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Compressor Station Operations
PG&E Topock Compressor Station
Needles, California

Soil Management Plan

November 2019

Pacific Gas & Electric Company

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Acronyms and Abbreviations

A-ESCP	Activity Specific Erosion and Sediment Control Plan
AOC	Area of Concern
bgs	below ground surface
BMP	Best Management Practice
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH2M	CH2M HILL, Inc.
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DTSC	California Department of Toxic Substances Control
HSP	Health and Safety Plan
ISL	interim screening level
LDR	Land Disposal Restriction
LUC	Land Use Covenant
mg/kg	milligrams per kilogram
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
SCL	soil cleanup level
SMP	Soil Management Plan
STLC	soluble threshold limit concentration
SWMU	Solid Waste Management Unit
TC	toxicity characteristic
TCLP	toxicity characteristic leaching procedure
TCS	Topock Compressor Station
TPH	total petroleum hydrocarbons
TTLC	total threshold limit concentration
UA	Undesignated Area
USEPA	United States Environmental Protection Agency
WET	Waste Extraction Test

1. Introduction

Pacific Gas and Electric Company (PG&E) is entering into a Land Use Covenant (LUC) with California Department of Toxic Substances Control (DTSC) that defines and restricts current and future land uses for PG&E Property associated with the Topock Compressor Station (TCS) in San Bernardino County near Needles, California. The property subject to the LUC and this Soil Management Plan totals approximately 65 acres, identified as County of San Bernardino, Assessor Parcel Number 0650-161-08 (Property) and is shown on Figures 1-1 and 1-2.

The LUC states that no activities that will disturb the soil (e.g., excavation, grading, removal, trenching, filling, earth movement, mining, or drilling) shall be allowed at the Property without a Soil Management Plan (SMP) pre-approved by DTSC. This SMP includes procedures and protocols for the management and disposal of potentially contaminated soil or materials displaced during PG&E Gas Operations planned and unplanned construction activities, operation and maintenance (O&M) activities, and emergency operations on the Property. Potentially contaminated soil and/or materials may be encountered within and near the boundaries of the Soil RCRA Facility Investigation (RFI)/Remedial Investigation (RI) Investigation Areas and operational areas in the vicinity of the TCS.

1.1 Soil Management Plan Purpose and Objectives

The purpose and objectives of this SMP are as follows:

1) Ensure that soil and materials are handled in a manner that complies with PG&E protocols.
2) Ensure that displaced soil and material from in and near Soil RFI/RI Investigation Areas generated during compressor station operations are handled in a manner that is protective of human health and the environment within the framework of appropriate federal, state, and local requirements, and consistent with United States Environmental Protection Agency (USEPA) guidance
3) Ensure DTSC is notified of soil disturbing activities

1.2 Site Description, Site History, and Soil Investigation History

The TCS is located adjacent to the Colorado River in eastern San Bernardino County, California, approximately 12 miles southeast of Needles, California, south of Interstate 40 (I-40) (Figure 1-1).

1.2.1 Site History

The TCS began operations in December 1951. The station compresses natural gas supplied from the southwestern United States for transport through pipelines to PG&E's service territory in central and northern California. As natural gas is compressed at the TCS, its temperature increases, and it must be cooled. From 1951 to 1985, PG&E added chromium to the water used in the cooling towers and other equipment to prevent equipment corrosion. From 1951 to 1964, cooling tower wastewater containing hexavalent chromium was discharged into a natural wash adjacent to the facility. Later, treated wastewater was discharged into ponds for storage and evaporation, until chromium use was discontinued in 1985. PG&E currently uses a phosphate-based non-toxic additive as a replacement.

Other than changes in waste management activities that have evolved with industry practice, many of the current operations at the compressor station are very similar to the operations that occurred from the start of facility operations in 1951. The operations at the compressor station consist of:

- Water softening
- Compression of natural gas
- Cooling of the compressed natural gas, compressor engines, and compressor lubricating oil
- Oil/water separation
- Facility and equipment maintenance
- Miscellaneous support operations

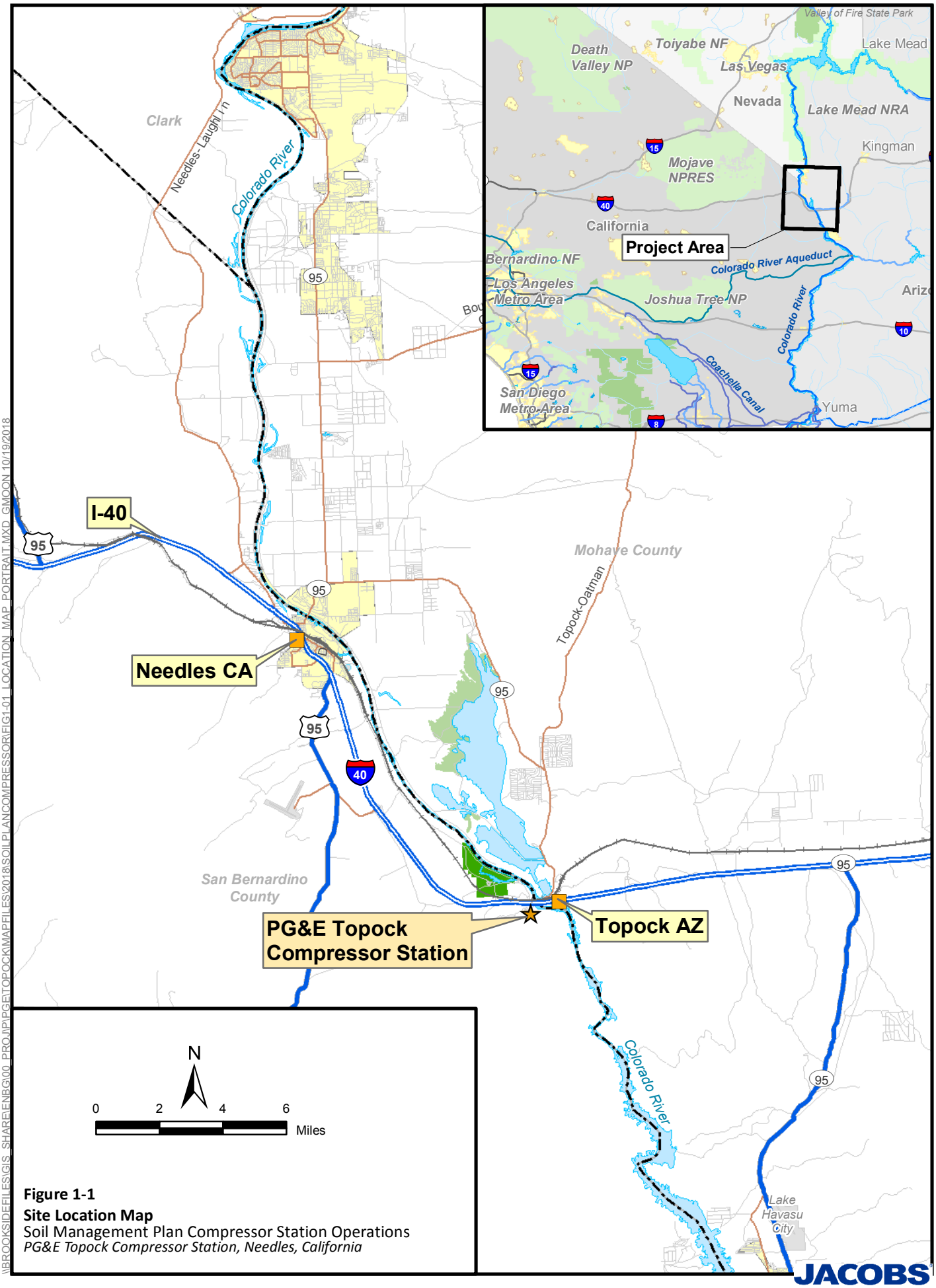

Figure 1-1
Site Location Map
Soil Management Plan Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

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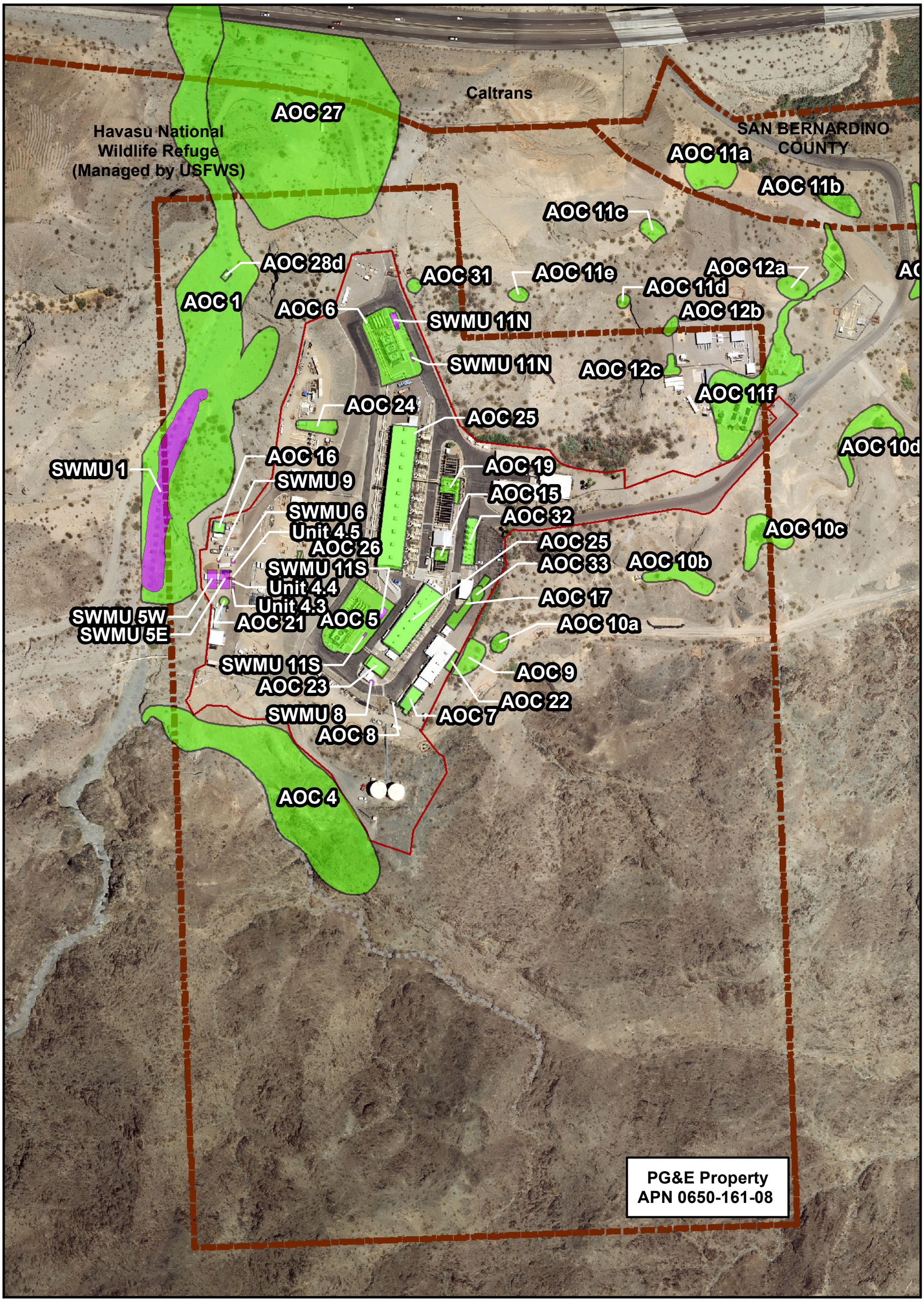

LEGEND

- Area of Concern (AOC)
- Solid Waste Management Unit (SWMU)
- Parcel Boundaries
- Topock Compressor Station Fence Line

N

0 150 300 Feet

Figure 1-2
Soil RFI/RI Investigation Areas
Soil Management Plan Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

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It is anticipated that the compressor station will remain an active facility into the foreseeable future. The main structures at the TCS currently include the Compressor Building, Cooling Towers A and B, and the Auxiliary Building. Various auxiliary structures, including an office, a warehouse, a vehicle garage, maintenance buildings, equipment and chemical storage buildings, and a building formerly used for water-softening, are adjacent to or near the main structures. The facility also has aboveground tanks used for storage of water, odorant, new and used oil, gasoline and diesel, and wastewater.

In addition to current facility operations activities, various maintenance and construction activities occur on the Property to allow current equipment to operate properly and/or be upgraded for improved compressor station performance.

1.2.2 Investigation History

Investigative and remedial activities at the Topock site date to the 1980s and are performed under both the Resource Conservation and Recovery Act (RCRA) Corrective Action process pursuant to a Corrective Action Consent Agreement (CACA) entered by PG&E and the California Department of Toxic Substances Control (DTSC), as well as under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) pursuant to an Administrative Consent Agreement between PG&E and the U.S. Department of the Interior (DOI), including three of the DOI's subsidiary agencies (U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Bureau of Reclamation), pursuant to which the soils investigation is proceeding, and a Remedial Design/Remedial Action Consent Decree, on behalf of DOI, which was approved by the U.S. District Court for the Central District of California, pursuant to which the groundwater remedy is proceeding.

Multiple phases of investigation have been implemented to collect data to evaluate the nature and extent of soil and groundwater contamination in the vicinity of the TCS. Site background and history; hydrogeologic characterization; results of soil, groundwater and surface water investigations; and identification of Solid Waste Management Units (SWMUs), Areas of Concern (AOCs), and Undesignated Areas (UAs) associated with the TCS are summarized in the RFI/RI Report documents. RFI/RI Report Volume 1 (CH2M HILL, Inc. [CH2M], 2007) and the RFI/RI Report Volume 1 Addendum (CH2M, 2014) include TCS site background and history. RFI/RI Report Volume 2 and the Volume 2 Addendum (CH2M, 2009a; 2009b) present hydrogeologic characterization and results of groundwater and surface water investigations. Volume 3 of the RFI/RI Report is currently being written and will include soil and storm drain characterization data.

A summary of historical activities and findings, and a listing of constituents exceeding applicable screening levels and background threshold values for RFI/RI SWMUs and AOCs within the vicinity of the Property are presented in Tables 1-1 and 1-2 and shown on Figure 1-2 (CH2M, 2013).

1.3 Report Organization

This SMP is organized into the following sections:

- Section 1.0 (this section) contains background information, objectives, and a summary of the previous investigations conducted at the site.
- Section 2.0 presents details related to soil management activities, DTSC notification procedures, and the processes for soil characterization, soil screening and classification, soil handling, and storage of soil at the Property.
- Section 3.0 describes storage methods and labeling requirements.
- Section 4.0 summarizes the employee training required for waste soil management, hazardous waste profiling, transportation, and disposal of the various waste streams.
- Section 5.0 summarizes the records and documents that should be maintained.
- Section 6.0 presents the process for updating the SMP.
- Section 7.0 presents a list of references used in the preparation of this SMP.

Table 1-1. Outside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Interim Screening Levels

Soil Management Plan—Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Interim Screening Levels
SWMU 1	SWMU 1 is located outside the facility fence line in the bed of Bat Cave Wash. During the 1950s, the facility discharged wastewater containing chromium (cooling tower blowdown) into Bat Cave Wash without any impoundment. From about 1964 to approximately 1971, the facility discharged wastewater containing chromium to a percolation bed and allowed water to percolate into the ground and/or evaporate. The chromium-containing wastewater was combined with a small quantity (approximately 5 percent) of treated water from the oily waste treatment system discharged from the station. A portion of SWMU 1 is located on property owned by PG&E.	As, Ba, Total Cr, Cr+6, Co, Cu, Pb, Mn, Mo, Ni, K, Se, V, Zn, Ca, Mg, Mn, K, dioxins and furans
AOC 1	AOC 1 is located in the area surrounding SWMU 1, outside the fence line within Bat Cave Wash. This area comprises property owned by PG&E and property managed by the Havasu National Wildlife Refuge (HNWR), and the Bureau of Reclamation. As discussed for SWMU 1, the facility discharged wastewater containing chromium into the Bat Cave Wash until approximately 1964.	As, Sb, Ba, Total Cr, Cr+6, Co, Cu, Pb, Hg, Mo, Ni, Se, Tl, V, Zn, Ca, Mn, Na, PAH High Molecular weight, B(a)P Equivalent, TPH as diesel, Aroclor 1254, Aroclor 1260, Total PCBs, dioxins and furans
AOC 4	AOC 4 is located south of the fence line, and is a narrow, steep ravine that drains into the Bat Cave Wash. This area comprises property owned by PG&E and property managed by the HNWR. Operation of the area is not well known, but trash burning has been identified on site. In 2009, a Removal Action and erosion control were conducted.	Sb, Ba, Cd, Total Cr, Cr+6, Co, Cu, Pb, Hg, Ni, V, Zn, PAH High Molecular weight, B(a)P Equivalent, Aroclor 1254, Aroclor 1260, Total PCBs, dioxins and furans
AOC 9	AOC 9 is located outside the fence line on the east side, south of the visitor parking lot on a steep slope. In 2000, a broken stormwater drainage pipe and stained soil were found in the area. The staining most likely originated from leaks near the Auxiliary Building. The stained soil was excavated, a new stormwater drainage pipe was installed, and the area was backfilled with 1 – 2 feet of soil. The exact location of the former storm drain line is uncertain, and the footprint of AOC 9 is sufficiently large to address both potential locations.	As, Total Cr, Cr+6, Cu, Pb, Hg, Mo, Ni, Tl, Zn, PAH High Molecular weight, B(a)P Equivalent, 4,4-DDE, Aroclor 1254, Aroclor 1260, Total PCBs, dioxins and furans, asbestos
AOC 10	AOC 10 is the east ravine located on the southeast side, outside of the fence line. This AOC comprises property owned by PG&E and property managed by the HNWR. The ravine is bisected by three constructed berms built between 1916 and the 1950s. AOC 10 receives run-off from the eastern portion of the upper yard of the compressor station and the station access road.	As, Ba, Cd, Total Cr, Cr+6, Co, Cu, Pb, Hg, Mo, Ni, Se, Tl, Zn, Al, Ca, Fe, Mg, Mn, Na, PAH High Molecular weight, B(a)P Equivalent, TPH as diesel, Aroclor 1248, Aroclor 1254, Total PCBs, dioxins and furans
AOC 11	AOC 11 consists of the topographic low areas on the northeast side of the Topock Compressor Station. AOC 11 is located on property owned by PG&E and on land managed by the HNWR. Multiple storm drains may be discharging to this area, or have discharged to this area in the past. AOC 11 also includes the topographic low area north of the plant access road near the Old Route 66 sign. This area receives run-off from the station access road.	As, Ba, Total Cr, Cr+6, Cu, Pb, Mo, Se, Zn, Al, Mn, K, Na, PAH High Molecular weight, B(a)P Equivalent, Aroclor 1254, Aroclor 1260, Total PCBs, 4,4-DDE, Dieldrin, dioxins and furans
AOC 12	AOC 12, known as the Fill Area, includes three areas located near the Transwestern gas pipeline meter station, east of the compressor station. AOC 12 is located on property owned by PG&E and on land managed by the HNWR. These areas were identified as locations that may contain buried construction-related debris, but no debris was found in the identified areas during the Soil Part A Phase investigation.	Co, Cu, Se, Zn, Di-N-butyl phthalate, B(a)P Equivalent

Table 1-1. Outside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Interim Screening Levels

Soil Management Plan—Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Interim Screening Levels
AOC 27	AOC 27, known as the MW-24 Bench, is located north of the upper yard of the compressor station and south of I-40. AOC 27 are located on property owned by PG&E and on land managed by the HNWR. During employee interviews conducted by PG&E, a former PG&E Topock Compressor Station employee indicated this area was also used as a potential waste disposal area. In January 2008, during trenching activities in the MW-24 bench area associated with installation of a control panel related to the upland in-situ pilot test, debris consisting mostly of treated wood, concrete, and scrap steel/tin (including a possible fragment of a storage tank) were encountered.	As, Sb, Cd, Total Cr, Cr+6, Co, Cu, Pb, Hg, Mo, Ni, Se, V, Zn, PAH High Molecular weight, B(a)P Equivalent, dioxins and furans
AOC 28	AOC 28, the Pipeline Drip Legs, consists of three drip legs associated with the 300A and 300B pipelines located to the east of the compressor station and a drip leg for the 300B pipeline downstream of the compressor station in Bat Cave Wash. Only the 300B drip leg in Bat Cave Wash is on PG&E Property. A drip leg collects pipeline liquids by gravity. It is connected to a valve used to drain the pipeline liquids to a fixed or portable tank.	Mo, Zn
AOC 31	AOC 31, the Teapot Dome oil pit, is located on the northeast side of the facility, just outside the compressor station fence line. It is located within and overlaps with the Perimeter Area investigation. Former employees indicated that they had been told that the Teapot Dome restaurant provided oil changes, and that oil from vehicles was dumped into a pit. Potential wastes in this area pre-date the construction of the compressor station.	Cu, Pb, Zn, B(a)P Equivalent

Note:
These descriptions are copied from the RFI/RI Soil Investigation Work Plan (CH2M, 2013).

