APPENDIX B

STORM WATER POLLUTION PREVENTION PLAN
FOR THE LONG BEACH LNG IMPORT PROJECT (DRAFT)

SOUND ENERGY SOLUTIONS

DRAFT

STORM WATER POLLUTION PREVENTION PLAN
for
CONSTRUCTION ACTIVITIES

Sound Energy Solutions, Long Beach LNG Import Project

(Name of Project)

Pier T, Port of Long Beach

(Street Address of Construction Site)

Long Beach, California 90802

WDID No. _____

Prepared by:

Name of Firm:	***Tetra Tech EC, Inc.***
Street Address	***1940 E. Deere Ave, Suite 200***
City, State, and Zip:	***Santa Ana, CA 92705***
Telephone No.:	***949-756-7500***

May 14, 2005

(Date Prepared)

CERTIFICATION OF STORM WATER POLLUTION PREVENTION PLAN

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

This SWPPP shall be evaluated and re-certified annually until the construction project is completed and the Notice of Termination is submitted to the Los Angeles Regional Water Quality Control Board.

_____

(Signature of Authorized Representative)

_____

(Typed Name and Title of Authorized Representative)

_____

(Date of Signature)

ANNUAL RE-CERTIFICATION OF STORM WATER POLLUTION PREVENTION PLAN

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

Based upon the maintenance and repair of construction-related Best Management Practices and the site inspections described in Section 4.0 of this Storm Water Pollution Prevention Plan, I certify, under penalty of law that all construction activities are in compliance with the requirements of the General Permit for Storm Water Discharges Associated with Construction Activity.

I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Owner or Owner's Representative

Name (Print)	Signature	Date

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I. Introduction

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared to comply with California's General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit). The Construction General Permit (General Permit No. CAS000002) was adopted by the State Water Resources Control Board (SWRCB) on August 19, 1999 as Order No. 99-08-DWQ. Subsequently, on December 2, 2002, order No. 99-08-DWQ was modified to change the threshold acreage of soil disturbance requiring permit coverage from five (5) acres to one (1) acre. A copy of the Construction General Permit is provided in Appendix A.

This SWPPP has four major objectives:

- Identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction site
- Identify non-storm water discharges
- Identify, construct, implement and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges, from the construction site during construction
- Identify, implement and assign maintenance responsibilities for post-construction BMPs, which are those measures to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed
- Identify baseline mitigation measures for minimizing erosion and sedimentation as defined by the Federal Energy Regulatory Commission (FERC) using BMPs that are applicable to the proposed project.

This Storm Water Pollution Prevention Plan (SWPPP) was prepared for Sound Energy Solutions (SES), which will construct and operate a liquefied natural gas (LNG) import terminal on a 25-acre site on the eastern portion of Pier T in the Port of Long Beach (POLB). Pier T is located within a former United States naval complex that included the Long Beach Naval Station, Navy Mole, and Naval Shipyard. The project, referred to as the Long Beach LNG Import Project, will involve the construction and operation of LNG terminal facilities consisting of a ship berth and unloading facility, two LNG storage tanks, vaporization and vapor handling systems, a natural gas liquids (NGL) recovery system, and an LNG trailer truck loading facility. Associated facilities include an approximately 2.3-mile-long, 36-inch-diameter natural gas sendout pipeline that will deliver natural gas to Southern California Gas Company's (SoCal Gas) existing Line 765 at its Salt Works Station; a 4.6-mile-long, 10-inch-diameter ethane (C_2) pipeline that will deliver C_2 to ConocoPhillips' Los Angeles Refinery Carson Plant (LARC); and approximately 0.8 mile of electric distribution lines and a new substation to connect the LNG terminal to two of Southern California Edison's existing substation taps. The natural gas sendout pipeline will be constructed, owned, and operated by SES. The C_2 pipeline will be constructed, owned, and operated by ConocoPhillips. Another SWPPP will be prepared for operation of the project.

A. Notice of Intent

To obtain coverage under the Construction General Permit, the site owner or operator must submit a Notice of Intent (NOI) to the SWRCB. The NOI is a two-page form that provides the SWRCB with information about the construction project, such as:

- property owner
- developer or general contractor
- construction site address and other characteristics
- applicable local ordinances, if any
- receiving water for discharges
- vicinity map

The Planning Division of the Port of Long Beach (POLB) prepares and submits the NOI for construction projects within its Harbor District. The NOI must be certified as accurate and complete then submitted to the SWRCB with a fee of $700.00.

Operators of the site are those parties that have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications (e.g. land developer). Additionally, parties are also considered operators if they have day to day operational control over activities at a project which are necessary to ensure compliance with the SWPPP or other permit conditions (e.g. general contractor, erosion control contractor).

The site operator for this construction project has not yet been determined. When known, the site operator name and contact information will be inserted here.

General Contractor: _____
(Firm Name)

Representative: _____
(Person's Name and/or Position)

Representative's Telephone No.: _____

B. Plan Availability

The SWPPP must be retained at the construction site from the date of project initiation to the date of termination of coverage under the Construction General Permit. The SWPPP should be available at all times to site employees, the general public, and to representatives of the Los Angeles Regional Water Quality Control Board, SWRCB, Region IX of the United States Environmental Protection Agency, or local municipality or storm water management agency.

C. Plan Changes

The SWPPP must be amended whenever there is a change in project design, construction, or operations that may have a significant effect on the potential for discharge of pollutants or if the SWPPP proves to be ineffective in eliminating or minimizing pollutants in storm water discharges. In addition, the plan must be amended to identify any new contractor and/or subcontractor that will implement a measure of the SWPPP. SWPPP amendments or revisions are recorded in Table 1.

D. Retention of Records

The Site Operator must retain copies of the SWPPP, all required inspection reports, compliance certifications, non-compliance reports, training records and records of data used to complete the NOI for at least 3 years from the date that the site is finally stabilized. The Site Operator must retain a copy of the SWPPP and inspection reports at the construction site from the date of project initiation to the date coverage under the Construction General Permit is terminated.

E. Compliance Certification

1. SWPPP Certification

This SWPPP must be certified and annually evaluated and re-certified until the construction project is complete and a Notice of Termination has been submitted to the Los Angeles Regional Water Quality Control Board. The SWPPP Certification and the SWPPP Annual Re-Certification follow the title page and precede the Table of Contents for this SWPPP.

2. Signatory Requirements for Compliance Certification

All reports, certifications or other information required by the Construction General Permit must be signed by the following:

- For a corporation: by a responsible corporate officer, which means: (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of the construction activity if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- For a partnership of sole proprietorship: by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public agency: by either a principal executive officer, ranking elected official, or duly authorized representative.

F. Contractor/Subcontractor List

Contractors and subcontractors who will work on the site are listed in Table 2. This list of contractors and subcontractors shall be kept current throughout the construction project. Each contractor and subcontractor shall have access to copies of applicable sections of the SWPPP or equivalent document prior to commencement of construction.

G. Notice of Termination

To terminate coverage under the Construction General Permit, a Notice of Termination (NOT) must be submitted. The NOT is a two-page form that is submitted to the Los Angeles Regional Water Quality Control Board when the construction project is complete and the following conditions have been met:

(1) All elements of the SWPPP have been completed;

(2) Construction materials and waste have been properly disposed;

(3) The site is in compliance with all local storm water management requirements;

(4) A post-construction storm water operation and management plan is in place.

The Planning Division of the Port of Long Beach prepares and submits the NOT for construction projects within its Harbor District.

Table 1. Summary of SWPPP Amendments or Revisions

Section and Page	Summary of Revision	Name/Title and Date

Table 2. Contractor/Subcontractor List

Contractor/Subcontractor	Contact Name	Phone Number

II. Site Description

This SWPPP was prepared for construction activities on the eastern portion of Pier T, which was part of a former United States naval complex that was transferred to the POLB. SES will construct and operate an LNG import terminal on a 25-acre site on the eastern portion of Pier T. The project will include an offloading dock, two LNG storage tanks, an LNG vehicle fuel tank, vaporization facilities, an NGL recovery unit, and an LNG trailer truck loading facility.

The terminal site is located within the city limits of Long Beach, Los Angeles County, California. Access for ships to the marine facilities associated with the LNG terminal will be through Queens Gate and Long Beach Channel. The onshore facilities associated with the LNG terminal will be accessed from Interstate 710, Ocean Boulevard, and Pier T Avenue. A 36-inch-diameter natural gas sendout pipeline will extend approximately 2.3 miles north from the LNG terminal, crossing the Cerritos Channel with a horizontal directional drill (HDD), and terminating at SoCal Gas' existing Line 765 at its Salt Works Station. A 4.6-mile-long, 10-inch-diameter C_2 pipeline will be constructed approximately parallel to the natural gas sendout pipeline as far as the interconnection point with SoCal Gas' existing Line 765 and will continue on a primarily due north route, through city streets, to ConocoPhilips' LARC facility.

A vicinity map for the construction project site is provided in Appendix B. Appendix B will include, prior to construction, other site maps and/or construction drawings that depict the following information:

Shown	Information Element on Drawing or Map
Yes	Construction site perimeter, roadways, lots
Yes	General topography before and after the project
N/A	Drainage patterns and slopes anticipated after major grading activities are completed
Yes	Existing and planned paved areas and buildings
N/A	Areas of vegetative cover which will remain undisturbed during the construction project
N/A	Areas of soil disturbance including cut or fill areas which will be stabilized during the rainy season by BMPs
N/A	An outline of areas of planned soil disturbance including cut and fill areas which will not be stabilized and will therefore require alternative erosion control measures
Yes	Locations where the construction site's storm water discharges to a municipal storm water drainage system or receiving water
Yes	On-site surface water bodies (including wetlands)
N/A	Off-site areas that drain onto or through the site (storm water run-on). Show storm water inlets or receiving waters on the construction site
Yes	Temporary on-site drainage BMPs to control erosion and to prevent damage to downstream properties
Yes	Existing site features that may contribute pollutants to storm water
Yes	Locations of primary site entrance and exit points

Shown	Information Element on Drawing or Map
Yes	Areas designated for the a) storage of soil or wastes, b) vehicle storage and service areas, c) construction material loading, unloading, access and storage areas and d) equipment fueling, storage, and maintenance areas
Yes	Drainage patterns into each on-site storm water inlet point or into receiving waters
Yes	Locations of major structural and nonstructural controls identified in the SWPPP including: – BMPs that will protect on-site storm water inlets or receiving water discharge points – Run-on (runoff from off-site areas which enters the construction site) control BMPs – Locations where stabilization practices are planned

A. Existing Site Conditions

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The LNG terminal will be located on a 25-acre site that was part of a former United States naval complex on Pier T in the POLB. The 25-acre site is located along designated Berth 126 and is currently paved with concrete and/or asphalt and includes two abandoned buildings. The POLB will demolish the buildings on the site and remove the pavement prior to SES' initiation of activities associated with the proposed project as part of previously planned activities associated with the closing of the Long Beach Naval Shipyard. There is no vegetation on the site. The entire 25 acres will be used for the proposed LNG terminal facility. Surface elevations at the site are without relief and are about 20 feet above mean lower low water. The entire route of the natural gas and C_2 pipelines is within heavily disturbed, industrialized areas.

