SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN

WINDSOR SUBSTATION

Pacific Gas and Electric Company

WINDSOR SUBSTATION

ENVIRONMENTAL EMERGENCY TELEPHONE LIST

	Public No.	PG&E No.
Company:		
Primary Facility Emergency Coordinator:		
Bob Murphy	(707) 577-7283	323-7283
Substation Maintenance Supervisor		
24-Hour Telephone No.:	(707) 449-6714	
Work Address: 3395 McMaude Place Santa Rosa, CA 95407		
Alternate Facility Emergency Coordinator(s):		
Kevin Risley	(707) 577-7133	323-7133
Environmental Specialist		
24-Hour Telephone No.:	(707) 449-6714	
Work Address: 111 Stony Circle Santa Rosa, CA 95401		
Additional Company Resources:		
PG&E Media Representative (24 hr):	(415) 973-5930	223-5930
PG&E Headquarters Telephone Operator:	(415) 973-7000	223-7000
PG&E Safety Health & Claims Helpline (24 hr)	(415) 973-8700	223-8700
Federal Agency:		
U.S. Coast Guard/National Response Center:	(800) 424-8802	
State Agencies:		
California Office of Emergency Services (Cal OES):	(800) 852-7550	
California Dept.of Toxic Substance Control (DTSC)*	(800) 852-7550	
California Department of Fish and Wildlife*:	(800) 852-7550	
California State Lands Commission:	(562) 590-5201	
Regional Water Quality Control Board (RWQCB)*:	(800) 852-7550	
Local Contacts:		
Sonoma County of Emergency Services		(707) 565-1152
Fire Department: Windsor Fire Protection District Station 2	911 or	(707) 576-1365
Hospital: Healdsburg District Hospital	911 or	(707) 431-6500
Police Department: Windsor Police Department	911 or	(707) 838-1234
Ambulance/Paramedics**:**	911	

* DTSC, RWQCB and California Department of Fish and Wildlife have requested that emergency notifications to these offices be made through the Cal OES 800 number.

Facility Layout Map is located in Attachment 6.

APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA ANALYSIS

FACILITY NAME WINDSOR SUBSTATION

FACILITY ADDRESS 10789 OLD REDWOOD HWY WINDSOR, CA 95492

	Yes	No
1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?	☐	☒
2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?	☐	☒
3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 10, for availability) and the applicable Area Contingency Plan.	☐	☒
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?	☐	☒
5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?	☐	☒

See page vi for certification and approval.

SPCC DECISION ANALYSIS

FACILITY Windsor Substation Date 9/23/2016

Evaluator Rogelio Morfin Address 6111 Bollinger Canyon Rd., San Ramon, CA 94583

STEP 1 - SPCC PLAN REQUIREMENTS

	Yes	No
1. Does the facility have an aggregate aboveground oil storage volume in excess of 1,320 gallons, not including any equipment/container with a volume of less than 55 gallons?	☒	☐
2. Does the facility have underground oil storage volume in excess of 42,000 gallons?	☐	☒
3. Does the facility store any containerized PCB-contaminated waste liquids between 50 and 500 ppm for disposal?	☐	☒
(If the answer to ANY of these questions is "Yes," go to Question #4. If "No," a SPCC plan is not required)		
4. Could an oil spill at this facility be expected to discharge harmful quantities to "navigable" waters, including storm drains and drainage ditches, if left unattended before it could be cleaned up?	☒	☐

(If the answer to Question #4 is "Yes," a SPCC plan must be prepared. Go to Step 2 to determine the need for secondary containment. If the answers to #4 is "No" a SPCC plan may not be required)

STEP 2 - SPCC APPROPRIATE CONTAINMENT RECOMMENDATIONS

	Yes	No
1. Are the "navigable" waters within 50 feet of the facility?	☒	☐
2. Is the sensitivity of the site high? *(i.e. next to a school, daycare, food processing plant, or environmentally sensitive area)*	☒	☐
3. Are large volumes of oil transferred three or more times a week? (i.e. pumping or handling or oil products, excluding vehicle fueling)	☐	☒
4. Is the total facility aboveground oil volume > 100,000 gallons?	☐	☒
5. Does the spill drainage pathway have an average slope greater than 10 percent, and does the runoff drainage area have low permeability? (i.e. average runoff coefficient > 0.6, as for compacted earth, asphalt paving, or concrete paving)	☐	☒
6. In oil-filled electrical equipment > 55 gallons, is the PCB > 50ppm?	☐	☒

(If any one of the above questions has a "Yes" answer, secondary containment should be considered. If two or more have "Yes" answers, secondary containment is strongly recommended. Keep in mind, however, that the SPCC regulations allow practicability to influence the final decision)

CROSS REFERENCE		
RULE	**DESCRIPTION OF RULE.**	**SECTION**
§112.7	General requirements for SPCC Plans for all facilities and all oil types.	Page v
§112.7(a)	General requirements; discussion of facility's conformance with rule requirements; deviations from Plan requirements; facility characteristics that must be described in the Plan; spill reporting information in the Plan; emergency procedures.	Part I Part II Part III Attachment 6
§112.7(b)	Fault analysis.	Part I.8 Attachment 1
§112.7(c)	Secondary containment.	Part I.9 Attachment 5
§112.7(d)	Contingency planning.	Part III
§112.7(e)	Inspections, tests, and records.	Part II.4
§112.7(f)	Employee training and discharge prevention procedures.	Part II.6
§112.7(g)	Security (excluding oil production facilities).	Part II.5
§112.7(h)	Loading/unloading areas (excluding offshore facilities).	N/A
§112.7(i)	Brittle fracture evaluation requirements.	N/A
§112.7(j)	Conformance with State requirements.	Page v
§112.8, §112.12	Requirements for onshore facilities (excluding production facilities).	See Above §112.7(a)
§112.8(a), §112.12(a)	General and specific requirements.	See Above §112.7(a)
§112.8(b), §112.12(b)	Facility drainage.	Part II.1
§112.8(c), §112.12(c)	Bulk storage containers.	Part II.2
§112.8(d), §112.12(d)	Facility transfer operations, pumping, and facility process.	Part II.3
§112.9, §112.13	Requirements for onshore production facilities.	N/A
§112.9(a), §112.13(a)	General and specific requirements.	N/A
§112.9(b), §112.13(b)	Oil production facility drainage.	N/A
§112.9(c), §112.13(c)	Oil production facility bulk storage containers.	N/A
§112.9(d), §112.13(d)	Facility transfer operations, oil production facility.	N/A
§112.10, §112.14	Requirements for onshore oil drilling and workover facilities.	N/A
§112.10(a), §112.14(a)	General and specific requirements.	N/A
§112.10(b), §112.14(b)	Mobile facilities.	N/A
§112.10(c), §112.14(c)	Secondary containment - catchment basins or diversion structures.	N/A
§112.10(d), §112.14(d)	Blowout prevention (BOP).	N/A
§112.11, §112.15	Requirements for offshore oil drilling, production, or workover facilities.	N/A
§112.11(a), §112.15(a)	General and specific requirements.	N/A
§112.11(b), §112.15(b)	Facility drainage.	N/A
§112.11(c), §112.15(c)	Sump systems.	N/A
§112.11(d), §112.15(d)	Discharge prevention systems for separators and treaters.	N/A
§112.11(e), §112.15(e)	Atmospheric storage or surge containers; alarms.	N/A
§112.11(f), §112.15(f)	Pressure containers; alarm systems.	N/A
§112.11(g), §112.15(g)	Corrosion protection.	N/A
§112.11(h), §112.15(h)	Pollution prevention system procedures.	N/A
§112.11(i), §112.15(i)	Pollution prevention systems; testing and inspection.	N/A
§112.11(j), §112.15(j)	Surface and subsurface well shut-in valves and devices.	N/A
§112.11(k), §112.15(k)	Blowout prevention.	N/A
§112.11(l), §112.15(l)	Manifolds.	N/A
§112.11(m), §112.15(m)	Flowlines, pressure sensing devices.	N/A
§112.11(n), §112.15(n)	Piping; corrosion protection.	N/A
§112.11(o), §112.15(o)	Sub-marine piping; environmental stresses.	N/A
§112.11(p), §112.15(p)	Inspections of sub-marine piping.	N/A

PACIFIC GAS AND ELECTRIC COMPANY

WINDSOR SUBSTATION

10789 OLD REDWOOD HWY

WINDSOR, CALIFORNIA, 95492

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN)

October, 2017

Pacific Gas and Electric Company has prepared this Spill Prevention Control and Countermeasure Plan for Windsor Substation in order to minimize the potential for oil spills, prevent accidentally spilled oil from leaving the property, and to provide maximum efficiency cleanup of spilled oil.

This plan has been prepared pursuant to the Environmental Protection Agency regulations on oil pollution prevention, 40 CFR, Part 112 and 761. This plan will be reviewed and evaluated at least once every five years or immediately after a reportable spill event. The plan will be amended after such review if more effective prevention and control technology will significantly reduce the likelihood of a spill event from the facility. This plan will be amended within six months whenever there is a change in facility design, construction, operation, or maintenance which materially affects the facility's potential for off-site discharge of oil to navigable water.

This plan also considers and conforms to other applicable federal, state and local requirements pertaining to oil discharge prevention and containment including, but not limited to, the California Health and Safety Code Chapter 6.95 (Hazardous Materials Release Plans); California Health and Safety Code Chapter 6.67 (Aboveground Storage of Petroleum); Articles 79 and 80 of the California Uniform Fire Code adopted by the State of California; and California Occupational Safety and Health regulations.

MANAGEMENT APPROVAL AND CERTIFICATION

1. Management Approval

Management has approved this Plan and is fully prepared to commit the necessary resources to implement this plan.

I have reviewed and approve this SPCC Plan for Windsor Substation. I also certify under penalty of law that I have personally examined and am familiar with the information submitted (included) for the applicability of the Substantial Harm Criteria Analysis, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted (included) information is true, accurate and complete.

Signature: _____ Date: _____

Name: Bob Murphy

Title: Substation Maintenance Supervisor

2. Certification

By means of this certification, I as a Professional Engineer, attest to the following:

- I am familiar with the provisions of 40 CFR Part 112;
- the facility has been visited and examined by me or my agent;
- this Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part;
- the procedures for required inspections and testing have been established; and
- this plan is adequate for the facility.

Benedict Chu
Printed Name of Licensed Professional Engineer

_____ _____
Signature of Licensed Professional Engineer Date

License No.: C68533 State: CA

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(contd.)

ATTACHMENTS

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

CHANGE LOG

WINDSOR SUBSTATION

This log is provided for use in documenting updates of the SPCC plan.