Table 1-2. Inside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Background Threshold Values or Applicable Screening Levels

Compressor Station Operations Soil Management Plan
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Background Threshold Value or Applicable Screening Level
SWMU 5	SWMU 5 comprises the two former sludge-drying beds, 5E, and 5W, located in the lower yard. Both of these beds were approximately 20 feet wide by 50 feet long. Bed 1, constructed in the early 1950s, was used to dehydrate lime sludge generated by the water softening process. From 1964 through 1969, it was used to treat chromium-bearing wastewater in the single-step chromate reduction process. A second bed was constructed in the late 1960s, and from 1969 through 1985, the two drying beds were used to dehydrate chromic hydroxide sludge. Use of these beds ceased in 1985. Closure of the drying beds was accomplished during Phase I of the Hazardous Waste Treatment System Closure, between 1988 and 1989.	Total Cr, Pb, Zn, B(a)P Equivalent
SWMU 6	SWMU 6 was the chromate reduction tank located in the southern end of the lower yard. The tank was part of the two-step wastewater treatment system installed in 1969 and was in operation through 1985. The tank was approximately 10 feet high and 5 feet in diameter, with a capacity of 1,500 gallons. Closure of this system was completed during Phase I Hazardous Waste Treatment System Closure.	Total Cr, Cr^{+6}, Zn, dioxins and furans
SWMU 8	SWMU 8 was located on the southern end of the upper yard in an area that is now covered by the new Fire Pump Building. SWMU 8 was the process pump tank that was part of the two-step wastewater treatment system. The tank was approximately 8 feet high and 5.5 feet in diameter. The pump tank was used as a temporary holding tank for treated wastewater discharged from the precipitation tank, before it was pumped to the former percolation bed. In 1985, this unit was removed from service and closure was accomplished during Phase I.	Total Cr, Co, Cu, Ni, V
SWMU 9	SWMU 9, located in the southwestern portion of the lower yard, was the transfer sump that was part of a two-step wastewater treatment system. The sump was a pre-fabricated concrete septic tank that had the capacity of 1,500 gallons. The sump was 3 feet in diameter and 20 feet deep. From 1969 through 1985 effluent from the chromate reduction tank was routed through SWMU 9. In 1989, the transfer sump was removed during Phase 2 of the Hazardous Waste Treatment System Closure.	None
SWMU 11	SWMU 11 consists of two 400-gallon sulfuric acid tanks, 11S and 11N, located in the cooling tower A (AOC 5) and cooling Tower B (AOC 6). These tanks were used to control pH to minimize scale, corrosion, and biological growth. From the 1950s through 1984, sulfuric acid was delivered to the facility in drums and pumped directly into the basins. To date, no data have been collected to evaluate any potential concerns related to sulfuric acid tanks.	Total Cr, Cr^{+6}, Cu, Pb, Mo, Zn, dioxins and furans
AOC 5	AOC 5 is the area surrounding original Cooling Tower A, and encompasses the cooling tower, former chemical shed, and SWMU 11S. Most of the area is covered with gravel, but pavement bounds the surrounding area. From 1951 to 1985 chromium-based corrosion inhibitors were used to treat the cooling water, and were stored within the chemical shed. Stained soils were observed within the shed during demolition of the shed in 2000. The stained soils were excavated.	Cd, Cr^{+6}, total Cr, Cu, Pb, Mo, Ni, Zn, B(a)P Equivalent, Aroclor 1254, dioxins and furans
AOC 6	AOC 6 is the entire area surrounding Cooling Tower B, and encompasses the cooling tower, former chemical shed, and SWMU 11N. Most of the area is covered with gravel, but pavement bounds the surrounding area. From 1951 to 1985 chromium-based corrosion inhibitors were used to treat the cooling water, and were stored within the chemical shed. Stained soils were observed within the shed during demolition of the shed in 2000. The stained soils were excavated.	Cr^{+6}, total Cr, Cu, Pb, Mo, Zn, Aroclor 1254, Aroclor 1260, dioxins and furans
AOC 7	AOC 7 consisted of the hazardous materials storage area and loading dock, and the adjacent Carpenter Shop (former Chemical Storage Building). The current hazardous material storage area has been used since the mid-1980s to store chemical products used at the station. The former Chemical Storage Building was constructed in 1951 as part of the original station configuration.	Cr^{+6}, total Cr, Co, Cu, Pb, Mo, Ni,

Table 1-2. Inside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Background Threshold Values or Applicable Screening Levels

Compressor Station Operations Soil Management Plan
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Background Threshold Value or Applicable Screening Level
AOC 8	AOC 8 consists of a small storage locker used for paint storage. The locker is 5 feet wide by 5 feet long and is set back into the southern retaining wall at the Compressor Station. The paint locker is constructed of steel with tight fitting doors, and located on pavement. No evidence of release is present.	Cr^{+6}, total Cr, Cu, Mo, Ni
AOC 13	AOC 13 consists of the current and former unpaved areas within the fence line. Many of the former unpaved areas are now paved and covered by buildings. Spills that have occurred at the facility may have affected unpaved areas.	Ba, Cd, Cr^{+6}, Total Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, V, B(a)P Equivalent, TPH as diesel, Aroclor 1254, dioxins and furans
AOC 15	AOC 15 consists of the auxiliary jacket cooling water pumps located north of the Auxiliary Building. AOC 15 is part of the closed-loop cooling system for the generator engines. From 1951 through 1985, chromium-based cooling water additives were used in the closed loop cooling systems. Leaks from valve seals and pumps may have affected the soil at AOC 15.	Cr^{+6}, total Cr, Cu, Pb, Mo, Zn
AOC 16	AOC 16 is the sandblast shelter located in the lower yard. The sandblast shelter was installed in the early 1990s, and used primarily for smaller items (fixed infrastructure and large items are typically sandblasted in place).	As, Cd, Co, Cu, Pb, Mo, Zn
AOC 17	AOC 17 is the onsite septic system that serves the Auxiliary Building and nearby buildings. It consists of the septic tank located northeast of the air dryer building, and the associated leachfield. Wastewater from the facility laboratory of the Auxiliary Building is routed to the septic system. According to informal station drawings, the leachfield consists of three 100-foot-long lines spaced 6 feet apart. The onsite septic system is believed to have been installed as part of the original compressor station facilities.	Pb, Zn
AOC 18	AOC 18 consists of the hazardous waste transference pipelines associated with the hazardous waste treatment system, as well as the pipelines conveying the cooling tower blowdown to the lower yard. In the 1980s, the pipelines were uncovered, pressure tested, and removed in accordance with the hazardous waste treatment system closure plan. Visually contaminated soil was removed, confirmation sampling was conducted, and supplemental soil excavation was conducted where needed. Not all sections of the piping could be removed, and active sections were not pressure tested.	Be, Cr^{+6}, Total Cr, Pb, Mo, Ni, Zn
AOC 19	AOC 19 is the Former Cooling Liquid Mixing and Jacket Cooling Water Hot Well Area located east of the Compressor Building. Employee interviews indicated that the hot well periodically overflowed. The hot well was replaced with surge tanks circa 1967. Remnants of the hot well were discovered and removed during a construction project in the 1990s. The former cooling liquid mixing area consists of a small concrete pad. Green droplets were noticed on the concrete pad during a routine test of a nearby eyewash fountain/safety shower in 2006. Elevated levels of chromium were found in the green water.	Cd, Cr^{+6}, total Cr, Cu, Pb, Hg, Mo, Se, Zn, dioxins and furans
AOC 20	AOC 20 consists of the industrial floor drains within the compressor station building and other buildings within the upper yard, as well as the associated pipelines, and the pipelines conveying the drainage to the oily water holding tank in the lower yard. Historically, the pipes associate with AOC 20 were made from vitrified clay.	Cd, Cr^{+6}, total Cr, Cu, Pb, Mo, Ni, Zn, Aroclor 1254, Aroclor 1260
AOC 21	AOC 21 is a former round structure found adjacent to Sludge Drying Bed No. 1. This round structure was filled with white material that was most likely water softener (lime) sludge. The material appears to be similar to the material found in Sludge Drying Bed No. 1. No information is available on the construction of this area, although it appears to be of earthen materials.	Cr^{+6}, total Cr, Cu, Pb, Mo, Zn, Ca, Mg, Na
AOC 22	AOC 22 consists of a three-sided structure located in the upper yard, along the present compressor station fence line. A 1955 aerial photo appears to depict a drum that was near the structure. No further information about this structure is available.	Cr^{+6}, total Cr, Cu, Pb, Zn

Table 1-2. Inside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Background Threshold Values or Applicable Screening Levels

Compressor Station Operations Soil Management Plan
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Background Threshold Value or Applicable Screening Level
AOC 23	AOC 23 is the former water conditioning (water softening) building located in the southern part of the upper yard. Currently AOC 23 is used for storage of dry non-hazardous materials. Chemical feed tanks for the water softening process were located inside the building, and the precipitator for the water softening system was located outside the building.	Cd, Cr^{+6}, total Cr, Cu, Pb, Mo, Ni, Zn, dioxins and furans
AOC 24	AOC 24 consists of the stained area near the API oil/water separator formerly located northeast of the northern scrubbers, as well as the footprint of the separator. The staining is apparent in 1955 aerial photographs and some plant photographs. The separator was later moved and reused as part of the old oily water treatment system adjacent to Sludge Drying Bed No. 1.	Cr^{+6}, Pb
AOC 25	AOC 25 consists of the compressor and generator engine basements. There are 10 compressor engines, 9 of which are still active, and 4 generators engines. Each of the engines is mounted on a concrete pedestal on a concrete foundation. The pedestal is surrounded by a concrete trench. The trench around the pedestal is known as the basement. Drips and leaks from the engines would discharge into the drains in the basements, and enter AOC 20. Surface and shallow subsurface site investigation and soil removal have been conducted in areas immediately adjacent to the auxiliary and compressor buildings.	No data have been collected in this area.
AOC 26	AOC 26 is the location of the former scrubber oil sump located in the lower yard south of the South Scrubbers. The sump received pipeline liquids of the natural gas scrubbers, as well as oil from the oil bath filters until the filters were taken out of service in the 1960s. The scrubber sump was removed in 1996 as part of an upgrade to the waste oil system. The area was investigated and contaminated soil was removed to the degree feasible (excavation was limited by the presence of infrastructure). Residual contamination is present below the maximum excavation depth (approximately 10 feet).	Total Cr, Co, Cu, Pb, Mo, TPH as diesel
AOC 32	AOC 32 is the oil storage area in the upper yard immediately west of the visitor parking lot. AOC 32 contains five 7,150-gallon capacity oil storage tanks, the steel-lined waste oil sump, and two 150-gallon capacity lubricating oil surge tanks. The tanks and oil sump are part of the original compressor station installation. The tanks and sump are located within a concrete containment structure. The sidewalls of the containment structure are apparent in a ca. 1956 station photograph; however, it is uncertain if the floor of the oil storage area has always been paved. Associated piping is also located within the containment. The containment structure appears to be in good repair; an inspection conducted in 1994 indicated that it was in good condition at the time. The dirty oil sump receives waste oil from the oil/water separator, and pipeline liquids collected from the scrubbers. It formerly received used oil from the scrubber sump.	No data have been collected in this area.
AOC 33	AOC 33 is the potential burn area located near AOC 17. This area was identified when PG&E conducted additional interviews with current and former employees to collect new anecdotal information pertaining to historical compressor station practices. Several employees reported that PG&E may have conducted a yearly fire training exercise during which materials were set on fire and employees practiced extinguishing the fire. The employees indicated that these fire extinguishing drills took place in the early 1980s (and may have taken place prior to then) and continued into the 1990s.	Pb, Zn
Unit 4.3	Unit 4.3 is the oil/water holding tank that was installed in 1970. It was a cylindrical steel tank 15 feet long by 5 feet in diameter that was used to collect oily water from the compressor floor drainage, engine and steam-cleaning operations, and other activities discharging to AOC 20.	B(a)P Equivalent
Unit 4.4	Unit 4.4 was the oil/water separator located adjacent to Unit 4.3 (the API oil/water separator relocated from the area northeast of the north scrubbers). Unit 4.4 was equipped with an underflow weir to control discharge, and the floating oil was transferred by hose to a portable waste oil storage tank.	

Table 1-2. Inside Topock Compressor Station Fence Line RFI/RI Units and Constituents Exceeding Background Threshold Values or Applicable Screening Levels

Compressor Station Operations Soil Management Plan
PG&E Topock Compressor Station, Needles, California

Units	Summary of Historical Activities	Constituents Exceeding Background Threshold Value or Applicable Screening Level
Unit 4.5	Unit 4.5 was the portable waste oil storage tank adjacent to the Unit 4.3 and 4.4. Skimmed oil from Unit 4.4 was discharged into Unit 4.5. The portable tank was stationed on a concrete pad; when it was full it was transported to the east side of the facility, and pumped into the waste oil tank. Starting in 1975, the oil was either sold for reuse or transported to a recycling center.	

Note:
These descriptions are copied from the RFI/RI Soil Investigation Work Plan (CH2M, 2013).

2. Soil Management

Soil and material displaced on the Property during TCS operation activities including O&M, emergency responses, or planned construction shall be handled and managed according to the procedures described in this SMP.

This section describes the procedures for notifying DTSC when soil disturbance activities occur, soil characterization, soil screening and classification, soil handling, short-term soil storage, and longer storage of displaced soil.

2.1 DTSC Notification Process

PG&E shall provide at least 48 hours' notice to DTSC of soil-disturbing activities at the Property, except in cases of emergency response in which case such notice shall be provided within 24 hours of emergency response necessitating soil disturbance. The notification process will be as follows:

- The PG&E Topock Remediation Project Manager or Topock Site Operation Manager will send an e-mail to the DTSC Topock Project Manager informing DTSC of soil disturbing activities. The e-mail will contain the *Notification of Non-Emergency Soil Disturbance Activities on PG&E Property (APN 650-161-08)* form (Appendix A). The form will include the following information:
  - Project name
  - Grid location of work. A gridded map of the PG&E Topock property has been developed (Appendix B)
  - Description of work including safety procedures and anticipated equipment to be used
  - Soil Management – anticipated handling and planned disposition of soil
  - Notification Record – Who made notification, when notification was made, record of follow-up phone call to DTSC confirming receipt of Notification Form

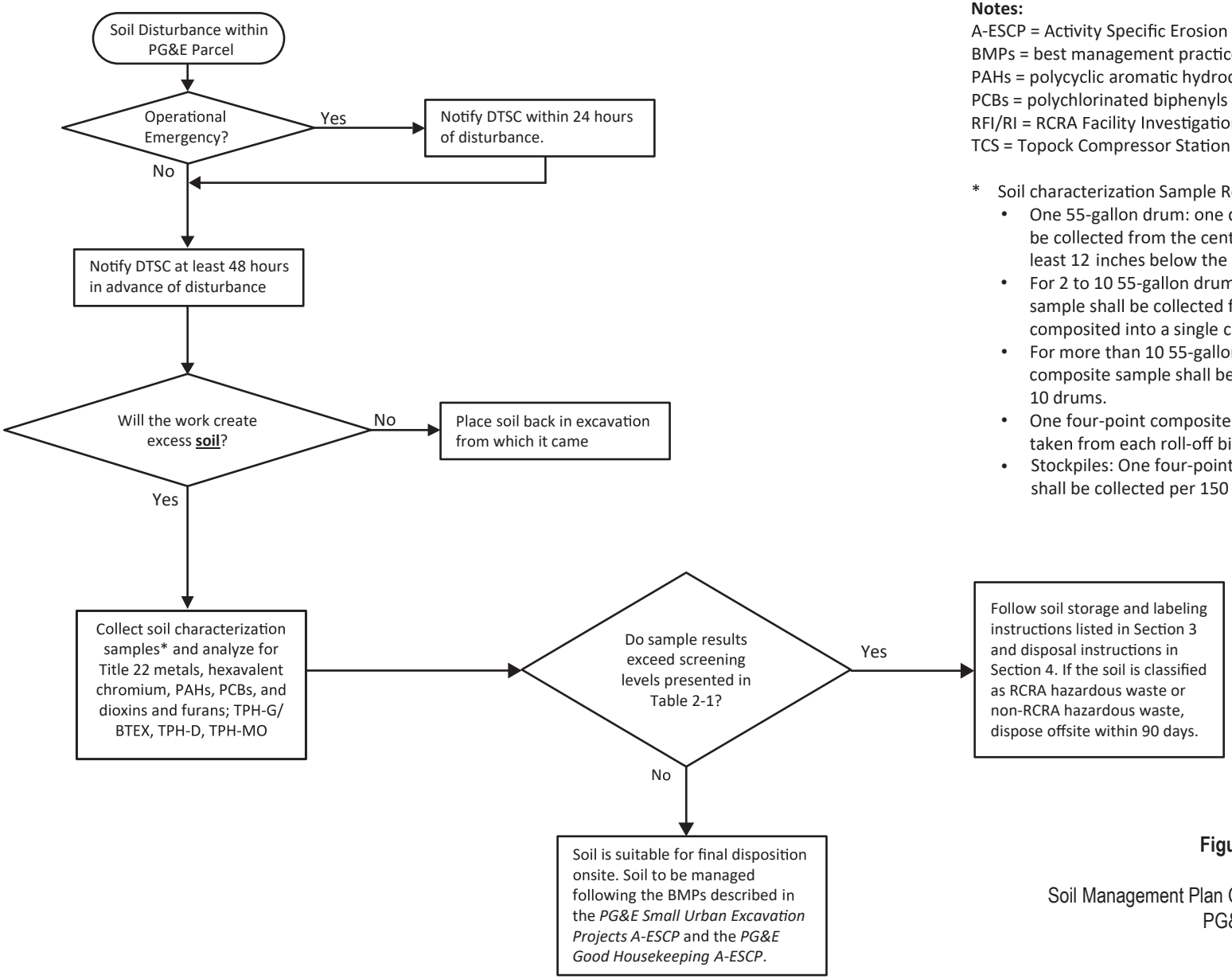
2.2 Soil and/or Material and Waste Characterization Process

For the purposes of this SMP, planned or unplanned TCS operation activities occurring on the Property should assume that the soil and/or material is potentially contaminated and can be handled as non-hazardous, pending analysis until characterization of the displaced soil/material is complete. Based on the abundant soil data collected to date, hazardous levels of contaminants are not expected to be encountered on the site or within AOCs. Areas of known or suspected contamination include the entire area within the TCS fence line and in and around the Soil RFI/RI Investigation Areas outside of the TCS fence line, as shown in Figure 1-2 and listed in Tables 1-1 and 1-2. The characterization process is summarized in Figure 2-1.

Soil generated during compressor station operations shall be placed in lined roll-off bins or U.S. Department of Transportation (DOT)-specification drums at the work site, if practicable, or stockpiled until they have been characterized following storage procedures outlined in Section 3.

Soil can be reused as backfill if returned to the same excavation from which it came, unless signs of contamination (odors, staining) are present. Excess soil not returned to the same excavation must be characterized as outlined in this SMP. If characterization results exceed interim screening levels (ISLs) or Risk-Based Concentrations (RBCs), then the soil and/or material shall be handled and disposed of as outlined in Sections 3 and 4.

Field segregation of soil shall be a key step in the process of management of displaced soil for any ground disturbance activities that occur during compressor station operation activities. As soil is excavated, any soil with odors or visual evidence of contamination shall be segregated, characterized, and handled following procedures outlined in this SMP.



Notes:
A-ESCP = Activity Specific Erosion and Sediment Control Plan
BMPs = best management practices
PAHs = polycyclic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
RFI/RI = RCRA Facility Investigation/Remedial Investigation
TCS = Topock Compressor Station

* Soil characterization Sample Requirement:

- One 55-gallon drum: one discrete sample shall be collected from the center of the drum at least 12 inches below the surface of the soil.
- For 2 to 10 55-gallon drums, one discrete sample shall be collected from each drum and composited into a single composite sample.
- For more than 10 55-gallon drums, one composite sample shall be collected for every 10 drums.
- One four-point composite sample shall be taken from each roll-off bin.
- Stockpiles: One four-point composite sample shall be collected per 150 cubic yards.

Figure 2-1. Soil Characterization Process Flow Diagram
Soil Management Plan Compressor Station Operations
PG&E Topock Compressor Station
Needles, California

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Representative sample profile results, existing soil sample results, and knowledge of the area history shall be used to assess waste classification for displaced soil. Characterization will entail collection of composite samples from drums, roll-off bins and/or stockpiles as follows:

- Drums:
  - For one drum, one discrete sample shall be collected from the drum. The sample shall be collected from the center of the drum from at least 12-inches below the surface of the soil.
  - For 2 to 10 drums, one discrete sample shall be collected from each drum and composited into a single composite sample.
  - For more than 10 drums, one composite sample shall be collected for every 10 drums.
- Roll-Off Bins:
  - One four-point composite sample shall be taken from each roll-off bin.
- Stockpiles:
  - One four-point composite sample shall be collected per 150 cubic yards.

Waste characterization soil samples collected from displaced soil or material originating from within the PG&E Property shall be analyzed for Title 22 Metals, hexavalent chromium, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins and furans, as well as landfill acceptance criteria: TPH-gasoline/BTEX, TPH-diesel, TPH-Motor oil, California Waste Extraction Test (WET) metals will be run if total equals or exceeds 10x STLC, TCLP metals will be run if WET metals exceed STLC. Analytical results of the characterization samples shall be screened according to the procedure listed in Section 2.3 to classify the soil for handling, storage, and disposal purposes.

2.3 Optional Pre-Characterization for Planned TCS Operation Activities

Soil and/or material anticipated to be excavated during planned TCS operation activities can be pre-characterized prior to planned operation activities, if TCS personnel decide it is needed for planning purposes. The pre-characterization sampling approach is broken out into the following types of planned activities: pipeline/conduits, structures, or general excavations.

The pre-characterization soil samples collected within the Property shall be analyzed for Title 22 Metals, hexavalent chromium, PAHs, PCBs, and dioxins and furans. Analytical results of the pre-characterization samples shall be screened according to the procedure listed in Section 2.3 to classify the soil for handling, storage, and disposal purposes. If impacted material is encountered during soil disturbance activities, additional sampling of excavated material will be performed and soil will be handled accordingly.

2.3.1 Optional Pre-Characterization Along Pipeline/Conduits

To pre-characterize along pipeline/conduit alignments, soil samples shall be collected approximately every 100 linear feet along the proposed pipeline/conduit runs and at joints, elbows, junctions where the potential for leaks occur with existing pipelines.

A minimum of one sample shall be collected if the pipeline/conduit run is less than 100 feet long. Soil samples shall be collected at a depth corresponding to the middle of the total trench excavation depth.

2.3.2 Optional Pre-Characterization for Buildings and Structures

To pre-characterize in areas where structures shall be constructed or replaced, soil samples shall be collected on a 50-foot grid, or a minimum of one sample location within each structure footprint. Soil samples shall be collected at 0.5 foot below the proposed structure. If the structure is being constructed over an existing structure footprint, characterization soil samples shall be collected only if the former structure's foundation is being removed and exposing underlying soil. Additional samples will be collected

as needed to characterize the area, based on previous structure-specific features (e.g. storage area, clarifiers, sumps, material handling area, tanks, etc.).