The project area is underlain by fill materials. Most of the early fill was placed by hydraulic methods. Fills placed after a period of subsidence in the 1940s and 1950s consisted predominantly of land-based materials placed by mechanical methods. These artificial fills are variable, ranging from loose sands to soft, compressible silts and clays with varying degrees of in-situ strength. Fill soils were encountered in all borings, ranging in thickness from 45 to 60 feet below ground surface (bgs). Below a depth of about 25 feet, the fill materials beneath the entire LNG terminal site consist of predominantly loose to medium dense sands and silty sands, with layers of medium stiff to stiff fine-grained materials.

The shallow aquifer in the project area, found at depths ranging from 20 to 40 bgs, is saline (salt water intrusion). The Gaspur aquifer is at about 60 to 150 feet bgs in this area, is mostly fresh in this location, and has some areas of benzene contamination (Houston, 2003). The route of the natural gas and C_2 pipelines is flat, and largely located in roads and/or through industrial/commercial areas.

B. Proposed Construction Activities

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The LNG terminal facilities will include:

- an 1,100-foot-long LNG ship berth and unloading facility with unloading arms, mooring and breasting dolphins, and a fendering system that will be capable of unloading one ship at a time;
- two LNG storage tanks, each with a gross volume of 160,000 cubic meters (1,006,000 barrels) surrounded by a security barrier wall;
- 20 electric-powered booster pumps;
- four shell and tube vaporizers using a primary, closed-loop water system;
- three boil-off gas compressors, a condensing system, an NGL recovery system, and an export C_2 heater;
- an LNG trailer truck loading facility with a small LNG storage tank;
- a natural gas meter station and odorization system;
- utilities, buildings, and service facilities; and
- associated hazard detection, control, and prevention systems; site security facilities; cryogenic piping; and insulation, electrical, and instrumentation systems.

A 36-inch-diameter natural gas sendout pipeline will extend approximately 2.3 miles north from the LNG terminal, crossing the Cerritos Channel with a HDD, and terminating at SoCal Gas' existing Line 765 at its Salt Works Station. A 4.6-mile-long, 10-inch-diameter C_2 pipeline will be constructed approximately parallel to the natural gas sendout pipeline as far as the interconnection point with SoCal Gas' existing Line 765 and will continue on a primarily due north route, through city streets, to ConocoPhilips' LARC facility.

Project site grading will occur on approximately 100 percent of the site. This grading includes both cut and fill, and the total graded material is estimated to be 50,000 cubic yards. Graded materials will be hauled away.

C. Storm Water Run-on from Offsite Areas

There is no anticipated offsite run-on to this construction site because the site and its surroundings are part of a completely flat, artificial fill island built in the harbor.

Runoff-Coefficient

The site is currently 100 percent impervious surface with an estimated runoff coefficient of 0.85. After construction is completed, the site is estimated to be approximately 100 percent impervious surface area with a runoff coefficient of 0.85.

D. Construction Schedule

A construction activity schedule, describing all major activities such as mass grading, paving, lot or parcel improvements at the site and the proposed time frame to conduct those activities, is provided in Table 3. The schedule will be updated on a regular basis to show changes in start or completion dates. SES assumes that the POLB will complete all demolition, pavement removal, and upland site preparation by the first half of 2007. It further assumes that the offloading platform will be started in the first half of 2007 and completed in the first half of 2008. The milestones listed in Table 3 are for SES' activities only.

Table 3. Construction Activity Milestones

Milestone	Start Date	End Date
Date Notice of Intent (NOI), vicinity map and filing fee submitted to SWRCB	July 2006	July 2006
Prepare SWPPP. A construction site is covered by the General Permit upon filing a complete NOI and implementation of a defensible SWPPP.	May 2005	May 2005
Wet season dates	11-01-06 11-01-07 11-01-08 11-01-09	04-15-06 04-15-07 04-15-08 04-15-09
Dry season dates	04-16-07 04-16-08 04-16-09	10-31-07 10-31-08 10-31-09
Initial ground-breaking (must occur after completion of SWPPP and submittal of NOI)	July 2006	August 2006
Grading/excavation/trenching activities	July 2006	May 2007
Paving activities	N/A	
Implement erosion control measures	July 2006	July 2010
Implement sediment control measures	July 2006	July 2010
Construction of structures and paved surfaces	July 2007	June 2010
Site clean-up	May 2010	July 2010
Anticipated construction completion date	July 2010	July 2010
Anticipated filing of Notice of Termination (NOT) to Los Angeles Regional Board.	August 2010	August 2010

E. Potential Construction Site Pollutants

As with most construction sites, pollutants have a potential to be present in storm water discharges during construction if no BMPs are implemented. Table 4 lists common construction products and construction site activities and the associated potential pollutants.

Table 4. Typical Construction Site Pollutants

Insert "X" if Present	Products/Activities With Potential To Cause Storm Water Pollution	Associated Potential Pollutants
X	Grading activities	Sediment
X	Disturbance of contaminated soil	Sediment List identified soil contaminant
X*	Adhesives, glues, resins, epoxy synthetics, caulks, sealers, putty, sealing agents and coal tars (Naphtha, Pitch)	Phenolics, formaldehydes, asbestos, benzene, phenols and naphthalene
	Polishes (metal, ceramic, tile), etching agents, cleaners, ammonia, lye, caustic sodas, bleaching agents and chromate salts	Metals Acidity/alkalinity Chromium
X*	Solder (lead, tin), flux (zinc chloride), pipe fitting, galvanized metal in nails and fences, and electric wiring	Lead, copper, zinc and tin
X	Paint thinners, acetone, methyl ethyl ketone, stripper paints, lacquers, varnish, enamels, turpentine, gum spirit, solvents, dyes, stripping pigments and sanding	VOCs, metals, phenolics and mineral spirits
X*	Sawdust, particle board dust and treated woods	BOD, formaldehyde, copper and creosote
X	Cement and brick dust, colored chalks, concrete curing compounds, glazing compounds and surfaces cleaners	Sediments, acidity, metals and asbestos
X	Tile cutting, flashing, drywall and adhesives	Copper, aluminum, sediments and minerals
	Venting systems and the use of insulation, brick, cement and drywall and from saw cutting during remodeling and demolition	Asbestos, aluminum and zinc
X	Yard operation and maintenance procedures such as vehicle and machinery maintenance, grading, earth moving, fire hazard control (herbicides), pest control, vehicle washing and the use of gasoline, oils, additives, marking pens and sprays and portable toilets	Oils and grease, coolants, benzene and derivatives, vinyl chloride, metals, sediments, BOD, disinfectants, pathogens, sodium arsenite, dinitro compounds, rodenticides, insecticides, herbicides and concrete
	Insulation, coolant reservoirs and adhesives	Asbestos and freon
	Planting and plant maintenance, excavation, tiling, masonry, the exposing of mineral deposits, the revegetation of graded areas, and the use of soil additives and well as the production of solid waste such as trees, shrubs, green waste and mulch	Pesticides, herbicides, nutrients, sediment, BOD, acidity/alkalinity, metals, aluminum sulfate, sulfur and fertilizers
X	Wash waters	Concrete, sediment, oil and grease, detergents
	Saw Cut Slurries	Concrete, asphalt, sediment
X	Hydrostatic test water, pipe flushing	Sediment
	Demolition	Trash and debris

X* = During construction of administrative/control building only.

III. Best Management Practices

This section contains a series of BMPs to eliminate or reduce pollutants in storm water runoff from the project site during construction. The Construction General Permit prohibits the discharge of storm water that causes or threatens to cause pollution, contamination or nuisance. It also allows the developer/ owner to choose the most economical, effective, and possibly innovative BMPs to reduce or eliminate pollutants in runoff. These Construction General Permit requirements must be met, not only during the wet season, but also on a year-round basis. The SWPPP must be implemented in a proactive manner during all seasons until the construction project is complete. Appendix H also identifies baseline mitigation measures as defined by the FERC for minimizing erosion and sedimentation using BMPs that are applicable to this project

A. Erosion Control and Site Stabilization

1. Erosion and Sediment Control

The requirements for erosion and sediment controls for construction activities in the Construction General Permit have the following goals and criteria:

- Construction phase erosion and sediment controls should be designed with the objective to retain sediment on site;
- Control measures must be properly selected and installed in accordance with sound engineering practices and manufacturer's specifications;
- Off-site accumulations of sediment must be regularly removed to minimize impacts;
- Sediment should be removed from sediment traps when the design capacity has been reduced by 50%;
- Litter shall be prevented from entering a receiving water; and
- Off-site material storage areas must be addressed in the SWPPP.

As a rule, native vegetation in undisturbed areas represents the "baseline" for erosion control. Thus, retaining native vegetation in undisturbed areas provides the first and best line of defense against erosion and sedimentation, and at the least cost to the contractor.

The erosion and sediment control measures denoted with an "X" will be implemented and maintained at the project construction site.

Choose one or more of the following by typing an "X" in the first column.

	Before commencing grading or clearing, steep slopes and areas adjacent to water bodies will be stabilized. Stabilization will be accomplished with vegetative cover including grass, trees, vines, shrubs, etc. or with nonvegetative controls such as geotextiles, riprap or gabions (wire mesh boxes filled with rock), and mulches such as straw or bark in conjunction with vegetation.

X	To prevent transport of sediment into existing storm drain inlets and onto adjacent properties and roadways, before grading or clearing, the site perimeter will be stabilized (preferably through preservation of buffer strips of vegetation); storm drain inlets will be protected; and sediment basins (if applicable) will be constructed.
	Before commencing grading or clearing of the site, clearing limits, easements, setbacks, and vegetation to be preserved will be delineated by marking in the field.
X	Site disturbance and vegetation clearing will be minimized.
X	During the rainy season, disturbed areas of the construction site that will not be re-disturbed for 21 days or more will be stabilized within 7 days of the last disturbance.
	Vegetated buffer areas adjacent to water bodies and on steep slopes will be preserved.
	Runoff velocities, both on slopes and at discharge points, will be retarded to prevent erosion.
X	The wetting down of exposed soil for dust control during construction shall be done in such a manner that no runoff is generated.
X	Temporary silt fences along site perimeters will be constructed and maintained at the toe of exposed and erodible slopes downslope of exposed soil areas or around temporary soil stockpiles to allow sediment to settle from runoff before water leaves the site.
	Baled hay or straw dams will be constructed and maintained at the toe of exposed and erodible slopes downslope of exposed soil areas or around temporary soil stockpiles to allow sediment to settle from runoff before water leaves the site.
	Diversion ditches to prevent run-on from off-site areas will be constructed and maintained.
	Check dams or other energy dissipation structures in unlined drainage channels will be built to slow runoff velocity and encourage settlement of sediment.
	Temporary earth berms and ditches will be constructed and maintained to divert storm flow from an erodible surface to a public roadway.
	Level spreaders, outlets for dikes and flow channels consisting of an excavated depression constructed at zero grade across a slope, will be used to convert concentrated runoff into diffuse flow to be released onto areas stabilized by existing vegetation.
X	Reasonably available control measures will be implemented, installed and maintained to control fugitive dust release from the construction site.
X	As new storm drain inlets/catch basins are constructed to collect on-site storm flows to the surrounding drainage system and/or project storm sewer system, loose sediment shall be prevented from entering the storm drain inlet by employing an appropriate storm drain inlet protection technique such as filter fabrics, block and gravel filters, gravel and wire mesh filters, or sand bag barriers. These storm drain inlet protection techniques shall remain in place until the site paving and stoning/graveling is completed.
	A sedimentation basin will be utilized to remove sediment from dewatering waters prior to discharge.