Any changes in the facility design (increase or decrease of oil), construction, operation, or maintenance that materially affects the potential for a discharge of oil at the facility, must be made by a licensed professional engineer who will recertify the Plan.

Non-technical revisions such as personnel changes or telephone numbers may be made by the facility and recorded in the log.

Change No.	Date Entered	Initials	Description of Change	Page No.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

PART I

GENERAL INFORMATION

PART I

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

GENERAL INFORMATION

1. FACILITY NAME

Windsor Substation

2. TYPE OF FACILITY

Facility is an Electrical Distribution Substation.

3. LOCATION OF FACILITY

10789 Old Redwood Hwy
Sonoma County
Windsor, CA, 95492 Telephone: T.B.D.

See Vicinity Map and Facility Layout, Attachment 6.

4. OWNER/OPERATOR

Pacific Gas and Electric Company (PG&E)
P. O. Box 770000
San Francisco, CA 94177

5. DESIGNATED PERSON ACCOUNTABLE FOR OIL SPILL PREVENTION AT FACILITY

Bob Murphy
Substation Maintenance Supervisor
3395 McMaude Place, Santa Rosa, CA 95407
Public No. (707) 577-7283 PG&E No. 323-7283

6. FACILITY DESCRIPTION

This unstaffed substation, which has been in operation since 2017**,** houses oil-filled electrical equipment (transformers and CCVTs) and associated equipment, materials and controls. The operating electrical equipment is located throughout the substation yard.

The substation is located at the intersection of Old Redwood Hwy and Herb Road in the northern part of Windsor, CA off of Highway 101. The neighboring properties consist of a residential area and a creek on the northwest side, relatively empty land on the northeast and southwest sides, and a local school district parking garage on the southeast side of the substation.

In addition to the operating equipment, the following buildings and structures are located in the substation yard. The locations of these buildings and structures are shown on the Facility Layout Map, Attachment 6.

Switchgear	This enclosure houses the main control equipment for the substation.
Fence	The facility is surrounded by an eight-foot high galvanized chain link fence topped with one foot of barbed wire on the south side of the substation and ten-foot high precast concrete walls on the remaining sides. There are 2 vehicle entrance gates to the facility.

7. SPILL HISTORY

PG&E's procedures require the reporting of all PCB spills above the reportable quantity or with concentrations of 50 parts per million or greater, and any oil spills reaching navigable waters or which may pose a hazard or potential hazard to human health, property, or the environment. If a reportable spill occurs use Attachment 2, Oil Spill Report, and complete when appropriate. Small spills may occur during handling and maintenance of equipment or transfer operations. These incidental spills are not reported. All oil spills are contained immediately and cleaned up as soon as practicable.

A written report must be submitted to the appropriate Regional Water Quality Control Board when a spill has entered or threatened a water body. The address is:

Regional Water Quality Board,
North Coast Region (1)
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

For additional follow-up reporting information see Part III.

PG&E procedures include spill prevention measures for every aspect of the facility which involves use of oil-filled equipment or containers. The training for spill prevention procedures used at this facility is described in Part II, Section 6.

8. INVENTORY AND SPILL POTENTIAL

The inventory of oil filled equipment and storage containers is presented in Attachment 1. The equipment and containers are described in detail in the following Section A (Normal Operation). Spill Prevention techniques currently utilized and the potential for oil spills are also discussed in Section A.

Any soil or permeable media that may be part of the pathway or containment structure which is exposed to oil, will be cleaned or removed. Oil spills occurring during normal operation will be contained and cleaned up in accordance with the Oil Spill Contingency Plan, Part III of this SPCC Plan, as soon as practicable and in accordance with the regulatory requirements.

A. Normal Operation

1. Operating Equipment

The substation is equipped with an operating oil-filled transformer.

Possible spill occurrence:

i) Casing Rupture:

The highest potential for spillage associated with this operating equipment would result from a casing rupture. The largest potential leakage from any single piece of equipment in the yard is 5,100 gallons. Operations personnel are notified in the control room at the monitoring facility of significant leakage via remote equipment malfunction alarms for some transformers. Operations personnel are also notified of equipment problems which might involve oil leakage via customer complaints called in to PG&E. The Oil Spill Contingency Plan, Part III, describes the emergency response for investigation, containment, and cleanup of oil spills.

2. Mobile Tankers, Tanks & Electrical Equipment

Various sized mobile tankers and tanks may be brought onsite for interim oil storage. Oil from the electrical equipment under repair may be stored in these tanks. The oil in the tank is returned to the equipment following the repair process or held for disposal. When these tanks/ tankers, rented or owned, are in use at this facility they are provided with a SPCC/BMP Plan that addresses Spill Prevention, Control, Containment, and integrity testing.

Mobile electrical equipment may be brought on site for temporary replacement of electrical equipment during equipment maintenance, failure or for an increase of electrical capacity. When mobile electrical equipment, rented or owned, is in use at this facility it is provided with a SPCC/BMP Plan that addresses Spill Prevention, Control and Containment.

Possible spill occurrence:

i) Filling/Draining:

The largest spill potential would be during the filling or draining process. Prevention consists of constant supervision by site personnel during the filling and draining process to ensure that spills do not occur. Mobile berms and buckets for residual hose drainage are available, if necessary. A maximum of 5 gallons could be spilled.

B. Catastrophic Event

Spill volumes associated with a catastrophic event such as an earthquake are of a much larger magnitude than those accidents previously discussed. These spills have a much lower probability of occurrence. The largest potential spill due to an earthquake would involve the destruction of oil-filled equipment and containers in the building(s), and storage areas. Assuming the largest piece of oil-filled equipment or aboveground container is destroyed, or 50% of the oil in all the equipment and aboveground containers at the facility is spilled, the resultant spill volume would be 5,100 gallons. In the event of a significant earthquake or similar catastrophe which causes damage to operating equipment, an alarm would be triggered in the Control Room which monitors the equipment. The Systems' Operator would then notify the Emergency Coordinator, who would implement the Substation's Oil Spill Contingency Plan, Part III.

9. CONTAINMENT STRUCTURES AND EQUIPMENT

a) Equipment Alarms: Some transformers and related equipment are connected with remote oil level and/or malfunction alarms to Systems Operator located at the North Distribution Control Center in Rocklin. Operations/maintenance personnel would immediately respond and check the possible leakage of the equipment.

b) Retention Pond with Weir: The substation yard is graded and bermed such that runoff from the yard empties into an oil retention pond through the yard drainage system. The oil retention pond is a concrete basin equipped with a skimming weir and a gate valve to release uncontaminated runoff. The pond was designed to accommodate a minimum of 10 percent of the aggregate volume of oil or 110 percent of the volume of oil in the largest piece of oil-filled equipment or container located at this facility. Substation personnel inspect the basin at least once every two (2) months. If no oil is present, the person opens the manual gate valve and releases the water. The oil retention valve is only opened under strict supervision by substation personnel. Spilled oil which reaches the retention pond will be removed prior to release of the runoff according to the Oil Spill Contingency Plan, Part III.

c) Emergency Equipment: A detailed inventory of materials, clothing and equipment for the cleanup of oil spills and their location is provided in Contingency Plan, Part III, Table 3.

d) Cleanup/Disposal Resources: The firms listed in Attachment 4 can be utilized and will be called, if needed to assist with cleanup, disposal operations and chemical analyses.

10. FACILITY MODIFICATION

a) Based on the attached Decision Analysis Sheet, no modifications are required for this facility.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

PART II

DESIGN AND OPERATING INFORMATION

PART II

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

DESIGN AND OPERATING INFORMATION

1. FACILITY DRAINAGE

This facility is drained mainly by sheet runoff. It is graded such that runoff flows via valleys into a drainage ditch on the east side of the substation and to oil retention ponds on the west side. From the oil retention ponds, runoff flows to an infiltration pond which regulates the flow coming out of the substation. It then flows through pipes to an inlet where it meets the rest of the runoff from the drainage ditch. The total runoff flows under Herb Road through a pipe, which discharges to an existing ditch. The existing ditch eventually flows into Sotoyome Creek. The drainage system is illustrated on the Facility Layout, Attachment 6-2.

2. BULK STORAGE AND ELECTRICAL EQUIPMENT

A. Electrical Equipment

Electrical equipment on site contains insulating oil. Equipment casings are constructed of steel alloys which are compatible with insulating oil under all operating conditions. See Part I, Section 8A for operating information.

B. Mobile Tankers and Tanks

Various sized mobile tankers and tanks are brought onsite for interim oil storage during the repair of large volume oil-filled equipment. They are constructed of steel or other material which are compatible with insulating oils. The Substation Maintenance Supervisor is responsible for the tank and its contents. See Part I, Section 8A for operating information.

3. TRANSFER OPERATIONS

Insulating oil from the oil-filled substation equipment must be transferred to interim oil storage tanks prior to equipment maintenance or repair. A portable filter press pump is connected by flexible hoses to the equipment and the interim oil storage tank. The insulating oil is then pumped out of, or back into the equipment under repair. Constant supervision during the transfer process ensures minimal spillage. However, any small spills which do occur (typically 0-5 gallons) are cleaned up as soon as practicable by maintenance personnel. The Substation Maintenance Supervisor is responsible for this oil during the transfer and storage periods.

4. INSPECTION, TEST, AND RECORDS

At least once every two (2) months, a formal inspection of the substation is conducted by qualified personnel. The purpose of these inspections is to check the status of operating equipment and to verify that all oil-filled equipment/containers show no

evidence of active leakage or resultant spills. Any leakage which is detected is recorded, contained immediately and cleaned up as soon as practicable. Inspection results are captured electronically with hand held devices and stored in a database. The type of information available is similar to the “Facility Inspection Form” found in Attachment 3. The Substation Maintenance Supervisor at the Santa Rosa Maintenance Headquarters is responsible for verifying the scope and/or adequacy of these inspections.

These documented inspections include the general appearance of the facility, equipment oil level checks, and observation of operating equipment for oil leaks. "Facility Inspection Form" information for this substation is available at the Substation Maintenance Supervisor’s office at the Santa Rosa Maintenance Headquarters and maintained for a period of **five** years.

Both periodic integrity testing of applicable permanent/stationary bulk storage containers and periodic integrity and leak testing of associated valves and piping will be conducted. Testing will be performed by qualified personnel. Integrity testing, procedures and schedules have been developed in accordance with accepted industry standards. Documentation, of inspections and testing, is maintained at the facility or headquarters. (Containers excluded from integrity testing include, but are not limited to, oil-filled electrical equipment and operating equipment.)