2.3.3 Pre-Characterization General Excavations

To pre-characterize in areas where general excavations are planned, soil samples shall be collected on a 50-foot grid, or a minimum of one sample location within each excavation footprint. Soil samples shall be collected at 0.5 foot below ground surface (bgs), middle depth of the excavation, and bottom depth of the excavation. For example, if the excavation is planned to a depth of 10 feet bgs, soil samples shall be collected at 0.5, 5, and 10 feet bgs, and at depths where potential contamination is observed based on visual appearances or odor.

2.4 Screening and Classification of Soil

Analytical results from the characterization soil samples or optional pre-characterization samples shall be used to assess whether excess or unwanted displaced soil is suitable for retention onsite for eventual reuse, or if the soil must be removed from the site for disposal in accordance with applicable state and federal laws and regulations. Analytes detected in the characterization soil samples above laboratory detection limits shall be screened against the screening values included in Tables 2-1 and 2-2. These screening values include the following:

- **Interim Screening Levels (Table 2-1)** – The screening levels for metals are predominantly Topock-specific soil background values. However, if a background value is not available then the lesser of the DTSC HHRA Note 3 Screening Level or the ecological comparison value is used. If a DTSC HHRA Note 3 Screening Level is not available, then the lesser of the USEPA residential regional screening level or the ecological comparison value is used. When applicable, RSLs are adjusted to include toxicity factors from Appendix I of California OEHHA Toxicity Criteria, September 2018 (22 CCR, Section 69021 and 69022). These levels are the most conservative, and it is assumed that the project-specific soil cleanup goal will be equal to or greater than these levels.
- **Risk-Based Concentrations** – Project-specific RBCs are being calculated based on current and potential risk to human and ecological receptors. The RBCs are calculated for constituents of concern driving human or ecological risk, metals, PAHs, PCBs, and dioxin/ furans. This SMP will be updated once RBCs have been developed and approved for use.
- **Hazardous Waste Toxicity Characteristic Levels (Table 2-2)** – These values shall be used to assess whether the soil should be classified as a non-hazardous waste, a state (non-RCRA California) hazardous waste, or a federal (RCRA) hazardous waste. Specifically, total constituent concentrations expressed in milligrams per kilogram (mg/kg) shall be compared to the hazardous waste characteristic levels in Table 2-2, and shall be evaluated as follows:
  - Step 1 – If the total constituent concentration exceeds the total threshold limit concentration (TTLC), the soil represented by the sample shall be classified as a non-RCRA hazardous waste. Additional evaluation of the soluble threshold limit concentration (STLC), as described in Step 3 below, will not be performed.
  - Step 2 – If the total constituent concentration exceeds the numeric value of the RCRA toxicity characteristic (TC) level by about 20 times or more, the toxicity characteristic leaching procedure (TCLP) shall be performed. If the constituent concentration in the TCLP leachate exceeds the TC level, the soil represented by the sample shall be classified as a RCRA hazardous waste. Additional evaluation of the STLC, as described in Step 3 below, will not be performed.
  - Step 3 – If the sample has not been classified as hazardous waste in Steps 1 or 2, the total constituent concentration shall be compared to the STLC. If the total constituent concentration exceeds the numeric value of the STLC by 10 times or more, the California Waste Extraction Test (WET) shall be performed. If the constituent concentration in the WET exceeds the STLC, the soil represented by the sample shall be classified as a non-RCRA hazardous waste.
  - Step 4 – If the sample has not been classified as a hazardous waste in Steps 1, 2, or 3, the soil represented by the sample shall be not be classified or managed as hazardous waste.

Table 2.1
Interim Screening Levels
Soil Management Plan - Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

[Group] Analyte	Surrogate Assumed	Interim Screening Level[a]	Interim Screening Level Source
Dioxins and Furans (ng/kg)			
TEQ Avian	--	16	Soil Ecological Comparison Value (ECV)
TEQ Human	TCDD, 2,3,7,8-	50	DTSC Note 2
TEQ Mammals	--	1.6	Soil Ecological Comparison Value (ECV)
Metals (mg/kg)			
Aluminum	--	16,400	Background Level
Antimony	--	0.285	Soil Ecological Comparison Value (ECV)
Arsenic	--	11	Background Level
Barium	--	410	Background Level
Beryllium	--	0.672	Background Level
Cadmium	--	1.1	Background Level
Calcium	--	66,500	Background Level
Chromium, Hexavalent	--	0.83	Background Level
Chromium, total	Chromium III	39.8	Background Level
Cobalt	--	12.7	Background Level
Copper	--	16.8	Background Level
Cyanide	--	0.9	Soil Ecological Comparison Value (ECV)
Iron	--	55,000	EPA Residential RSL
Lead	--	8.39	Background Level
Magnesium	--	12,100	Background Level
Manganese	--	402	Background Level
Mercury	Mercuric Chloride	0.0125	Soil Ecological Comparison Value (ECV)
Molybdenum	--	1.37	Background Level
Nickel	--	27.3	Background Level
Potassium	--	4,400	Background Level
Selenium	--	1.47	Background Level
Silver	--	5.15	Soil Ecological Comparison Value (ECV)
Sodium	--	2,070	Background Level
Thallium	--	4.56	Background Level
Vanadium	--	52.2	Background Level
Zinc	--	58	Background Level
Polyaromatic Hydrocarbons (µg/kg)			
1-Methyl naphthalene	--	18,000	EPA Residential RSL
2-Methyl naphthalene	--	240,000	EPA Residential RSL
Acenaphthene	--	3,600,000	EPA Residential RSL
Acenaphthylene	Acenaphthene	3,600,000	EPA Residential RSL
Anthracene	--	18,000,000	EPA Residential RSL
B(a)P Equivalent	Benzo (a) pyrene	110	EPA Residential RSL
Benzo (a) anthracene	--	1,100	EPA Residential RSL
Benzo (a) pyrene	--	110	EPA Residential RSL
Benzo (b) fluoranthene	--	1,100	EPA Residential RSL
Benzo (ghi) perylene	Pyrene	1,800,000	EPA Residential RSL
Benzo (k) fluoranthene	--	11,000	EPA Residential RSL
Chrysene	--	110,000	EPA Residential RSL
Dibenzo (a,h) anthracene	--	28	Appendix I
Fluoranthene	--	2,400,000	EPA Residential RSL
Fluorene	--	2,400,000	EPA Residential RSL
Indeno (1,2,3-cd) pyrene	--	1,100	EPA Residential RSL
Naphthalene	--	3,800	EPA Residential RSL
PAH High molecular weight	--	1,160	Soil Ecological Comparison Value (ECV)
PAH Low molecular weight	--	10,000	Soil Ecological Comparison Value (ECV)
Phenanthrene	Anthracene	18,000,000	EPA Residential RSL

Table 2.1
Interim Screening Levels
Soil Management Plan - Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

[Group] Analyte	Surrogate Assumed	Interim Screening Level[a]	Interim Screening Level Source
Pyrene	--	1,800,000	EPA Residential RSL
Polychlorinated Biphenyls (µg/kg)			
Aroclor 1016	--	4,100	EPA Residential RSL
Aroclor 1221	--	200	EPA Residential RSL
Aroclor 1232	--	170	EPA Residential RSL
Aroclor 1242	--	230	EPA Residential RSL
Aroclor 1248	--	230	EPA Residential RSL
Aroclor 1254	--	240	EPA Residential RSL
Aroclor 1260	--	240	EPA Residential RSL
Aroclor 1262	Aroclor 1254	240	EPA Residential RSL
Aroclor 1268	Aroclor 1254	240	EPA Residential RSL
Total PCBs	PCBs (high risk)	204	Soil Ecological Comparison Value (ECV)
Total Petroleum Hydrocarbons (mg/kg)			
TPH as diesel	--	260	SF RWQCB ESL for direct exposure (Jan
TPH as gasoline	--	430	SF RWQCB ESL for direct exposure (Jan
TPH as motor oil	--	12,000	SF RWQCB ESL for direct exposure (Jan

Notes:

This table presents a reference list of analytes and associated screening levels that may be applicable for making decisions related to disposition of displaced site materials. The specific analytes and screening levels applicable for characterization of displaced material will be determined based on the origin of the material and potential disposition locations.

[a]Interim Screening Levels – The screening levels for metals are predominantly Topock-specific soil background values. However, if a background value is not available then the lesser of the DTSC residential DTSC HHRA Note 3 Screening Level or the ecological comparison value is used. If a DTSC HHRA Note 3 Screening Level is not available, then the lesser of the USEPA residential regional screening level (RSL) or the ecological comparison value is used. When applicable, RSLs are adjusted to include toxicity factors from Appendix I of California OEHHA Toxicity Criteria, September 2018 (22 CCR, Section 69021 and 69022), if these levels are the most conservative. It is assumed that the project-specific soil cleanup goal will be equal to or greater than these levels.

Background = Final Soil Background Investigation at Pacific Gas and Electric Company Topock Compressor Station, Needles, California (CH2M HIll 2009c) and Determination of Thallium Ambient/Background Concentration at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California (Jacobs August 13, 2019).

ECV = Ecological Comparison Values; ECV were calculated as needed for constituents detected during the Part A Phase I sampling (Arcadis 2008)

NE = not established

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

ng/kg = nanograms per kilogram

References:

DTSC Appendix I. California OEHHA Toxicity Criteria - September 2018.
<https://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/Final-Toxicity-Criteria-Rule-Rule-Text-Appdx-2018-09-04-clean.pdf>
DTSC Note 3 Update - June 2018. <https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-Tables-June-2018.xlsx>

HHRA Note 2. DTSC Human Health Risk Assessment (HHRA) Note 2: Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites – (April 2017).
United States Environmental Protection Agency (USEPA). 2018. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November. <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

TABLE 2-2
Hazardous Waste Toxicity Characteristic Levels
Soil Management Plan Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

Analyte	TTLC [a] mg/kg	STLC [b] Screen mg/kg	RCRA TC [c] Screen mg/kg	STLC [d] (from WET) mg/L	RCRA TC [e] (from TCLP) mg/L	EPA HW [f]
Dioxins and Furans						
2,3,7,8-TCDD	0.01	0.01	NE	0.001	NE	NE
Metals						
Chromium, Hexavalent	500	50	NE	5	NE	NE
Antimony	500	150	NE	15	NE	NE
Arsenic	500	50	100	5	5	D004
[g] Barium	10,000	1,000	2,000	100	100	D005
Cadmium	100	10	20	1	1	D006
Zinc	5,000	2,500	NE	250	NE	NE
[h] Chromium, total	2,500	50	100	5	5	D007
Cobalt	8,000	800	NE	80	NE	NE
Copper	2,500	250	NE	25	NE	NE
Mercury	20	2	4	0.2	0.2	D009
[i] Molybdenum	3,500	3,500	NE	350	NE	NE
Nickel	2,000	200	NE	20	NE	NE
Selenium	100	10	20	1	1	D010
Silver	500	50	100	5	5	D011
Thallium	700	70	NE	7	NE	NE
Vanadium	2,400	240	NE	24	NE	NE
Lead	1,000	50	100	5	5	D008
Beryllium	75	7.5	NE	0.75	NE	NE
Polychlorinated Biphenyls						
Aroclor 1268	50	50	NE	5	NE	NE
Aroclor 1016	50	50	NE	5	NE	NE
Aroclor 1221	50	50	NE	5	NE	NE
Aroclor 1232	50	50	NE	5	NE	NE
Aroclor 1242	50	50	NE	5	NE	NE
Aroclor 1248	50	50	NE	5	NE	NE
Aroclor 1254	50	50	NE	5	NE	NE
Aroclor 1262	50	50	NE	5	NE	NE
Total PCBs	50	50	NE	5	NE	NE
Aroclor 1260	50	50	NE	5	NE	NE

TABLE 2-2
Hazardous Waste Toxicity Characteristic Levels
Soil Management Plan Compressor Station Operations
PG&E Topock Compressor Station, Needles, California

Notes:

NE	not established
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
EPA HW	Environmental Protection Agency Hazardous Waste Code
TC	Toxicity Characteristic
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
RCRA	Resource Conservation and Recovery Act
TCLP	Toxicity Characteristic Leaching Procedure
WET	California Waste Extraction Test
a	Total Threshold Limit Concentration (TTLC) from 22 CCR 66261.24(a)(2). Calculated based on the concentration of the elements, not the compounds.
b	Screening level is 10x Soluble Threshold Limit Concentraction (STLC). If screening level is exceeded in total analysis, California Waste Extraction Test (WET) should be run to evaluate whether STLC is exceeded.
c	Screening level is 20x RCRA Toxicity Characteristic (TC). If screening level is exceeded in total analysis, Toxicity Characteristic Leaching Procedure (TCLP) should be run to evaluate whether RCRA TC is exceeded.
d	Soluble threshold limit concentration from 22 CCR 66261.24(a)(2), measured using the WET. Calculated based on the concentration of the elements, not the compounds.
e	RCRA TC level from 22 CCR 66261.24(a)(1), measured using the TCLP.
f	A waste is assigned a RCRA waste code for each constituent where the results of the TCLP equal or exceed the RCRA TC level.
g	TTLC and STLC exclude barite. TTLC excludes barium sulfate.
h	For STLC, if the waste does not exceed the RCRA TC or exhibit another RCRA hazardous characteristic, the STLC is 560 mg/L, not 5 mg/L.
i	For TTLC, excludes molybdenum disulfide.

Subsequent to screening, soil that may be displaced during compressor station operations shall be classified into four categories and shall be managed as follows:

- RCRA hazardous waste—The waste shall be removed from the site within 90 days of generation and disposed of offsite in accordance with applicable laws and regulations. It is imperative to coordinate with the waste hauler and disposal facility to ensure proper completion of the waste profile and to avoid unnecessary delays in acceptance of a waste to a specific facility (as discussed in Section 4).
- Non-RCRA hazardous waste – Same as management of the RCRA hazardous waste.
- Non-hazardous soil for offsite disposal — Soil that is not classified as a hazardous waste, and but has contaminant levels greater than the ISLs/RBCs, shall be disposed of offsite.
- Soil below ISLs/RBCs—Soil that is not classified as a hazardous waste and has contaminant levels equal to or below the ISLs/RBCs, is suitable for immediate return or reuse onsite (as discussed in Section 2.4).

2.5 Handling and Storage of Soil Below ISLs/RBCs

Non-hazardous displaced soil below ISLs/RBCs can be stockpiled at the work site, if practicable. Soil below ISLs/RBCs removed from trenches or excavations shall be reused as backfill into the same trench or excavation area, if practicable. Soil below ISLs/RBCs that cannot be immediately used as backfill may be reused in other areas within the TCS or stockpiled for future reuse within the TCS. Displaced soil that is stockpiled for future use shall be managed following the best management practices (BMPs) described in the Small Urban Excavation Projects Activity Specific Erosion and Sediment Control Plan (A-ESCP) (PG&E, 2011a; presented in Appendix C) and the Good Housekeeping A-ESCP (PG&E, 2011b; presented in Appendix D).

Additional segregation or sorting of material by size may occur, e.g., separating oversize rocks and gravel that are excavated during trenching but are not considered suitable for backfill. Oversize rocks may be used as erosion control (riprap) or processed (crushed) to provide aggregates in concrete, pavements or road surfacing. An onsite segregation unit for screening/crushing may be used to process material for onsite use.

3. Soil Storage

This section describes the storage procedures for soil displaced within PG&E property boundaries during compressor station operation activities at the site. Displaced soil shall be segregated into the following streams:

- RCRA hazardous waste
- Non-RCRA hazardous waste
- Non-hazardous soil above ISLs/RBCs
- Soil below ISLs/RBCs

Soil that is classified as soil below ISLs/RBCs that is suitable for final disposition onsite shall be managed following the BMPs described in the Small Urban Excavation Projects A-ESCP (Appendix C) and the Good Housekeeping A-ESCP (Appendix D).

3.1 Methods to Store Soil

Soil shall be stored in drums, roll-off bins, and/or stockpiles. A competent PG&E person will conduct inspections of the areas where soil is stored as described in Appendix D.

3.1.1 Drums

Drums containing soils which are hazardous waste shall be stored in hazardous waste storage area at the TCS and disposed of within 90 days of generation. Weekly inspections are required for hazardous waste or unknown waste (hazardous, pending analysis).

Drums that contain soil that is non-hazardous, but unsuitable for final disposition at other onsite locations because contaminants are present above ISLs/RBCs, shall be staged for offsite transportation following these BMPs:

- Only DOT-specification containers shall be used for soil accumulation.
- Empty drums shall be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration.
- Drums shall be transported to a temporary accumulation area on wood pallets and shall be secured together with non-metallic banding.
- Drums and other reusable containers shall be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration such as rust, dents, peeling paint. Any container arriving onsite compromised, damaged or with contents shall be rejected.
- Adequate aisle space (e.g., 36 inches) shall be provided between rows of containers such as drums to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide. Filled drums will not be stacked.
- Each drum shall be provided with its own label, and the drum shall be oriented so that the label is visible. Labels shall be replaced if they become damaged or faded. If a label is replaced, the original accumulation start date shall be transferred to the new label.
- Drums shall remain securely closed except when removing or adding waste to the drum.
- Temporary non-hazardous waste accumulation areas shall be inspected monthly.
- If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums shall be emptied so that they meet the definition of “empty” in 22 California Code of Regulations (CCR) 66261.7. Empty drums shall be labeled with the word “empty”, date emptied, and notation of previous contents. Empty drums can be used for accumulation of compatible wastes or must be removed from the site within 1 year.

- Secondary containment shall be provided for containers of liquid hazardous or non-hazardous waste or hazardous wastes that are incompatible with other wastes or materials stored nearby.
- Liquid that accumulates in a secondary containment area must be removed and containerized within 24 hours. Removed liquid must be characterized for proper disposal.
- If a drum becomes damaged or begins to leak, the contents shall be immediately transferred to a new container, or the leaking/damaged container shall be over-packed.

3.1.2 Stockpiles

Stockpile management procedures and practices shall be implemented to reduce or eliminate pollution to the air and stormwater from materials that are stockpiled. General stockpile management procedures and practices for all soil classifications (that is, RCRA and non-RCRA hazardous waste, non-hazardous soil above ISLs/RBCs, and soil below ISLs/RBCs) are described in the Small Urban Excavation Projects A-ESCP (Appendix C), and the Good Housekeeping A-ESCP (Appendix D). Additional stockpile BMPs and requirements for RCRA and non-RCRA hazardous waste and non-hazardous soil above ISLs/RBCs are described below.

RCRA and non-RCRA Hazardous Soil. Stockpiling of RCRA and non-RCRA hazardous waste/soil is not planned. It is anticipated that all soil that is above ISLs/RBCs shall be placed in roll-off bins or similar containers.

If it is necessary to temporarily stockpile soil classified as RCRA or non-RCRA hazardous waste for up to 90 days to facilitate characterization or staging for offsite transportation, the liner will consist of a single sheet of material, or multiple sheets with seams that are sealed together. Hazardous waste stockpiles will use a minimum 20-mil liner. Stockpiled soil will not contain free liquids. Stockpiles will be covered, stabilized, and/or protected with a perimeter sediment barrier following the Stockpile BMPs, described below, and in Appendix D, Section WM-3. Plastic coverings will be secured to ensure stockpiles remain covered.

Stockpiles shall be inspected by a competent person to verify conformance with these requirements. The contents of the stockpile, including the words “Hazardous Waste” and the accumulation start date, shall be posted on a sign next to the stockpile, and the contents and accumulation start date shall be entered in the field logbook. Stockpiles shall be inspected on a weekly basis to verify that controls to prevent run-on, runoff, and windblown dispersal of soil are in place and effective. Security and emergency response equipment shall be provided as described in Section 3.4. After the final volume of stockpiled soil has been removed, the area shall be inspected for visual contamination due to stockpiling activities, and any remaining residual contaminated material shall be removed.

Non-Hazardous Soil Above Project-Specific Soil Cleanup Goals. It is anticipated that all soil that is above ISLs/RBCs will not be stockpiled and shall be placed in roll-off bins or similar containers. If it is necessary to temporarily stockpile displaced soil that is non-hazardous, but unsuitable for final disposition onsite because contaminants are present above ISLs/RBCs, the Stockpile BMPs shall be implemented

Stockpile BMPs:

- Stockpiles shall be constructed with liner and perimeter berm to prevent release or infiltration of liquids. Minimum 20-mil polyethylene sheeting or equivalent shall be used for liners, unless more stringent requirements are required.
- Wind erosion shall be prevented by use of a cover, applying Soiltac® or a similar soil stabilization product, or other suitable means. If a cover is employed it shall be minimum 6-mil polyethylene sheeting or equivalent and weighted down to ensure stockpiles remain covered.
- The perimeter berm shall be constructed of clean materials (such as hay bales or straw wattles under the liner).
- If a cover is employed, it will extend over the outer edges of the perimeter berm and liner so that rainfall is prevented from entering the stockpile.

- Covers and perimeter berms shall be secured in place when not in use and at the end of each workday and as necessary to prevent wind dispersion or run-off from precipitation events.
- Liquids that accumulate inside the berm shall be pumped from the stockpile to a container or tank for characterization and disposal.
- If the stockpile is outside of a secured area, the stockpile shall be demarcated with barricades, orange cones, and/or caution tape until the stockpiles are removed from the site.
- Erosion control measures shall be employed to prevent stockpiled soil from contributing to surface runoff and wind-generated particulate matter.
- After the final volume of stockpiled soil has been removed, the area shall be inspected for visual contamination due to stockpiling activities, and any remaining residual contaminated material shall be removed.