	Storm water sediment basin(s) will be constructed early in the site grading process to collect sediment from all areas during construction. The sediment basin will follow one of the four design options summarized below: 1. A sediment basin designed pursuant to local ordinance provided that the design efficiency is as protective or more protective of water quality than Option No. 3 2. A sediment basin designed with a minimum capacity of 3,600 cubic feet of storage per acre of disturbed land in a watershed equivalent to or more efficient than Option No. 3 3. A sediment basin designed using the following equation: $\mathbf{(V) = 1.2(SD)Q/Vs_{ED}}$ **where:** **V** = settling zone volume, **Q** = flowrate based on peak discharge from a specified design storm, and $\mathbf{Vs_{ED}}$ = settling velocity of the design soil particle. 4. A basin designed using an equivalent surface area design equation, equivalent to or more efficient than Option No. 3
	Dewatering of the basin must occur within 7 days following the storm event. The outflow from the basin must be designed to prevent erosion and/or scouring of the basin embankment and channel.
	Soil stabilizers, binders, blankets (i.e., rolled erosion control products), mulches, matrices, temporary vegetation, and temporary seeding will be used on disturbed soil areas as a temporary surface cover until soils can be prepared for revegetation and permanent vegetation is established.
	Permanent seeding, sodding, or planting will be performed on areas of disturbed soil that are complete or nearly complete to prevent erosion and remove pollutants in storm water and non-storm water runoff.
	Earthen dikes and drainage swales will be installed to convey surface runoff down sloping land, to intercept and divert runoff to avoid sheet flow over sloped surfaces and to direct runoff towards a stabilized watercourse, drainage pipe or channel.
	Brush, sandbag, and straw bale barriers, fiber rolls and/or silt fences will be installed as temporary sediment barriers in areas where sheet flow runoff occurs. They are ineffective if the runoff is concentrated into rill or gully flow. These devices will be installed to reduce the velocity of sediment-laden runoff to allow sediments to settle out.
	All cut and fill slopes will be roughened perpendicular to the direction of runoff by trackwalking, sheepsfoot rolling, imprinting, or other appropriate technique.
	Pipe slope and/or subsurface drains will be installed to protect slopes against erosion by collecting surface runoff from the roadbed, the tops of cuts or from benches in cut or fill slopes and conveying it down the slope to a stabilized drainage ditch or area.
	Rock outlet protection (i.e. rip rap) will be placed at pipe outlets to prevent scour and reduce the velocity and/or energy of exiting storm water flows.
X	The area will be swept thoroughly, manually of mechanically, to remove as much street sediment as possible.

Locations for specific erosion and sediment control measures for the project are included on the site map(s) and will be provided by the Contractor prior to construction and added to Appendix B of this SWPPP.

2. BMPs to Minimize Off-Site Tracking

The BMPs denoted with an "X" will be implemented to control off-site tracking of sediment:

	Before grading or clearing the site, designated and stabilized site access points for vehicle entry/egress will be provided and maintained or otherwise vehicle trackout of sediments will be prevented.
	A wheel wash facility will be constructed away from drainage ways and graded to drain to a sediment catchment pit. Also, the wheel washing facility will be either bermed or surrounded by sandbags to prevent washwater from exiting the wash area.
X	The construction site's entrances and exits shall be swept as needed to keep the adjacent streets clean of sediment.

3. Site Stabilization Practices

Retaining native vegetation in undisturbed areas provides the first and best line of defense against erosion and sedimentation cost. Where this retention of native vegetation is not possible, the Construction General Permit requires that stabilization be employed as soon as possible in critical areas.

Site stabilization measures for the project will be provided if necessary prior to construction by the general Contractor, and drawings will be appended to Appendix B of this SWPPP. The site stabilization measures that will be implemented are denoted with an "X".

Choose one or more of the following by typing an "X" in the first column.

	Native vegetation will be retained in undisturbed areas to the extent possible.
X	Grading of the site will be phased to minimize the total area of exposed soil and the duration of exposure.
	During construction, exposed areas will be stabilized with temporary ground cover (e.g., temporary seeding, mulch, chemical and fabric stabilizers), to protect the soil from erosion until permanent vegetation or other site stabilization features are installed.
X	After the project is completed, selected areas of the site (e.g., roadways and parking areas) will be paved with bituminous asphalt, concrete, or approved equivalent. The remainder of the site (not covered with structures and facilities) will be stabilized with either of the two following methods: 1. A uniform vegetative cover with 70 percent coverage, or 2. Equivalent stabilization measures such as geotextile blankets (i.e. with vegetative seeds), channel liners, soil cement, fiber matrices, or other erosion resistant soil coverings

B. Other Control Measures

This construction project will also employ BMPs that will address potential construction site pollutants other than sediment from erosion.

1. Waste Management and Disposal

Construction sites can generate any of the following non-hazardous and hazardous wastes:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures and building construction
- Packaging materials including wood, paper and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags and plastic wrappers and cigarettes
- Paints, solvents, petroleum products such as oils, fuels and grease, herbicides and pesticides, acids and concrete curing compounds

The BMPs that are denoted with an "X" shall be implemented to keep a clean site and reduce the potential for non-hazardous and potentially hazardous waste from coming in contact with storm water or non-storm water discharges:

Choose one or more of the following by typing an "X" in the first column.

X	After existing facilities are demolished, any materials not re-used on-site will be either loaded directly onto waste hauler trucks for off-site removal the same day, or will be collected and stored in dumpsters (roll-offs) until off-site removal is accomplished.
	If any asbestos is discovered in the demolished materials, asbestos removal and disposal will be performed by a licensed contractor or licensed subcontractor trained in asbestos removal. All removal and disposal will be done in accordance with state and federal regulations. Any asbestos wastes stored on-site prior to removal will be stored within dumpsters (roll-offs) covered with tarps or other appropriate method to prevent contact with rain and minimize exposure to wind.
X	The site will be kept clean of litter and waste.
X	Waste materials will be segregated and recycled (e.g., paints, solvents, used oil, batteries, anti-freeze). Wastes will not be mixed since this can cause chemical reactions, will make recycling impossible and complicate disposal.
X	Toxic wastes and chemicals will not be disposed of in dumpsters designated for construction debris.
X	Covered waste bins will be designated for the disposal of all empty product (e.g., paints, solvents, glues, petroleum products, concrete, exterior finishes, pesticides, fertilizers, etc.) containers.
X	All of a hazardous material will be used before disposing of the container.

X	The original product label will not be removed as it contains important safety and disposal information.
	Secondary containment will be provided for hazardous waste containers.
X	Site trash will be collected daily, especially during windy or rainy conditions, to maintain a clean construction site. Additional containers and more frequent pickup will be provided during the demolition phase of construction.
X	Trash hauling contractors will be informed that only watertight dumpsters will be accepted for on-site use. Dumpsters will be inspected for leaks and any dumpster that is not watertight will be repaired.
X	Storage of hazardous materials on site will be minimized. Any hazardous materials generated during construction will be containerized and kept closed during work activities, except for filing. Waste containers will be placed in a designated hazardous waste storage area that is covered and has an impermeable bottom surface surrounded by secondary containment to minimize the mixing of wastes with storm water and to prevent the direct release of liquid waste to storm water. The temporary storage and removal of hazardous wastes from the site will be in accordance with all applicable state and federal laws.
X	When practical, non-hazardous site wastes (small enough to fit into dumpsters) will be stored within covered dumpsters and/or containers that prevent exposure to rain and prevent loss of wastes when it is windy.
X	Dumpsters will not be hosed out on the construction site. Any required dumpster cleaning will be done off-site by the trash hauling contractor.
X	Any solid waste that may accumulate at erosion and sediment control devices will be removed immediately.
X	All local and state solid waste disposal and nuisance requirements will be followed.
X	All federal, state, and local requirements for hazardous waste, contaminated soil and sanitary/septic waste management will be followed.
X	Employees and subcontractors will be trained in proper waste management.

2. Compliance with State/Local Sanitary Waste Regulations

The following measures will be implemented to ensure compliance with state or local waste disposal, sanitary sewer or septic system regulations:

- Portable sanitary facilities will be transported to and from the site by a licensed contractor, placed in a convenient location and maintained in good working order by a licensed service.
- Untreated wastewater will never be discharged to surface waters or on-site storm drains and will never be buried.

3. Spill Prevention and Control

The measures that are denoted by an "X" will be undertaken at the site to prevent or reduce the discharge of pollutants to storm water from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees: further information is found in Appendix I, the Spill Prevention and Response Procedure.

Choose one or more of the following by typing an "X" in the first column.

X	Construction vehicles will be inspected daily, before use, for leaks and repaired as necessary.
X	During on-site vehicle and equipment fueling, "topping-off" of fuel tanks will be discouraged, secondary containment such as a drain pan or drop cloth will always be used when fueling to catch spills/leaks.
X	If a spill were to occur at the site, it will never be cleaned-up by hosing off the area. Dry material spills will never be hosed down or buried. The type of minor spill that could occur will be controlled as follows: 1. The site construction manager or his designated representative will be notified immediately. 2. The spilled material will be identified and the approximate quantity will be estimated. 3. The spread of the spill will be contained using absorbent material or barriers. 4. If the spill has occurred on a paved/impermeable surface, it will be cleaned up using dry methods (absorbent materials, cat litter, and/or rags). Encircling it with absorbent materials will contain the spill. If the spilled material is hazardous, then the used cleanup materials are also hazardous and will be sent to either a certified laundry (rags) or disposed of as hazardous waste. 5. If the spill has occurred on an unpaved or permeable surface, constructing an earthen dike will immediately contain the spill. The contaminated soil will be excavated and properly disposed of. 6. If the spill has occurred during a rain event, the area will be covered as quickly as possible. The spill will be cleaned up as soon as possible after cessation of rain.
X	Spill cleanup materials will be stored near potential spill areas (e.g., painting, vehicle maintenance areas).
X	The Construction Environmental Coordinator shall coordinate any required spill reporting. Table 5, SWPPP Reportable Quantity Releases, should be completed for any spill that meets the reportable quantity threshold.

Table 5. SWPPP Reportable Quantity Releases

This table will be completed for any Reportable Quantity spill (as established under 40 CFR Part 110[1], 40 CFR Part 117[2], or 40 CFR 302[3]) that occurs on site.