All inspection forms must address the inspection criteria listed below (as appropriate)

INSPECTION OF BULK OIL STORAGE CONTAINERS AND OIL-FILLED ELECTRICAL AND OIL-FILLED OPERATING EQUIPMENT *(55 gallons or greater)*

The following items shall be **Inspected & Documented at least once every two (2) months**

- AG Storage Tanks – Mobile and Stationary
- HMS Area, Building and Containers
- Oil-Filled Electrical Equipment and Storage Areas
- Drums/Drum storage areas
- Spill Containment Areas & Retention Ponds
- Piping & oil transfer equipment
- Security
- Fire Extinguishers (Inspected Monthly)
- Spill Equipment (Inspected Monthly)

The following items shall be **Inspected & Documented Weekly**:

- HWS Area, Building, and Containers

Inspections shall include following items as applicable:

Aboveground Tanks & Equipment

- The outside of each piece of oil-filled electrical or operating equipment, tank or container is free of excessive or significant deterioration;
- There are no leaks beyond those managed using catch units or other release minimization units (e.g. buckets, oil absorbents or drip pans); Catch pans and other containment devices are not saturated and are in place where required;
- The tank or equipment supports and foundations are in acceptable condition;
- Electrical equipment is stored in designated locations;

Oil Retention Ponds & Spill Containment Areas

- The integrity of the containment/diked areas have not been compromised through the presence of cracks, erosion, or other similar problems:
- Evidence of oil
- Leakage from valve
- Debris and vegetation
- Pump/controls are operational
- The containment valves are closed;
- Drainage pathway to containment is clear and adequate.

Piping & Oil Transfer Equipment

- Valves, piping and associated equipment are free of oil leaks beyond those managed using catch units or other release minimization units (e.g. buckets, oil absorbents or drip pans);
- Pipes, valves or piping supports are free of excessive corrosion;
- Buried pipelines are not exposed;
- Connections are closed, capped or locked when not in use;

Spill Equipment and Fire Extinguishers

- Fire extinguishers are in working order;
- Spill control and personal protective equipment are present at the designated facility, in good condition and minimum quantities are maintained.

Security

- Fence/gates and buildings are secure.

If the inspection identifies that additional corrective action is necessary, the inspector shall notify the substation maintenance supervisor for corrective action.

De minimus discharges shall be promptly and properly contained and managed, but need not be documented on the inspection form. Oil containment units, such as catch pans, pads or socks, shall be replaced prior to saturation or more frequently depending on weather conditions (if outside) or leakage rate.

5. SECURITY

The facility is surrounded by an eight-foot high galvanized chain link fence topped with one foot of barbed wire on the south side of the substation and ten-foot high precast concrete walls on the remaining sides. There is automatic lights on a light pole, on dead end structures and outside of the switchgear.

There are (2) vehicle entrance gates which remain locked at all times.

Operating equipment at this substation is monitored at the North Distribution Control Center in Rocklin which is staffed 24 hours per day, 7 days per week. If equipment malfunctions, operations/maintenance personnel are dispatched to the substation to investigate the problem and take appropriate corrective action.

6. PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES

Personnel involved in the operation and maintenance of oil filled equipment at substations will be trained annually on spill prevention procedures to prevent the discharge of oil. They will also be trained on 40 CFR 112 and 761 as they relate to general facility operation and oil spill and discharge prevention procedures. Training will include a review of the contents of the SPCC Plan to assure adequate understanding of the plan for the facility. Training will highlight and describe known spill events and failures, malfunctioning components, relevant maintenance activities and recently developed precautionary measures. Documentation of training is maintained at the crew headquarters, by the Supervisor in charge. Documentation includes an attendance list and name(s) of instructor(s).

PG&E has complementary annual training programs that address the proper handling of hazardous materials and wastes at Company facilities. The training programs meet the employee training requirements of both federal and state regulations.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

PART III

OIL SPILL CONTINGENCY PLAN

PART III

OIL SPILL CONTINGENCY PLAN

1. INTRODUCTION

The purpose of this plan is to promote effective response to potential oil spills, fires, explosions, and hazardous materials releases to air, soil or surface water which could occur at the facility. It is also intended to minimize hazards to human health and the environment. This plan has been prepared according to the guidelines of the National Response Team Hazardous Materials Emergency Planning Guide (NRT-1/2001) and the regulations of the State of California as defined in the California Code of Regulations (CCR), Title 22 and Title 19. The CCR Title 22 requirements for contingency plans embody those in 40 CFR 112, 100, 109, and 761.

The provisions of this plan will be carried out immediately whenever there is an incident which could threaten human health or the environment.

2. AUTHORITIES AND RESPONSIBILITIES

The following discussion defines the authorities and responsibilities of PG&E personnel as they pertain specifically to oil spills, hazardous materials releases, and associated emergencies, i.e., fires and explosions.

A. Primary Emergency Coordinator

The Primary Emergency Coordinator is responsible for coordinating all emergency response measures at the facility. The Primary Emergency Coordinator is familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the characteristics of materials and wastes handled, the location of all records at the facility including emergency response records, and the facility layout. This person has the authority to commit the resources needed to carry out the contingency plan and the responsibility to respond to environmental emergencies as described in Sections 4 and 5, Response Procedures.

B. Alternate Emergency Coordinators

The Alternate Emergency Coordinators will coordinate with the Primary Emergency Coordinator or act in their behalf. The Alternate Emergency Coordinators are familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the characteristics of materials and wastes handled, the location of all records at the facility including emergency response records, and the facility layout.

These people have the authority to commit the necessary resources needed to carry out the contingency plan and the responsibility to respond to the emergency as described in Sections 4 and 5, Response Procedures. At least one emergency coordinator will be either on the premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time).

C. Hazardous Waste Coordinator

The responsibility of the Hazardous Waste Coordinator is to ensure that hazardous waste, waste oil and oily debris are disposed of according to applicable State and Federal regulations. In the absence of the Hazardous Waste Coordinator, the Primary Emergency Coordinator or the Alternate Emergency Coordinator will assume this role/position.

D. Spill Prevention Responsibilities

Procedures in place to prevent oil spills and releases of hazardous materials include routine inspections of oil and hazardous materials storage areas. Logs of these inspections are maintained at the facility or substation maintenance headquarters.

3. EMERGENCY TELEPHONE NUMBERS:

Key PG&E personnel, including Emergency Coordinators, and agencies to be contacted in the event of a spill are identified on the Emergency Telephone List provided on page i.

4. RESPONSE PROCEDURES FOR OIL SPILLS

The emergency response procedures in this Section describe the actions to be taken in the event of an oil spill or release of a hazardous material. The procedures are summarized in the Environmental Emergency Response Flow Chart provided in Table 1.

A. First Employee at the Scene

The responsibilities of an employee arriving at the scene of an oil spill, hazardous materials release, or associated emergency are as follows:

1. Observe from a safe distance.
2. Identify hazards.
3. Restrict access to the spill area.
4. Call for assistance. Provide the Emergency Coordinator or Supervisor with the following information:
    a. Your name and telephone number.
    b. Any injuries.
    c. Location and type of spill.
    d. Source and cause of spill, if known.
    e. Fire or explosion risk.
    f. Actions taken to stop/contain the release.
    g. Notify fire department if needed.

5. **If safe to enter the area**, attend to any injured. Administer first aid if you have been trained and certified. Call an ambulance or paramedic.

6. **If safe to do so**, stop the source of the discharge. Note: If material is unknown, can cause immediate hazards to life or health, is producing fumes, vapors, etc., never enter the area without the proper personal protective equipment and support persons.

   This may involve:

   - shutting off equipment or pumps;
   - plugging a hole in operating equipment or a tank;
   - closing a valve; and/or
   - righting an overturned container or piece of operating equipment.

   Simultaneously pursue containment of the discharge with the following containment techniques:

   - For relatively small spills, apply absorbent to the surface of the spill enough to absorb all the liquid.

   - For larger spills, construct earthen dikes or ditches around the spill to prevent the discharge from flowing off-site or into waterways.

   - Prevent discharge into storm drains by sealing off with plastic and/or earthen dikes.

7. Remain at the scene to prevent other people or vehicles from entering the emergency area until relieved by the Emergency Coordinator or Supervisor.

B. Initial Emergency Coordinator Action

1. The Emergency Coordinator must gather as much information as possible to assess the magnitude and severity of the spill in order to initiate appropriate actions. This may involve telephone calls to operations or maintenance personnel who may have seen the spill or to office personnel who can assist in collection of resources such as Safety Data Sheets (previously known as MSDS), Facility Environmental Emergency Plan, or Spill Prevention Control and Countermeasure (SPCC) Plan, or North American Emergency Response Guidebook.

2. The Emergency Coordinator then goes to the scene of the spill to initiate an appropriate response plan. (Refer to Environmental Emergency Response Flow Chart, Table 1.)

C. Response Plan Developed and Implemented

1. Identify if any injuries have occurred and that proper actions have been taken.

2. Assess the possible hazard to human health, property, or the environment.

a. Isolate spill from human or vehicular contact. (Use cones, stanchions, and tape; post signs.) Order all personnel not involved with the cleanup operation to leave the area.

b. If the emergency threatens human health, activate alarms or communications systems to notify all persons for evacuation.

c. If the emergency threatens human health outside the facility boundaries and local areas must be evacuated, notify the California Office of Emergency Services (Cal OES) and the local emergency assistance organizations (listed on page i).

   An immediate verbal report of any release or threatened release which poses a present or potential danger to human health and safety, property or the environment must be reported to the city or county administering agency and the California Office of Emergency Services (Cal OES):

   See page i for the appropriate telephone numbers.

   The verbal notification should include the following information:

   - Name and telephone number of person reporting release
   - Name and address of the facility
   - Time and type of incident
   - Location of the release
   - Hazardous material and estimate of the quantity
   - Extent of injuries
   - Potential hazards (if known)

   Document this notification with the Oil Spill Report, Attachment 2.

d. Arrange to have an emergency response contractor or Safety Health and Claims representative conduct air monitoring to determine Permissible Exposure Level (PEL) and Threshold Limit Value (TLV) if necessary.

e. Stop processes or operations where necessary. Continue to monitor for leaks, pressure buildup, gas generation or release, ruptures in pipes or valves.

f. Isolate affected containers or equipment.

g. Remove non-affected, potentially hazardous materials.

3. Identify what material is involved.

4. Identify personal protective equipment which may be required in the area.

5. Evaluate the resources needed, such as manpower, equipment, and cleanup materials, and call for outside contractor assistance if needed. Cleanup/ Disposal Resources are listed in Attachment 4.

   The Emergency Coordinator is responsible for determining when a cleanup is complete. Depending on the nature and magnitude of the spill, this

decision may be made in consultation with state/local agencies having jurisdiction in the affected area.

