasible. Samples were analyzed for total suspended solids, pH, oil and

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grease, total petroleum hydrocarbons as diesel and gasoline and BTEX (benzene, toluene, ethylbenzene, xylenes). A review of the historical results from annual monitoring indicates that analytical results were generally within the Numeric Action Level (NAL) ranges outlined in 2014 renewal of the NPDES permit. SMUD will continue to conduct annual sampling of representative manholes and vaults and adjust control measures and discharge procedures should there be an exceedance of an NAL.

5.0 PROCEDURES FOR DISCHARGES FROM UTILITY VAULTS AND MANHOLES

5.1 Types of Discharges

Discharges from vaults within the RDUN are intermittent and are dependent on either the need to discharge accumulated water to not compromise the electrical system or to conduct maintenance and repair. Less than five vaults in the RDUN have automatic sump pumps. Discharges made from automatically-pumped vaults are also intermittent and coincide with storm or other events that contribute to the accumulation of water in the vaults. Discharges from manholes inside the RDUN and in the outlying areas outside the downtown network area are far less frequent and are done when there is need for maintenance and repair activities. SMUD shall comply with the notification requirements for local MS4 permits for discharges made to a municipal storm water system. If the MS4 permits do not indicate a notification threshold for discharges from underground utility structures, SMUD will notify the local MS4 permittee when a discharge exceeds 10,000 gallons.

5.2 Manual Discharge Procedures

Water accumulation in vaults and manholes occurs over time and is related to storm events, groundwater intrusion or seepage, and other events that may generate surface runoff to the vaults and manholes. Most of the discharges are considered unscheduled and generally occur to protect the integrity of the electrical system or to conduct maintenance and repairs. SMUD's Vault and Manhole Water Discharge Procedure (Attachment C) presents detailed steps that are to be followed during each dewatering event. An Underground Vault Water Management Checklist is completed by SMUD field crews as part the Discharge Procedure and kept as record to ensure compliance with the permit.

5.3 Duration of Discharges

Discharges are intermittent and generally of short duration. Manholes, for instance, can be pumped out within approximately 15 to 30 minutes depending on the quantity of water present. Discharges from underground service vaults that are manually pumped are also intermittent, and can take as long as two hours depending on the amount of water present.

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5.4 Emergency Critical Discharges

Emergency discharges may occur when there is a need to restore electrical services and/or there is a threat to human health and safety and public safety. During such events, a vault or manhole may need to be discharged as soon as possible. If time permits and condition of the water is suitable, SMUD field crews will follow the Discharge of Water from Underground Utility Structures Procedure. It may be necessary during an emergency to dewater the vault or manhole as quickly as possible to expedite restoration of services. If the visual inspection of the water indicates some level of contamination, field crews will first attempt to use SMUD's vacuum trailers for dewatering. However, the contents of the vacuum trailer will not be disposed of until Environmental Management has profiled and/or tested the contents to determine appropriate disposal. If the water must be evacuated and use of the vacuum trailer is not feasible because of availability or time constraints during the emergency response, field crews must attempt to use BMPs such as drain inlet protection and filter socks whenever feasible.

Field crews will report any non-compliance with discharge requirements that may pose a threat to human health or the environment to their supervisors and to Environmental Management as soon as possible. An Environmental Specialist will follow up with the field crews to document the incident, attempt to mitigate the effects of the discharge as feasible, and report the incident to the RWQCB and other oversight agencies in a timely manner. Any such non-compliant incidents will be reviewed by the PPT to determine better ways of managing such incidents should they occur in the future.

5.5 Automated Critical Discharges

Automatic pumps are installed in vaults that are determined to contain critical equipment to minimize outage delays and maintain reliability of essential services, and are vulnerable to groundwater intrusion or seepage. SMUD only has a handful of such vaults in the RDUN. SMUD will install pumps with oil sensors that will shut off when oils are detected in the vault water. In addition, these vaults will be cleaned prior to the start of the rainy season. Field crews will conduct periodic inspections of the vaults during the rainy season to make sure accumulated sediments or debris are removed from the vaults and conduct routine maintenance of the automatic pumps as needed.