Date of Spill	Material Spilled	Approximate Quantity	Agencies Notified	Date Notified

1 40 CFR Part 110 addresses the discharge of oil in such quantities as may be harmful pursuant to Section 311(b)(4) of the Clean Water Act.

2 40 CFR Part 117 addresses the determination of such quantities of hazardous substances that may be harmful pursuant to Section 311(b)(3) of the Clean Water Act.

3 40 CFR Part 302 addresses the designation, reportable quantities, and notification requirements for the release of substances designated under Section 311(b)(2)(A) of the Clean Water Act.

4. Vehicle and Equipment Cleaning, Fueling, and Maintenance

As with most construction sites, vehicle and equipment cleaning, fueling, and maintenance have the potential to contribute to storm water pollution. This potential can be reduced by using off-site facilities whenever feasible, performing work in designated areas only, running a "dry site" and training employees and subcontractors. See also Appendix I, Spill Prevention and Response Procedure.

The measures that are denoted with an "X" will be undertaken at the site to prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning, fueling and maintenance:

Choose one or more of the following by typing an "X" in the first column.

	Vehicle and equipment fueling, cleaning and maintenance will be conducted off-site.
	Vehicles and equipment will be fueled on-site by a mobile vehicle fueling truck, and only minor amounts of fuel will be stored in a covered storage area (e.g. construction warehouse, trailer, shed).
X	Construction vehicle maintenance will be performed off site, when feasible. Only minor amounts of lubricants and other vehicle and equipment fluids will be stored in a covered storage area (e.g. construction warehouse, trailer, shed).
X	Areas will be designated for on-site fueling and maintenance away from storm drain inlets and surface water bodies.
X	Spills and leaks during fueling and maintenance operations will be prevented or contained and cleaned up immediately.
X	Vehicles, equipment, and tanks will be checked for leaks and spills regularly.
X	Drip pans or adsorbent materials will be placed under leak-prone machinery when idle.
X	Steam cleaning will not be permitted on-site since steam cleaning can generate significant pollutant concentrations.
X	All vehicle, equipment, and machinery washing will be done off-site at commercial wash facilities or at a facility that is properly permitted and discharges wash water to a recycle/reuse system or to the sanitary sewer.
	Vehicles and equipment may be washed on-site. A designated, bermed wash area will be used to prevent wash water from contacting storm water or discharging into creeks, rivers, and other water bodies. The wash area may be sloped for wash water collection and subsequent infiltration into the ground. As little water as possible will be used to avoid having to install erosion and sediment controls for the wash area.
	Vehicle, equipment, or machinery wash water will not be discharged to the storm drain system, surface water bodies or soils.
X	Employees and subcontractors will be trained on proper vehicle maintenance and the need to conduct vehicle maintenance and cleaning off-site, when feasible.
X	All federal, state and local requirements for fuel storage tanks will be followed.

5. Material Delivery and Storage

The discharge of pollutants to storm water from material deliveries and material storage areas will be prevented or reduced by the implementation of the material management BMPs denoted with an "X":

Choose one or more of the following by typing an "X" in the first column.

X	Designate areas of the construction site for material delivery and storage. Material storage areas will be placed near construction site entrances, away from drain inlets, culverts and surface water bodies.
X	Designated storage areas will be kept clean and well organized.
X	An accurate, up-to-date inventory of materials delivered and stored on-site will be kept.
X	Storage of hazardous materials on-site will be minimized and handled as infrequently as possible.
X	The following types of materials will be stored in a covered storage area: fertilizers, herbicides, pesticides, detergents, fuels, oil, grease, glues, paints, plaster, solvents, curing compounds materials, and other similar materials that could be considered potential pollutants in storm water discharge.
X	Any chemicals, drums or bagged materials not stored in a covered location, will be stored on pallets, and when possible in secondary containment.
	Secondary containment will be provided for liquids.
	Secondary containment areas will be covered to prevent accumulation of rainwater.
X	Chemicals will be kept in their original containers, and will be well labeled.
X	Regular inspections of storage areas will be conducted to monitor inventory and check for leaking containers.
X	State and local requirements for storage of hazardous materials will be followed.
X	Employees and subcontractors will be trained on proper storage practices

6. Concrete Materials Management

Prior to construction, the general Contractor will amend this section if the concrete suppliers are not close enough to manage all truck washout procedures at their own facility. The BMPs that are denoted with an "X" shall be implemented to control potential pollutants from concrete wastes:

	No raw cement materials will be stored on site.
	Concrete trucks and transfer chutes will be washed-out on-site utilizing a sediment catchment pit to collect all washwater and concrete waste. The pit will be regularly maintained to prevent concrete waste build-up. The catchment pit will be sized so that no washwater will be discharged off-site. The washout area will be at least 50 feet from storm drains, open ditches or water bodies.
	Any concrete sawcutting wastewater will be contained on site.
X	No concrete washout water or concrete sawcutting wastewater will be discharged off-site.
	Sandbags will be used to prevent off-site discharge of saw-cut slurry and sediment will be cleaned up when dry.
X	On a regular basis during concrete work, solid concrete that has accumulated on-site will be broken up, removed and hauled away. Washing of fresh concrete will be avoided to the extent possible.

X	Excess concrete will not be dumped on-site, except in designated areas.
X	Sweepings from exposed aggregate concrete will not be washed into the street or storm drain. The sweepings will be collected and returned to the aggregate stockpile or disposed in the trash.
X	Employees and subcontractors will be trained in proper concrete waste management.

7. Painting Materials Management

The BMPs that are denoted with an "X" will be implemented to reduce potential pollutants from any painting activities that may occur during construction:

X	Paint brushes, paint containers, or any other chemical-holding containers will not be rinsed or cleaned onto dirt, stone or paved areas of the site, or into streets, gutters, storm drains, or drainage channels (natural or man-made). Brushes will be "painted out" as much as possible. Water-based paints will be rinsed into waste buckets to be disposed to the sanitary sewer (off-site). Thinners and solvents will be filtered and re-used to the extent feasible. Excess oil-based paints and sludge will be disposed in accordance with applicable waste regulations.
X	All paints, thinners and solvents will be stored in a covered storage area.
X	Outdoor painting will not be conducted during rain events.
X	Waste from scraping or sandblasting will be collected for proper disposal.
X	Painting operations will be properly enclosed or covered to avoid drift.
X	Southern California Air Quality Management District (SCAQMD) and OSHA standards for wind drift while painting will be followed. SCAQMD regulations may, in many areas, specify painting procedures that, if properly carried out, are usually sufficient to protect storm water quality.
X	Paint will be mixed indoors or in a containment area.

8. Paving Operations Management

The BMPs that are denoted with an "X" will be implemented to reduce potential pollutants from any paving activities that may occur during construction:

X	Paving materials (e.g. asphalt, sand, gravel, coating and sealing products) will be prohibited from entering storm drain systems or surface water bodies.
X	Excess materials (e.g. asphalt, concrete) will be collected, properly stored, and then disposed upon completion of paving operations.
X	The spillage of cleaning materials will be avoided when cleaning paving equipment on-site.
X	Secondary containment will be used to catch drips, leaks or spills.
X	Paving materials and machinery will be stored away from storm drains and water bodies.
X	Paving will not take place within 72 hours of a predicted storm event.

X	Paving during rainfall will be prohibited.
X	Drainage courses will be protected, particularly in areas with a grade, by employing BMPs to divert runoff or trap/filter sediment.
X	Catch basins and manholes will be covered when applying seal coat, tack coat, slurry seal, fog seal, etc.
	Saw-cut slurry will be shoveled, vacuumed and removed from site. Storm drains will be covered or barricaded during saw cutting to contain slurry.

9. Landscaping Activities Management

The BMPs that are denoted with an "X" will be implemented to reduce potential pollutants from any landscaping activities that may occur during construction. No landscaping activity is planned at this time.

	Only trained personnel, certified in accordance with federal and state regulations, will perform pesticide application.
	Recommended usage instructions will be followed for application of pesticides, herbicides and fertilizers.
	Herbicides and pesticides will not be over applied. Only the amount needed will be prepared.
	Application of pesticides, fertilizers and herbicides will be avoided when precipitation is forecasted and will be prohibited during precipitation events.
	Fertilizers will be applied in multiple smaller applications, as opposed to one large application.
	Vegetative debris will be disposed as green waste or solid waste.

10. Non-Storm Water Discharges

The elimination or reduction of non-storm water discharges to the storm drain system or receiving waters is a major goal of the Construction General Permit. Non-storm water discharges to the storm drain system and receiving waters should be eliminated or reduced to the greatest extent possible. Non-storm water discharges can be either direct discharges (e.g. pumped contaminated groundwater) or can result from dumping, washing, spills or leakage from storage tanks or transfer areas. To the greatest extent possible, the Site Operator will operate a dry construction site. Non-storm water flows will not be discharged in an uncontrolled fashion onto the construction site or into storm drains.

C. Post-Construction Storm Water Management Measures

Once construction has been completed, activities at the site have an ongoing potential to cause storm water pollution. Post-construction storm water management measures to reduce pollutants in storm water discharges will be implemented after all construction phases have been completed at the site. Post-construction BMPs consist of permanent features and operational practices designed or implemented to minimize the discharge of pollutants in storm water or non-storm water flows from the site once construction is completed and the facility is operational. Proper operation and maintenance is important for permanent structural BMPs so that they continue to function as designed. This is especially important

for treatment controls (e.g., on-site retention or detention basins, vegetated swales, catch basin filters or inserts), since their routine maintenance involves activities such as sediment removal, vegetation management, and replacement of filters or inserts.

Post-construction BMPs, both permanent structural and operational practices, are considered and selected during the planning phase of projects within the Port. The post-construction BMPs applicable to this project are described in Appendix C, which has been developed by the Port's Planning Division. Appendix C also describes the operation and maintenance procedures necessary to ensure proper function of permanent structural BMPs and the entity or entities responsible for their operation and maintenance.

IV. Maintenance, Repair, and Inspection

A. Maintenance

The SWPPP must include a written plan to address maintenance, inspection and repair procedures for all construction related BMPs so that all grade surfaces, walls, berms, drainage structures, vegetation, erosion and sediment control measures, and other controls are maintained in good and effective condition and are promptly repaired or restored. A qualified person must be assigned the responsibility to conduct these inspections and all completed inspection/maintenance forms must be kept with the SWPPP.

The goals of the inspection program are:

- To identify areas contributing to storm water discharge;
- To evaluate whether measures to reduce pollutants identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the Construction General Permit, and
- To evaluate whether additional control practices or corrective maintenance activities are needed.