6. Determine actions needed to successfully complete containment and cleanup efforts. Establish an exclusion zone (work area where spill has been identified), a contamination reduction zone (where decontamination procedures are conducted and contaminated protective clothing can be removed), and a support zone (where persons can wait in a clean environment).

   Assemble the emergency response personnel and provide a briefing detailing the cleanup procedures, protective clothing to be worn, and equipment to be used. Cleanup efforts must be undertaken to restore the affected area to its pre-spill condition to the maximum extent possible.

   Additional cleanup procedures for PCB and/or suspected PCB spills are described below:

   a. Remove all visible traces of oil. Excavate soil and wipe down poles, trees, etc. with Penetone to remove the oil. Wipe down the surface of cars with mineral spirits.

   b. For relatively small spills, absorbent will be applied and re-applied until there is enough to absorb all the liquid. This material will be picked up with stiff brooms and shovels and placed in approved waste containers for disposal in accordance with applicable regulations.

   c. For spills in buildings or on paved areas, a second application of absorbent will be spread over the contaminated area and swept with stiff brooms to remove residues which may remain. Spill debris and cleanup materials will be placed in approved containers for disposal in accordance with applicable regulations.

   d. Spill debris and cleanup materials will be placed in approved containers for disposal in accordance with applicable regulations. Soil which has been removed will be placed in approved waste containers for disposal in accordance with applicable regulations.

   e. For spills in catchment basins or oil retention ponds, the oil will be removed by using absorbents or with the assistance of a cleanup company. If the spill is relatively small, rolls of 3M "Sorbent" Type 100 or equivalent will be cut into manageable lengths and floated on the surface of the water to absorb the oil. For larger spills, cleanup companies may use skimming and separation devices or sorbents. After the surface of the water has been cleaned, 3M "Sorbent" Type 156 sheets or equivalent will be used to scrub the walls of the basin at the water line. Oil and oily water will be collected for disposal in accordance with applicable regulations.

   f. Decontaminate all equipment and surfaces.

For suspected contaminated PCB spills:

a. Identify the PCB concentration. If this information is not readily available on the equipment or from the office records, samples must be taken and sent immediately for laboratory analysis.

b. A spill of oil contaminated with PCBs originating at 50 ppm or greater must be sampled, contained, cleaned up, disposed of, documented, and reported in accordance with PG&E's Utility Standards TD-2320S and TD-3324S. A list of laboratories that can be utilized by PG&E can be found in Attachment 4.

c. PCB Cleanup Requirements:

   i) **High-concentration PCB spills** (500 ppm or greater, or one pound or more of pure PCBs by weight).

      The following actions must be taken within 24 hrs (48 hrs for PCB transformers) after discovery of a PCB Spill:

      a) Notify the Environmental Protection Agency (EPA) regional office, the National Response Center (NRC), and the California Office of Emergency Services (Cal OES).

      b) Effectively cordon off a 3-foot lateral buffer around the spill area. Place clearly visible signs advising persons to avoid the area to minimize the spread of contamination as well as the potential of human exposure.

      c) Document and record the area of visible contamination

      d) Initiate cleanup

         In "restricted access areas", all soil (lawn, etc.) with visible traces of oil is required to be cleaned or excavated until the PCB contamination is reduced to a concentration of no greater than 25 ppm PCB or 50 ppm provided that a label or notice shall be visibly placed in the area. Clean soil (less than 1 ppm) is to be used to backfill and restore all excavated areas to its original configuration. Solid surfaces must be cleaned to a PCB concentration of 100 micrograms/100 cm^2 (930 micrograms/ft^2). Wipe samples are then to be collected and tested for PCB concentration.

         For "non-restricted access areas", solid surfaces are to be cleaned to 10 micrograms/100 cm^2 (93 micrograms/ft^2) and soil is to be cleaned to 10 ppm provided that the depth of excavation is at least 10 inches. Clean soil (less than 1 ppm) is to be used to backfill and restore all excavated areas to its original configuration.

         State and local agencies may have more stringent cleanup requirements that must be followed.

      e) Although high concentration PCB spills have no cleanup deadline, they should be completed as soon as possible after discovery.

ii) **Low-concentration PCB spills** (50 ppm or greater but less than 500 ppm, and less than one pound of pure PCBs by weight).

The following actions must be started as soon as possible, but in all cases must be completed no later than or within 48 hours after discovery of a PCB Spill:

a) Solid surfaces must be double washed/rinsed; except that all indoor, residential surfaces other than vault areas must be cleaned to 10 micrograms per 100 square centimeters (93 micrograms/ft^2) by standard commercial wipe tests.

b) All soil within the spill area (i.e., visible traces of soil and a buffer of 1 lateral foot around the visible traces) must be excavated, and the ground be restored to its original configuration by back-filling with clean soil (i.e., containing less than 1 ppm PCBs).

As a guideline (not a requirement), excavate soil to a minimum depth of 6 inches and lawns to a minimum depth of 2 inches to obtain cleanups to practically attainable levels so that no soil, lawn, vegetation etc., with a concentration of 25 ppm or greater PCB remains in the environment. When assured that this cleanup requirement can be met, the amount of soil, lawn, vegetation, etc., excavated can be reduced as long as the cleanup crew will not have to return to the spill site to meet the cleanup requirements.

All solid surfaces shall be cleaned up to a concentration of no greater than 10 micrograms/100 cm^2 (93 micrograms/ft^2). The adequacy of a cleanup, whether in soil or on a solid surface, shall be verified by post-cleanup soil or wipe samples analyzed by a gas chromatograph.

For both high and low concentration PCB spills:

After removing all free-flowing liquid with absorbent compound, concrete and asphalt shall be cleaned by applying Penetone via swabbing and washing with mops and scrubbing with stiff brooms. Another application of absorbent compound is then to be applied, scrubbed in, and swept up to absorb the Penetone. Trees, structures, wood poles, etc., can be cleaned by using Penetone; but car surfaces shall be cleaned by using mineral spirits.

Excluded from the automatic application of the final numerical decontamination standard are those involving surface waters, sewers or sewage treatment systems, and food and feed crops. These types of spills are subject to the final cleanup standards to be established at the discretion of the EPA Regional Office IX.

A "PCBs" customer notification card can be used, but it is not mandatory, to notify an unavailable property owner by leaving in a conspicuous place.

iii) PCB spills with a concentration of 5 ppm or greater but less than 50 ppm:

a. The cleanup procedures must be initiated within 48 hours of notification and be completed as soon as practicable.

b. Cleanup shall follow the oil spill cleanup procedures except that all solid surfaces must be cleaned by double washing/rinsing.

c. No post cleanup sampling is required unless requested by local agencies.

d. Spills and all cleanup material shall be managed as state hazardous waste.

d) Sampling Requirements

Spill classification is based on the PCB concentration in an oil sample taken from the source of the spill, not the concentration of PCBs in the material onto which the PCBs were spilled. Only random post cleanup samples are to be taken for low concentration PCB spills but rigorous sampling is required by the EPA for (1) pre-cleanup sampling data when necessary to establish spill boundaries or (2) post cleanup samples for high concentration PCB spills. The complete rigorous sampling procedure manuals issued by the EPA are available upon request from the Environmental Specialist or the Applied Technical Services (ATS) Department in San Ramon. For assistance in taking rigorous samples, phone the ATS Department at (925) 820-2000 and state that a chemical spill has occurred.

e) Records and Certification

Records shall be maintained of all insulating fluid spills involving 50 ppm or greater PCB and all spills regardless of the PCB concentration involving waterways that lead to navigable waters. Post cleanup sample laboratory test reports will serve as decontamination certificates for all spills of 50 ppm or greater PCB. The "PCB/Oil Spill or Leak Report" (Form 62-3685) found in Attachment 4 to Utility Procedure TD-2320P-01 summarizes the reporting requirements for PCB/oil spills.

All spill records shall be kept for a minimum of five (5) years.

7. Obtain general release information and record it using the Oil Spill Report provided in Attachment 2.

8. Identify appropriate company and agency notification requirements.

D. Proper Handling of Hazardous Waste

After completion of cleanup, contaminated disposable protective clothing will be removed by cleanup personnel immediately and placed in an approved waste container for disposal. Gloves will be removed, and hands will be thoroughly cleaned with waterless hand cleaner or soap and water and wiped with rags and paper towels. Rags and other waste material will be placed in approved waste containers for disposal in accordance with federal, state, and local regulations.

All oil, hazardous materials, and cleanup debris recovered from a spill will be considered hazardous waste unless it is demonstrated to be non-hazardous and must be disposed of according to applicable state and federal regulations. Contact the Environmental Specialist for determination of proper waste disposal methods.

E. Follow-up Actions

1. Decontaminate all equipment or other contaminated surfaces.
2. Restock all emergency spill control equipment and supplies to maintain the inventory listed in Table 3.
3. Critique spill response actions to identify measures to avoid future incidents and to improve the efficiency of future spill cleanup actions.

F. Document Response Actions

Reportable oil spills and hazardous materials releases must be carefully documented so that sufficient information is available to concerned agencies.

Information concerning the spill should be recorded on the Oil Spill Report provided in Attachment 2 and should include photographs for major spills or when appropriate.

Send a copy of the completed Spill Report Form and photographs as appropriate to the Environmental Specialist and file the original in the Facility Records.

G. Follow-up Reporting

Contact the Environmental Specialist for assistance in filing the required written agency notifications described below.

1. Notify the California Department of Toxic Substances Control and the local authorities that the cleanup has been completed and that all emergency response equipment is cleaned, ready for reuse, and restocked for future use.
2. A **written report** must be submitted to the Environmental Protection Agency (EPA) within **60 days** whenever a facility has:
   a. Discharged more than 1,000 gallons of oil into navigable water in a single spill event, **or**
   b. Discharged oil in two discharges of 42 gallons or more in each of these discharges, into navigable water, within any 12-month period.

   The report must be submitted to the Region IX Administrator at the following address:

   Environmental Protection Agency
   75 Hawthorne Street
   San Francisco, CA 94105

3. A written report must be submitted to the appropriate Regional Water Quality Control Board (RWQCB) when a spill has entered or threatened a water body. The local RWQCB address is shown in Part I, Section 7.

4. A written report must be submitted to the California Department of Toxic Substances Control within 15 days of a spill that posed a hazard or potential hazard to human health, property, or the environment. The address is:

   California Department of Toxic Substances Control
   Chief Northern Calif. Section, Region 1
   8800 Cal Center Drive
   Sacramento, CA 95826-3200

5. The California Office of Emergency Services (Cal OES) form entitled "Emergency Release Follow-Up Notice Reporting Form" must be prepared and submitted within 30 days of the date of the release to:

   State Emergency Response Commission (SERC)
   Attn: Section 304 Reports
   Hazardous Materials Unit
   3650 Schriever Avenue
   Mather, CA 95655

   a. In addition, report spills greater than 42 gallons onto land or any amount entering or threatening to enter waters of the State to the California Office of Emergency Services (Cal OES). A written follow-up report is required.