5.6 Spills and Leaks

SMUD field crews receive training annually on reporting/responding to spill/release of hazardous substances. SMUD crews must report spills/releases immediately to their supervisors. The supervisor or field crew will then immediately notify an Environmental Management Specialist. If the spill of a hazardous substance is small and contained within the underground structure, SMUD hazardous materials technicians will clean up the hazardous substance and dispose of it in accordance with hazardous waste requirements. If it is a larger spill/release, SMUD will use contract service to clean up the spill and properly dispose of the spilled material. A SMUD Environmental Specialist will coordinate the cleanup and reporting to regulatory agencies.

6.0 POLLUTION PREVENTION PRACTICES

6.1 Housekeeping and Preventative Maintenance

In compliance with California Public Utilities Commission General Order 165, SMUD inspects underground electrical utility distribution equipment. Trained electricians from SMUD's Underground Network crews conduct all inspections. Part of this inspection/maintenance activity includes cleaning out accumulated debris, leaves, sediment, and general debris that has accumulated. Stagnant water in vaults/manholes may be suitable for mosquito breeding. During routine and non-routine inspections and maintenance activities, field crews will look for signs of mosquito breeding (larvae in the water) and coordinate with SMUD Environmental Management for appropriate mitigation actions as needed. Prior to and during dewatering of vaults or manholes, field crews shall:

- Clean areas around the vault or manhole prior to discharging water;
- Ensure that the discharge path from the discharge end of the hose to the discharge point is free of debris and other potential pollutants;
- Use a filter sock for filtering the water at the discharge end of the hose when vault/manhole water is only impacted with low level sediments as described in the Discharge Procedure.

6.2 Discharge Procedures

SMUD's Vault Dewatering Discharge Procedures are discussed in Section 5 and detailed the SMUD's Vault and Manhole Water Discharge Procedure (Attachment C). In addition, the following Sediment and Erosion Control BMPs can be used to help minimize the discharge of pollutants to storm drain systems and protect water quality.

6.2.1 Sediment and Erosion Control

Identified vaults and manholes in the service area are predominately located in developed urban and residential areas (e.g., paved streets, parking lots, or sidewalks). Visual inspections indicate a limited potential for soil erosion in the vicinity of our vaults and manholes. Field crews may use the following to control erosion during dewatering activities:

- Construct or install sediment controls using fiber rolls and gravel bags. Discharge water will be pumped across gravel bags and/or pass through a series of fiber rolls to minimize suspended sediment erosion. Crews will reduce the discharge pressure by attaching a sediment control sock at the end of the discharge hose. The sock will diffuse the discharge water to minimize soil erosion.
- Field crews may also contact an Environmental Specialist to provide guidance on other erosion control BMPs as needed.

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6.2.2 Management of Runoff

A component of the Discharge Procedure is to conduct a visual inspection of the proposed discharge location. Prior to the discharge of water from a vault or manhole, the operator inspects the discharge location for the presence of debris, silt, or other potential pollutant sources that may introduce pollutants into a storm drain. All identified materials are removed from the discharge area prior to the release of water from a vault or manhole. Results of the inspection are recorded on an inspection form.

6.3 Pollution Control and Waste Disposal Procedures

Field crews must first conduct a visual inspection of the water by collecting a sample in a clean white bucket or clear bailer and check the integrity of the equipment in vaults or manhole. If there is any indication of contamination such as visible tar, cloudiness, moderate to heavy suspended solids or debris, floating oils, odors (sewage, solvents, petroleum hydrocarbons), discoloration, or any other indication of pollution, the water cannot be discharged and must be pumped out in a vacuum truck and containerized until properly profiled for appropriate disposal. Field crews must notify an Environmental Specialist to coordinate pumping of the water and characterization for proper disposal. Releases during emergency response are discussed in Section 5.4. Any other unexpected release will be addressed immediately and reported to regulatory agencies as discussed in Section 5.6.

7.0 ANNUAL PLAN EVALUATION AND REVISION

SMUD shall conduct an overall evaluation of the effectiveness of its PLAN in controlling the discharge of pollutants during a discharge event and revise or replace the PLAN as necessary to address procedures and BMPs found to not be effective in minimizing the discharge of pollutants.