Implementation of the maintenance activities denoted with an "X" will help ensure BMPs are functioning properly:

X	Retention basin(s) shall be cleaned of accumulated sediment when sediment reaches 10 percent of the basin capacity. Removed sediment shall be properly transferred to a temporary soil storage area.
X	Silt fences shall be inspected and sediment removed before the accumulation is one-third the height of the fabric. Tears, overtopped areas, or broken fabric attachment to posts shall be replaced or repaired immediately.
	Hay/straw bale dikes shall be replaced when strings break. Each bale shall have two stakes. Firm contact shall be maintained between adjacent bales.
X	Storm drain inlet protections shall be inspected weekly and after each rain event to ensure no clogging has occurred. Replace clogged filter fabric or stone filters immediately. Remove accumulated sediment behind the filer when depth exceeds half the height of the filter.
	Diversion ditches and swales shall be maintained at the required depth. Settled sediment will be removed.
X	Stabilized construction entrances/exits shall be inspected for the transport of sediment onto public rights-of-way before and after each rainfall. Stone/gravel material shall be replaced when surface voids are visible. Construction entrances shall be swept as needed to keep them clear of accumulated sediment.
	Dikes or berms will be inspected for washouts and repaired as required. Dikes or berms susceptible to erosion will be armored with stone.

	Riprap will be inspected for evidence of movement or washout. Riprap experiencing movement or washout will be removed and carefully replaced individually in response to observed runoff flow patterns. Larger stones will be incorporated into the structure for anchoring and support where needed.
	Temporary stone filter dikes will be inspected and replaced when sediment impedes the effective functioning of the device.
	For temporary and permanent seeding used to stabilize exposed areas, the seeding will be inspected weekly during its period of establishment for bare spots and areas of insufficient germination or growth. Remedial action will be taken to establish surface cover in these areas once identified.
	If seeding is not used to stabilize exposed areas, a stabilizing layer of gravel will be placed.
X	Maintenance of waste management BMPs includes daily collection of site trash, inspection of the construction site waste area before and after rain events, and arranging for regular waste collection.
	The concrete truck washout drainage collection pit will be regularly maintained to ensure adequate capacity to contain washwater and prevent overflow.
	Maintenance of truck wheel washing shall include inspection of accumulated sediment in the drainage pit (to be cleaned when accumulated sediment reaches 10 percent of capacity) before and after rain events and berm repair as needed.
X	The covered material storage area shall be kept clean and organized.

B. Inspections

At a minimum maintenance inspections will be conducted:

- Prior to every forecasted event;
- Once each 24-hour period during extended storm events;
- After every storm event that produces observable runoff.

Pre-storm inspections are to ensure that all BMPs are in place and post-storm inspections are to determine whether the BMPs have functioned properly. If the required site inspections identify controls that are not operating effectively, maintenance shall be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of the controls. Written documentation of the inspection shall be maintained for three years. A sample BMP inspection report form is contained in Appendix D.

V. Training

The SWPPP must include procedures to ensure that all personnel implement the SWPPP and that trained personnel perform the inspections. When properly trained, site personnel are more capable of managing materials properly, preventing spills, and implementing BMPs efficiently and correctly. Personnel at all levels shall be trained in the components and goals of the Construction General Permit. Specifically, employees of the Contractor and any subcontractors working on the construction site shall be informed of the goals of the storm water pollution prevention plan at a training meeting prior to commencing construction activities. The training meeting shall cover basic storm water information as well as the specific requirements of the Construction General Permit. Specifically, the meeting will focus on implementation, inspection, and maintenance of storm water BMPs. Employees responsible for implementing, inspecting, maintaining, or repairing storm water BMPs will receive copies of relevant portions of the SWPPP. The Construction Environmental Coordinator shall train all new employees and subcontractors before they will be permitted to work on the site. For projects that start during the dry season, refresher sessions on storm water pollution control will be conducted prior to the wet season. Additional training will be provided as necessary based on site inspections and evidence of storm water quality problems. A sample form "Record of SWPPP Training Sessions" is contained in Appendix E.

VI. Responsibilities of Operators

The following sections describe the responsibilities of Site Operator with regard to effective SWPPP implementation.

A. Site Manager

The Site Manager has the overall responsibility for SWPPP implementation, ensuring that materials and manpower are made available for the successful maintenance of all erosion and sediment control and other BMPs specified in the SWPPP.

B. Project Field Engineer

The Project Field Engineer shall be responsible for:

- maintaining an up-to-date copy of this SWPPP onsite at all times, from commencement of construction to final site stabilization;
- making a copy of the SWPPP available for inspection by outside authorized regulatory authorities upon request;
- documenting any revisions to the SWPPP in Table 1 of the SWPPP;
- documenting in Table 2 of the SWPPP any changes in contractors/subcontractors and ensuring the new contractors/subcontractors are made aware of their responsibilities in this SWPPP;
- ensuring that field engineering activities are planned and conducted in accordance with the SWPPP;
- directing ongoing regular BMP maintenance activities (e.g. silt fence repair, hay bale replacement, sediment removal in retention basin, timely waste disposal, etc);
- implementing and overseeing necessary corrective actions to the erosion/sediment control devices and other BMPs identified by the Construction Environmental Coordinator during regular site inspections; and
- maintaining all site records pertaining to inspection and maintenance of erosion and sediment controls and other BMPs as well as records detailing the dates on which major construction activities began and were completed.

C. Construction Environmental Inspector

The Construction Environmental Inspector is responsible for all environmental compliance activities at the construction site including storm water pollution prevention. Specific duties are as follows:

- Conducting Environmental Awareness Training for site personnel (including subcontractor personnel). This involves increasing awareness of the need to comply with the SWPPP which includes: minimizing sediment in storm water discharges off-site as well as keeping a clean site and minimizing the potential for construction materials and wastes from entering storm water discharges.
- Conducting regular documented inspections of erosion and sediment control devices and other BMPs contained in this SWPPP (as discussed in Section 4.0). The findings of these inspections

are discussed with the Project Field Engineer who in turn makes available the necessary resources to repair/replace any defective control devices identified in the inspection.

- Conducting regular site environmental inspections and noting the conditions of those areas onsite that have the potential to result in pollution of storm water. Results of these inspections are discussed with the Project Field Engineer and any corrective actions necessary performed under the Project Field Engineer's oversight. Required documentation of the inspections and any corrective actions will be kept on site.
- Acting as the site spill coordinator to document spills, direct clean-up activities, minimize impact to storm water, and ensure that the proper reporting, if necessary, is completed.
- Additional duties of the Environmental Inspector are described in the Sediment Control Plan (Appendix H).

D. Subcontractors Administrator

The Subcontracts Administrator is responsible for ensuring that all subcontractors involved with construction activities, which may potentially affect storm water quality at the site, are made aware of, and their contracts reflect that they must comply with the applicable provisions of this SWPPP.

VII. Monitoring and Reporting Program

A. Site Inspections

Site inspections as described in Section 4.2 are a component of the monitoring and reporting required under the Construction General Permit.

B. Compliance Certification

Certification that the construction activities are in compliance with the Construction General Permit, as described in Section 1.5, is a component of the monitoring and reporting required under the Construction General Permit.

C. Noncompliance Reporting

The Construction General Permit requires that any instances of noncompliance with the requirements of the Construction General Permit shall be reported to the Los Angeles Regional Board within 30 days. Further, the Planning Division of the Port of Long Beach requires that any instances of noncompliance with the requirements of the Construction General Permit must be reported to them within 48 hours of detection of the noncompliance. The notification of noncompliance shall describe the noncompliance event, including an initial assessment of any water quality impact, the actions necessary to achieve compliance, and a time schedule for achieving compliance. A form that may be used for non-compliance reporting is included in Appendix F.

D. Requirements for Sampling and Analysis

The SWRCB Resolution No. 2001-046 requires that specific sampling and analytical procedures be implemented to determine whether BMPs implemented on a construction site are:

- Preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired (Clean Water Act Section 303(d) List) for sediment, silt, or turbidity; and
- Preventing other pollutants that are known or should be known by dischargers to occur on construction sites and that can not be visually observed or detected in storm water discharges, from causing or contributing to exceedences of water quality objectives.

The Harbor District under the jurisdiction of the Port of Long Beach does not currently discharge storm water directly to water bodies listed on the 303(d) List as impaired for sediment/siltation or turbidity. Therefore, a sampling and analysis plan for sediment or turbidity is not required.

Sampling and analysis for pollutants that cannot be visually detected is required under the following conditions:

- Visual inspections, which are currently required before, during and after storm events, indicate that there has been a breach, malfunction, leakage or spill from a BMP that could result in the discharge of pollutants in storm water and the pollutants would not be visually detectable; or

- Storm water that comes into contact with soil amendments, other exposed materials, or site contamination will be discharged from the construction site.

Comprehensive and diligent implementation, inspection, maintenance, and repair of BMPs are critical and should prevent the need for sampling and analysis. However, a contingency Sampling and Analysis Plan must be developed. A Sampling and Analysis Plan template is included in Appendix G.

Appendix A

General Permit for Storm Water Discharges Associated with Construction Activities Disturbing One or More Acres

[Note: To be obtained and added before construction.]

Appendix B

Site Map(s)

Non-Internet Public

DRAFT ENVIRONMENTAL IMPACT
STATEMENT/ENVIRONMENTAL IMPACT REPORT
FOR THE
LONG BEACH LNG IMPORT PROJECT

Docket No. CP04-58-000, et al.

Appendix B
Vicinity Map

Public access for the above information is available only through the Public Reference Room, or by e-mail at public.referenceroom@ferc.gov

Non-Internet Public

DRAFT ENVIRONMENTAL IMPACT
STATEMENT/ENVIRONMENTAL IMPACT REPORT
FOR THE
LONG BEACH LNG IMPORT PROJECT

Docket No. CP04-58-000, et al.

Appendix B
Site Map

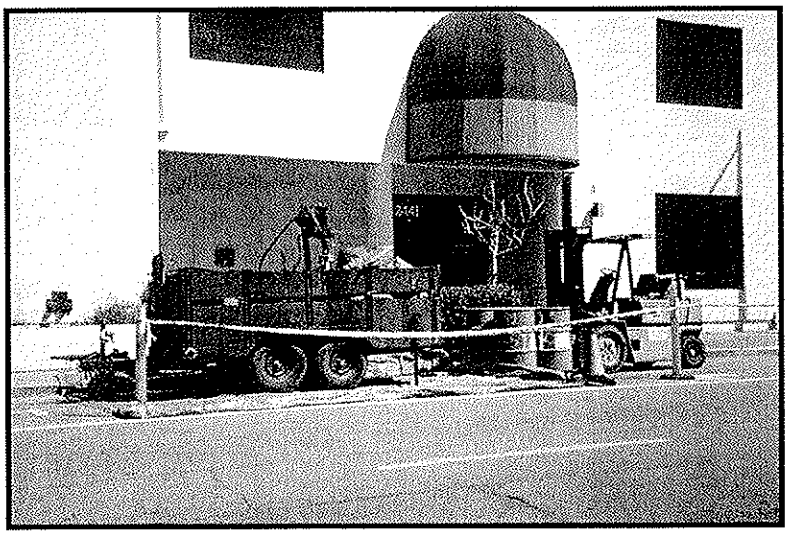
Public access for the above information is available only through the Public Reference Room, or by e-mail at public.referenceroom@ferc.gov

Appendix C

Post-Construction BMPs

[Note: Examples attached. Final BMPs to be developed before operation.]