5. RESPONSE PROCEDURES FOR FIRES

A. Evaluation and Initiation of Action

In the event of a fire or explosion, immediately notify the local fire department by calling 911. The Emergency Coordinator must then gather as much information as possible to assess the magnitude and severity of the fire or explosion to initiate emergency action.

1. Identify the source of the fire or explosion.
2. Assess the possible hazard to human health and take appropriate actions:
   a. Isolate the fire area. Order all personnel not involved with the emergency to leave the area.
   b. If the emergency threatens them, notify all facility personnel for evacuation. (See Section 7 for evacuation plan.)
   c. If the emergency threatens human health outside the facility boundaries and local areas must be evacuated, the California Office of Emergency Services (Cal OES) and the local emergency assistance organizations must be notified.

3. Assemble the emergency response personnel and provide a briefing detailing the fire fighting procedures, protective clothing to be worn, and equipment to be used.
4. Assess the potential for the fire spreading or explosion occurring and take appropriate actions:
    a. Stop processes or operations where necessary.
    b. Isolate affected containers or equipment.
    c. Remove non-affected, potentially hazardous materials.
5. If facility operations are stopped, monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment.
6. If the fire is accompanied by an oil spill or hazardous material release, initiate emergency response as described in Section 4.

B. Containment, Termination, and Cleanup

1. When it is safe to do so, facility personnel may attempt to contain the fire with fire extinguishers until local fire authorities arrive on the scene. If the fire involves hazardous fumes, the proper personal protective equipment must be worn. Trained personnel must be identified and called in to fight the fire.
2. If the fire is accompanied by an oil spill, contain the spill and follow clean-up procedures in Section 4.

6. EMERGENCY EQUIPMENT

This section describes the emergency equipment at the facility and the applicable maintenance and inspection schedules.

Inspections involve visually checking emergency protection systems and equipment to ensure that they are in place, charged, and ready for use in the event of an emergency. See Table 2.

Maintenance involves a more thorough examination and servicing of equipment.

A. Communication and/or Alarm System:

Commercial telephones are located in building(s) where provided. In addition, most PG&E vehicles are equipped with two-way radios that can be used to summon assistance in the event that telephone service is cut.

B. Fire Fighting Equipment:

Fire extinguisher and other fire fighting equipment locations and type/capability are listed in Table 2. The type of extinguisher placed at each location depends on the types of fire likely to occur near the location. Locations of fire extinguishers are depicted in Attachment 6, Facility Layout Map.

C. Spill Control Equipment:

A list of spill control equipment that may be used at this facility is presented in Table 3.

7. EVACUATION PLAN AND PROCEDURES

Evacuation of the facility will occur as a response to an incident with known or unknown hazards that could pose a threat to the health and/or safety of facility personnel.

The decision to evacuate is the responsibility of the Facility Emergency Coordinator or the shift supervisor. He/she will determine the extent of evacuation. The local fire department or other emergency response personnel might have the authority to make this decision depending upon the situation.

All facility personnel have been trained in the evacuation routes for their work stations and the other areas of the facility. An assembly point is designated and will provide for personnel accountability and serve as a staging area for the emergency response.

TABLE 1

ENVIRONMENTAL EMERGENCY RESPONSE FLOW CHART

SPILL INCIDENT OCCURS

1. Initial discovery or reporting of spill.

⇓

FIRST ON SCENE

1. Observe from a safe distance.
2. Identify hazards.
3. Restrict access to the spill area.
4. Call for assistance.
5. If safe to enter the area, attend to any injured.
6. If safe to do so, stop the source of the discharge and contain the spill.
7. Remain at the scene until relieved by Emergency Coordinator or Supervisor.

Notify Emergency Coordinator of the following:

a. Your name and telephone number.
b. Any injuries.
c. Location and type of spill.
d. Source and type of spill.
e. Fire or explosion risk.
f. Actions taken.
g. Notify fire department if needed.

⇓

INITIAL EMERGENCY COORDINATOR ACTION

1. Assemble resources.
2. Go to scene.

⇓

RESPONSE PLAN DEVELOPED BY EMERGENCY COORDINATOR

1. Identify if any injuries have occurred and proper actions required.
2. Assess hazards or potential hazards to human health, property, or the environment. (Conduct air monitoring if required.)
3. Identify what material is involved - type, quantity, PCB concentration, etc.
4. Identify personal protective equipment which may be required in the area.
5. Evaluate the resources needed, such as materials, equipment, manpower, outside contractor assistance.
6. Determine corrective actions needed for central containment, mitigation, cleanup, etc.
7. Obtain general information - location, on-site or off-site, release to waterway, etc.
8. Identify company and agency notification requirements.

Refer to:

a. Facility Environmental Emergency Plan
b. Spill Prevention Control and Countermeasure Plan (SPCC)
c. North American Emergency Response Guide Book

ENVIRONMENTAL EMERGENCY RESPONSE FLOW CHART

(CONT'D.)

IMPLEMENTATION OF EMERGENCY RESPONSE PLAN

⇓

PROPER HANDLING OF HAZARDOUS WASTE

Contact the following personnel for assistance:

1. Materials Department,
2. Facility Hazardous Waste Coordinator, or
3. Environmental Specialist

⇓

FOLLOW-UP ACTIONS

1. Decontaminate all equipment.
2. Restore all safety and cleanup supplies.
3. Critique spill response actions.
4. Contact Environmental Specialist to have SPCC Plan reviewed and evaluated.

⇓

DOCUMENT RESPONSE ACTIONS

1. Complete the Oil Spill Report including:

a. Release information
b. Corrective action
c. Hazard assessment
d. Agency notifications

File the Spill Report in the Facility Records and SPCC Plan.

⇓

FOLLOW-UP REPORTING

Contact the Environmental Specialist for assistance in filing follow-up reports for the following types of spills:

1. The spill posed a hazard or potential hazard to human health or the environment.
2. The release entered any type of waterway, such as a creek or storm drain.
3. Fuel or oil was discharged in a quantity of 42 gallons or more.

The Flow Chart outlines PG&E's Environmental Emergency Response Procedures as described in the Spill Prevention, Control, and Countermeasure (SPCC) Plan.

TABLE 2

FIREFIGHTING EQUIPMENT INVENTORY

No firefighting equipment is located at this facility.

TABLE 3

SPILL CONTROL AND PERSONAL PROTECTIVE EQUIPMENT
Minimum Quantities Required
(Verify minimum quantities required for this facility while at site visit)

ITEM	CAPABILITY	TYPE OR DESCRIPTION	QTY.	LOC.	INSP. SCHD.
Containers	Hazardous waste disposal	55-gallon drum	4	*	Monthly
	Hazardous waste disposal	85 gallon drum	1	*	Monthly
	Hazardous waste disposal	5-gallon drum	2	*	Monthly
	Secondary Containment	2x4x4 box	2	*	Monthly
	Spill Cleanup	10 mil/50"x56" bags	10	*	Monthly
Absorbents	Spill Cleanup	Oil absorbent compound	20 bags	*	Monthly
	Spill Cleanup	Spill control pillows	2 bales	*	Monthly
	Spill Cleanup	3M Sorbent type 100 or equivalent	1 bale	*	Monthly
	Spill Cleanup	3M Sorbent type 156 or equivalent	1 bale	*	Monthly
Cleanup Materials	Spill Cleanup	Penetone Power Cleaner	1 gal.	*	Monthly
	Spill Cleanup	Rags	50 lbs.	*	Monthly
	Spill Cleanup	Street broom	2	*	Monthly
	Spill Cleanup	Scrub brush	1	*	Monthly
	Spill Cleanup	Mop	2	*	Monthly
	Spill Cleanup	Plastic pail	2	*	Monthly
	Spill Cleanup	Flat-bottomed shovels	1	*	Monthly
	Spill Cleanup	Flat bottomed aluminum shovels	1	*	Monthly
	Spill Cleanup	Waterless hand cleaner	1 tube	*	Monthly
Coveralls	Personal Protection	Tyvek vented back	6 pair	*	Monthly
Booties	Personal Protection	Plastic	6 pair	*	Monthly
Gloves	Personal Protection	Solvex or Butyl	6 pair	*	Monthly
Face Shields	Personal Protection	Universal hard hat/adapter	2	*	Monthly
	Personal Protection	Formed 8" visor	2	*	Monthly
Goggles	Personal Protection	Plastic	2	*	Monthly
Miscellaneous	Spill Cleanup	Bung Wrench	1	*	Monthly
	Spill Cleanup	Funnel	1	*	Monthly
	Site Control	Barricade Tape	2 rolls	*	Monthly
	Site Control	Duct Tape	1 roll	*	Monthly
	Site Control	Plastic sheet 100'	1 roll	*	Monthly

Substitutions: A 95 or 180 gallon approved plastic container may replace 85 gallon drum or 2x4x4 box.

* Location: Spill supplies are located at the Fulton Substation which is approximately 9 miles from the site. The inspections are documented and records are kept at the Fulton Substation.