3.1.3 Soil Below ISLs/RBCs — Roll-off Bins

Roll-off bins used to store soil below the ISLs/RBCs will be managed as follows:

- All empty roll-off bins shall be inspected upon arrival onsite. Any roll-off containers arriving with contents, residual contamination, or deterioration shall be rejected. Existing damage (dings, significant paint scratches, broken wheels, etc.), if not significant enough to result in rejection, shall be documented upon arrival of the bin using photos and written documentation.
- Roll-off bins shall be provided with covers and disposable liners. Liners shall be disposed with the soils.
- Old labels shall be removed, and each bin shall be provided with its own label. Labels shall be visible.
- Roll-off bins containing soils that are hazardous waste shall be stored in a hazardous waste storage area identified by PG&E and disposed of within 90 days of generation.
- Roll-off bins containing soil below ISLs/RBCs can be stored anywhere on PG&E property or at other properties that have granted permission to PG&E.
- Roll-off bins that contain displaced soil that is non-hazardous shall be covered and inspected at a specified frequency (see Appendix D).
- When not in use, securely fastened covers shall be installed on all roll-off bins.
- Roll-off bins shall be labeled as described previously. Old labels, if present, shall be removed as soon as the box is received onsite.
- Roll-off bins shall be filled only to the point where applicable weight limits will not be exceeded. This is typically half full for bins containing soil. A box may be filled more than half full if it has been determined that the applicable weight limit will not be exceeded.
- Free liquids shall not be placed in standard roll-off bins. Containers designed to contain and transport free liquids (e.g., phase separators) should be used for this purpose.
- Materials placed into the roll-off bins shall be equally distributed to prevent the box and truck from tipping.
- Roll-off containers shall be inspected by the transporter after removal of the liner and decontaminated in the event of evidence of liner failure.

3.2 Hazardous Waste Soil Storage Time Limit

In compliance with 22 CCR 66262.34, non-RCRA and RCRA hazardous wastes shall be removed from the site within 90 days from date of generation. The date of generation is the day that a waste is first placed in a container (drum or roll-off bin) or stockpile. Accumulation start date for containers is documented on the hazardous waste label. A log or other record shall be used to document the accumulation start date for stockpiles.

3.3 Labeling

This section describes the labeling of waste containers.

3.3.1 Hazardous Waste Soil

Labeling for hazardous waste soil and unknown waste (soil pending characterization that could potentially be classified as hazardous) shall be in accordance with 22 CCR, Division 4.5, Chapter 12 and 49 Code of Federal Regulations (CFR) 172, 173, and 178. Labels shall include the type of waste, location from which the waste was generated, and accumulation start date. Containers and roll-off bins used to store/accumulate hazardous waste shall be labeled with a pre-printed “Hazardous Waste” label specific to California, with the following information:

- Accumulation start date
- Generator name, address, and phone number
- USEPA ID number
- Waste codes
- Description of waste, including hazardous properties and physical state
- DOT shipping description

Prior to transport, the manifest number shall be added to each label. Soil pending characterization that could potentially be classified as hazardous shall be labeled with the hazardous waste label described above, except that the waste codes and DOT shipping description will not be entered until the analytical results are received. An “Analysis Pending” or “Waste Material” label, which is a temporary or handwritten label, shall be placed next to the hazardous waste label until analytical results are received and reviewed. This label will include generator information, type and location of waste, and the accumulation start date. The waste codes and DOT shipping description must be entered on the Hazardous Waste label, and the Analysis Pending label must be removed, within 10 days of receipt of the analytical results.

The appropriate DOT hazard class label will also be placed on the container prior to loading onto the transport vehicle.

3.3.2 Non-Hazardous Soil Below or Above ISLs/RBCs

Containers and roll-off bins used to store/accumulate non-hazardous soil below or above the ISLs/RBCs shall be labeled as follows:

- Place a “Soil below ISLs/RBCs” or “Soil above ISLs/RBCs but non-hazardous” label on containers/roll-off bins containing soil determined to be suitable for onsite reuse. This is a handwritten label with the following information:
  - Material origin – Specific location of the site
  - Material description (e.g., soil, rock, etc.)
  - Date(s) of displacement or accumulation
  - Generating activity (e.g., drilling, excavation, etc.)
- Place a “Non-hazardous Soil for Offsite Disposal” label on containers/roll-off bins containing soil identified for off-site disposal. This is a handwritten label with the following information:
  - Material origin – Specific location of the site
  - Material description (e.g., soil, rock, etc.)
  - Date(s) of displacement or accumulation
  - Generating activity (e.g., drilling, excavation, etc.)

3.4 Security/Emergency Response

In compliance with 22 CCR 66264.14, a barrier, such as temporary fencing or delineation with appropriate signage shall be provided for hazardous waste accumulation areas, accessible by authorized personnel only. PG&E does not anticipate utilizing any remote locations for storage of hazardous waste.

The hazardous waste storage area at TCS and other hazardous waste soil accumulation areas identified by PG&E will also have signage that provide 24-hour emergency contacts and telephone numbers and will contain emergency response equipment appropriate to applicable waste hazards. The TCS Emergency Response Plan will identify the project emergency response procedures and equipment, including emergency response contacts and phone numbers.

The equipment provided at the hazardous waste storage building at TCS and other hazardous waste accumulation areas shall include fire extinguishers, decontamination equipment including an eye wash station, and an alarm system (if radio equipment is not available to all staff working in accumulation area).

4. Waste Training, Profiling, Transportation, and Disposal

This section describes guidelines for waste management training, waste profiling, transportation for offsite disposal, and disposal of displaced soil that is classified as a hazardous or potentially hazardous waste soil. Movement of soil within the Property is not considered to be transportation. Based on the abundant amount of soil characterization data collected to date, hazardous or potentially hazardous waste soil is not expected to be encountered on PG&E property. If soil is encountered that appears to be contaminated, PG&E will stop work and evaluate conditions. If it appears the encountered material is hazardous or potentially hazardous, appropriately trained persons will complete work. The following sections define training and other requirements to handle hazardous or potentially hazardous waste soil.

4.1 Employee Training for Waste Soil Management

In accordance with 22 CCR 66262.34(a)(4), field personnel that will manage hazardous or potentially hazardous waste will obtain:

- Hazardous materials and waste management training that meets the requirements of 22 CCR 66265.16, in addition to 8 CCR 5192, and 49 CFR 172.704, and will address how to implement applicable provisions of the hazardous waste contingency plan and how to perform job duties related to hazardous waste management in a manner that complies with hazardous waste regulatory requirements. Each employer working at the site is responsible for providing this training to their employees. The specific content of this training will vary by employer and by job function.
- Project-specific Health and Safety Plan (HSP) review that requires each site worker and guests to review and sign the plan.
- Activity hazard analysis and daily “tailgate” meetings
- Project-specific Work Plan review (e.g., this SMP)

Training documentation shall be maintained and will include the job title for each position involving hazardous waste soil management and the name of the person filling the job, written job description including skills and required qualifications, description of type and amount of continuing training given, and records that document training or job experience.

4.2 Waste Profiling

As discussed in Section 2, displaced soil shall be screened to assess whether it is hazardous using prior knowledge of the soil and sample analytical results. However, in some cases, offsite treatment or disposal facilities may require additional analyses to evaluate the waste soil prior to acceptance. The purpose of pre-disposal profiling of the waste soil identified for offsite treatment or disposal is to characterize the soil and select an appropriately permitted offsite facility treatment or disposal facility.

Ultimately, the profile of the waste must meet the acceptance criteria of the treatment or disposal facility and be in compliance with all pertinent federal, state, and local regulations. Characterization shall be documented on a waste profile form provided by the offsite treatment or disposal facility together with supporting analytical reports as part of the waste acceptance process. An approved copy of the waste profile shall be received prior to offsite transportation of the waste soil.

4.3 Manifests/Shipping Documentation

In compliance with 22 CCR 66262.20 and 66262.22, each load of soil classified as hazardous waste shall be manifested prior to leaving the site. The hazardous waste manifest (USEPA Form 8700-22) is the shipping document for tracking shipments of hazardous waste from the site to the final disposal facility. Note that each load of non-hazardous waste shall be accompanied by a properly completed non-hazardous waste manifest form or bill of lading. Additionally, each shipment of waste soil will also have a weight ticket issued by the receiving facility.

If the signed hazardous waste manifest from the designated offsite facility is not received within 35 days, PG&E will contact the transporter or the designated facility to determine the status of the waste. All communications shall be documented. If the signed hazardous waste manifest has not been received within 45 days, PG&E will prepare an Exception Report and submit it to the State of California, as required under 22 CCR 66262.42.

4.4 Department of Transportation (DOT) Requirements

Requirements under 49 CFR 171-178 (DOT) and 22 CCR 66262.30 through 66262.33 will apply to all offsite shipments of soil that is classified as hazardous waste. These requirements do not apply to shipments of non-hazardous waste. The information contained in this section is provided as a general guide. It is the responsibility of a DOT-trained individual to ensure that the requirements of 49 CFR 171-178 are met.

4.4.1 Shipping Name

Each shipment shall be properly classified using the Hazardous Materials Table in 49 CFR 172.101. All determinations shall be made by DOT-trained personnel.

4.4.2 Packaging, Marking, and Labeling

The shipping name, hazard class, identification number, technical names (if applicable), USEPA markings and waste code numbers, and consignee/consignor designations shall be marked on packages for shipment (49 CFR 172.301). Once a waste is characterized, reference shall be made to the Hazardous Materials Table in 49 CFR 172.101 to determine the appropriate label.

4.4.3 Placards

Appropriate placards shall be determined by DOT-trained personnel. Specific placard descriptions are found starting at 49 CFR 172.521. If a placard is required, it shall be affixed on each side and each end of the vehicle. It is the shipper's responsibility to provide the proper placards for their shipment if the transporter does not have them.

4.5 California and Arizona Transportation Requirements

California hazardous waste regulations (22 CCR Division 4.5, Chapter 13) require that anyone engaged in the transportation of hazardous waste within California must possess a valid hazardous waste hauler registration issued by DTSC. Transporters operating in Arizona must also be registered with the Arizona Department of Environmental Quality. Transporters operating in Nevada must also hold a permit and certificate of registration issued by the Nevada Department of Environmental Protection.

4.6 Transporter Requirements

Each transportation vehicle and load of hazardous waste shall be inspected before leaving the site and shall be documented. A PG&E representative will verify that the driver has the appropriate class of driver's license with appropriate endorsements for the class of vehicle being driven before loading hazardous waste onto the vehicle. The quantities of hazardous waste leaving the site shall be recorded on a transportation and disposal log. The transporter must be registered with DTSC as a hazardous waste hauler, have a USEPA Identification number, and must comply with transportation requirements outlined in 49 CFR 171-179 (DOT) and 22 CCR 66262.33.

The transporter shall be responsible for ensuring that loaded trucks comply with all applicable weight limits. For each load of material, weight measurements shall be obtained for each full and empty container and dump truck. Disposal quantities shall be based on the difference of weight measurements between the full and empty container or dump truck. Weights shall be recorded on the waste manifest and weight ticket by the disposal facility.

The transporter will observe the following practices when hauling and transporting hazardous waste (and non-hazardous waste) offsite:

- Minimize impacts to general public traffic.
- Trucks/trailers and roll-off bins used for hauling hazardous or regulated waste shall be lined and covered with a tarp or rigid closure before transport to prevent spills or releases.
- Decontaminate exterior of vehicle using dry methods as necessary prior to leaving the site.
- Wastes or materials from other projects may not be combined with wastes generated during this project.
- All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in project-specific HSPs.

4.7 Spill Reporting

In the event of a spill or release of hazardous (or non-hazardous) waste, the transporter must immediately notify a PG&E representative**.** The following information about the spill shall be reported and recorded:

- Type of material (for example, soil) and contaminant(s)
- Location
- Estimated volume
- Media affected (for example, spilled on concrete pad or soil)
- Time of spill/release
- Final disposition of spilled material

The transporter will also report any spill or release of hazardous waste, as required by 49 CFR 171.15, to the National Response Center at (800) 424-8802 or (202) 426-2675. The transporter will also report, in writing, as required by 49 CFR 171.16, to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington D.C. 20590.

4.8 Spill Response

The transporter will clean up any spill or release of hazardous (or non-hazardous) waste (including soil) that occurs during transportation or will take such action as may be required or approved by federal, state, or local officials. Spilled waste shall be immediately cleaned up, including soils on the outside of the trucks, the truck and/or container, or road surface. Where appropriate, the spilled material shall be returned to the original waste container. Regardless, the spilled material shall be properly contained and disposed of.

4.9 Waste Disposal

Soil classified as RCRA or non-RCRA hazardous waste, and non-hazardous soil shall be disposed of at an appropriately permitted facility. The waste material shall be stored onsite until approval is received and the waste material is transported offsite.

5. Recordkeeping

Hazardous waste manifests, biennial reports, exception reports, and waste analysis and waste determination records shall be retained for three years. The following records and documents shall be maintained for the hazardous waste:

- Transportation and offsite disposal records, including:
  - Profiles and associated characterization data
  - Manifests, Land Disposal Restriction (LDR) notifications/certifications, bills of lading, and weight tickets
  - Offsite facility waste receipts, certificates of disposal/destruction/recycle
  - Trucking logs
- Training records
- Inspection records

6. Soil Management Plan Updates

PG&E developed this SMP based on the known compressor station operations, current understanding of historical site activities, and available soil data. An addendum to the SMP shall be prepared to update the screening levels for non-hazardous soil after the project specific cleanup goals are established and during future O&M activities, as warranted.

In addition, PG&E will review all new relevant information obtained during the Soil RFI/RI program as it becomes available, incorporate it into future addendum to this SMP as appropriate, and submit the addendum to DTSC for review and approval.

7. References

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Pacific Gas and Electric Company (PG&E). 2011b. *General Housekeeping Specific Erosion and Sediment Control Plan (A-ESCP).* January. Presented in Appendix D.

Appendix A
Notification of Non-Emergency Soil Disturbance Activities on PG&E Property (APN 650-161-08)

Pacific Gas and Electric Company

Notification of Non-Emergency Soil Disturbance Activities on PG&E Property (APN 650-161-08)

Logistics
Project Name: **Location on Grid Map**: **Estimate Start Date of Work**:
Description of Work (including safety procedures and anticipated equipment to be used)
Soil Management
PG&E Contact
Notification Completed By: Email Notification Date: Follow-up Phone Call Date:

Appendix B
Gridded PG&E Topock Property Map

A B C D E F G H I J K L M N O

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

AOC 27
MW-24 Bench

AOC 11a
Topographic Low Area

AOC 11c
Topographic Low Area

AOC 23d
Drip Legs

AOC 31
Teapot Dome
Restaurant Oil Pit

11e
Topographic Low Area

11d
Topographic Low Area

12a
Fill Area

SWMU 11N
Sulfuric Acid Tanks

12b
Fill Area

AOC 6
Cooling Tower B

AOC 1
Area Around
Former Percolation Bed

AOC 12c
Fill Area

AOC 24
Potential Former Oil/
Water Separator

AOC 11f
Topographic Low Area

SWMU 1
Former Percolation Bed

AOC 25
Compressor
Building
Engines
and
Basements

AOC 19
Former Cooling
Liquid Mixing Area

AOC 16
Sand Blast Shelter

SWMU 9
Former Transfer Sump

AOC 26
Former Scrubber Sump

AOC 15
Auxiliary Jacket
Water Cooling
Pumps

AOC 32
Oil Storage Tank and Waste Oil Sump

AOC 10c
East Ravine

SWMU 5E
Former Sludge
Drying Beds

SWMU 6
Former Chromate
Reduction Tank

SWMU 11S
Sulfuric Acid Tanks

AOC 10b
East Ravine

SWMU 5W
Former Sludge
Drying Beds

Unit 4.5
Former Portable Waste Oil Storage Tank

Unit 4.4
Former Oil/Water Separator

AOC 33
Potential Burn Area

Unit 4.3
Oil Water Holding Tank

AOC 21
Round Area by
Sludge Drying Beds

AOC 5
Cooling Tower A

AOC 25
Auxilary Building

AOC 17
Onsite Septic System

Air Compressor Building

AOC 10a
East Ravine

AOC 23
Former Water
Conditioning
Building

AOC 9
Southeast Fence Line

SWMU 8
Former Process
Pump Tank

AOC 22
Unidentified Three
Sided Structure

AOC 8
Paint Locker

AOC 7
Hazardous Material
Storage Area

AOC 4
Debris Ravine

PG&E Property
APN 0650-161-08

LEGEND

- Topock Compressor Station Fence Line
- Parcel Boundary
- Solid Waste Management Unit (SWMU)
- Area of Concern (AOC)

N

0 70 140 280

Feet

Attachment B

Gridded PG&E Topock Property Map

Soil Management Plan Compressor Station Operations

PG&E Topock Compressor Station,
Needles, California

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Appendix C
Small Urban Excavation Projects Activity Specific Erosion and Sediment Control Plan (PG&E, 2011a)

Small Urban Excavation Projects

Activity Specific Erosion and Sediment Control Plan
(A-ESCP)

If Cumulative Soil Disturbance Changes,
Contact PG&E Environmental Operations - Environmental Field Specialists (EFS)
For Re-Evaluation of Storm Water Protection Needs

Prepared by

PG&E Storm Water Program Group

January 2011

TABLE OF CONTENTS

Attachments

1.0 WHAT IS COVERED UNDER THIS A-ESCP?

1.1 Small Urban Excavation Projects

This Activity Specific Erosion and Sediment Control Plan (A-ESCP) is applicable to small urban excavation activities that are not near sensitive habitat, surface waters or wetlands, or located along steep slopes. If you encounter one of those conditions, contact your local Environmental Field Specialist (EFS). This A-ESCP sets forth minimum Best Management Practices (BMPs) for small urban excavation work.

1.2 Project Activities

Typical activities performed might include the following:

- Establish a lay down area
- Provide storm drainage protection as necessary
- Ensure utilities marked before digging
- Mobilize equipment and materials
- Install storm drain inlet protection
- Saw cut concrete/pavement as necessary
- Excavate
- Manage stockpiles from excavations
- Repair or install utility as specified by PG&E project plans and specifications
- Demobilize after stabilizing disturbed areas and removing all temporary BMPs

1.3 Site Conditions Not Covered in this A-ESCP

This is a small project that should not include nearby site conditions such as:

- Nearby water bodies
- Wetlands/vernal pools
- Environmentally sensitive areas
- Steep slopes

Should any of these conditions be visible or become apparent in the near vicinity during mobilization activity, contact your local EFS for further direction.

1.4 Scheduling BMP Installation

Planning for storm water pollution prevention is required for all PG&E construction and maintenance projects throughout the year. However during the dryer summer months between June and September, for short duration projects (projects less than one week in duration), erosion and sediment control BMPs may not have to be implemented unless there is a possibility of precipitation. Storm water pollution prevention planning must be done prior to starting the project and erosion and sediment control BMPs must be on hand in the event there is a sudden rain event, but only need to be deployed if precipitation occurs. Good housekeeping and tracking control BMPs must be implemented on all projects regardless of time of year.

For longer duration projects, and all small construction projects from October to May, BMPs shall be installed prior to the soil disturbing activities, maintained during soil disturbing activities and removed at the conclusion of soil disturbing activities.

2.0 BEST MANAGEMENT PRACTICES

The purpose of this A-ESCP is to specify appropriate storm water BMPs for routine small urban excavations. It is recommended that construction activities are scheduled to minimize soil disturbing activities during rain events.

The BMPs for the project should be installed in areas similar to those shown on the Typical BMP Installation Map, Attachment A.

Detailed cut-sheets on each BMP are provided in Attachment B.

In addition to the activity specific storm water BMPs recommended in this A-ESCP, Good Housekeeping BMPs should be followed to minimize contamination of storm water runoff with construction associated chemicals and to maintain a clean construction site (refer to the Good Housekeeping A-ESCP).

2.1 Where to Obtain BMP Materials

BMP products in Table 1 can be obtained through PG&E materials warehouses using project order numbers and established materials codes.

TABLE 1
BMP PRODUCTS INFORMATION

Category	Supplier	Product Name	Units
Certified Weed-Free Straw Mulch (EC-6)	Reed & Graham	Weed-Free Straw	Bales
Geotextiles and Mats (EC-7) Geotextile Fabric	Reed & Graham	Mirafi 600	Rolls: 12.5' x 360' 17.5' x 238'
Geotextiles and Mats (EC-7) Jute Mat	Reed & Graham	Eco-Jute	Rolls: 4' x 225'
Geotextiles and Mats (EC-7) Plastic Sheeting	Reed & Graham	Visqueen	Rolls: 20 or 40'x 100'; 10ml thick
Silt Fence (SE-1)	Reed & Graham	Caltrans Grade Silt Fence	100 feet with 36-inch wood posts at 6 foot spacing
Fiber Roll (SE-5)	Curlex	Sediment Log Type II	25 foot rolls x 6 or 9" dia
Gravel Bags (SE-6)	Reed & Graham	Roc Soc	mono filament
Inlet Protection (SE-10) Gravel Bag	Reed & Graham	Same as SE-6	
Inlet Protection (SE-10)	Curlex	Same as SE-5	

2.2 Erosion Control

Erosion control practices consist of source control measures designed to prevent soil particles from becoming dislodged and transported in storm water runoff.

Soil-disturbing activities will be addressed with the BMPs listed in Table 2:

TABLE 2

BMP Number	BMP Name
EC-8	Wood Mulch

For BMP installation procedures refer to the cut-sheets in Attachment B.

EC-8 Wood Mulch

Wood mulching consists of applying a mixture of shredded wood, bark, or compost to disturbed soils. The primary function of wood mulching is to reduce erosion by

protecting bare soil from rainfall impact. Details for the implementation of this BMP are in the cut-sheets found in Attachment B. Key points are:

- Used on relatively flat terrain
- Not suitable for areas exposed to concentrated flows
- Should be applied at a depth of 2 to 3 inches
- Requires frequent inspection

Wood mulch applied to exposed soil areas along with vegetation plantings.

2.3 Sediment Controls

Sediment controls filter or allow sediment to settle out of storm water before it moves offsite. Soil disturbing activities related to small urban excavations will be addressed with the sediment control BMPs listed in Table 3:

TABLE 3

BMP Number	BMP Name
SE-1	Silt Fence
SE-6	Gravel Bag Berm
SE-10	Storm Drain Inlet Protection

For BMP installation procedures refer to the cut-sheets in Attachment B.