Spill Prevention, Control & Cleanup SC-11



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Many activities that occur at an industrial or commercial site have the potential to cause accidental or illegal spills. Preparation for accidental or illegal spills, with proper training and reporting systems implemented, can minimize the discharge of pollutants to the environment.

Spills and leaks are one of the largest contributors of stormwater pollutants. Spill prevention and control plans are applicable to any site at which hazardous materials are stored or used. An effective plan should have spill prevention and response procedures that identify potential spill areas, specify material handling procedures, describe spill response procedures, and provide spill clean-up equipment. The plan should take steps to identify and characterize potential spills, eliminate and reduce spill potential, respond to spills when they occur in an effort to prevent pollutants from entering the stormwater drainage system, and train personnel to prevent and control future spills.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

Pollution Prevention

- Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

- Develop a Spill Prevention Control and Countermeasure (SPCC) Plan. The plan should include:

CASQA California Stormwater Quality Association

- Description of the facility, owner and address, activities and chemicals present
- Facility map
- Notification and evacuation procedures
- Cleanup instructions
- Identification of responsible departments
- Identify key spill response personnel

- Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of process materials that are brought into the facility.

Suggested Protocols (including equipment needs)

Spill Prevention

- Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.

- If consistent illegal dumping is observed at the facility:
  - Post "No Dumping" signs with a phone number for reporting illegal dumping and disposal. Signs should also indicate fines and penalties applicable for illegal dumping.
  - Landscaping and beautification efforts may also discourage illegal dumping.
  - Bright lighting and/or entrance barriers may also be needed to discourage illegal dumping.

- Store and contain liquid materials in such a manner that if the tank is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.

- If the liquid is oil, gas, or other material that separates from and floats on water, install a spill control device (such as a tee section) in the catch basins that collects runoff from the storage tank area.

- Routine maintenance:
  - Place drip pans or absorbent materials beneath all mounted taps, and at all potential drip and spill locations during filling and unloading of tanks. Any collected liquids or soiled absorbent materials must be reused/recycled or properly disposed.
  - Store and maintain appropriate spill cleanup materials in a location known to all near the tank storage area; and ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
  - Sweep and clean the storage area monthly if it is paved, *do not hose down the area to a storm drain.*

  - Check tanks (and any containment sumps) daily for leaks and spills. Replace tanks that are leaking, corroded, or otherwise deteriorating with tanks in good condition. Collect all spilled liquids and properly dispose of them.

- Label all containers according to their contents (e.g., solvent, gasoline).
- Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous).
- Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations).
- Identify key spill response personnel.

Spill Control and Cleanup Activities

- Follow the Spill Prevention Control and Countermeasure Plan.
- Clean up leaks and spills immediately.
- Place a stockpile of spill cleanup materials where it will be readily accessible (e.g., near storage and maintenance areas).
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste. Physical methods for the cleanup of dry chemicals include the use of brooms, shovels, sweepers, or plows.
- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Chemical cleanups of material can be achieved with the use of adsorbents, gels, and foams. Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.

Reporting

- Report spills that pose an immediate threat to human health or the environment to the Regional Water Quality Control Board.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour).
- Report spills to local agencies, such as the fire department; they can assist in cleanup.
- Establish a system for tracking incidents. The system should be designed to identify the following:

  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)

- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

Training

- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills:
  - The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
  - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.
- Employees should be educated about aboveground storage tank requirements. Employees responsible for aboveground storage tanks and liquid transfers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.
- Train employees to recognize and report illegal dumping incidents.

Other Considerations (Limitations and Regulations)

- State regulations exist for facilities with a storage capacity of 10,000 gallons or more of petroleum to prepare a Spill Prevention Control and Countermeasure (SPCC) Plan (Health & Safety Code Chapter 6.67).
- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.
- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, prohibiting any hard connections to the storm drain.

Requirements

Costs (including capital and operation & maintenance)

- Will vary depending on the size of the facility and the necessary controls.
- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of contaminated soil or water can be quite expensive.

Maintenance (including administrative and staffing)

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs.

Supplemental Information

Further Detail of the BMP

Reporting

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the facility and the effectiveness of BMPs. A good record keeping system helps the facility minimize incident recurrence, correctly respond with appropriate cleanup activities, and comply with legal requirements. A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm sewer. These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

Aboveground Tank Leak and Spill Control

Accidental releases of materials from aboveground liquid storage tanks present the potential for contaminating stormwater with many different pollutants. Materials spilled, leaked, or lost from

tanks may accumulate in soils or on impervious surfaces and be carried away by stormwater runoff.

The most common causes of unintentional releases are:

- Installation problems
- Failure of piping systems (pipes, pumps, flanges, couplings, hoses, and valves)
- External corrosion and structural failure
- Spills and overfills due to operator error
- Leaks during pumping of liquids or gases from truck or rail car to a storage tank or vice versa

Storage of reactive, ignitable, or flammable liquids should comply with the Uniform Fire Code and the National Electric Code. Practices listed below should be employed to enhance the code requirements:

- Tanks should be placed in a designated area.
- Tanks located in areas where firearms are discharged should be encapsulated in concrete or the equivalent.
- Designated areas should be impervious and paved with Portland cement concrete, free of cracks and gaps, in order to contain leaks and spills.
- Liquid materials should be stored in UL approved double walled tanks or surrounded by a curb or dike to provide the volume to contain 10 percent of the volume of all of the containers or 110 percent of the volume of the largest container, whichever is greater. The area inside the curb should slope to a drain.
- For used oil or dangerous waste, a dead-end sump should be installed in the drain.
- All other liquids should be drained to the sanitary sewer if available. The drain must have a positive control such as a lock, valve, or plug to prevent release of contaminated liquids.
- Accumulated stormwater in petroleum storage areas should be passed through an oil/water separator.

Maintenance is critical to preventing leaks and spills. Conduct routine inspections and:

- Check for external corrosion and structural failure.
- Check for spills and overfills due to operator error.
- Check for failure of piping system (pipes, pumps, flanger, coupling, hoses, and valves).
- Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.

- Visually inspect new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.
- Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Frequently relocate accumulated stormwater during the wet season.
- Periodically conduct integrity testing by a qualified professional.

Vehicle Leak and Spill Control

Major spills on roadways and other public areas are generally handled by highly trained Hazmat teams from local fire departments or environmental health departments. The measures listed below pertain to leaks and smaller spills at vehicle maintenance shops.

In addition to implementing the spill prevention, control, and clean up practices above, use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- Perform all vehicle fluid removal or changing inside or under cover to prevent the run-on of stormwater and the runoff of spills.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Immediately drain all fluids from wrecked vehicles.
- Store wrecked vehicles or damaged equipment under cover.
- Place drip pans or absorbent materials under heavy equipment when not in use.
- Use adsorbent materials on small spills rather than hosing down the spill.
- Remove the adsorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and contaminate stormwater. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.

- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- Design the fueling area to prevent the run-on of stormwater and the runoff of spills:
  - Cover fueling area if possible.
  - Use a perimeter drain or slope pavement inward with drainage to a sump.
  - Pave fueling area with concrete rather than asphalt.
- If dead-end sump is not used to collect spills, install an oil/water separator.
- Install vapor recovery nozzles to help control drips as well as air pollution.
- Discourage "topping-off" of fuel tanks.
- Use secondary containment when transferring fuel from the tank truck to the fuel tank.
- Use adsorbent materials on small spills and general cleaning rather than hosing down the area. Remove the adsorbent materials promptly.
- Carry out all Federal and State requirements regarding underground storage tanks, or install above ground tanks.
- Do not use mobile fueling of mobile industrial equipment around the facility; rather, transport the equipment to designated fueling areas.
- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Train employees in proper fueling and cleanup procedures.

Industrial Spill Prevention Response

For the purposes of developing a spill prevention and response program to meet the stormwater regulations, facility managers should use information provided in this fact sheet and the spill prevention/response portions of the fact sheets in this handbook, for specific activities. The program should:

- Integrate with existing emergency response/hazardous materials programs (e.g., Fire Department)
- Develop procedures to prevent/mitigate spills to storm drain systems
- Identify responsible departments
- Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures
- Address spills at municipal facilities, as well as public areas

- Provide training concerning spill prevention, response and cleanup to all appropriate personnel

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Stormwater Managers Resource Center http://www.stormwatercenter.net/

Vehicle and Equipment Cleaning SC-21

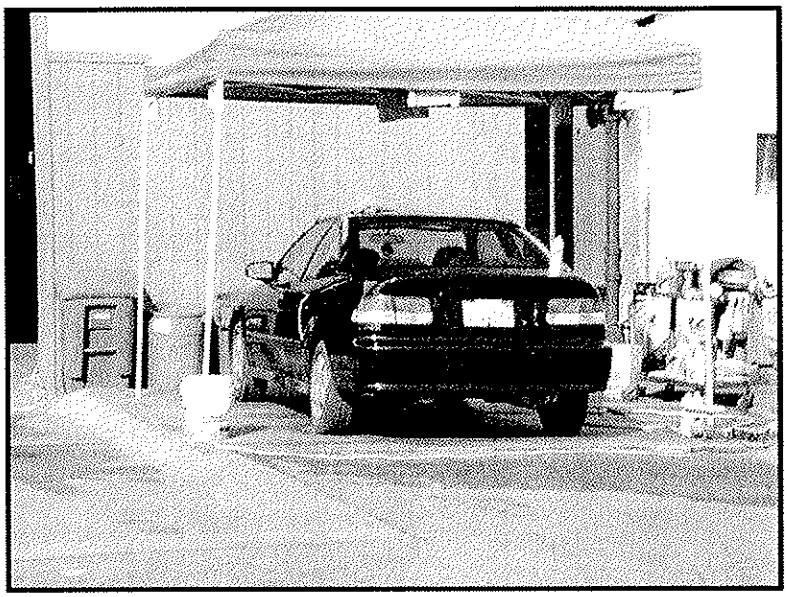


Photo Credit: Geoff Brosseau

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Description

Wash water from vehicle and equipment cleaning activities performed outdoors or in areas where wash water flows onto the ground can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals, and suspended solids to stormwater runoff. Use of the procedures outlined below can prevent or reduce the discharge of pollutants to stormwater during vehicle and equipment cleaning.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives

Pollution Prevention

- If possible, use properly maintained off-site commercial washing and steam cleaning businesses whenever possible. These businesses are better equipped to handle and properly dispose of the wash waters.
- Good housekeeping practices can minimize the risk of contamination from wash water discharges.

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Suggested Protocols

General

- Use biodegradable, phosphate-free detergents for washing vehicles as appropriate.
- Mark the area clearly as a wash area.
- Post signs stating that only washing is allowed in wash area.
- Provide trash container in wash area.
- Map on-site storm drain locations to avoid discharges to the storm drain system.
- Emphasize the connection between the storm drain system and runoff, help reinforce that car washing activities affect local water quality through storm drain stenciling programs.