7.1 PLAN Evaluation Requirements

An Environmental Specialist will conduct an overall evaluation of the PLAN at least once per year to evaluate the effectiveness of the PLAN in controlling the discharge of pollutants during a discharge event. At a minimum, the PLAN shall evaluate the following:

- The PLAN measures to reduce pollutant loadings to determine whether they are adequate and properly implemented in accordance with the terms of this Order or whether additional control measures are needed.
- The operation of utility source control measures, sediment and erosion control measures, and other structural BMPs identified in the PLAN.
- Equipment needed to implement the PLAN.

If the results of the annual monitoring at five representative sites required in the Permit Monitoring and Reporting Program exceed one or more of the NALs listed in the Table

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below, then a SMUD Environmental Specialist shall evaluate the potential cause(s) of the NAL exceedance(s). At a minimum, this evaluation shall include an assessment of the potential source(s) of the pollutant and whether the procedures and BMPs contained in the PLAN need to be revised to address the identified source(s) in future discharges. Additional NALs may be added in the future based on the results of the discharge characterization study.

Numeric Action Levels for Pollutants of Concern

Parameter	Units	Numeric Action Levels	
		Minimum Daily	Maximum Daily
Oil and Grease	mg/L	---	25
pH	Standard Units	6.0	9.0
Total Petroleum Hydrocarbons – Diesel Range Organics	mg/L	---	2
Total Petroleum Hydrocarbons – Gasoline Range Organics	µg/L	---	5
Total Suspended Solids	mg/L	---	400

7.2 Plan Revisions

If PLAN revisions are necessary based on the PLAN evaluation required in the previous section, SMUD will develop a revised PLAN with new or revised BMPs to prevent future exceedance(s) of NALs. SMUD will implement such BMPs and document the progress of the BMPs implementation and effectiveness in the Annual Report to the RWQCB Executive Officer. Revisions to the PLAN will be recorded on the PLAN Revision Log in Attachment D of the PLAN.

If it is determined that the cause(s) of NAL exceedance were beyond the control of SMUD and not a result of inadequate PLAN implementation, procedures, or BMPs, then revisions to the PLAN are not required. SMUD will provide detail explanation if this situation occurs as part of the annual report.

7.3 Annual PLAN Evaluation and Revision Reporting

SMUD will provide the results of the PLAN evaluation and any revisions to the PLAN in the Annual Report. All records related to the PLAN evaluation such as personnel conducting the evaluation, the date(s) of the evaluation(s), significant observations relating to the implementation of the PLAN, and actions taken to revise the PLAN will be retained by SMUD for a period of five years.

8.0 ANNUAL MONITORING AND REPORTING PROGRAM

Section 122.48 of title 40 of the Code of Federal Regulations (40 C.F.R. §122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the SWRCB and the RWQCBs to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements which implement federal and California State laws and regulations.

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All sampling and reporting will be conducted in accordance with the MRP outlined in Attachment C of the NPDES Permit.

8.1 Annual Sampling Program

SMUD will attempt to collect at least five representative samples from utility vaults and manholes per year for annual routine pollutant monitoring. Sampling activities typically occur during the rainy season (October through May in the Sacramento Region) when vaults and manhole receive surface runoff from storm events or groundwater intrusion. If less than five discharges occur in a given year, the number of samples will be equal to the number of discharges for that year. Sample locations may change from year to year depending on accumulation of water in the vaults and manholes in the areas where dewatering activities occur for that year. SMUD will attempt to sample different types of underground structures in different areas of the service territory as feasible.

Representative grab samples shall be collected at the applicable point of discharge (e.g., at the end of the discharge hose before co-mingling with other waters) after the implementation of the BMPs outlined in the PLAN. If SMUD monitors parameters more frequently than required by this Order, then the results of such monitoring shall be included in the calculation and reporting of the data submitted in the annual report. Samples will be analyzed for the following parameters by a State of California Certified laboratory.

- Total Petroleum Hydrocarbons (TPH) – diesel range organics
- TPH-g (as gasoline including BTEX components),
- Oil and Grease
- pH
- Total Suspended Solids (TSS)

A sampling form will be recorded for each sample location detailing the information required in the MRP at time of sample collection and will be submitted with the annual report.