SE-1 Silt Fence

Silt fence traps sediment by intercepting and detaining small amounts of sediment laden sheet flow runoff from disturbed areas to promote sedimentation behind the fence. It can be used in unpaved areas in the following applications:

- Along the perimeter of a project
- Below the toe or down-slope of exposed erodible slopes
- Along drainage ways and channels
- Around stockpiles
- Around inlets
- Around disturbed soil areas

Details for installation of this product are in the cut-sheet found in Attachment B. Key points are:

- Used principally in areas where sheet flow occurs
- Install along a level contour, perpendicular to slope, so water does not flow along fence causing a concentrated flow
- Provide room for runoff to pond behind fence
- Bury bottom of fencing material to prevent water from running underneath
- Overlap ends of fence so flow is not concentrated in gaps between adjacent sections
- Stakes should be on the down-slope side of the fence
- Turn the ends of the fence uphill to prevent storm water from flowing around fence

In small urban excavation projects, silt fence may be used to protect the excavation from run-on or to protect down gradient drainages from runoff from the excavation work area. Silt fence is installed in unpaved areas. To protect paved areas, see SE-6 Gravel Bag Berm and SE-10 Storm Drain Inlet Protection.

Silt fence protecting a drainage channel.

SE-6 Gravel Bag Berms

Gravel bag berms consist of a row of gravel bags that are installed end-to-end to form a barrier to intercept run-on or runoff, reduce flow velocity, and provide some sediment removal. Gravel bags are good to use in concentrated flow areas because their weight will keep them in place. Gravel bags can be formed into berms or check dams in channels. They may be suitable for:

- Diverting water running onto the project site or disturbed slopes
- Below the toe of slopes
- As sediment traps in channels
- Around temporary stockpiles

The details for installation of this product are in the cut-sheets found in Attachment B. Key points are:

- Installation can be labor intensive
- Degraded gravel bags may rupture when removed, spilling contents
- Easily damaged by construction equipment
- Must be removed at end of project

For small urban excavations, gravel bag berms may be used in paved areas for similar applications to silt fence.

Gravel bags used to slow sheet flow run-on into the lined swale, and as check dams to slow flow within the swale.

SE-10 Storm Drain Inlet Protection

All storm drain inlets that will receive storm water runoff from the construction project must be protected. Storm drain inlet protection consists of gravel bags to filter sediment upstream of drop or curb inlets as shown below. The gravel bags also temporarily pond runoff before it enters the storm drain, allowing sediment to settle out. Different measures are available for storm drain inlets in unpaved or otherwise stabilized areas. Details of implementation of this BMP are in the cut-sheets found in Attachment B. Key points are:

- Place gravel bags so there is an opening to the street to allow for excessive water to enter the storm drain rather than flood the street
- Requires frequent maintenance

Do not construct storm drain inlet protection such that runoff will result in:

- Ponding into road traffic or onto erodible surfaces or slopes
- Overflowing onto the sidewalk



Gravel bags applied for storm drain inlet protection.

2.4 Tracking Controls

Tracking of mud and dirt onto public roads must always be controlled at construction sites. Access roads, parking lots, and other onsite vehicle transportation routes should be stabilized after they are graded if they will be used during or after periods of rain. The tracking control measures are:

TABLE 4

BMP Number	BMP Name
TC-1/2	Tracking Control

For BMP installation procedures refer to the cut-sheets in Attachment B.

TC-1/TC-2 Tracking Control:

Tracking controls consist of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. Tracking control BMPs include TC-1 Stabilized Construction Entrance/Exit and TC-2 Stabilized Construction Roadway. Details of tracking control BMPs are in the cut-sheets found in Attachment B.

Tracking control is important for any construction project large or small. Track-out of mud, rock, or dirt onto paved streets is visible to the public and any city or county staff will identify this as a storm water violation. Pictured below is an example of a construction entrance/exit that is well maintained in which no muddy wheel tracks are visible on the pavement.

Clean and well maintained construction entrance/exit.

Depending on the size of your project, tracking control can be accomplished in various ways. For a small urban excavation in a roadway, tracking control may be as simple as sweeping the construction area at the end of the workday. For projects within urban settings that are not conducted within a paved area, a stabilized construction entrance/exit may be required.

- Construct a stabilized entrance at defined construction site entrances and exits, and/or provide methods to inspect and clean up sediment or other materials daily to prevent them from entering roadways by sweeping or vacuuming
- Tracking control is a mandatory BMP if paved access roads have the potential to be affected by tracking during construction activities

Rumble strips placed in series on top of gravel to form a stabilized construction entrance/exit (tracking control).

Gravel over geotextile fabric (tracking control).

Larger sites may require the use of temporary construction roadways. Temporary roads should follow the contours of the natural terrain to the maximum extent possible. Roadways should be graded to prevent runoff from leaving the construction site. Drainage should flow across the roadway width to one or both sides of the roadway, where a trench may be dug and stabilized to direct concentrated flow or a gravel bag berm may be installed along the perimeter of the road.

Make the tracking control fit the size of the project.

2.5 Good Housekeeping BMPs

Good housekeeping covers general practices that keep a construction site clean and neat. It also designates specific areas where such things as refueling can be done safely so that any incidental spills will not end up in storm water runoff from the site. The good housekeeping practices covered in this plan are:

TABLE 5

BMP Number	BMP Name
NS-3	Paving and Grinding Operations
WM-3	Stockpile Management
WM-8	Concrete Waste Management

NS-3 Paving and Grinding Operations

Paving and grinding operations include pavement surfacing, resurfacing, removal, or patching applications of cold mix, asphalt, seals, and Portland cement concrete. When conducting these activities, controls are needed to prevent run-on and runoff pollution and ensure proper disposal of wastes. Details for implementation of this BMP are in the cut-sheets in Attachment B. Key points are:

- Protect storm drain inlets near and down gradient of work areas
- Shovel or vacuum saw-cut slurry and remove from site
- Provide a designated, impervious area for onsite mixing
- Do not conduct paving and grinding operations if rain is expected during the work or curing period

For all small urban excavations, ensure that paving and grinding materials and wastes do not pollute storm water and drainages.

WM-3 Stockpile Management

Use this BMP when construction requires stockpiled soil and/or paving materials to be kept onsite temporarily. Stockpile management procedures are designed to reduce or eliminate air and storm water pollution from soil, paving, and construction materials stockpiles. Details for implementing stockpile management practices are on the cut-sheets provided in Attachment B. Key points are:

- Protection of stockpiles is a year-round requirement
- All stockpiles should be covered prior to the onset of rain and in windy conditions
- Protect the perimeter of stockpiles from storm water run-on
- Inspect frequently because plastic degrades fast and is easily damaged by wind
- Keep secure so fragments will not be blown into electrical equipment

Plastic sheeting over stockpiles properly and improperly secured.

At small urban excavations, stockpiled soils should be returned to the excavated area prior to storm events if possible.

WM-8 Concrete Waste Management

Use this BMP when construction involves the use of concrete as a construction material or where concrete dust and debris result from demolition activities. Concrete waste can alter the chemical properties of storm water, and therefore it is important to manage concrete washout and cutting operations to minimize contact with site run-on and runoff. Where offsite washout of concrete wastes is not possible, designated onsite washouts should be provided, as pictured below. Details for implementing WM-8 Concrete Waste Management are provided on the cut-sheets found in Attachment B. Key points are:

- Contain wash out of concrete wastes to evaporate and properly dispose of solids
- Washout areas should be lined to protect the ground and constructed with sufficient volume to contain wastes, washout, and rainwater
- Do not allow excess concrete to be dumped onsite, except in designated areas

Additionally, proper materials handling of concrete and asphalt mix includes:

- If possible, do not store materials onsite
- Store dry and wet materials under cover, away from drainage inlets
- Mix the minimum amount necessary for the job

Properly implemented concrete waste management containments.

Adequate volume and maintenance are essential to prevent a release of high pH water from temporary concrete washout containments.

3.0 BMP INSPECTION AND MAINTENANCE

BMP installation, inspection, and maintenance will be performed by the PG&E construction crew. BMPs should be inspected daily during construction activities. In the event that BMPs appear to require maintenance or are not functioning as expected, the BMP will be repaired or replaced to correct the deficiency.

Fiber roll protecting a discharge from a construction site.

4.0 WHOM TO CALL

If the project receives a written notice or order from any regulatory agency, contact your local EFS for further direction immediately.

Contact the local EFS if any of the following conditions occur:

- Visually cloudy/muddy water is observed leaving the work area
- Discharge or spill of hazardous substance

After hours or if the local EFS are unavailable, call the following 800 number:
800-874-4043.

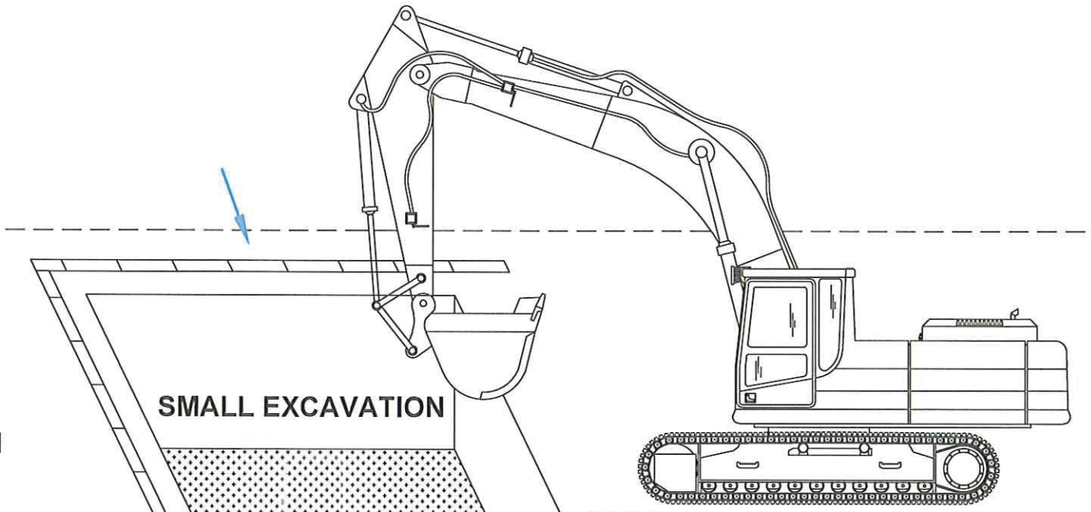
5.0 POST-CONSTRUCTION

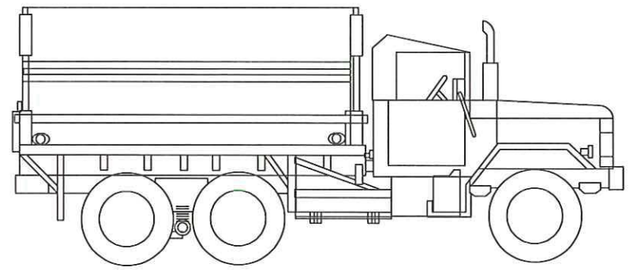
Upon completion of construction within the project area, all temporary, non-biodegradable BMPs will be removed. All construction equipment will be demobilized and removed from the site.

Attachment A Typical BMP Installation Map

LEGEND

Direction of Surface Water Flow





Paved Urban Road

(NS-3) Paving and Grinding Operations

(SE-6) Gravel Bag Berm

(SE-10) Storm Drain Inlet Protection

(TC-1) Stabilized Entrance/Exit

Laydown/Staging Area

(WM-3) Stockpile Management

(WM-8) Concrete Waste Management

(SE-6) Gravel Bag Berm

(SE-1) Silt Fence or Other Perimeter Control Measures

LEGEND

Direction of Surface Water Flow

ETIC ENGINEERING

A-ESCP SMALL URBAN EXCAVATIONS TYPICAL BMP USE MAP
PACIFIC GAS AND ELECTRIC COMPANY

FIGURE: 1

Attachment B PG&E Best Management Practice (BMP) Cut-sheets

Cut-sheets for BMPs described in this A-ESCP are included in this attachment, as follows:

EC-8 Wood Mulch
SE-1 Silt Fence
SE-6 Gravel Bag Berm
SE-10 Storm Drain Inlet Protection
TC-1 Stabilized Construction Entrance/Exit
TC-2 Stabilized Construction Roadway
NS-3 Paving and Grinding Operations
WM-3 Stockpile Management
WM-8 Concrete Waste Management

When

Wood mulching consists of applying a mixture of shredded wood mulch, bark, or compost to disturbed soils. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff.

Wood mulching is suitable for disturbed soil areas requiring temporary protection until permanent stabilization is established. Wood mulching should be applied to relatively level terrain, with no steep slopes and not channelized flow.

How

There are many types of mulches. Selection of the appropriate type of mulch should be based on the type of application, site conditions, and compatibility with planned or future uses.

Prior to application, after existing vegetation has been removed, roughen embankment and fill areas by rolling with a device such as a punching type roller or by track walking. The construction application procedures for mulches vary significantly depending upon the type of mulching method specified. Two methods are highlighted here:

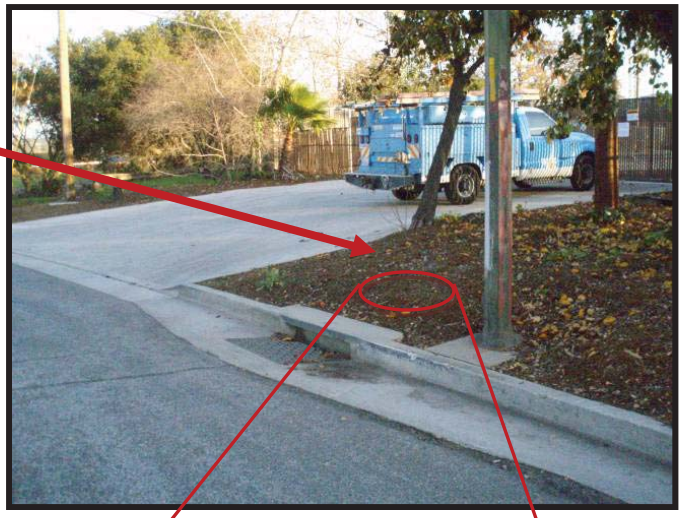
- Green Material: This type of mulch is produced by the recycling of vegetation trimmings such as grass, shredded shrubs, and trees. Methods of application are generally by hand although pneumatic methods are available
  - Green material can be used as a temporary ground cover with or without seeding
  - The green material should be evenly distributed onsite to a depth of not more than 2 inches
- Shredded Wood: Suitable for ground cover in ornamental or revegetated plantings
  - Shredded wood/bark is conditionally suitable
  - Distribute by hand or use pneumatic methods
  - Evenly distribute the mulch across the soil surface to a depth of 2 to 3 inches
- Avoid mulch placement onto roads, sidewalks, drainage channels, existing vegetation, etc.

Maintenance and Inspection

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season
- Areas where erosion is evident shall be repaired and BMPs reapplied as soon as possible. Care should be exercised to minimize the damage to protected areas while making repairs, as any area damage will require reapplication of BMPs
- Regardless of the mulching technique selected, the key consideration in inspection and maintenance is that the mulch needs to last long enough to achieve erosion control objectives. If the mulch is applied as a stand alone erosion control method over disturbed areas (without seed), it should last the length of time the site will remain barren or until final re-grading and revegetation

- Where vegetation is not the ultimate cover, such as ornamental and landscape applications of bark wood chips, inspection and maintenance should focus on longevity and integrity of the mulch
- Reapply mulch when bare earth becomes visible

Make sure that there is a sufficient layer of wood mulch (2 – 3 inches thick).



Avoid having bare spots (exposed soil).

When

Silt fences are temporary linear sediment barriers of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

Silt fences are placed:

- Below the toe of exposed and erodible slopes
- Down slope of exposed soil areas
- Around temporary stockpiles
- Along streams and channels
- Along the perimeter of a project

How

Construct silt fences with a setback of at least 3 feet from the toe of a slope in areas suitable for temporary ponding or deposition of sediment. Where a 3-foot setback is not practicable, construct as far from the toe of the slope as practicable.

- Generally, use silt fences in conjunction with erosion controls up slope to provide effective control, particularly for slopes adjacent to water bodies or Environmentally Sensitive Areas
- Construct the length of each reach (length of fence) so that the change in base elevation along the reach does not exceed 1/3 the height of the barrier; each reach should not exceed 500 feet. The last 6 feet of the reach should be turned up slope
- The maximum length of slope draining to the silt fence should be 200 feet or fewer
- Excavate a trench for the bottom of the silt fence that is not wider or deeper than necessary
- Key in, or bury the bottom of silt fence fabric at least 12 inches deep in trench and tamp into place. If it is not feasible to trench along the slope contour, use sand bags or backfilling to key in the bottom of the fabric
- Install fence post at least 12 inches below grade on down slope side of trench
- Silt fences should not be considered for installation below slopes steeper than 1:1 (horizontal:vertical) or that contain a high number of rocks or loose dirt clods

Maintenance and Inspection

- Repair or replace split, torn, slumping, undercut, or weathered fabric
- Inspect silt fences before and after each storm event and routinely throughout the rainy season
- Remove accumulated sediment when it reaches 1/3 of the barrier height. Incorporate removed sediment into the project at appropriate locations or dispose of at a PG&E-approved site

- Remove and dispose of silt fences that are damaged and become unsuitable for the intended purpose and replace with new silt fence barriers
- Remove silt fence when the upgradient area is stabilized. Fill and compact post-holes and anchorage trench, remove sediment accumulation, and grade fence alignment to blend with adjacent ground

Silt fence installed at the toe of an erodible slope for perimeter control.

Silt fence needs to be properly keyed in 12 inches below the ground surface.

When

A gravel bag berm consists of a single row of gravel bags that are installed end-to-end to form a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some sediment removal. Gravel bags can also be used where flows are moderately concentrated, such as ditches, swales, and storm drain inlets (Storm Drain Inlet Protection to divert and/or detain flows). Gravel bag berms are appropriate for perimeter site control or along streams, channels, storm drain inlets, or around stockpiles to intercept sediment laden storm water and non-storm water runoff.

- Where it is desirable to filter sediment in runoff. Note that gravel bag berms are generally more permeable than sand bags. Sand bag barriers should be used where it is desirable to block and pond flows (e.g., for containment of non-storm water flows)
- Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- On a project-by-project basis to maximize effectiveness
- With other BMPs to maximize sediment containment

How

When used as a linear control for sediment removal:

- Install along a level contour
- Space rows 8 to 20 feet apart
- Turn ends of gravel bag row up slope to prevent flow around the ends
- Use in conjunction with temporary soil stabilization controls up slope to provide effective control

- When used for concentrated flows:
  - Stack gravel bags to required height. When the height requires 3 rows or more, use a pyramid approach
  - Overlap upper rows of gravel bags with overlap joints in lower rows
- Construct gravel bag barriers with a setback of at least 3 feet from the toe of a slope. Where a 3-foot setback is not practicable, construct as far from the toe of the slope as practicable

Maintenance and Inspection

- Inspect gravel bag berms before and after each storm event and routinely throughout the rainy season
- Reshape or replace gravel bags as needed
- Repair washouts or other damages as needed
- Inspect gravel bag berms for sediment accumulation and remove sediments when accumulation reaches 1/3 of the berm height. Incorporate removed sediment into the project at appropriate locations or dispose of it at a PG&E-approved site
- Remove gravel bag berms when no longer needed. Remove

sediment accumulation, and clean, re-grade, and stabilize the area. Incorporate removed sediment into the project at appropriate locations or dispose of it at a PG&E-approved site

Gravel bag berm used for perimeter control.

Gravel bag check dams installed to slow the water down and encourage sediments to drop out.

When

A device used at storm drain inlets to protect against the discharge of sediment-laden storm water and non-storm water runoff from construction activities. The device develops a pond behind it, giving the sediment time to settle out before discharging to the storm drain. Do not construct such that runoff will result in:

- Ponding into road traffic or onto erodible surfaces or slopes
- Overflowing onto the sidewalk

This BMP is required on all construction projects where sediment laden or otherwise impacted surface runoff may enter a storm drain inlet and watercourses.

How

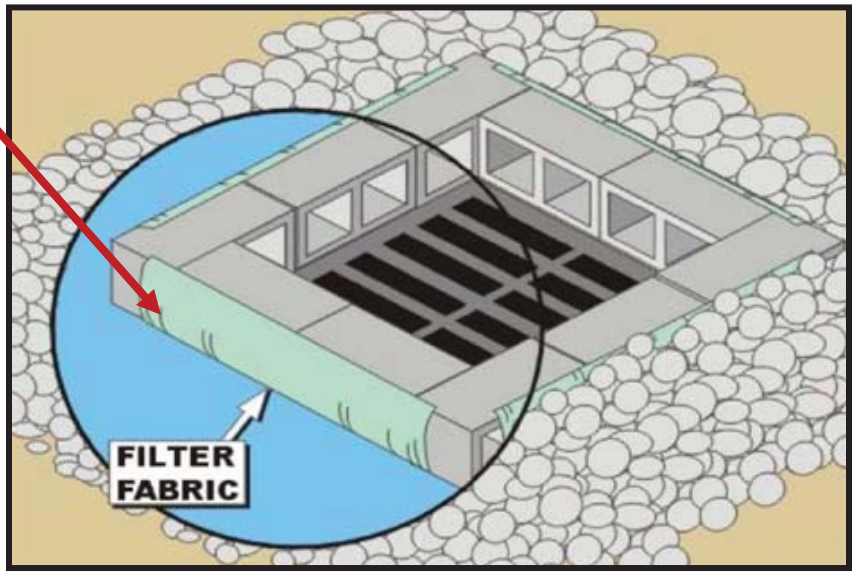
Identify downstream storm drain inlets that have the potential to run off from construction activities.

- Where a storm drain inlet is on or at the bottom of a slope, a series of small check dams (i.e., gravel bags) constructed at intervals along the slope may be required to slow the runoff
- Select appropriate protection and construct inlet protection based on the configuration of inlets at the site

Maintenance and Inspection

- Inspect inlet protection devices before and after each storm event and routinely throughout the rainy season
- Remove inlet protection devices at the end of the construction period, or when the project can no longer impact the inlet
- During inspections:
  - Inspect bags, silt fence, or filter fabric for holes, gashes, and snags
  - Check gravel bags for proper arrangement and displacement
  - Remove the sediment behind the barrier when it reaches 1/3 the height of the barrier. Removed sediment should be incorporated in the project or disposed of properly

Maintenance is critical on drain inlets to prevent flooding or failure of the BMP.



Block and gravel-type inlet protection.