Vehicle and Equipment Cleaning

- Have all vehicle washing done in areas designed to collect and hold the wash and rinse water or effluent generated. Recycle, collect or treat wash water effluent prior to discharge to the sanitary sewer system.
- If washing/cleaning must occur on-site, consider washing vehicle equipment inside the building or on an impervious surface to control the targeted constituents by directing them to the sanitary sewer.
- If washing must occur on-site and outdoor:
  - Use designated paved wash areas. Designated wash areas must be well marked with signs indicating where and how washing must be done. This area must be covered or bermed to collect the wash water and graded to direct the wash water to a treatment or disposal facility.
  - Do not conduct oil changes and other engine maintenance in the designated washing area. Perform these activities in a place designated for oil change and maintenance activities.
  - Cover the wash area when not in use to prevent contact with rain water.
- Install sumps or drain lines to collect wash water for treatment.
- Use hoses with nozzles that automatically turn off when left unattended.
- Do not permit steam cleaning wash water to enter the storm drain.
- Pressure and steam clean off-site to avoid generating runoff with high pollutant concentrations. If done on-site, no pressure cleaning and steam cleaning should be done in areas designated as wellhead protection areas for public water supply.

Disposal

- Consider filtering and recycling wash water.
- Discharge equipment wash water to the sanitary sewer, a holding tank, or a process treatment system, regardless of the washing method used.
- Collect all wash water from vehicle cleaning operations and (1) discharge to a sanitary sewer, holding tank, or process treatment system or (2) run through an enclosed recycling system.
- Collect and treat wash water at the facility and either recycle or discharge to the sanitary sewer system or collect and dispose of as an industrial waste.
- Discharge wash water to sanitary sewer after contacting local sewer authority to find out if pretreatment is required.

Training

- Train employees on proper cleaning and wash water disposal procedures and conduct "refresher" courses on a regular basis.
- Train staff on proper maintenance measures for the wash area.
- Train employees and contractors on proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.

Spill Response and Prevention

- Keep the Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment, and trained personnel ready at all times to deal immediately with major spills.
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.

Other Considerations (Limitations and Regulations)

- Some municipalities may require pretreatment and monitoring of wash water discharges to the sanitary sewer.
- Steam cleaning can generate significant pollutant concentrations requiring that careful consideration be given to the environmental impacts and compliance issues related to steam cleaning.
- Most car washing best management practices are inexpensive, and rely more on good housekeeping practices (where vehicles are washed, planning for the collection of wash water) than on expensive technology. However, the construction of a specialized area for vehicle washing can be expensive. Also, for facilities that cannot recycle their wash water, the cost of pre-treating wash water through either structural practices or planning for

collection and hauling of contaminated water to sewage treatment plants can be cost-prohibitive.

Requirements

Costs

- Capital costs vary as follows depending on measures implemented:
  - Low cost ($2000-5,000) for berm construction
  - Medium cost ($10,000-30,000) for plumbing modifications (including re-routing discharge to sanitary sewer and installing simple sump)
  - High cost ($60,000-200,000) for on-site treatment and recycling
- O&M costs increase with increasing capital investment.

Maintenance

- Perform berm repair and patching.
- Sweep washing areas frequently to remove solid debris.
- Inspect and maintain sumps, oil/water separators, and on-site treatment/recycling units.

Supplemental Information

Design Considerations

Designated Cleaning Areas

- Washing operations outside should be conducted in a designated wash area having the following characteristics:
  - Paved with Portland cement concrete
  - Covered and bermed to prevent contact with stormwater and contain wash water
  - Sloped for wash water collections
  - Discharges wash water to the sanitary or recycle treatment process waste sewer, or to a dead-end sump
  - Equipped with an oil/water separator if necessary

Examples

The City of Palo Alto has an effective program for commercial vehicle service facilities. Many of the program's elements, including specific BMP guidance and lists of equipment suppliers, are applicable to industrial vehicle service facilities.

The U.S. Postal Service in West Sacramento has a new vehicle wash system that collects, filters, and recycles wash water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

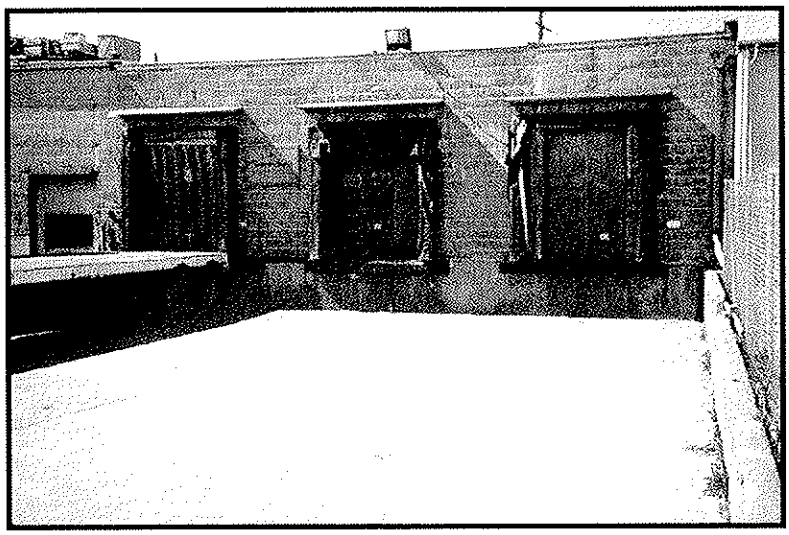
Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net

Outdoor Loading/Unloading SC-30



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

The loading/unloading of materials usually takes place outside on docks or terminals; therefore, materials spilled, leaked, or lost during loading/unloading may collect in the soil or on other surfaces and have the potential to be carried away by stormwater runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Implementation of the following protocols will prevent or reduce the discharge of pollutants to stormwater from outdoor loading/unloading of materials.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Park tank trucks or delivery vehicles in designated areas so that spills or leaks can be contained.
- Limit exposure of material to rainfall whenever possible.
- Prevent stormwater run-on.
- Check equipment regularly for leaks.

CASQA California Stormwater Quality Association

Suggested Protocols

Loading and Unloading – General Guidelines

- Develop an operations plan that describes procedures for loading and/or unloading.
- Conduct loading and unloading in dry weather if possible.
- Cover designated loading/unloading areas to reduce exposure of materials to rain.
- Consider placing a seal or door skirt between delivery vehicles and building to prevent exposure to rain.
- Design loading/unloading area to prevent stormwater run-on, which would include grading or berming the area, and position roof downspouts so they direct stormwater away from the loading/unloading areas.
- Have employees load and unload all materials and equipment in covered areas such as building overhangs at loading docks if feasible.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections. Several drip pans should be stored in a covered location near the liquid transfer area so that they are always available, yet protected from precipitation when not in use. Drip pans can be made specifically for railroad tracks. Drip pans must be cleaned periodically, and drip collected materials must be disposed of properly.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.
- Grade and/or berm the loading/unloading area to a drain that is connected to a deadend.

Inspection

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- Look for dust or fumes during loading or unloading operations.

Training

- Train employees (e.g., fork lift operators) and contractors on proper spill containment and cleanup.
- Have employees trained in spill containment and cleanup present during loading/unloading.
- Train employees in proper handling techniques during liquid transfers to avoid spills.
- Make sure forklift operators are properly trained on loading and unloading procedures.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Contain leaks during transfer.
- Store and maintain appropriate spill cleanup materials in a location that is readily accessible and known to all and ensure that employees are familiar with the site's spill control plan and proper spill cleanup procedures.
- Have an emergency spill cleanup plan readily available.
- Use drip pans or comparable devices when transferring oils, solvents, and paints.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all transfers from being performed indoors or under cover.
- It may not be possible to conduct transfers only during dry weather.

Requirements

Costs

Costs should be low except when covering a large loading/unloading area.

Maintenance

- Conduct regular inspections and make repairs as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Conduct regular broom dry-sweeping of area.

Supplemental Information

Further Detail of the BMP

Special Circumstances for Indoor Loading/Unloading of Materials

Loading or unloading of liquids should occur in the manufacturing building so that any spills that are not completely retained can be discharged to the sanitary sewer, treatment plant, or treated in a manner consistent with local sewer authorities and permit requirements.

- For loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
  - The transfer area should be designed to prevent run-on of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.

  - The transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump or to the sanitary sewer. A positive control valve should be installed on the drain.

- For transfer from rail cars to storage tanks that must occur outside, use the following procedures:

  - Drip pans should be placed at locations where spillage may occur, such as hose connections, hose reels, and filler nozzles. Use drip pans when making and breaking connections.

  - Drip pan systems should be installed between the rails to collect spillage from tank cars.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Waste Handling & Disposal SC-34

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Approach

Pollution Prevention

- Accomplish reduction in the amount of waste generated using the following source controls:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

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Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.
- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.

- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training

- Train staff in pollution prevention measures and proper disposal methods.
- Train employees and contractors in proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations (Limitations and Regulations)

Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs

Capital and O&M costs for these programs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance

- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP

Land Treatment System

Minimize runoff of polluted stormwater from land application by:

- Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, and there is a closed drainage system

- Avoiding application of waste to the site when it is raining or when the ground is saturated with water
- Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site
- Maintaining adequate barriers between the land application site and the receiving waters (planted strips are particularly good)
- Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins
- Performing routine maintenance to ensure the erosion control or site stabilization measures are working

Examples

The port of Long Beach has a state-of-the-art database for identifying potential pollutant sources, documenting facility management practices, and tracking pollutants.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety. Harvard University. 2002.

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Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Vehicle and Equipment Repair SC-22

Photo Credit: Geoff Brosseau

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Vehicle or equipment maintenance and repair are potentially significant sources of stormwater pollution, due to use of harmful materials and wastes during maintenance and repair processes. Engine repair and service (e.g., parts cleaning), replacement of fluids (e.g., oil change), and out door equipment storage and parking (leaking vehicles) can impact water quality if stormwater runoff from areas with these activities becomes polluted by a variety of contaminants. Implementation of the following activities will prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment maintenance and repair activities.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

- Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.

CASQA California Stormwater Quality Association

- Minimize use of solvents. Clean parts without using solvents whenever possible, or use water-based solvents for cleaning.
- Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.

Suggested Protocols

General

- Move maintenance and repair activities indoors whenever feasible.
- Store idle equipment under cover
- Use a vehicle maintenance area designed to prevent stormwater pollution - minimize contact of stormwater with outside operations through berming and appropriate drainage routing.
- Avoid hosing down your work areas. If work areas are washed, collect and direct wash water to sanitary sewer. Use dry sweeping if possible.
- Paint signs on storm drain inlets to indicate that they are not to receive liquid or solid wastes.
- Post signs at sinks to remind employees not to pour wastes down drains.
- Clean yard storm drain inlets(s) regularly and especially after large storms.
- Do not pour materials down storm drains.
- Cover the work area to limit exposure to rain.
- Place curbs around the immediate boundaries of process equipment.
- Build a shed or temporary roof over areas where parked cars await repair or salvage, especially wrecked vehicles. Build a roof over vehicles kept for parts.