ATTACHMENT 1

WINDSOR SUBSTATION

INVENTORY AND SPILL PREDICTION TABLE
(SUMMARY)

TYPE OF CONTAINER	NO. OF ITEMS	VOLUME PER CONTAINER (GAL)	TOTAL VOLUME (GAL)	TYPE OF FLUID	PURPOSE	MAJOR CAUSE OF SPILL OR FAILURE	AMOUNT OF SPILL (GAL)
Transformers	1	5,100	5,100	Mineral Oil	Operating Substation Equipment	Casing Rupture	0-5,100
Potential Transformers	7	*30	210	Mineral Oil	Operating Substation Equipment	Casing Rupture	0-30

Total 5310 GAL

*Estimate

Footnotes:

1. See Attachment 6 for direction of flow.
2. Rate of Flow of spill:
   a. UG/AG Tank (fuel) =1 to 25 GPM
   b. UG/AG Tank (oil) = 1 to 25 GPM
   c. Drums = 1 to 40 GPM
   d. Oil-filled equipment in storage (up to 4 feet high) = 1 to 40 GPM
   e. Operating Oil-filled equipment (up to 8 feet high) = 1 to 95 GPM
   f. Operating Oil-filled equipment (up to 8-12 feet high) = 1 to 105 GPM
   g. Operating Oil-filled equipment (over 12 feet high) = 1 to 120 GPM

ATTACHMENT 2

OIL SPILL REPORT

FACILITY NAME: _____ REPORT DATE: _____

FACILITY OWNER/OPERATOR: Pacific Gas & Electric Co.
P.O. Box 770000
San Francisco, CA 94177

FACILITY ADDRESS: _____
CITY/COUNTY: _____ ZIP CODE: _____
DATE/YEAR OF INITIAL OPERATION: _____
MAXIMUM STORAGE/HANDLING CAPACITY
OF THE FACILITY: _____ NORMAL DAILY THROUGHPUT: _____

1. RELEASE INFORMATION

LOCATION/AREA: _____
RELEASE: On-Site ___ Off-Site ___ Waterway ___ Air ___ Ground ___ Other ___
DATE AND TIME OF INCIDENT: _____
MATERIALS RELEASED: _____
PHYSICAL STATE: Solid ___ Liquid ___ Gas ___
ESTIMATED AMOUNT RELEASED: _____ DURATION OF RELEASE: _____
CAUSE OF RELEASE (INCL. A FAILURE ANALYSIS OF SYSTEM/SUB-SYSTEM IN WHICH THE FAILURE OCCURRED: _____

2. CORRECTIVE ACTION SUMMARY

CONTAINMENT: _____
EQUIPMENT AND/OR REPLACEMENT: _____
PREVENTION OF POSSIBILITY OF RECURRENCE: _____
CLEANUP: _____
TIME AND DATE CLEANUP COMPLETED: _____
WASTE SAMPLES TAKEN: _____
QUANTITY AND DISPOSITION OF WASTES: _____

3. HAZARD ASSESSMENT

HUMAN HEALTH: _____
Acute or Immediate ___ Chronic or Delayed ___ Unknown ___
PROPERTY: _____
ENVIRONMENT: _____

4. RECORDABLE OR REPORTABLE INFORMATION

RECORDABLE INCIDENTS: Complete Sections 1-3 above and sign below.
REPORTABLE INCIDENTS: Complete the entire Spill Report, including the agency contact information below:

AGENCY	CONTACT NAME:	DATE	TIME
County:			
Local Fire Dept.:			
CAL-EPA:			
Cal OES:			
NRC:			
RWQCB:			
ARB:			

Signature: _____

Print Name/Title: _____ Telephone # _____

ATTACHMENT 3

SPCC FACILITY INSPECTION FORM

Pacific Gas and Electric Company

TD-3322M-F02, July 2013 **Spill Prevention, Countermeasure, and Control (SPCC) Plan Inspections**

For complete information for each item below, refer to the SMCM, "Substation Inspections" section.

Station Name: _____ Inspector's Name: _____ Date: _____

√ = OK X = Needs Repair NA or "–" = Not Applicable ⇨ Put applicable "Comments" on this page

Code = Service Work Priority Code: 1 = Immediate; 2 = 30 days; 3 = 6 months; 4 = 1 year

√:X:NA	Code		√:X:NA	Code	
		Above-Ground Oil Storage Tanks			**Piping and Oil Transfer Equipment**
		Tank leakage			Leakage
		Leakage on the ground			Equipment integrity
		Tank integrity			Leak containment
		Supports and foundation			**Oil Retention Ponds, Catch Basins, and Spill Containment Areas**
		Leak containment			Evidence of oil
		Portable Plastic Oil Storage Tanks			Leakage from valve
		Tank leakage			Damage
		Leakage on the ground			Safety chains or fence barriers
		Surface cracks			Debris
		Leak containment			Pumps
		Mobile Oil Tanker Trailer			Signs
		Tank leakage			**Substation Equipment Oil Leaks***
		Leakage on the ground			Leaks*
		Tank integrity			Repairs
		Leak containment			Containment

	***Equipment Oil Leak Locations:** (Continue on Supplemental Sheet if necessary)	**PCB Level**	**Leak Repairs Made? Y or N**	**Clearance Required? Y or N**
1				
2				
3				
4				
5				

Comments: Document the following SPCC information: comments for all abnormal conditions found during the inspection; any repairs made or work performed; and any containment materials used or replaced.

_____

_____

TD-3322M-F02, July 2013 **Hazardous Materials Business Plan (HMBP) Inspections**

For complete information for each item below, refer to the SMCM, "Substation Inspections" section.

Compare the onsite Hazardous Materials Business Plan (HMBP) with actual site conditions to identify whether there have been:

		Y*	N
1	Changes in the primary or alternate **emergency contact** or contact information?		
2	Changes in the **facility layout**?		
3	Changes in **equipment**?		
4	An increased **volume** of existing onsite hazardous materials?		
5	Any **new types of hazardous substances** brought on site?		

* For any YES answers:

Immediately notify the **primary** emergency contact. Person Notified: _____ Date: _____

Primary: immediately notify **environmental field specialist.** Person Notified: _____ Date: _____

The substation maintenance supervisor must review all pages of this form. Keep the form on file at the local headquarters.

ATTACHMENT 4

CLEANUP/DISPOSAL RESOURCES

The following firms can be utilized and will be called, if needed, to assist with cleanup, disposal operations and chemical analyses.

a. Spill cleanup, response, and transportation firm:

SPILL CLEANUP, RESPONSE, AND TRANSPORTATION		ARRANGEMENTS
Name Address City Telephone Contract #	PSC Industrial Outsourcing Inc. 1802 Shelton Drive Hollister, CA 95023 (800) 321-1030 4400005530	Oil Spill Response and Hazardous Waste and PCBs - Cleanup and Transportation

b. List of laboratories for chemical analysis:

LABORATORIES FOR CHEMICAL ANALYSES		ARRANGEMENTS
Name Address City Telephone Contract #	Test America 1220 Quarry Lane Pleasanton, CA 94566 (925) 484-1919 4400000355	PCB, STLC, TCLP, CAM 17, TPH, and General Lab Analysis
Name Address City Telephone Contract #	Torrent Laboratory, Inc. 483 Sinclair Frontage Road Milpitas, CA 95035 (408) 263-5258 4400000390	STLC, TCLP, TTLC,CAM 17, TPH, VOC and General Lab Analysis
Name Address City Telephone Contract #	Weidmann Diagnostic Solutions Inc. 4011 Power Inn Road Sacramento, CA 95826 (916) 455-2284 4400000351	PCB, TPH and General Lab Analysis

.

ATTACHMENT 5

OPERATING PROCEDURES

FOR

FACILITY CONTAINMENT

RETENTION POND WITH WEIR AND MANUAL DRAIN

1. Facility personnel shall inspect the containment at least once every two (2) months for visible oil sheen on the water.

2. If there is no oil sheen present, a facility person shall open the normally closed, manual valve and release the uncontaminated runoff. The drainage of the containment shall be documented in the substation log book. The valve should be closed after the containment area is drained.

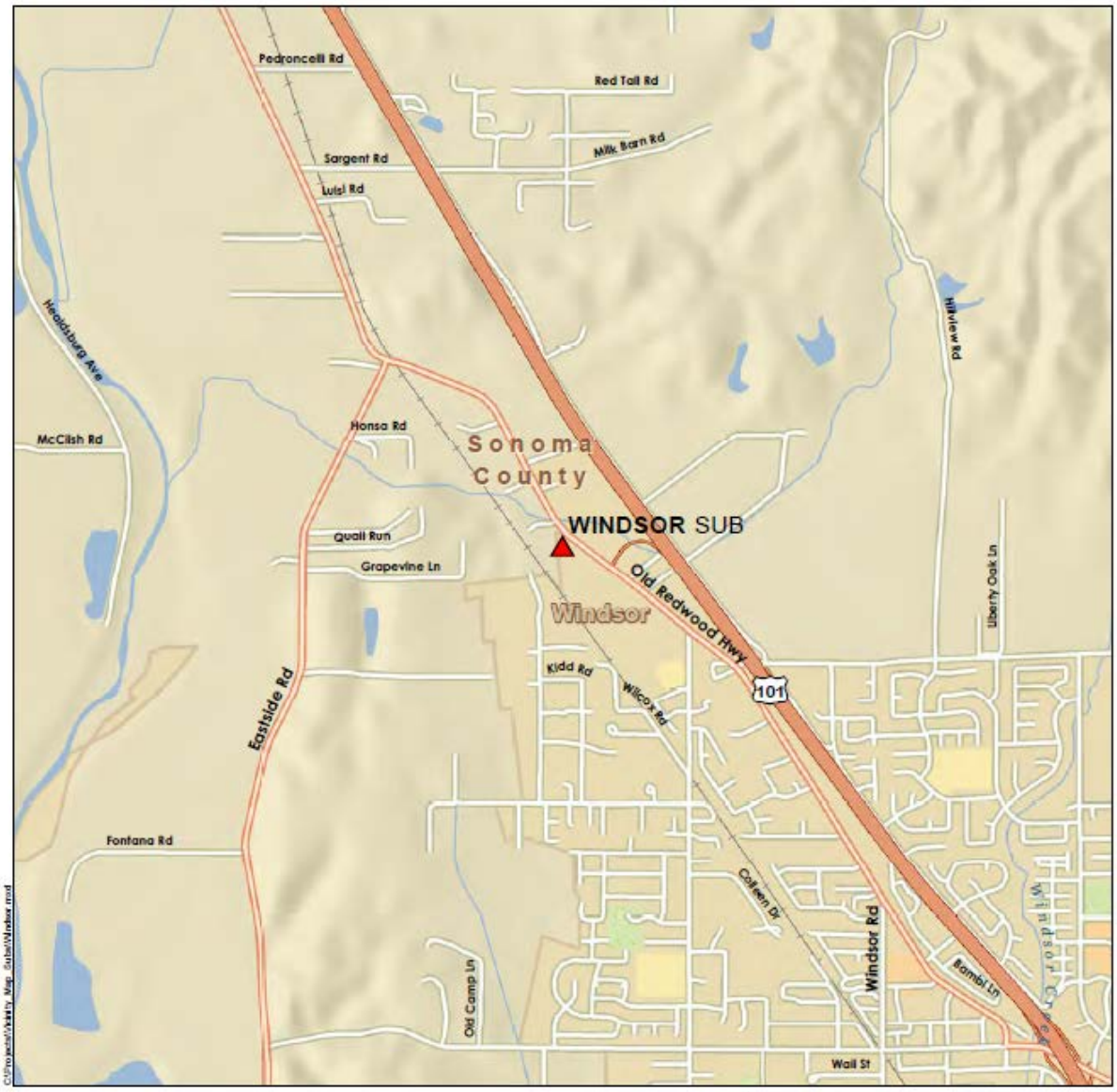
3. Oil sheens shall be removed by placing floating sorbent pads on the water surface.