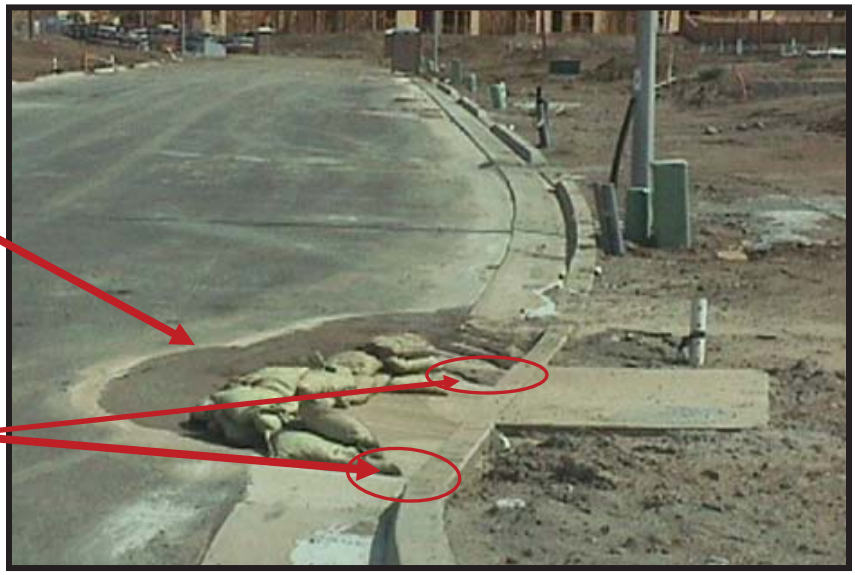
Sediment buildup needs to be cleaned out on a regular basis to prevent flooding or overwhelming of the BMP.

Curb inlet protection that blocks flow is good for preventing non-storm water discharges from entering the drain.

These gravel bags are slowing down the water to encourage sediments to drop out behind them….

BUT

The gravel bags are not completely protecting the drain inlet and sediments are still able to be discharged.



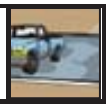
Gravel bag inlet protection slows flow and filters sediment from drainage.

Fiber rolls slow sheet flow and concentrated flow down to allow sediments to drop out before reaching the drain inlet.

Instead of fiber rolls, a gravel bag berm could be used here.

Geotextile fabric helps prevent the disturbed soil surrounding the drain from eroding.

Straw fiber rolls combined with geotextile fabric for drain inlet protection.



When

Tracking controls reduce offsite tracking of sediment and other pollutants by providing a stabilized entrance at defined construction site entrances and exits and/or providing methods to clean up sediment or other materials to prevent them from entering a storm drain by sweeping or vacuuming.

- Stabilize entrances on a project-by-project basis in addition to other BMPs
- Implement sweeping or vacuuming when sediment is tracked from the project site onto public or private paved roads, typically at points of site exit
- Use stabilized entrances and/or sweeping at construction sites:
  - Where dirt or mud is tracked onto public roads adjacent to water bodies
  - Where poor soils are encountered, such as soils containing clay
  - Where dust is a problem during dry weather conditions

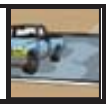
How

Stabilized Construction Entrances

- Limit the points of entrance/exit to the construction site by designating combination or single-purpose entrances and exits. Require all employees, subcontractors, and others to use them. Limit speed of vehicles to control dust
- Grade each construction entrance/exit to prevent runoff from leaving the construction site
- Route runoff from stabilized entrances/exits through a sediment-trapping device before discharge
- Design stabilized entrance/exit to support the heaviest vehicles and equipment that will use it
- Select construction access stabilization (aggregate, asphaltic concrete, and concrete) based on longevity, required performance, and site conditions
- Use of constructed or constructed/manufactured steel plates with ribs for entrance/exit access is permitted
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 inches deep, or place aggregate to a depth recommended by a geotechnical engineer. Use crushed aggregate of more than 3 inches but fewer than 6 inches
- If possible, construct aggregate area with a minimum length of 50 feet and width of 30 feet

Street Sweeping and Vacuuming

- Routinely inspect potential sediment tracking locations, at least daily
- Sweep or vacuum visible sediment tracking as needed
- Manual sweeping is appropriate for small projects. For larger



projects, use sweeping methods that collect removed sediment and material

- If not mixed with debris or trash, incorporate the removed sediment into the project or dispose of it at a PG&E-approved disposal site

Maintenance and Inspection

Stabilized Construction Entrance

- Inspect routinely for damage and assess effectiveness. Repair if access is clogged with sediment
- Sweep where tracking has occurred on roadways, on the same day. Do not use water to wash sediment off the streets. If water must be used, it should be captured to prevent sediment-laden water from running off the site
- Keep all temporary roadway ditches clear

Street Sweeping and Vacuuming

- Inspect inlet and outlet access points routinely and sweep tracked sediment as needed
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous
- After sweeping, properly dispose of sweeper wastes

Depending on the project area soil types, these metal plates may be sufficient enough to prevent track out onto paved roads.

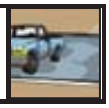
Regularly clean the plates to prevent buildup of sediments, mud, or construction debris from being tracked onto the paved road.

Manufactured metal plates knock dirt off vehicles before exiting a site.

One way to prevent bypassing would be to install a barrier such as safety cones or K-rails.

For rocked construction entrances/exits, use crushed aggregate of more than 3 inches but fewer than 6 inches.

Traditional rocked construction entrance/exit.



When

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading, and frequently maintained to prevent erosion and control dust.

This BMP should be applied for the following conditions:

- Temporary Construction Traffic:
  - Phased construction projects and offsite road access
  - Construction during wet weather
- Construction roadways and detour roads:
  - Where mud tracking is a problem during wet weather
  - Where dust is a problem during dry weather
  - Adjacent to water bodies
  - Where poor soils are encountered

How

Areas that are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surface. During wet weather, they often become muddy and can generate significant quantities of sediment that may pollute nearby streams or be transported offsite on the wheels of construction vehicles. Dirt roads can become so unstable during wet weather that they are virtually unusable.

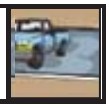
Efficient construction road stabilization not only reduces onsite erosion but also can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and on slopes greater than 5 percent.

Temporary roads should follow the contour of the natural terrain to the maximum extent possible. Slope should not exceed 15 percent. Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of the crowned section or one side in the case of the super elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment laden water from entering the storm sewer system (see SE-10, Storm Drain Inlet Protection). In addition, the following criteria should be considered:

- Road should follow topographic contours to reduce erosion of the roadway



- The roadway slope should not exceed 15 percent
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust
- Properly grade roadway to prevent runoff from leaving the construction site
- Design stabilized access to support heaviest vehicles and equipment that will use it
- Stabilized roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete grindings for stabilized construction roadway is not allowed
- Coordinate materials with those used for stabilized construction entrance/exit points
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 inch depth

Maintenance and Inspection

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, impact weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation
- Keep all temporary roadway ditches clear
- When no longer required, removed stabilized construction roadway and re-grade and repair slopes
- Periodically apply additional aggregate on gravel roads
- Active dirt construction roads are commonly watered three or more times per day during the dry season

Install filter fabric, place stabilization materials and compact.

In areas where run-on onto the road may be an issue install BMPs such as fiber rolls or silt fence to protect the road.

Stabilized construction road.

When

Use this BMP for projects that involve pavement surfacing, resurfacing, removal, or patching applications of the following:

- Cold mix
- Asphalt
- Chip seal, seal coat, tack coat, slurry seal, or fog seal
- Portland cement concrete

For concrete waste management, refer to WM-8.

How

Use the following methods as applicable:

- Protect storm drain inlets near work and down gradient of the work area. Work area, sawcutting, and paving/grinding equipment washdown should not be allowed to enter storm drains or water courses
- Cover or barricade storm drains during sawcutting, paving, or grinding activities
- Design an area for conducting onsite mixing, if planned. Pave the area or make it impervious (e.g., plastic or wood sheeting) and locate it away from storm drain inlets or watercourses
- Minimize overspray of tackifying emulsions or placement of other paving materials beyond the limits of the area to be paved
- Minimize the amount of water used during coring/drilling or sawcutting. During wet coring or sawcutting, use a shovel or wet vacuum to lift the slurry from the pavement. If wet vacuuming is not adequate to capture wastewater from the activity, also use gravel bag barriers or other containment
- If concrete/asphalt residue remains after drying, sweep the area and remove residue to prevent contact with storm water or entering a storm drain or water body via the wind
- Manage material use and stockpiles in accordance with BMPs on Material Use and Stockpile Management
- Collect and remove all broken asphalt and concrete, recycle when feasible, and dispose of materials in accordance with local, state, and federal requirements
- **Do not apply asphalt, concrete paving, seal coat, tack coat, slurry seal, or fog seal if rain is expected during the application or curing period**
- **Avoid, if possible, transferring, loading, or unloading paving materials near storm drain inlets or watercourses. If not possible, use BMP on Storm Drain Inlet Protection**

Maintenance and Inspection

- Routinely inspect and maintain equipment and machinery to minimize leaks and drips
- Routinely inspect inlet protection measures

Vacuum sawcutting residue or slurry.

Prevent from discharging into storm drain inlets or watercourses.

When

Use this BMP when projects require stockpiled soil and paving materials. The stockpile management practices differ based on forecasted weather or terrain.

- Protection of stockpiles must be implemented whenever there is a potential for transport of materials by a water source (forecast precipitation, windy conditions, or any non-storm water runoff)

How

Use one or more of the following options to manage stockpiles and prevent stockpile erosion and sediment discharges for storm water and non-storm water runoff/run-on:

  - Return stockpile to the excavation if precipitation is forecast
  - Protect stockpiles from storm water run-on with temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, or straw bale barriers, as appropriate
  - Remove or temporarily store stockpiles in a protected location offsite

- **Stockpiles should be covered, stabilized, or protected with a perimeter sediment barrier before the onset of precipitation**
- Secure plastic coverings tightly. Ensure no plastic is blown into electrical equipment
- Keep stockpiles organized and surrounding areas clean
- Protect storm drain inlets, watercourses, and water bodies from stockpiles, as appropriate
- Implement dust control practices as appropriate on all stockpiled material

Maintenance and Inspection

Repair and/or replace covers and perimeter containment structures as needed. Plastic sheeting requires frequent inspection for sun and wind damage.

This stockpile should have perimeter control around it. Such as, fiber rolls, a gravel bag berm, or silt fencing.

Stockpile covered with plastic and secured with large rocks. Where more than one sheet of covering is required, overlap sheets and secure at seam.

This stockpile should be covered even though it has perimeter control.

Silt fence as stockpile perimeter control.

When

Use for projects where concrete, mortar, cement, and stucco are used or where slurry or concrete wastes are generated by construction activities, including:

- Sawcutting
- Coring/drilling
- Grinding, re-finishing, or patching
- Encasing conduit in concrete
- Tower footings

For managing concrete curing compounds, see the BMPs on Material Use (WM-2) and Hazardous Waste Management (WM-6). For managing paving, grinding, and sawcutting operations, see NS-3 Paving and Grinding Operations.

How

Install storm drain protection at any down gradient inlets that the activity might impact. See SE-10 Storm Drain Inlet Protection.

- Avoid mixing excess amounts of concrete
- **Do not wash residue or particulate matter into a storm drain inlet or watercourse**
- The following options should be used for concrete truck chute and/or pump and hose washout:
  - If available, arrange to use an existing concrete washout station. Upon entering the site, concrete truck drivers should be instructed about onsite practices
  - **Concrete Washouts:** Washout stations can be plastic lined temporary bermed areas designed with sufficient volume to completely contain all liquid and waste concrete materials plus enough capacity for rainwater. The designated area must be located away from storm drain inlets or watercourses
  - **Bucket Washout:** Manually rinse the chute into a wheelbarrow, plastic bucket, or pail, and then empty the bucket into the concrete truck barrel or on top of the placed concrete
- Locate washout at least 50 feet from storm drains, open ditches, or water bodies if possible
- Stockpile concrete demolition waste in accordance with WM-3 Stockpile Management

Maintenance and Inspection

- Responsible personnel should ensure that all concrete truck drivers are instructed about project practices when the trucks arrive onsite
- Clean designated washout areas as needed, or minimally when the washout is 75 percent full, to maintain sufficient capacity throughout the project duration
- Clean any designated onsite washout areas and remove all debris upon project completion. Dispose of concrete waste according to WM-5 Solid Waste Management

- Inspect routinely, when applicable activities are underway, to ensure that concrete washout does not overflow

Portable self contained concrete washouts are easy to maintain.

Cover during rain events.

Service the washout when approximately 75% full.

Self contained concrete washout.

Construct a concrete washout by placing a support structure (such as hay bales) to form a basin and line with a thick (minimum 6 mil) plastic.

Service the washout when approximately 75% full.

Make sure the washout doesn't become a waste bin for other construction debris.

Inspect concrete washout regularly for holes and integrity of the hay bales or support features.

Replace plastic after each servicing and replace hay bales as needed.

Lined concrete washout.

Appendix D

Good Housekeeping Activity Specific Erosion and Sediment Control Plan

(PG&E, 2011b)

Good Housekeeping

Activity Specific Erosion and Sediment Control Plan
(A-ESCP)

If Cumulative Soil Disturbance Changes,
Contact PG&E Environmental Operations - Environmental Field Specialists (EFS)
For Re-Evaluation of Storm Water Protection Needs

Prepared by

PG&E Storm Water Program Group

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Attachments

1.0 WHAT IS COVERED UNDER THIS A-ESCP?

1.1 Good Housekeeping

This Activity Specific Erosion and Sediment Control Plan (A-ESCP) is applicable to small construction activities that are not near sensitive habitat, surface waters or wetlands, or located along steep slopes. If you encounter one of those conditions, contact your local Environmental Field Specialist (EFS). This A-ESCP sets forth minimum Best Management Practices (BMPs) for Good Housekeeping at all small PG&E construction projects.

Additional erosion and sediment control measures are outlined in Pacific Gas and Electric Company's (PG&E) A-ESCPs for the following routine activities:

- Rural Pole Installation or Replacement Projects
- Urban Pole Installation or Replacement Projects
- Small Rural Access Road Construction and Maintenance Projects
- Rural Fence Installation Construction Projects
- Small Urban Excavation Projects
- Paving and Sawcutting Projects
- Laydown/Staging Area Construction
- Heliport Pad Area Construction
- Small Area Substation Construction

1.2 Project Activities

Typical activities performed might include the following:

- Establish clear work area
- Establish lay down, staging, or vehicle parking areas
- Construct a stabilized construction entrance/exit
- Protect all inlets within or near to, the construction area
- Install dumpsters and other waste management facilities at least 50 feet from an inlet
- Provide for removable dumpster covers
- Procure covers for stockpiles from trenches or excavations
- Construct a concrete waste washout if concrete will be used during construction
- Make sure spill control kits are onsite and available

- Check equipment and vehicles daily for signs of drips/leaks and provide drip pans as necessary
- Store all soluble materials under cover or in clearly marked containers on pallets
- Establish proper locations for temporary or portable sanitary/septic waste systems, if necessary
- Demobilize after removing all temporary BMPs

1.3 Site Conditions Not Covered in this A-ESCP

This document is applicable to small projects that should not include nearby site conditions such as:

- Nearby water bodies
- Wetlands/vernal pools
- Environmentally sensitive areas or protectable vegetation
- Steep slopes

Should any of these conditions be visible or become apparent in the near vicinity during mobilization activity, contact your local EFS for further direction.

1.4 Scheduling BMP Installation

Planning for storm water pollution prevention is required for all PG&E construction and maintenance projects throughout the year. However during the dryer summer months between June and September, for short duration projects (projects less than one week in duration), erosion and sediment control BMPs may not have to be implemented unless there is a possibility of precipitation. Storm water pollution prevention planning must be done prior to starting the project and erosion and sediment control BMPs must be on hand in the event there is a sudden rain event, but only need to be deployed if precipitation occurs. Good housekeeping and tracking control BMPs must be implemented on all projects, regardless of time of year.

For longer duration projects, and all small construction projects from October to May, BMPs shall be installed prior to the soil disturbing activities, maintained during soil disturbing activities and removed at the conclusion of soil disturbing activities.

2.0 BEST MANAGEMENT PRACTICES

The purpose of this A-ESCP is to specify appropriate Good Housekeeping BMPs for all small maintenance or expansion projects. It is recommended that construction activities are scheduled to minimize soil disturbing activities during rain events.

The BMPs for the project should be installed in areas similar to those shown on the Typical BMP Installation Map, Attachment A.

Detailed cut-sheets on each BMP are provided in Attachment B.

Good Housekeeping BMPs should be followed to protect storm water runoff from construction associated chemicals and to maintain a clean construction site.

2.1 Where to Obtain BMP Materials

BMP products in Table 1 can be obtained through PG&E materials warehouses using project order numbers and established materials codes.

TABLE 1
BMP PRODUCTS INFORMATION

Category	Supplier	Product Name	Units
Certified Weed-Free Straw Mulch (EC-6)	Reed & Graham	Weed-Free Straw	Bales
Geotextiles and Mats (EC-7) Geotextile Fabric	Reed & Graham	Mirafi 600	Rolls: 12.5' x 360' 17.5' x 238'
Geotextiles and Mats (EC-7) Jute Mat	Reed & Graham	Eco-Jute	Rolls: 4' x 225'
Geotextiles and Mats (EC-7) Plastic Sheeting	Reed & Graham	Visqueen	Rolls: 20 or 40'x 100'; 10ml thick
Silt Fence (SE-1)	Reed & Graham	Caltrans Grade Silt Fence	100 feet with 36-inch wood posts at 6 foot spacing
Fiber Roll (SE-5)	Curlex	Sediment Log Type II	25 foot rolls x 6 or 9" diameter
Gravel Bags (SE-6)	Reed & Graham	Roc Soc	mono filament
Inlet Protection (SE-10) Gravel Bag	Reed & Graham	Same as SE-6	
Inlet Protection (SE-10)	Curlex	Same as SE-5	

2.2 Erosion Control

Erosion control practices consist of source control measures designed to prevent soil particles from becoming dislodged and transported in storm water runoff.

Soil-disturbing activities will be addressed as follows:

TABLE 2

BMP Number	BMP Name
EC-16	Non-Vegetative Stabilization

For BMP installation procedures refer to the cut-sheets in Attachment B.

EC-16 Non-Vegetative Stabilization:

Non-vegetative stabilization methods are used for temporary or permanent stabilization of areas where vegetative options are not feasible due to proposed use, soil/climate conditions, time constraints, or other factors. There are many methods of non-vegetative stabilization. This section covers gravel mulch.

Gravel mulch is a non-degradable erosion control product, as opposed to degradable straw and wood mulch, composed of washed and screened coarse to very coarse gravel. Details of installation and practices are provided on the cut-sheets in Attachment B. Key points are:

- Gravel should be sized based on slope, rainfall, and upgradient run-on conditions. Inadequately sized gravel mulch may wash away with runoff
- Gravel should be installed at a minimum 2” depth
- If permanent, a weed control fabric should be placed prior to installation

2.3 Sediment Controls

Sediment controls filter storm water and trap soil particles before they move offsite. Table 3 has a selection of BMPs used to filter storm water.

TABLE 3

BMP Number	BMP Name
SE-1	Silt Fence
SE-6	Gravel Bag Berm

For BMP installation procedures refer to the cut-sheets in Attachment B.

SE-1 Silt Fence

Silt fence is one of the most commonly used BMPs. It traps sediment by intercepting and detaining small amounts of sediment laden sheet flow runoff from disturbed areas to promote sedimentation behind the fence. It can be used in the following applications:

- Along the perimeter of a project
- Below the toe or down-slope of exposed erodible slopes
- Along drainage ways and channels to prevent sediment from entering these areas
- Around stockpiles

Details for installation of this product are in the cut-sheets found in Attachment B. Key points are:

- Used principally in areas where sheet flow occurs
- Install along a level contour, perpendicular to slope, so water does not flow along fence causing a concentrated flow
- Provide room for runoff to pond behind fence
- Bury bottom of fencing material to prevent water from running underneath
- Overlap ends of fence so flow is not concentrated in gaps between adjacent sections
- Stakes should be on the down-slope side of the fence
- Turn the ends of the fence uphill to prevent storm water from flowing around fence

Silt fence may be used as a good housekeeping BMP to protect small maintenance or expansion projects from run-on, to protect inlets, swales, and channels in unpaved areas, or to protect downgradient drainages from runoff from the work area. Silt fence is installed in unpaved areas. To protect paved areas, refer to SE-6 Gravel Bag Berm.

Silt fence reinforced with gravel bags, protecting a drainage channel.

SE-6 Gravel Bag Berms

Gravel bags are a good option for use in concentrated flow areas because their weight will keep them in place. Gravel bags can be formed into berms or check dams in channels. The picture below shows gravel bags used as both a berm and check dams. They may be suitable for:

- Diverting water running onto or off of the project site
- Slowing water on disturbed slopes
- Below the toe of slopes
- As sediment traps in channels
- Around temporary stockpiles including those on paved areas

The details for installation of this product are in the cut-sheets found in Attachment B. Key points are:

- Installation can be labor intensive
- Degraded gravel bags may rupture when removed, spilling contents
- Easily damaged by construction equipment
- Must be removed at end of project

For small maintenance or expansion projects, gravel bag berms may be used in paved areas for similar applications to silt fence.

Gravel bags used to slow sheet flow run-on into the lined swale, and as check dams to slow flow within the swale.

2.4 Tracking Controls

Tracking of mud and dirt onto public roads must always be controlled at construction sites. Access roads, parking lots, and other onsite vehicle transportation routes should be stabilized after they are graded if they will be used during or after periods of rain. The tracking control measures are:

TABLE 4

BMP Number	BMP Name
TC-1/2	Tracking Control

For BMP installation procedures refer to the cut-sheets in Attachment B.

TC-1/TC-2 Tracking Control:

Tracking controls consist of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. Tracking control BMPs include TC-1 Stabilized Construction Entrance/Exit and TC-2 Stabilized Construction Roadway. Details of tracking control BMPs are in the cut-sheets found in Attachment B.

Tracking control is important for any construction project large or small. Track-out of mud, rock, or dirt onto paved streets is visible to the public and any city or county staff will identify this as a storm water violation. Pictured below is an example of a construction entrance/exit that is well maintained in which no muddy wheel tracks are visible on the pavement.

Clean and well maintained construction entrance/exit.