8.2 Annual Reporting and Record Retention

SMUD will complete annual sampling activities and submittal of annual reports to the RWQCB no later than June 1st of each year. The annual report will be certified and signed by a person described in Section V of Attachment B of the NPDES permit. Annual reports will contain at a minimum, all information required in Section VI.B (annual reports) and follow the reporting protocols in Section VI.C (Reporting Protocols for Annual Routine Monitoring) of Attachment C of the NPDES permit. A discussion on the evaluation of BMPs used during discharge activities and any PLAN revision (Section 7) will be included in the annual report. SMUD shall retain all records and annual reports for at least five years in accordance with Section IV of Attachment B of the NPDES permit. These records and annual reports will be maintained by SMUD Environmental Management.

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8.3 Special Studies

The Order establishes provisions requiring a discharger to develop and implement two discharge characterization studies.

- Discharge Characterization Study 1 is intended to characterize discharges from dewatered utility vaults or underground structures to evaluate the potential for utility vault discharges or underground structures to cause or contribute to exceedances of water quality standards in compliance with section 402(a)(1) of the Clean Water Act and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*.
- Discharge Characterization Study 2 is intended to determine whether Dischargers that discharge to a MS4 owned or operated by a permittee listed in Attachment A of SWRCB Resolution 2012 - 0031 have a potential to alter the natural ocean water quality in the area of special biological significance (ASBS) to which the MS4 directly discharges.

SMUD will develop and submit a monitoring plan and time schedule for Characterization Study 1 within eight months following the effective date (July 1, 2015) of this Order or by March 1, 2016. With final approval of the monitoring plan, SMUD will conduct Phase I and Phase II monitoring in accordance with the compliance dates outlined in Table G-1 of Attachment G of the NPDES permit. The final report for the Characterization Study 1 will be submitted no later than four years and six months following the effective date of the Order or by January 1, 2020.

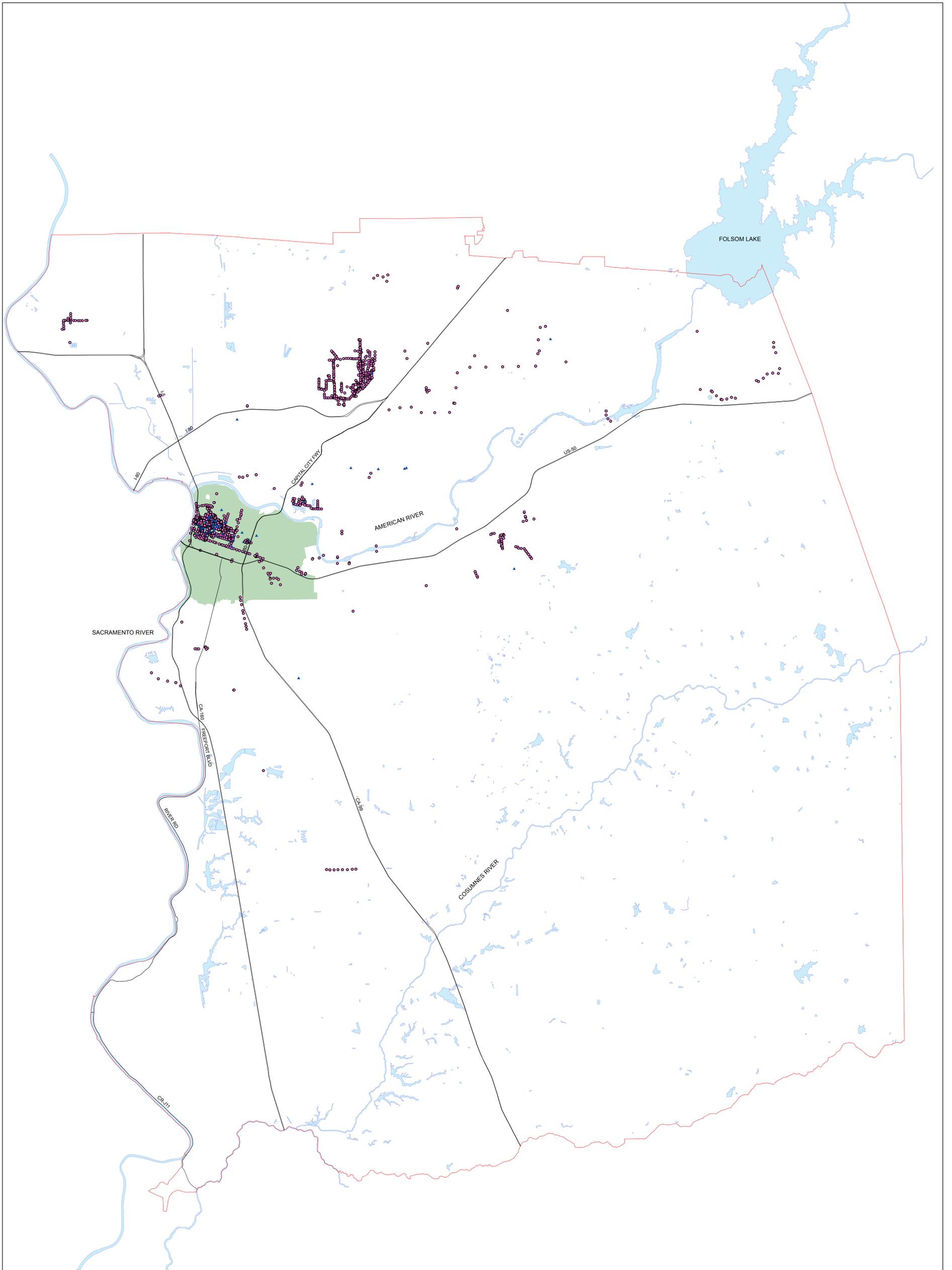
SMUD will not be required to conduct Characterization Study 2 since the MS4 with potential to receive discharges from SMUD's utility vaults and underground structures does not discharge to an ASBS.