4. If a perceptible thickness of oil, other than a sheen, is found floating on the surface of the water, the contents of the pond shall be pumped out and disposed of in accordance with the Spill Contingency Plan.

ATTACHMENT 6

(ATTACHMENT 6-1 VICINITY MAP)

(ATTACHMENT 6-2 FACILITY LAYOUT)



Vicinity Map

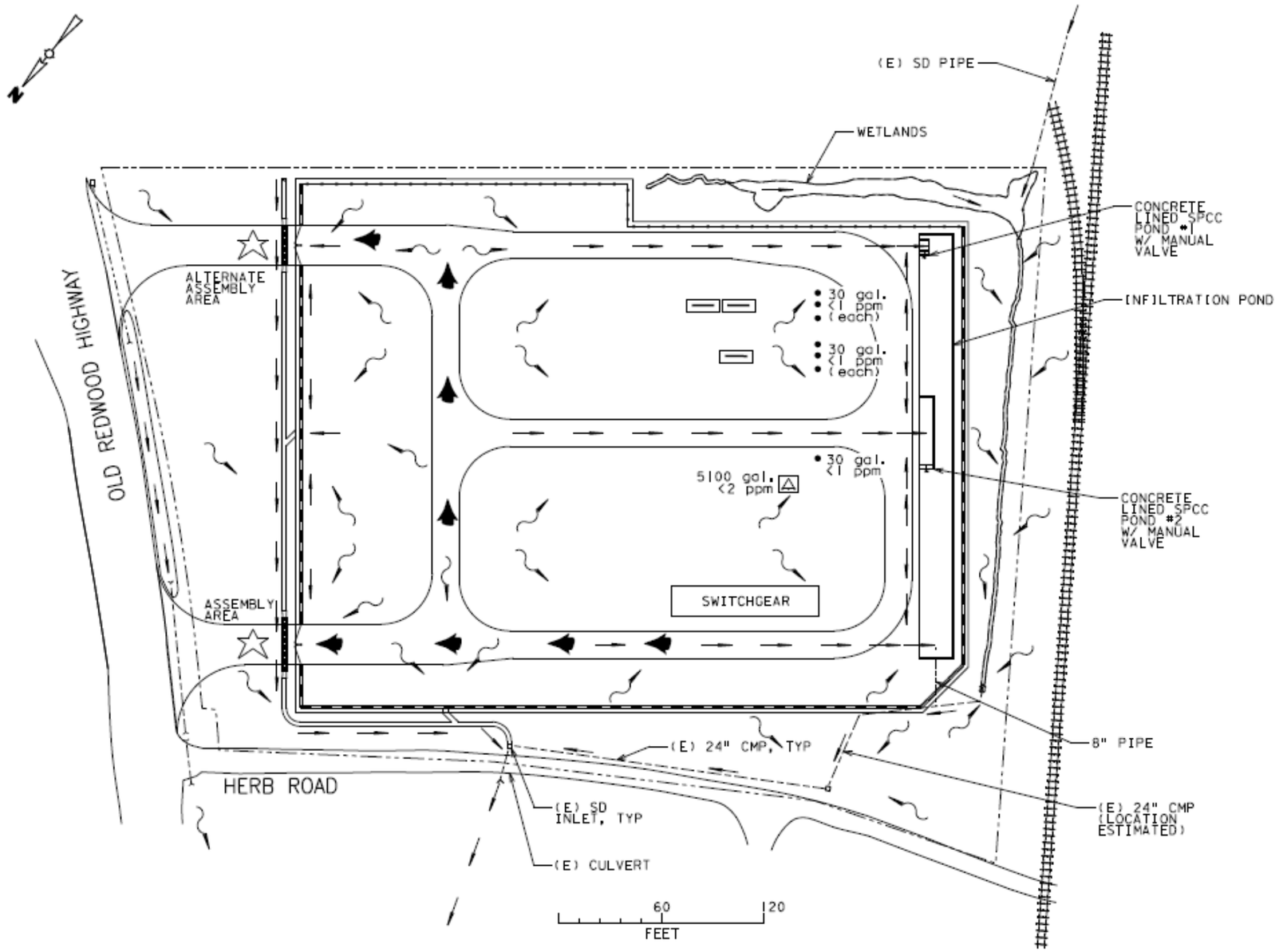
SPCC PLAN ATTACHMENT #6-1

WINDSOR SUBSTATION

10789 OLD REDWOOD HWY
WINDSOR, CA 95492

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

LXFR: 1/6/2016



LEGEND

SYMBOL	DESCRIPTION
Ⓕ	FIRE EXTINGUISHER
Ⓕ	FIRE HYDRANT OR HOSE STATION
	SPILL CONTROL EQUIPMENT
	WALK DOOR
	ROLL-UP DOOR
	DIRECTION OF SHEET FLOW
	DIRECTION OF DRAINAGE FLOW
	CHAIN LINK FENCE
	PROPERTY LINE
	STORM DRAIN
	SEWER LINE
	CATCH BASIN
UG	UNDERGROUND
AG	ABOVEGROUND
	OIL CIRCUIT BREAKER (THREE TANKS)
	OIL CIRCUIT BREAKER (ONE TANK)
	TRANSFORMER / REGULATOR
	TRANSFORMERS
	SERVICE / POTENTIAL TRANSFORMER
	GAS CIRCUIT BREAKER (SF6)
V	VACUUM CIRCUIT BREAKER
HWAA	HAZARDOUS WASTE ACCUMULATION AREA
HWSA	HAZARDOUS WASTE STORAGE AREA
Ⓐ	ALARM PULL STATION
⊕	FIRST AID KIT
	EMERGENCY EYE WASH
	IGNITABLE
	COMPRESSED GAS (NON-FLAMMABLE)
	COMPRESSED GAS (FLAMMABLE)
	CORROSIVE
	REACTIVE
	TOXIC
W	MAIN WATER SHUT-OFF
E	MAIN ELECTRIC SHUT-OFF
G	MAIN GAS SHUT-OFF
M	FUEL / CNG EMERGENCY SHUT-OFF
	EVACUATION ROUTE
	ASSEMBLY AREA

ADDRESS:
10789 OLD REDWOOD HWY
WINDSOR, CA 95492
SONOMA COUNTY

CONFIDENTIAL

SPCC

FACILITY LAYOUT
WINDSOR SUBSTATION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

PG&E

ATTACHMENT 6-2

Design Drafting: Rev. 8/6/15

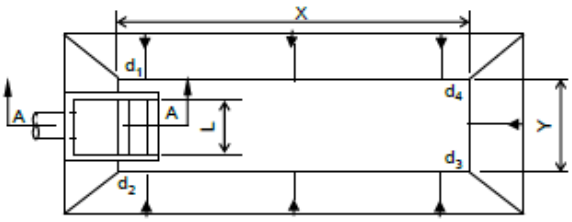
PACIFIC GAS AND ELECTRIC COMPANY

NEW SPCC BASIN STORAGE

SHEET NO. 1 OF 2 SHEETS
JOB FILE NO. 74001604
LOCATION Windsor, CA

SUBJECT Basin Capacity for **Windsor** Substation

MADE BY **R. MORFIN** DATE _____ CHECKED BY _____ APPROVED BY _____



PLAN

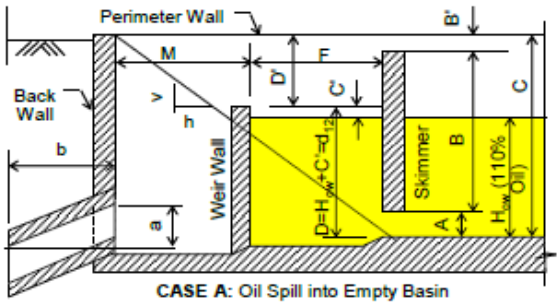
SELECT SPREADSHEET TYPE:

☐ EXISTING Basin Analysis
☑ NEW Basin Design

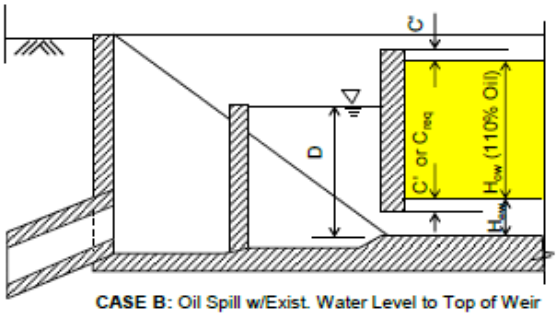
OIL INPUT DATA:

Amount of Oil in Largest Container = **5100** gal. (Ref. 1)
Ten Percent of Total Aggregate = **1575** gal. (Ref. 1)
Oil to be Contained = 5,610 gal. 750 cu.ft

SECTIONS A-A:



CASE A: Oil Spill into Empty Basin



CASE B: Oil Spill w/Exist. Water Level to Top of Weir

BASIN INPUT DATA:

Average wall slope(h/v)= **0**

X=	**42.0**	ft.	Y=	**8.0**	ft.	L=	**8** ft.
A=	**8.0**	in.	B=	**48.0**	in.	B'=	**0** in.
# F=	**2**	ft.	D=	**4**	ft.		
# M=	**0**	ft.	C'=	**1**	in.		
d_1=	**48**	in.	d_2=	**48**	in.		
d_3=	**48**	in.	d_4=	**48**	in.		

Input negative value if located outside basin

BASIN OUTPUT DATA:

C=	56.0	in.	D'=	8.0	in.
d_{12}=	48.0	in.	d_{34}=	48.0	in.

NORMAL MINIMUM REQUIREMENTS:

A=	3.71	in.	B=	48.00	in.
F=	1.67	ft.	D=	4.00	ft.