Depending on the size of your project, tracking control can be accomplished in various ways. If you are working on a very small, short duration project, tracking control can be

as simple as sweeping during and at the end of the day. Sites that have a construction entrance/exit that transitions from dirt to pavement may require more attention. Pictured here is an example of a construction entrance before and after stabilization:

Construction entrance/exit before and after installation of gravel over geotextile fabric tracking control.

Larger sites may require the use of temporary construction roadways. Temporary roads should follow the contours of the natural terrain to the maximum extent possible. Roadways should be graded to prevent runoff from leaving the construction site. Drainage should flow across the roadway width to one or both sides of the roadway, where a trench may be dug and stabilized to direct concentrated flow or a gravel bag berm may be installed along the perimeter of the road.

Make the tracking control fit the size of the project.

2.5 Good Housekeeping BMPs

Good housekeeping covers general practices that keep a construction site clean and neat. It also designates specific areas where such things as refueling can be done safely so that any incidental spills will not end up in storm water runoff from the site. The good housekeeping practices covered in this plan are:

TABLE 5

BMP Number	BMP Name
NS-9	Vehicle and Equipment Fueling
WM-1	Material Delivery and Storage
WM-2	Material Use
WM-3	Stockpile Management
WM-4	Spill Prevention and Control
WM-5	Solid Waste Management
WM-6	Hazardous Materials and Waste Management
WM-7	Contaminated Soil Management
WM-8	Concrete Waste Management
WM-9	Sanitary/Septic Waste Management
WM-10	Liquid Waste Management

NS-9 Vehicle and Equipment Fueling:

Construction projects must implement vehicle and equipment fueling procedures that minimize spills and leaks, and reduce or eliminate contamination of storm water. Details of implementing NS-9 Vehicle and Equipment Fueling are provided in the cut-sheets found in Attachment B. Practices that must be followed include:

- Use offsite fueling stations as much as possible
- Fueling operations must be attended to at all times
- Do not top-off fuel tanks
- Absorbent spill cleanup kits should be in fueling areas and on fueling trucks and should be disposed of properly after use
- Drip pans or absorbent pads should be used during vehicle and equipment fueling unless fueling is done on a paved surface in a dedicated area
- Portable fueling containers should be kept securely closed in secondary containment when not in use

WM-1 Material Delivery and Storage:

Proper material delivery and storage practices are necessary to control the discharge of pollutants to storm water runoff.

- Store materials in a designated area, on plastic sheeting or an impervious surface, and cover all chemicals and biodegradable materials
- Locate material storage areas away from storm drains and watercourses
- Store only the minimum amount of material that is required for the job

Details of WM-1 Material Delivery and Storage are on the cut-sheets provided in Attachment B.

WM-2 Material Use

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by minimizing hazardous materials used on-site. Hazardous materials include but are not limited to herbicides, pesticides, fertilizers, detergents, fuel, oil, asphalt, and other concrete compounds. Details for implementing WM-2 Material Use are in the cut-sheets provided in Attachment B. Key methods are:

- Do not over-apply herbicides, pesticides, fertilizers, soil stabilizers, etc.
- Proper management of paint-related wastes

WM-3 Stockpile Management

Stockpile management procedures are designed to reduce or eliminate air and storm water pollution from soil, paving and construction materials stockpiles. Details for implementing stockpile management practices are on the cut-sheets provided in Attachment B. Stockpile management requirements include:

- Protection of stockpiles must be implemented during the entire year, not just during the rainy season
- All stockpiles should be covered prior to the onset of rain and in windy conditions
- Protect the perimeter of stockpiles from storm water run-on
- Inspect frequently because plastic degrades quickly and is easily damaged by wind
- Keep secure so fragments will not be blown into electrical equipment

Proper securing of plastic sheeting.

WM-4 Spill Control

At all work sites, prevent and reduce the discharge of pollutants to drainage systems or watercourses by reducing the chance for spills, containing and cleaning up spills, and properly disposing of spill materials. Details for implementing spill control are provided in the cut-sheets in Attachment B. Key points are:

- Handle and store all materials and wastes in accordance with appropriate BMPs
- Ensure an ample supply of spill clean-up materials is available wherever chemicals are used and stored
- Protect stormwater drains and conveyances, watercourses, and site run-on/runoff from spilled materials. Do not bury and wash away spills
- Clean up spills immediately and dispose of materials appropriately

WM-5 Solid Waste Management

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers and by arranging for regular disposal of wastes. Solid wastes include everything from tree and shrub clippings to construction debris to food containers and coffee cups. Details for implementation of WM-5 Solid Waste Management are in the cut-sheets found in Attachment B. Key points are:

- Provide a designated waste collection area on-site or on construction vehicles
- Prevent contact between solid wastes and stormwater
- Ensure regular collection and disposal of solid wastes

WM-6 Hazardous Materials and Waste Management

Hazardous materials and waste including but not limited to petroleum products, asphalt products, pesticides, herbicides, solvents, and paint products may be used on small construction sites. Sites involving demolition or renovations to existing facilities may

produce hazardous waste from older building materials and equipment such as lead paint, asbestos, and PCB containing equipment. Hazardous materials should be stored and handled in such a way as to protect stormwater from potential contamination. Details of storage and use of hazardous materials and waste are provided on the cut-sheets in Attachment B. Key points are:

- Store hazardous materials in appropriate containers. During the rainy season, provide cover on non-working days and prior to storm events
- Handle paint and painting wastes in accordance with the details provided on the cut-sheets and PG&E Environmental Practices
- Do not store more material than necessary on-site. Follow manufacture's recommendations for usage and application rates

WM-7 Contaminated Soil Management

Contaminated soil may be encountered on project sites, particularly where soil contamination may have occurred in past use, or due to spills, illicit discharges, or leaks from underground storage tanks. Details for implementing WM-7 Contaminated Soil Management are on the cut-sheets found in Attachment B. Key points are:

- Soil discoloration, odors, abandoned underground tanks or pipes, and buried debris are signs of potentially contaminated soil
- If contaminated soil is encountered, discontinue construction activities and contact the project Environmental Representative
- Manage contaminated soil according to PG&E Environmental Practices

WM-8 Concrete Waste Management

Concrete waste can alter the chemical properties of storm water; therefore it's important to manage concrete washout and cutting operations to minimize contact with site run-on and runoff. Where offsite washout of concrete wastes is not possible, designated on-site washouts should be provided. Details for implementing WM-8 Concrete Waste Management are provided on the cut-sheets found in Attachment B. Key points are:

- Contain wash out of concrete wastes to evaporate and properly dispose of solids
- Washout areas should be lined to protect the ground and constructed with sufficient volume to contain wastes, washout, and rainwater
- Do not allow excess concrete to be dumped onsite, except in designated areas
- Must have adequate volume so rain events do not overfill containment


Two alternatives for containing concrete washout water.

Adequate volume and maintenance are essential to prevent a release of high pH water from temporary concrete washout containments.

WM-9 Sanitary/Septic Waste Management

Proper sanitary and septic waste management prevent the discharge of pollutants to storm water from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal. Details on implementation of WM-9 are provided in Attachment B. Key points are:

- Locate temporary facilities away from drainage conveyances, watercourses, and traffic
- Ensure facilities are maintained in good working order and serviced regularly by a licensed service

- When there is a risk of high winds, secure facilities to prevent overturning

Locate sanitary facilities away from sensitive areas and secure to prevent overturning in high winds.

WM-10 Liquid Waste Management

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses. For details on hazardous liquid waste management see WM-6 Hazardous Waste Management. Non-hazardous liquid wastes include drilling fluids and slurries, grease-free and oil-free wastewater and rinse water, and other non-storm water liquid discharges not permitted by separate permits. Details for implementing WM-10 Liquid Waste Management are on the cut-sheets provided in Attachment B. Key points are:

- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water
- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept and direct flows to containment areas/devices
- Liquid wastes should be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank
- Liquid wastes may require treatment prior to disposal. Contact the project Environmental Representative for more information

3.0 BMP INSPECTION AND MAINTENANCE

BMP installation, inspection and maintenance will be performed by the PG&E construction crew. BMPs should be inspected daily during construction activities. In the

event that BMPs appear to require maintenance or are not functioning as expected, the BMP will be repaired or replaced to correct the deficiency.

4.0 WHOM TO CALL

If the project receives a written notice or order from any regulatory agency, contact your local EFS for further direction immediately.

Contact the local EFS if any of the following conditions occur:

- Visually cloudy/muddy water is observed leaving the work area
- Discharge or spill of hazardous substance

After hours or if the local EFS are unavailable, call the following 800 number:
800-874-4043.

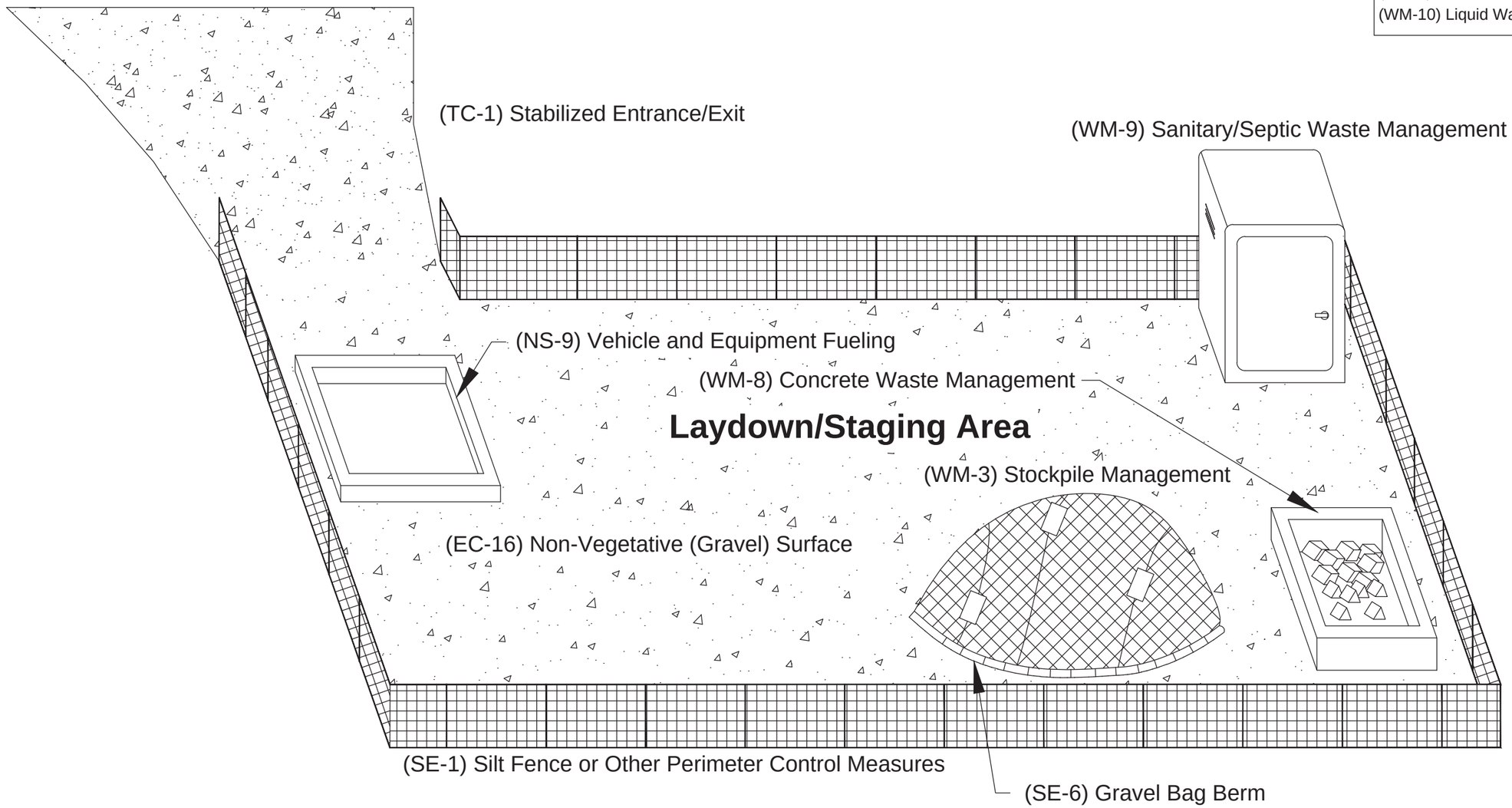
5.0 POST-CONSTRUCTION

Upon completion of construction within the project area, all temporary, non-biodegradable BMPs will be removed. All construction equipment will be demobilized and removed from the site.

Attachment A Typical BMP Installation Map

Additional BMPs to be utilized:

(WM-1) Material Delivery and Storage
(WM-2) Material Use
(WM-4) Spill Prevention and Control
(WM-5) Solid Waste Management
(WM-6) Hazardous Waste Management
(WM-7) Contaminated Soil Management
(WM-10) Liquid Waste Management



ETIC ENGINEERING

A-ESCP GOOD HOUSEKEEPING TYPICAL BMP USE MAP
PACIFIC GAS AND ELECTRIC COMPANY

FIGURE:
1

Attachment B PG&E Best Management Practice (BMP) Cut-sheets

Cut-sheets for BMPs described in this A-ESCP are included in this attachment, as follows:

SE-1 Silt Fence
SE-6 Gravel Bag Berm
NS-9 Vehicle and Equipment Fueling
TC-1 Stabilized Construction Entrance/Exit
TC-2 Stabilized Construction Roadway
WM-1 Material Delivery and Storage
WM-2 Material Use
WM-3 Stockpile Management
WM-4 Spill Prevention and Control
WM-5 Solid Waste Management
WM-6 Hazardous Materials and Waste Management
WM-7 Contaminated Soil Management
WM-8 Concrete Waste Management
WM-9 Sanitary/Septic Waste Management
WM-10 Liquid Waste Management

When

Silt fences are temporary linear sediment barriers of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

Silt fences are placed:

- Below the toe of exposed and erodible slopes
- Down slope of exposed soil areas
- Around temporary stockpiles
- Along streams and channels
- Along the perimeter of a project

How

Construct silt fences with a setback of at least 3 feet from the toe of a slope in areas suitable for temporary ponding or deposition of sediment. Where a 3-foot setback is not practicable, construct as far from the toe of the slope as practicable.

- Generally, use silt fences in conjunction with erosion controls up slope to provide effective control, particularly for slopes adjacent to water bodies or Environmentally Sensitive Areas
- Construct the length of each reach (length of fence) so that the change in base elevation along the reach does not exceed 1/3 the height of the barrier; each reach should not exceed 500 feet. The last 6 feet of the reach should be turned up slope
- The maximum length of slope draining to the silt fence should be 200 feet or fewer
- Excavate a trench for the bottom of the silt fence that is not wider or deeper than necessary
- Key in, or bury the bottom of silt fence fabric at least 12 inches deep in trench and tamp into place. If it is not feasible to trench along the slope contour, use sand bags or backfilling to key in the bottom of the fabric
- Install fence post at least 12 inches below grade on down slope side of trench
- Silt fences should not be considered for installation below slopes steeper than 1:1 (horizontal:vertical) or that contain a high number of rocks or loose dirt clods

Maintenance and Inspection

- Repair or replace split, torn, slumping, undercut, or weathered fabric
- Inspect silt fences before and after each storm event and routinely throughout the rainy season
- Remove accumulated sediment when it reaches 1/3 of the barrier height. Incorporate removed sediment into the project at appropriate locations or dispose of at a PG&E-approved site

- Remove and dispose of silt fences that are damaged and become unsuitable for the intended purpose and replace with new silt fence barriers
- Remove silt fence when the upgradient area is stabilized. Fill and compact post-holes and anchorage trench, remove sediment accumulation, and grade fence alignment to blend with adjacent ground

Silt fence installed at the toe of an erodible slope for perimeter control.

Silt fence needs to be properly keyed in 12 inches below the ground surface.

When

A gravel bag berm consists of a single row of gravel bags that are installed end-to-end to form a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some sediment removal. Gravel bags can also be used where flows are moderately concentrated, such as ditches, swales, and storm drain inlets (Storm Drain Inlet Protection to divert and/or detain flows). Gravel bag berms are appropriate for perimeter site control or along streams, channels, storm drain inlets, or around stockpiles to intercept sediment laden storm water and non-storm water runoff.

- Where it is desirable to filter sediment in runoff. Note that gravel bag berms are generally more permeable than sand bags. Sand bag barriers should be used where it is desirable to block and pond flows (e.g., for containment of non-storm water flows)
- Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- On a project-by-project basis to maximize effectiveness
- With other BMPs to maximize sediment containment

How

When used as a linear control for sediment removal:

- Install along a level contour
- Space rows 8 to 20 feet apart
- Turn ends of gravel bag row up slope to prevent flow around the ends
- Use in conjunction with temporary soil stabilization controls up slope to provide effective control

- When used for concentrated flows:
  - Stack gravel bags to required height. When the height requires 3 rows or more, use a pyramid approach
  - Overlap upper rows of gravel bags with overlap joints in lower rows
- Construct gravel bag barriers with a setback of at least 3 feet from the toe of a slope. Where a 3-foot setback is not practicable, construct as far from the toe of the slope as practicable

Maintenance and Inspection

- Inspect gravel bag berms before and after each storm event and routinely throughout the rainy season
- Reshape or replace gravel bags as needed
- Repair washouts or other damages as needed
- Inspect gravel bag berms for sediment accumulation and remove sediments when accumulation reaches 1/3 of the berm height. Incorporate removed sediment into the project at appropriate locations or dispose of it at a PG&E-approved site
- Remove gravel bag berms when no longer needed. Remove

sediment accumulation, and clean, re-grade, and stabilize the area. Incorporate removed sediment into the project at appropriate locations or dispose of it at a PG&E-approved site

Gravel bag berm used for perimeter control.

Gravel bag check dams installed to slow the water down and encourage sediments to drop out.

When

Use this BMP for projects where onsite fueling of vehicles and equipment, including handheld equipment, is planned.

Vehicle and equipment fueling, except for handheld equipment, is typically not done on the construction site. Onsite fueling of vehicles and equipment may be planned if it is impractical to send vehicles and equipment offsite for fueling.

Handheld equipment is treated separately from other equipment. Handheld equipment includes those smaller, manually operated pieces of equipment such as trenchers, mowers, chainsaws, generators, and other equipment that need fueling during regular daily operation.

How

Use the following measures, as applicable:

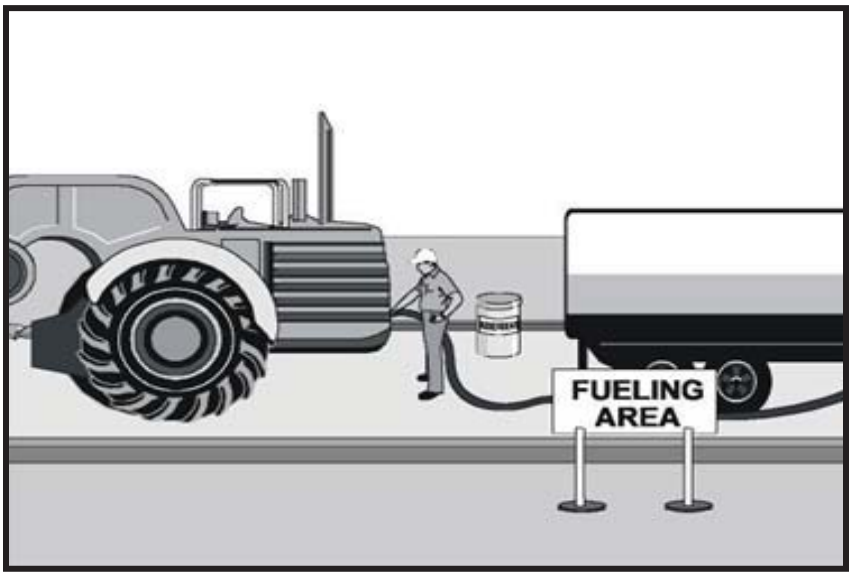
Fueling Vehicles and Handheld Equipment:

- If practical, fuel vehicles and equipment offsite
- Mobile fueling equipment is the preferred equipment used for onsite fueling
- Locate fuel storage and fueling areas away from storm drain inlets, drainage systems, and watercourses
- Conduct all fueling with the fueling operator in attendance at all times, even if fuel nozzles are equipped with automatic shutoff features
- Do not top off fuel tanks
- All fueling operators should have readily available spill containment and cleanup equipment and materials
- Immediately clean up any spills and properly dispose of contaminated materials. Do not hose down or bury spills
- Properly store and dispose of rags and absorbent material used to clean up any spilled fuel
- Mobile fueling trucks and operators must have all necessary permits, licenses, and training

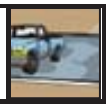
Maintenance and Inspection

Check to ensure adequate supply of spill cleanup materials is available. Routinely inspect designated fueling areas.

- Immediately report all spills to the project Supervisor or the Environmental Representative
- Vehicles and equipment should be inspected each day of use for leaks



Fuel vehicles and equipment within a designated fueling area.



When

Tracking controls reduce offsite tracking of sediment and other pollutants by providing a stabilized entrance at defined construction site entrances and exits and/or providing methods to clean up sediment or other materials to prevent them from entering a storm drain by sweeping or vacuuming.