ATTACHMENT A

Notice of Intent

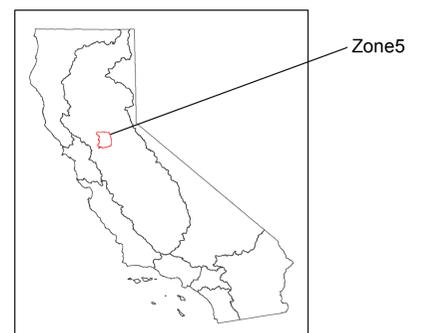
ATTACHMENT B

SMUD Service Territory and Surface Water/Watershed Map



Legend

-  Highway
-  Other
-  Manhole
-  Vault
-  DistrictBoundaryBasedOnNew2010Wards
-  Combined_Sewer_Basin_Areas
-  Hydrology



ATTACHMENT C

Vault and Manhole Water Discharge Procedure



ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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1.0 PURPOSE

The purpose of this procedure is to provide guidance for the discharge of water from SMUD-owned underground structures (i.e., vaults, manholes) consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAG990002 and the associated Pollution Prevention Plan (PLAN).

2.0 SCOPE

All SMUD-owned vaults, manholes and similar underground enclosures where water is removed and discharged to a storm drain are subject to this procedure. Exceptions are the discharges from the vaults and manholes in the downtown area of the City of Sacramento that are in the combined storm sewer system.

3.0 REFERENCES

National Pollutant Discharge Elimination System (NPDES) General Permit No. CAG990002, Discharge of Water from Underground Utility Structures by Utility Companies to Surface Waters.

SMUD Pollution Prevention Plan (PLAN) consistent with the requirements of NPDES Permit No. CAG990002.

Title 8, CCR Section 2943 – Work on or in proximity to underground high-voltage cable, conductors, or equipment.

Title 8, CCR, GISO 5155 – Airborne contamination.

29 CFR 1910.120.

EM 2-17 PR Sewage Management Procedure for Underground Utility Operations

4.0 SAFETY

4.1 Acceptable Environmental Conditions

Acceptable environmental conditions are conditions where the air quality meets the following criteria:

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ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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- Oxygen concentration at or above 19.5% and below 23.5%;
- The lower limit of flammability of a gas or vapor at ordinary ambient temperature that is expressed by a percentage of the gas or vapor in air.
- Toxic materials concentration less than the Permissible Exposure Limit (PEL) listed in Title 8, CCR, General Industry Safety Order 5155 – Airborne contamination.