Table 1. OIL STORAGE SUMMARY

CASE	H_{ow} at Weir	Allowable Oil Storage	% Storage	Gross Oil Storage	
A	3.92 ft.	8,949 gal.	110 %	9,844 gal.	
B	3.82 ft.	8,321 gal.	110 %	9,153 gal.	GOVERNS

Notes: POND #1

Design Drafting: Rev. 8/6/15 PACIFIC GAS AND ELECTRIC COMPANY

SHEET NO. 2 OF 2 SHEETS
JOB FILE NO. 74001604
LOCATION

NEW SPCC FLOW THROUGH ANALYSIS

SUBJECT Basin Capacity for Windsor Substation

MADE BY R. MORFIN DATE CHECKED BY APPROVED BY

Table 2. DRAINAGE PARAMETERS

Surface Type	Runoff Coeff. (C)	Drainage Area(sq.ft) (A)	C x A (sq.ft)
Basin	1.0	366	366
Fdn	1.0	2350	2,350
Paved	0.9	6688	6,019
Gravel	0.75	23,670	17,753
Soils	0.50	0	0
TOTAL		33,074	26,488

Ditch
Pipe
Pump

Discharge of Outlet Type (ditch, pipe, or pump):

0.023
10.00
80.0

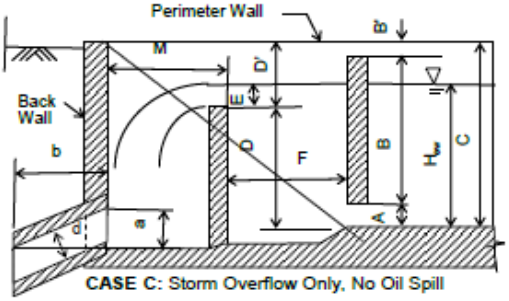
24.00

design storm inflow ($Q_{In\ des}$) = 1155.8 gpm 2.58 cfs

REQ'D DITCH CAPACTIY MUST BE >$Q_{In\ des}$

Manning's n (Ref. 3):

Concrete/Steel: n = 0.012
PVC: n = 0.01
CMP: n= 0.023



CASE C: Storm Overflow Only, No Oil Spill

TIME OF CONCENTRATION:

T_c = 5 min (selected from Table 4.)

E = 2.71 in.

Percent Full = 100 % (see Note 1)

Table 3. Constants for Flow Time to Basin

Flow Type	n	L	$S_C = \Delta Z_C/L$
Overland	0.03	72 ft	0.010
Ditch	0.012	243 ft	0.005

n = Manning's constant, typically 0.03 for overland flow and 0.012 for ditch flow

L (Overland) = Longest length between ridge and ditch flow

L (Ditch) = Longest total length of ditch flow from beginning of ditch to basin

S_C = Ground slope in feet per foot. Divide change in substation ground elevation by the corresponding length (0.005-0.03)

Table 4. SHORT DURATION RAINFALL(Ref.2): NOAA

Storm Frequency = 25 yr.

T_D(m)	De (in)	i (in/h)	Q_{in} (cfs)	$T_{c\ ov}$ (m)	$T_{c\ in\ basin}$ (m)	$T_{c\ tot}$ (m)
5	0.35	4.20	2.58	---	4.25	4.25
10	0.50	3.00	1.84	---	4.31	4.31
15	0.61	2.44	1.50	---	4.36	4.36
30	0.849	1.70	1.04	---	4.44	4.44
60	1.19	1.19	0.73	---	4.53	4.53
120	1.75	0.88	0.54	---	4.61	4.61
180	2.21	0.74	0.45	---	4.66	4.66
360	3.32	0.55	0.34	---	4.75	4.75
720	4.94	0.41	0.25	---	4.85	4.85
1440	7.23	0.30	0.18	---	4.96	4.96

Closest Time Duration, $T_{D\ CLOSE}$ = 5 min
(enter selected T_c above)

Ref.1: Attachment #1 of SPCC Report

Ref.2: NOAA Link: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca

Ref.3: Hydrology for Engineers, R.K. Linsley, M.A. Kohler, J.L.H. Paulhus

Note 1: Percent of water already contained in basin when design storm begins. Value reflects $T_{c\ ov}$. Consult RE if needed.

Design Drafting: Rev. 8/6/15

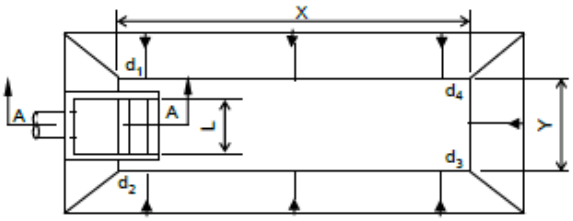
PACIFIC GAS AND ELECTRIC COMPANY

NEW SPCC BASIN STORAGE

SHEET NO. 1 OF 2 SHEETS
JOB FILE NO. 74001604
LOCATION Windsor, CA

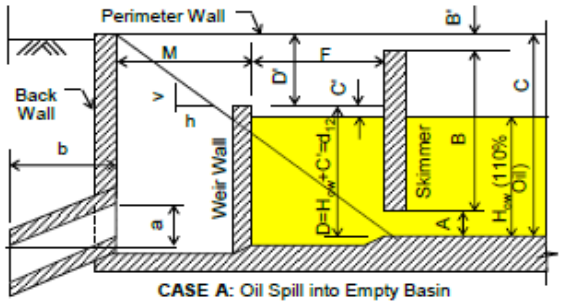
SUBJECT Basin Capacity for Windsor Substation

MADE BY R. MORFIN DATE CHECKED BY APPROVED BY

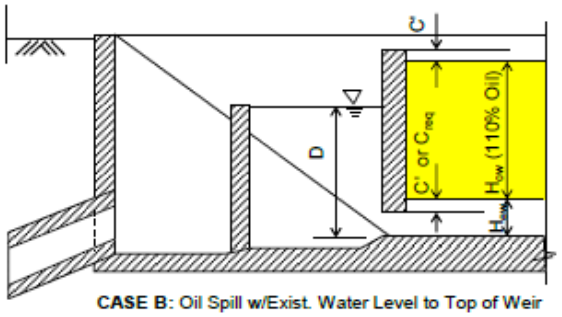


PLAN

SECTIONS A-A:



CASE A: Oil Spill into Empty Basin



CASE B: Oil Spill w/Exist. Water Level to Top of Weir

SELECT SPREADSHEET TYPE:

- ☐ EXISTING Basin Analysis
- ☑ NEW Basin Design

OIL INPUT DATA:

Amount of Oil in Largest Container =	30	gal.	(Ref. 1)
Ten Percent of Total Aggregate =	9	gal.	(Ref. 1)
Oil to be Contained =	33 gal.	4	cu.ft

BASIN INPUT DATA:

Average wall slope(h/v)= 0

X=	8.5	ft.	Y=	5.0	ft.	L=	5 ft.
A=	8.0	in.	B=	48.0	in.	B'=	0 in.
F=	2	ft.	D=	4	ft.		
M=	0	ft.	C'=	1	in.		
d_1=	48	in.	d_2=	48	in.		
d_3=	48	in.	d_4=	48	in.		

Input negative value if located outside basin

BASIN OUTPUT DATA:

C=	56.0	in.	D'=	8.0	in.
d_{12}=	48.0	in.	d_{34}=	48.0	in.

NORMAL MINIMUM REQUIREMENTS:

A=	3.84	in.	B=	48.00	in.
F=	1.67	ft.	D=	4.00	ft.

Table 1. OIL STORAGE SUMMARY

CASE	H_{cw} at Weir	Allowable Oil Storage	% Storage	Gross Oil Storage	
A	3.92 ft.	1,132 gal.	110 %	1,245 gal.	
B	3.82 ft.	845 gal.	110 %	930 gal.	GOVERNS

Notes: POND #2

Design Drafting: Rev. 8/6/15

PACIFIC GAS AND ELECTRIC COMPANY

SHEET NO. 2 OF 2 SHEETS
JOB FILE NO. 74001604
LOCATION

NEW SPCC FLOW THROUGH ANALYSIS

SUBJECT Basin Capacity for Windsor Substation

MADE BY R. MORFIN DATE CHECKED BY APPROVED BY

Table 2. DRAINAGE PARAMETERS

Surface Type	Runoff Coeff. (C)	Drainage Area(sq.ft) (A)	C x A (sq.ft)
Basin	1.0	52	52
Fdn	1.0	1585	1,585
Paved	0.9	5457	4,911
Gravel	0.75	14,970	11,228
Soils	0.50	0	0
TOTAL		22,064	17,776

Ditch
Pipe
Pump

Discharge of Outlet Type (ditch, pipe, or pump):

0.023
10.00
80.0

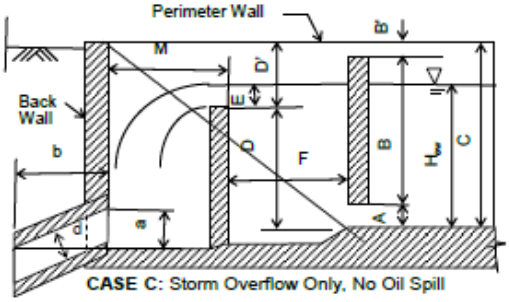
24.00

design storm inflow ($Q_{In\ des}$) = 775.7 gpm 1.73 cfs

REQ'D DITCH CAPACTIY MUST BE >$Q_{In\ des}$

Manning's n (Ref. 3):

Concrete/Steel: n = 0.012
PVC: n = 0.01
CMP: n= 0.023



CASE C: Storm Overflow Only, No Oil Spill

TIME OF CONCENTRATION:

T_c = 5 min (selected from Table 4.)

E = 2.84 in.

Percent Full = 100 % (see Note 1)

Table 3. Constants for Flow Time to Basin

Flow Type	n	L	$S_G = \Delta Z_G/L$
Overland	0.03	64 ft	0.010
Ditch	0.012	247 ft	0.005

n = Manning's constant, typically 0.03 for overland flow and 0.012 for ditch flow

L (Overland) = Longest length between ridge and ditch flow

L (Ditch) = Longest total length of ditch flow from beginning of ditch to basin

S_G = Ground slope in feet per foot. Divide change in substation ground elevation by the corresponding length (0.005-0.03)

Table 4. SHORT DURATION RAINFALL(Ref.2): NOAA

Storm Frequency = 25 yr.

T_D(m)	De (in)	i (in/h)	Q_{in} (cfs)	$T_{c\ ov}$ (m)	$T_{c\ to\ basin}$ (m)	$T_{c\ tot}$ (m)
5	0.35	4.20	1.73	---	4.15	4.15
10	0.50	3.00	1.23	---	4.23	4.23
15	0.61	2.44	1.00	---	4.28	4.28
30	0.849	1.70	0.70	---	4.37	4.37
60	1.19	1.19	0.49	---	4.47	4.47
120	1.75	0.88	0.36	---	4.56	4.56
180	2.21	0.74	0.30	---	4.62	4.62
360	3.32	0.55	0.23	---	4.72	4.72
720	4.94	0.41	0.17	---	4.83	4.83
1440	7.23	0.30	0.12	---	4.95	4.95

Closest Time Duration, $T_{D\ CLOSE}$ = 5 min
(enter selected T_c above)

Ref.1: Attachment #1 of SPCC Report

Ref 2: NOAA Link: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca

Ref.3: Hydrology for Engineers, R.K. Linsley, M.A. Kohler, J.L.H. Paulhus

Note 1: Percent of water already contained in basin when design storm begins. Value reflects $T_{c\ ov}$. Consult RE if needed.