- Stabilize entrances on a project-by-project basis in addition to other BMPs
- Implement sweeping or vacuuming when sediment is tracked from the project site onto public or private paved roads, typically at points of site exit
- Use stabilized entrances and/or sweeping at construction sites:
  - Where dirt or mud is tracked onto public roads adjacent to water bodies
  - Where poor soils are encountered, such as soils containing clay
  - Where dust is a problem during dry weather conditions

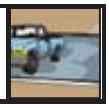
How

Stabilized Construction Entrances

- Limit the points of entrance/exit to the construction site by designating combination or single-purpose entrances and exits. Require all employees, subcontractors, and others to use them. Limit speed of vehicles to control dust
- Grade each construction entrance/exit to prevent runoff from leaving the construction site
- Route runoff from stabilized entrances/exits through a sediment-trapping device before discharge
- Design stabilized entrance/exit to support the heaviest vehicles and equipment that will use it
- Select construction access stabilization (aggregate, asphaltic concrete, and concrete) based on longevity, required performance, and site conditions
- Use of constructed or constructed/manufactured steel plates with ribs for entrance/exit access is permitted
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 inches deep, or place aggregate to a depth recommended by a geotechnical engineer. Use crushed aggregate of more than 3 inches but fewer than 6 inches
- If possible, construct aggregate area with a minimum length of 50 feet and width of 30 feet

Street Sweeping and Vacuuming

- Routinely inspect potential sediment tracking locations, at least daily
- Sweep or vacuum visible sediment tracking as needed
- Manual sweeping is appropriate for small projects. For larger



projects, use sweeping methods that collect removed sediment and material

- If not mixed with debris or trash, incorporate the removed sediment into the project or dispose of it at a PG&E-approved disposal site

Maintenance and Inspection

Stabilized Construction Entrance

- Inspect routinely for damage and assess effectiveness. Repair if access is clogged with sediment
- Sweep where tracking has occurred on roadways, on the same day. Do not use water to wash sediment off the streets. If water must be used, it should be captured to prevent sediment-laden water from running off the site
- Keep all temporary roadway ditches clear

Street Sweeping and Vacuuming

- Inspect inlet and outlet access points routinely and sweep tracked sediment as needed
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous
- After sweeping, properly dispose of sweeper wastes

Depending on the project area soil types, these metal plates may be sufficient enough to prevent track out onto paved roads.

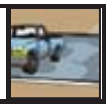
Regularly clean the plates to prevent buildup of sediments, mud, or construction debris from being tracked onto the paved road.

Manufactured metal plates knock dirt off vehicles before exiting a site.

One way to prevent bypassing would be to install a barrier such as safety cones or K-rails.

For rocked construction entrances/exits, use crushed aggregate of more than 3 inches but fewer than 6 inches.

Traditional rocked construction entrance/exit.



When

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading, and frequently maintained to prevent erosion and control dust.

This BMP should be applied for the following conditions:

- Temporary Construction Traffic:
  - Phased construction projects and offsite road access
  - Construction during wet weather
- Construction roadways and detour roads:
  - Where mud tracking is a problem during wet weather
  - Where dust is a problem during dry weather
  - Adjacent to water bodies
  - Where poor soils are encountered

How

Areas that are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surface. During wet weather, they often become muddy and can generate significant quantities of sediment that may pollute nearby streams or be transported offsite on the wheels of construction vehicles. Dirt roads can become so unstable during wet weather that they are virtually unusable.

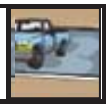
Efficient construction road stabilization not only reduces onsite erosion but also can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and on slopes greater than 5 percent.

Temporary roads should follow the contour of the natural terrain to the maximum extent possible. Slope should not exceed 15 percent. Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of the crowned section or one side in the case of the super elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment laden water from entering the storm sewer system (see SE-10, Storm Drain Inlet Protection). In addition, the following criteria should be considered:

- Road should follow topographic contours to reduce erosion of the roadway



- The roadway slope should not exceed 15 percent
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust
- Properly grade roadway to prevent runoff from leaving the construction site
- Design stabilized access to support heaviest vehicles and equipment that will use it
- Stabilized roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete grindings for stabilized construction roadway is not allowed
- Coordinate materials with those used for stabilized construction entrance/exit points
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 inch depth

Maintenance and Inspection

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, impact weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation
- Keep all temporary roadway ditches clear
- When no longer required, removed stabilized construction roadway and re-grade and repair slopes
- Periodically apply additional aggregate on gravel roads
- Active dirt construction roads are commonly watered three or more times per day during the dry season

Install filter fabric, place stabilization materials and compact.

In areas where run-on onto the road may be an issue install BMPs such as fiber rolls or silt fence to protect the road.

Stabilized construction road.

When

Use this BMP if it is necessary to store materials at a construction site. This BMP does not apply to materials and supplies stored on trucks that are driven onsite and offsite daily.

How

Use the following measures as appropriate:

- Store only the minimum amount of material that is needed for the job
- Locate storage areas away from storm drain inlets, drainage systems, and watercourses to prevent storm water run-on from reaching the materials
- If practical, store materials in enclosed storage containers such as cargo containers
- Store materials on impervious surfaces or use plastic groundcovers to prevent spills or leakage from contaminating the ground
- For known hazardous materials, keep materials covered with plastic or other waterproof materials. See WM-6 Hazardous Material and Waste Management
- If necessary, provide secondary containment systems around material storage areas to prevent contaminated runoff/run-on from leaving storage area(s)
- Keep an adequate supply of spill kit materials nearby
- Ensure that qualified personnel are available when hazardous materials are delivered to guarantee proper delivery and storage in designated area
- When the storage area is no longer needed, return it to original condition
- Place bagged materials with the potential to pollute runoff, such as cold patch, concrete mix, and other materials, on pallets and under cover
- Stack erodible landscape material on pallets and cover when not in use
- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed

Maintenance and Inspection

Repair or replace covers, containment structures, or perimeter controls as needed to ensure proper functioning. Routinely inspect designated delivery and storage areas.

Materials are stored on pallets and covered to prevent contact with precipitation.

Spill kits are readily available.

Materials are covered and neatly stored within a curbed area.

Containers are another way to effectively store materials to prevent contact with sheet flow or precipitation.

Make sure materials are returned to the storage containers after use.

When

Apply this BMP when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers and soil amendments
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Mastic, pipe wrap, primers, and paint
- Concrete compounds
- Welding material
- Other materials that may be detrimental if released to the environment

How

Reduce or eliminate use of hazardous materials onsite when practical.

- Follow manufacturer instructions for use and handling of each of the hazardous materials used
- Dispose of latex paint and paint cans, used brushes, paint rags, absorbent materials, and drop cloths when thoroughly dry and no longer hazardous, and dispose of them with other construction debris
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container
- When possible, mix paint indoors; otherwise use secondary containment structures. Do not clean paintbrushes or rinse paint containers into a street, gutter, storm drain, sanitary sewer, or watercourse
- Dispose of as hazardous waste those paint thinners, residue, and sludge(s) that cannot be recycled. For water-based paint, clean brushes to the extent practical, and rinse into a concrete washout pit or temporary sediment trap. For oil-based paints, clean brushes to the extent practical and filter and reuse thinners and solvents
- If possible, recycle residual paints, solvents, non-treated lumber, and other materials
- **Do not over apply fertilizers, pesticides, and soil amendments. Prepare only the amount needed. Strictly follow the recommended usage instructions**
- Keep an ample supply of spill cleanup material near use areas. Instruct employees in spill cleanup procedures
- Avoid exposing applied materials to rainfall unless they have had sufficient time to dry or cure

- Manage hazardous materials in accordance with WM-6 Hazardous Materials/Waste Management
- Contact your Environmental Representative for additional information

Maintenance and Inspection

Spot check employees and contractors regularly throughout the job duration to ensure that appropriate practices are employed.

When utilizing materials, be sure to have secondary containment to prevent spills from having direct contact with soil.

Keep spill kit nearby and have readily available when using materials.

Example of improper use of materials. Missing secondary containment and spill kit.

Fencing provides security to prevent unauthorized personnel from gaining access to materials.

Store drums on secondary containment pallets.

Example of how to store materials within a structure.

When

Use this BMP when projects require stockpiled soil and paving materials. The stockpile management practices differ based on forecasted weather or terrain.

- Protection of stockpiles must be implemented whenever there is a potential for transport of materials by a water source (forecast precipitation, windy conditions, or any non-storm water runoff)

How

Use one or more of the following options to manage stockpiles and prevent stockpile erosion and sediment discharges for storm water and non-storm water runoff/run-on:

  - Return stockpile to the excavation if precipitation is forecast
  - Protect stockpiles from storm water run-on with temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, or straw bale barriers, as appropriate
  - Remove or temporarily store stockpiles in a protected location offsite

- **Stockpiles should be covered, stabilized, or protected with a perimeter sediment barrier before the onset of precipitation**
- Secure plastic coverings tightly. Ensure no plastic is blown into electrical equipment
- Keep stockpiles organized and surrounding areas clean
- Protect storm drain inlets, watercourses, and water bodies from stockpiles, as appropriate
- Implement dust control practices as appropriate on all stockpiled material

Maintenance and Inspection

Repair and/or replace covers and perimeter containment structures as needed. Plastic sheeting requires frequent inspection for sun and wind damage.

This stockpile should have perimeter control around it. Such as, fiber rolls, a gravel bag berm, or silt fencing.

Stockpile covered with plastic and secured with large rocks. Where more than one sheet of covering is required, overlap sheets and secure at seam.

This stockpile should be covered even though it has perimeter control.

Silt fence as stockpile perimeter control.

When

This BMP applies to all construction sites at all times. Implement spill control procedures any time chemicals and/or hazardous substances are stored. Substances may include, but are not limited to, fuels, lubricants, solvents, fertilizers, pesticides, herbicides, soil binders, coolants, paints, and sewage.

To the extent that work can be accomplished safely, contain spills of materials or chemicals and clean up immediately.

How

Stop the spillage of material if it can be done safely. Clean the contaminated area, and properly dispose of contaminated materials. For all spills, notify the project foreman and/or the Environmental Representative. Use the following spill prevention and controls when applicable:

- To the extent that it does not compromise cleanup activities, cover and protect spills from storm water run-on during rainfall
- Keep spill cleanup kits in areas where any materials are used and stored
- Clean up leaks and spills immediately
- Do not bury or dilute spills with wash water
- Use absorbent materials to clean up spills. Do not hose down a spill with water
- Collect and dispose of appropriately all water used for cleaning and decontamination of a spill. Do not wash it into storm drain inlets or watercourses. Coordinate disposal of these wastes with the Environmental Representative
- Store and dispose of used cleanup materials, contaminated materials, and recovered spill material in accordance with federal, state, and local regulations

Maintenance and Inspection

Routinely confirm that an ample supply of spill control cleanup materials is available near material storage, unloading, and use areas.

Keep a spill kit in or near work areas.

Be sure to wear appropriate personal protective equipment (PPE).

Use absorbent materials to soak up spilled liquids.

Store and dispose of spill cleanup materials and waste.

When

These BMPs should be used on all construction projects that generate solid waste. Solid wastes may include, but are not limited to, concrete, cement, asphalt rubble, masonry brick/block, vegetation debris, steel and scrap metals, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam, general trash, and other materials used to transport and package construction materials. BMP materials, like sand bags, gravel bags, and silt fence stock, should be separated for reuse or disposal.

Additional waste management and materials control BMPs may apply.

How

Practice good housekeeping and keep site clean.

- Use dry methods for site cleanup such as sweeping, vacuuming, and hand pick-up
- Designate a waste storage area onsite. If a designated waste storage area is not feasible, remove wastes from the site regularly
- Prohibit littering by employees, contractors, and visitors
- Keep trash receptacles available onsite and/or on construction vehicles
- Protect wastes from being washed away by rainfall, storm water run-on, or other waters (irrigation, water line breaks, etc.) or from being carried away by wind
- To prevent storm water run-on from contacting stored solid waste (stockpiled materials) use berms, secondary containment, covered dumpsters/roll-offs, or other temporary diversion structures or measures
- For materials with the potential for spills or leaks, stockpile on impervious surfaces or use plastic groundcovers to prevent spills or leaks from infiltrating the ground
- Prevent solid waste and trash from entering and clogging storm drain inlets
- As practical, incorporate any removed clean sediment and soil back into the project

Maintenance and Inspection

- Do not hose out or clean out dumpsters or containers at the construction site
- Collect site trash regularly, especially before rainy or windy conditions
- Perform routine inspections of site, including storage areas, dumpsters, stockpiles, and other areas where trash and debris are collected
- Close trashcan lids and dumpster covers before rainy or windy conditions
- Ensure waste collection is sufficiently frequent to avoid container overflow

At the end of each workday or prior to a rain event, solid waste bins are to be covered.

Covers are to be securely fastened.

Waste bin with a tarp cover.

Inspect the waste storage areas daily.

Service (empty) waste storage bins regularly.

Avoid microtrash or waste materials from overflowing or being blown onto the ground and surrounding area.

Improperly managed waste receptacle.

When

Use this BMP when projects involve the storage and use of hazardous materials and the generation of waste byproducts from the following:

- Petroleum products such as oils, fuels, grease, cold mix, and tars
- Glues, adhesives, and solvents
- Herbicides, pesticides, and fertilizers
- Paints, stains, and curing compounds
- Other hazardous or toxic substances

Projects at existing sites may contain hazardous wastes in construction debris such as lead paints, asbestos, and PCBs (particularly in older transformers).

Other BMPs regarding materials and waste management and handling may also apply.

How

Manage hazardous materials and wastes in accordance with the following procedures:

General

- Minimize the amount of hazardous materials stored at the construction site, and the production and generation of hazardous waste at the construction site
- Cover or containerize and protect from vandalism any hazardous materials and wastes
- During the rainy season, temporary containment facilities should be covered during non-working days and prior to storm events
- Clearly mark all hazardous materials and wastes. Place hazardous waste containers in secondary containment systems if stored at the construction site
- Place on and cover with plastic all stockpiled cold mix
- Do not mix waste materials, because this complicates or inhibits disposal and recycling options and can result in dangerous chemical reactions
- Segregate hazardous waste from other solid waste and dispose of it properly
- In addition to following this BMP, employees or contractors are responsible for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous waste

Painting Operations

- Paint brushes and equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Rinse water-based paints to the sanitary sewer. Dispose of excess oil-based paints and sludge as hazardous waste
- Filter and reuse thinners and solvents. Waste thinners, solvents,

residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste

- When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop clothes should be disposed of as solid (non-hazardous) waste

Herbicides/Pesticides/Soil Amendments

- Follow the manufacturer's recommended usage instructions, prepare only the amount needed, and do not over apply
- Apply surface dressings in several smaller applications as opposed to one large application. Allow time for infiltration. Do not apply when rain is forecasted

Maintenance and Inspection

- Routinely inspect the covers on hazardous material storage areas for tears or flaws, and repair as necessary
- Ensure that all secondary containment systems can hold the volume of the largest container in the storage area; provide sufficient additional capacity for storm events
- Routinely inspect to ensure that no hazardous materials or waste are improperly exposed to storm water
- Inspect storm water that collects within secondary containment structures before discharging to ensure that no pollutants are present. Contaminated storm water must be managed according to PG&E Environmental Practices (EPs), including Vault Dewatering and SPCC pond drainage
- Do not discharge spills from a secondary containment system. See WM-4 Spill Prevention and Control

When

This contaminated soil management BMP should be used whenever soil contamination is suspected or contaminated soil is encountered. Construction crews should be extra vigilant on projects located in highly urbanized or industrial areas, where soil contamination may have occurred because of spills, illicit discharges, and leaks from underground storage tanks.

Contaminated soils may also be encountered during digging and trenching activities on highways and roadways.

How

Contaminated soil wastes should be managed in accordance with the following procedures:

- Identify contaminated soil; look for the following:
  - Soil that is discolored, black, gray, white
  - Soil that has an unusual odor, such as petroleum, acid, alkaline, sewage, solvent, or any other chemical smell
- If potentially contaminated soil is detected, discontinue the activity and contact the project's Environmental Representative
- Manage contaminated soils properly, according to PG&E Environmental Practices (EPs)

Maintenance and Inspection

Perform routine inspections of digging and trenching operations to look for contaminated soils.

- Manage all contaminated soils as hazardous substances, if applicable, in accordance with applicable federal, state, and local laws

If potentially contaminated soils are encountered:

- **Stop work!**
- Contact the project's Environmental Representative.

When

Use for projects where concrete, mortar, cement, and stucco are used or where slurry or concrete wastes are generated by construction activities, including:

- Sawcutting
- Coring/drilling
- Grinding, re-finishing, or patching
- Encasing conduit in concrete
- Tower footings

For managing concrete curing compounds, see the BMPs on Material Use (WM-2) and Hazardous Waste Management (WM-6). For managing paving, grinding, and sawcutting operations, see NS-3 Paving and Grinding Operations.

How

Install storm drain protection at any down gradient inlets that the activity might impact. See SE-10 Storm Drain Inlet Protection.

- Avoid mixing excess amounts of concrete
- **Do not wash residue or particulate matter into a storm drain inlet or watercourse**
- The following options should be used for concrete truck chute and/or pump and hose washout:
  - If available, arrange to use an existing concrete washout station. Upon entering the site, concrete truck drivers should be instructed about onsite practices
  - **Concrete Washouts:** Washout stations can be plastic lined temporary bermed areas designed with sufficient volume to completely contain all liquid and waste concrete materials plus enough capacity for rainwater. The designated area must be located away from storm drain inlets or watercourses
  - **Bucket Washout:** Manually rinse the chute into a wheelbarrow, plastic bucket, or pail, and then empty the bucket into the concrete truck barrel or on top of the placed concrete
- Locate washout at least 50 feet from storm drains, open ditches, or water bodies if possible
- Stockpile concrete demolition waste in accordance with WM-3 Stockpile Management

Maintenance and Inspection

- Responsible personnel should ensure that all concrete truck drivers are instructed about project practices when the trucks arrive onsite
- Clean designated washout areas as needed, or minimally when the washout is 75 percent full, to maintain sufficient capacity throughout the project duration
- Clean any designated onsite washout areas and remove all debris upon project completion. Dispose of concrete waste according to WM-5 Solid Waste Management

- Inspect routinely, when applicable activities are underway, to ensure that concrete washout does not overflow

Portable self contained concrete washouts are easy to maintain.

Cover during rain events.

Service the washout when approximately 75% full.

Self contained concrete washout.

Construct a concrete washout by placing a support structure (such as hay bales) to form a basin and line with a thick (minimum 6 mil) plastic.

Service the washout when approximately 75% full.

Make sure the washout doesn't become a waste bin for other construction debris.

Inspect concrete washout regularly for holes and integrity of the hay bales or support features.

Replace plastic after each servicing and replace hay bales as needed.

Lined concrete washout.

When

Use this BMP on all construction sites that use temporary or portable sanitary/septic waste systems.

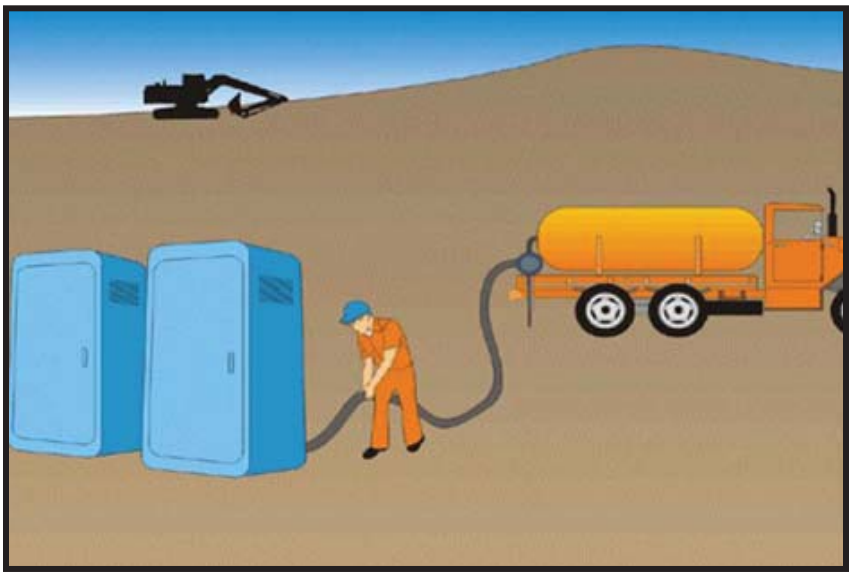
How

Manage sanitary/septic wastes in accordance with the following procedures:

- Incorporate into regular safety meetings the education of employees, contractors, and suppliers on:
  - Potential dangers to humans and the environment from sanitary/septic wastes
  - Approved sanitary/septic waste storage and disposal procedures
- When possible, locate temporary sanitary facilities at least 50 feet away from drainage facilities, watercourses, and traffic circulation. When subjected to high winds or risk of high winds, secure temporary sanitary facilities to prevent overturning
- Do not bury or discharge sanitary wastewater, except to a properly permitted sanitary sewer discharge facility. The local Sanitation District might require a permit
- Use only reputable, licensed sanitary/septic waste haulers
- Empty temporary sanitary facility's holding tanks before transport

Maintenance and Inspection

- Routinely inspect onsite sanitary/septic waste storage and disposal
- Ensure that sanitary/septic facilities are maintained in good working order and are routinely serviced by a licensed service



Good septic waste management.

When

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous byproducts, residuals, or wastes, such as:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredging spoils
- Other non-storm water liquid discharges not permitted by separate permits

These separate BMPs should also be referenced for the following onsite liquid wastes:

- Dewatering operations (NS-2)
- Liquid hazardous wastes (WM-6)
- Concrete slurry residue (WM-8)

How

- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water
- **If dewatering needs to be performed for the construction activities, contact your Environmental Representative for further support as dewatering may require a permit**
- Do not use water to clean vehicles and equipment onsite
- Dispose of drilling residue and drilling fluids in accordance with PG&E procedures at an approved disposal site. Do not allow them to enter storm drains or watercourses. Coordinate the disposal of these wastes with your Environmental Representative
- Contain wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, so that they cannot flow into drainage channels or receiving waters
- Contain non-hazardous liquid wastes in a controlled area, such as a lined holding pit, lined sediment basin, roll-off bin, or portable tank. Ensure containment devices are structurally sound and leak free
- Capture liquid wastes using temporary dikes or berms to direct flow to a containment area
- Ensure that containment devices are of sufficient quantity or volume to completely contain the liquid wastes generated and any additional volume based on anticipated rainfall
- **Do not locate containment areas or devices where accidental release of the contained liquid can threaten health or safety or discharge to watercourses or the storm drain system**
- Capture all liquid wastes running off a surface that has the potential to affect the storm drainage system (for example, wash water and rinse water from cleaning walls or pavement)

- If the liquid waste is sediment-laden, use a sediment trap or capture in a containment device and allow sediment to settle
- Disposal of liquid wastes is subject to specific laws and regulations, or to requirements of other permits secured for the construction project. Contact your Environmental Representative for further information

Maintenance and Inspection

- Remove deposited solids from containment areas and containment systems as needed, and at the completion of the project
- Inspect containment areas and containment systems routinely for damage, and repair as needed