4.2 Personal Protective Equipment (PPE):

PPE will include disposable gloves, safety glasses, hardhat, rubber boots, and fire resistant (FR) coveralls/clothing or FR rain gear.

4.3 Unacceptable Environmental Conditions:

Any confined space atmosphere that does not meet the requirements of Acceptable Environmental Conditions and is a danger to human health is considered an Unacceptable Environmental Condition.

5.0 RESPONSIBILITIES

It is the responsibility of the Grid Assets Management and Environmental Management to ensure that the provisions of this procedure are being implemented and that there is compliance with requirements of the NPDES Permit. It is the responsibility of Environmental Management to conduct the annual monitoring that is required by the permit and to submit that information to the Regional Water Quality Control Board (RWQCB) as required.

6.0 APPLICABILITY

This procedure is applicable to all manual discharges of water from underground vaults, manholes and similar enclosures to **storm drain systems**.

This procedure **does not** apply to the discharge of water to any sanitary sewer or combined storm sewer systems (eg. opening a sewer manhole and discharging to it is not covered under the NPDES permit).

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ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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This procedure **does not** apply to discharges of water from underground structures to land. A SMUD Environmental Specialist must first be consulted for any potential discharges to land. The Environmental Specialist will consult with the RWQCB prior to discharges to land.

This procedure also **does not** apply to automatic discharges from critical electrical vaults in the Downtown Underground Network (DUN) (addressed in the PLAN).

The discharge procedure **does not** apply in emergency situations when water is not suitable for discharge based on visual inspection (addressed in the PLAN).

NOTE: Most of the vaults and manholes in the DUN of the City of Sacramento will discharge to the combined storm sewer system.

7.0 PROCEDURE

The following procedure shall be followed to discharge water from underground utility structures such as vaults and manholes to a storm drain.

7.1 Implementation of Proper Safety Measures

Do Not Enter Enclosures until the proper safety measures are implemented:

- Test the atmosphere of the area to determine acceptable environmental conditions. Atmosphere testing must include: % Oxygen, % Hydrogen Sulfide, LEL, and carbon monoxide. Depending on local conditions, gasses like methane and even carbon dioxide may tend to accumulate in these areas.
- Make sure to erect appropriate barriers and signage for traffic control and/or to protect pedestrians.
- PPE will include disposable gloves, safety glasses, hardhat, rubber boots, and fire resistant clothing.
- Visually inspect the vault, manhole or other enclosure for integrity of the enclosure and lid.
- Use proper lifting techniques when handling equipment and be aware of working with high voltage and energized electrical equipment.

7.2 Visual Inspection of the Water in the Underground Utility Structure

- Personnel shall obtain a sample of water from the vault or manhole or similar enclosure using a clean white bucket or clear bailer attached to a rope. The

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ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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water sample will be allowed to settle for a few minutes and observations will be made in full light.



- The water shall be examined for the presence of the following:
 - Visible tar, sheen, floating oils;
 - Cloudiness;
 - Moderate or heavy sediments/debris: murky or muddy water;
 - Unusual Discoloration, visible floating materials; and
 - Unusual odors such as solvents, petroleum hydrocarbons, sewage.
- Record your observations on the ***SMUD Underground Vault and Manhole Water Management Checklist*** (Attachment).
- If any of the above is present, **DO NOT ATTEMPT TO DISCHARGE** to a storm drain. Contact your supervisor and an Environmental Management Specialist for further assistance. An Environmental Specialist will coordinate pumping with a contractor/vacuum truck service and appropriate disposal of the water that is not suitable for discharge to a storm drain. After hours, please contact the on-call Environmental Specialist via the on-call list for assistance.

7.3 Discharging of Water from Underground Structure

- If **NO** visible contaminants or odors are observed or there is slight brownish color and small amount of sediments, then the water can be discharged.



ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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- Make sure the discharge path to the storm drain is free of debris and other potential contaminants that can be transported with the flowing water as it discharges.
- Set up pump and hose connections. It is recommended to place pump intake elevated from the vault or manhole bottom to avoid sucking in any debris at the bottom. Whenever feasible, try to place discharge hose as close as possible to the storm drain. **For all discharges to a storm drain, a filter sock must be used and attached to the discharge end of the hose.** Please note the filter sock manufacturer pumping limitations prior to use. If it is necessary to dewater more quickly, multiple pumps with filter socks can be used as long as it is feasible and safe to do so and it does not create erosion issues (see BMPs in the PLAN for erosion control).



- If the filter socks become clogged or disconnect from the hose, stop or slow pump. The filter sock may need to be replaced. Filter socks are available at the warehouse.
- Monitor the discharge and make sure the discharge does not create a safety hazard for pedestrians or erode surfaces potentially transporting pollutants to the storm drain.
- Once dewatering activities are complete, disconnect equipment and store appropriately.
- Allow filter sock to drain before placing in the bucket/storage container. If the filter sock is impacted with sediments and cannot be re-used, take the filter sock to the Hazmat Technicians for disposal as a non-RCRA hazardous waste.
- Complete the Underground Vault and Manhole Water Management Checklist (Attachment) and return it to your supervisor or the drop box for the checklist in your respective areas. Make sure to fill out all the information on the checklist.

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ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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- An Environmental Specialist will collect the checklists and keep according to record keeping requirements in the NPDES permit.
- **When in doubt about whether you can discharge the water from an underground utility structure, please contact an Environmental Specialist for assistance.**

7.4 Discharge of Water in Emergency Situations

If there is an urgent need for the removal of water from vaults, manholes, and similar enclosures and the water was determined to be contaminated based on visual inspection, a SMUD vacuum trailer may be used. However, the contents of the vacuum truck should not be disposed of until Environmental Management has profiled and/or tested the contents to determine appropriate disposal. If time permits, contact an Environmental Specialist to coordinate contractor vacuum pumping services.

If a discharge of potentially contaminated water could not be avoided in order to mitigate the emergency, please contact a Supervisor and an Environmental Specialist immediately and be prepared to give an account of the discharge process/volume. An Environmental Specialist will coordinate mitigation of the discharge as feasible and reporting to regulatory agencies as required.

8.0 ATTACHMENT

Underground Vault and Manhole Water Management Checklist



NO: EM 2-16 PR

ENVIRONMENTAL MANAGEMENT PROCEDURES	SECTION WATER QUALITY MANAGEMENT	SUBJECT DISCHARGE OF WATER FROM UNDERGROUND UTILITY STRUCTURES
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ATTACHMENT

SMUD UNDERGROUND VAULT AND MANHOLE WATER MANAGEMENT CHECKLIST

DATE: _____ VAULT or MANHOLE # _____

TIME: _____ ESTIMATED WATER DEPTH: _____

RECENT RAIN (within 48 hours)? YES NO COMMENT _____

START TIME OF DISCHARGE: _____ END TIME OF DISCHARGE: _____

APPROXIMATE VOLUME OF DISCHARGE: _____ GALLONS

Inspect the water in the vault (manhole) and answer questions 1 - 7:

- 1. Is any tar visible? No Yes
 - 2. Is the water cloudy? No Yes
 - 3. Is the water discolored? No Yes Color: _____
 - 4. Are there any unusual odors? No Yes
(i.e. diesel, gasoline, sewage, decaying matter, etc.) _____
-
- 5. Is there an oil (rainbow) sheen/oils on the water? No Yes
 - 7. Is the water turbid or impacted with sediment? No Yes

If any of the answers is **YES**, do not discharge. Contact the on-call Environmental Specialist for assistance via the Weekly On-Call List.

Use of a **filter sock** is required for any discharges made to a storm drain. Clean the discharge path from the discharge point to the storm drain prior to discharging the water. Monitor the discharge to ensure pedestrian safety and to monitor erosion.

COMMENTS:

The above information is true and correct to the best of my knowledge.

Name of Observer/Sampler

Signature

RETURN COMPLETED FORM TO YOUR RESPECTIVE ADMINISTRATIVE AREAS TO BE
FORWARDED TO ENVIRONMENTAL MANAGEMENT FOR RECORD KEEPING

ATTACHMENT D
PLAN Revision Log

ATTACHMENT E

Utility Vaults and Underground Structures NPDES Permit