Material and Waste Handling

- Designate a special area to drain and replace motor oil, coolant, and other fluids, where there are no connections to the storm drain or the sanitary sewer, and drips and spills can be easily cleaned up.
- Drain all fluids immediately from wrecked vehicles. Ensure that the drain pan or drip pan is large enough to contain drained fluids (e.g., larger pans are needed to contain antifreeze, which may gush from some vehicles).
- Do not pour liquid waste to floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- Do not put used or leftover cleaning solutions, solvents, and automotive fluids and in the sanitary sewer.
- Collect leaking or dripping fluids in drip pans or containers. Fluids are easier to recycle if kept separate.

- Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.
- Place oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal since municipalities prohibit or discourage disposal of these items in solid waste facilities. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters. Oil filters disposed of in trashcans or dumpsters can leak oil and contaminate stormwater.
- Store cracked batteries in a non-leaking secondary container and dispose of properly at recycling or household hazardous waste facilities.

Maintenance and Repair Activities

- Provide a designated area for vehicle maintenance.
- Keep equipment clean; don't allow excessive build-up of oil and grease.
- Use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture all spills and drips if temporary work is being conducted outside. Collected drips and spills must be disposed, reused, or recycled properly.
- Perform all vehicle fluid removal or changing inside or under cover if possible to prevent the run-on of stormwater and the runoff of spills:
  - Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, or remove other parts. Use a drip pan under any vehicle that might leak while working on it to keep splatters or drips off the shop floor.
  - Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.
  - Keep drip pans or containers under vehicles or equipment that may drip during repairs.
  - Do not change motor oil or perform equipment maintenance in non-appropriate areas.
- Drain oil and other fluids first if the vehicle or equipment is to be stored outdoors.
- Monitor parked vehicles closely for leaks. Pans should be placed under any leaks to collect the fluids for proper disposal or recycling.
- Use one of the following for lubricating vehicle-trailer coupling:
  - Adhesive lubricant
  - Plastic plates
  - Fifth wheels with plastic inserts
  - On-Board lubricating system

Parts Cleaning

- Mechanics should clean vehicle parts without using liquid cleaners wherever possible to reduce waste.
- Steam cleaning and pressure washing may be used instead of solvent parts cleaning. The wastewater generated from steam cleaning must be discharged to an on-site oil water separator that is connected to a sanitary sewer or blind sump. Non-caustic detergents should be used instead of caustic cleaning agents, detergent-based or water-based cleaning systems in place of organic solvent degreasers, and non-chlorinated solvent in place of chlorinated organic solvents for parts cleaning. Refer to SC21 for more information on steam cleaning.

Inspection

- Inspect vehicles and equipment for leaks regularly and repair immediately.
- Make sure incoming vehicles are checked for leaking oil and fluids. Do not allow leaking vehicles or equipment on-site.

Training

- Train employees and contractors in the proper handling and disposal of engine fluids and waste materials.
- Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures (You can use reusable cloth rags to clean up small drips and spills instead of disposables; these can be washed by a permitted industrial laundry. Do not clean them at home or at a coin-operated laundry business). Employees should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place an adequate stockpile of spill cleanup materials where it will be readily accessible.
- Clean leaks, drips, and other spills with as little water as possible. Use rags for small spills, a damp mop for general cleanup, and dry absorbent material for larger spills. Use the following three-step method for cleaning floors:
  - Clean spills with rags or other absorbent materials
  - Sweep floor using dry absorbent material
  - Mop the floor. Mop water may be discharged to the sanitary sewer via a toilet or sink.
- Remove the adsorbent materials promptly and dispose of properly when using adsorbent materials on small spills.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all work from being conducted indoors.
- It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours.
- Drain pans (usually 1 ft. x 1 ft.) are generally too small to contain antifreeze, so drip pans (3 ft. x 3 ft.) may have to be purchased or fabricated.
- Dry floor cleaning methods may not be sufficient for some spills. Use three-step method instead.
- Identification of engine leaks may require some use of solvents.
- Installation of structural treatment practices for pretreatment of wastewater discharges can be expensive.
- Prices for recycled materials and fluids may be higher than those of non-recycled materials.
- Some facilities may be limited by a lack of providers of recycled materials, and by the absence of businesses to provide services such as hazardous waste removal, structural treatment practice maintenance, or solvent equipment and solvent recycling.

Requirements

Costs

- Costs should be low, but will vary depending on the size of the facility.

Maintenance

- For facilities responsible for pre-treating their wastewater prior to discharging, the proper functioning of structural treatment practices is an important maintenance consideration. Routine cleanout of oil and grease is required for the devices to maintain their effectiveness, usually at least once a month. During periods of heavy rainfall, cleanout is required more often to ensure pollutants are not washed through the trap. Sediment removal is also required on a regular basis to keep the device working efficiently.
- It is important to sweep the maintenance area weekly, if it is paved, to collect loose particles, and wipe up spills with rags and other absorbent material immediately. Do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, 1,1,1-trichloroethane or methylene chloride. Many of these cleaners are harmful and must be disposed of as a hazardous waste. Cleaning without using liquid cleaners (e.g., wire brush) whenever possible reduces waste. Prevent spills and drips of solvents and cleansers to the shop floor. Do all liquid cleaning at a centralized station so the solvents and residues stay in one area. Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents.

- Clean parts without using liquid cleaners whenever possible to reduce waste.
- Prevent spills and drips of solvents and cleansers to the shop floor.
- Do all liquid cleaning at a centralized station so the solvents and residues stay in one area.
- Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

Recycling

Separating wastes allows for easier recycling and may reduce treatment costs. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents (e.g., 1,1,1-trichloroethane) separate from non-chlorinated solvents (e.g., kerosene and mineral spirits).

Many products made of recycled (i.e., refined or purified) materials are available. Engine oil, transmission fluid, antifreeze, and hydraulic fluid are available in recycled form. Buying recycled products supports the market for recycled materials.

- Recycling is always preferable to disposal of unwanted materials.
- Separate wastes for easier recycling. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents separate from non-chlorinated solvents.
- Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries).
- Purchase recycled products to support the market for recycled materials.

Vehicle-Trailer Lubrication

Fifth-wheel bearings on trucks require routine lubrication. Typically chassis grease is applied to the fifth-wheel bearing at rates that result in grease dripping off of the bearing into the environment. To address this concern the following options are available:

- Use adhesive lubricant. Follow manufacturer's label regarding the use of adhesive lubricant for truck fifth-wheels. Typically this means applying no more than 6 oz. of grease. No visible extrusion of lubricant from the fifth-wheel bearing when truck and trailer are connected should be present.
- Use plastic plates oil on fifth-wheels with plastic inserts.
- Use on-board truck or on-board trailer lubrication system. If these systems apply lube thinner than National Grease Lubrication Institute #2, equipment for collection of used lubricant is needed to prevent excess lubricant from dripping off the truck.

Safer Alternatives

If possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous material:

- Use non-caustic detergents instead of caustic cleaning for parts cleaning.
- Use detergent-based or water-based cleaning systems in place of organic solvent degreasers. Wash water may require treatment before it can be discharged to the sewer.
- Replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check list of active ingredients to see whether it contains chlorinated solvents.
- Choose cleaning agents that can be recycled.

Examples

- Pick N Pull Auto Dismantlers in Rancho Cordova drains all fluids from automobiles before they enter the yard.
- Ecology Auto Wrecking in Rialto is surrounded by a steel plate/concrete fence and has a completely paved lot that is graded to a central low point. Collected stormwater is channeled through an underground drainage system of clarifiers and then stored in a 60,000 gallon UST before being processed through a filter system. In addition, the work area is covered, ventilated and has an additional sump. Vehicle fluids are drained in this area and segregated for recycling.
- All Auto Parts, Fontana, has a complete water recycling system in a 10,000 square foot concrete slab surrounded by a curb that contains all the runoff and sends it to the recycling system. All receiving, dismantling, and shipping occur on the slab.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/E

Appendix D

Construction Site Inspection Report Form

Construction SWPPP BMP Inspection Checklist			
Project Location:			Weather
Date of Inspection:			Storm Start Time:
Inspector			Duration of Storm:
Name (print):			Time Since Last Storm:
Title:			Approximate Rainfall (in):
Signature:			Type of Inspection: ☐ Pre-storm ☐ Storm event ☐ Post-storm ☐ Routine (dry season inspection)
Telephone No:			
YES	NO	1. Inspect the following BMPs 2. Check YES/ No 3. Describe Corrective Actions	
		Does the Plan reflect current site conditions?	
		Has there been rain at the site since the last inspection?	
		Are the BMPs called for on the SWPPP installed in the proper location according to the specifications for the SWPPP and are they functioning properly?	
		Are all operational storm drain inlets protected from sediment inflow?	
		Do any structural practices require repair or clean-out to maintain adequate function? If yes, indicate which ones:	
		Is there evidence of equipment leakage/ spillage of equipment/vehicle maintenance fluids?	
		Are construction on-site traffic routes, parking, and storage of equipment and supplies restricted to areas specifically designated for those uses?	
		Are all material handling and storage areas reasonably clean and free of spills, leaks, or other deleterious materials?	
		Are all materials and equipment properly covered?	
		Are locations of temporary soil stockpiles or construction materials in approved areas?	
		If present, are all exposed slopes protected from erosion through the implementation of acceptable soil stabilization practices?	
		Do any seeded or landscaped areas require maintenance, irrigation, fertilization, seeding or mulching?	
		If present, are sediment traps/basins installed and functioning properly?	
		Is there any evidence that sediment is leaving the site? Are all external discharge points (i.e. outfalls) reasonable free of any noticeable pollutant discharges, significant erosion or sediment transport? Are sediment controls in place at discharge points from the site?	
		Are slopes free of significant erosion?	
		Is there any evidence of sediment, debris, or mud on public roads at intersections with site access roads?	
		Is there any evidence of incorrect waste disposal (paints, concrete, solid wastes)?	
		Is the overall housekeeping sufficiently maintained?	

Construction SWPPP BMP Inspection Checklist (Continued)		
YES	NO	1. Inspect the following BMPs 2. Check YES/ No 3. Describe Corrective Actions
		Are vehicle/ equipment maintenance and cleaning areas clean and free of oil, grease or potential pollutants?
		Are all materials and equipment properly covered?
		Is the construction area access point stabilized? Has potential for mud/ dirt tracking from the site been minimized?
		Is sediment, debris, or mud being cleaned from public roads at intersections with site access roads?
		Are liquid transfer areas (equipment fueling) clean and protected from rain?
		Are there any visible non-storm water discharges? Is there evidence that non-storm water discharges occurred in the past? If so, describe the non-storm water discharge:
If extreme weather conditions do not permit visual inspection of on-site BMPs, observe the following: Surface Water Outfall or Discharge Points:		
Downstream Locations:		
Describe Required Corrective Actions:		
Describe necessary revisions to the SWPPP:		

Appendix E

Training Reporting Form

Record of SWPPP Training Session				
Training Date:				
Instructor:				
Topics Covered:	☐ **Inspections** ☐ **BMP Maintenance/Repair** ☐ **SWPPP BMPs** ☐ **Non-Storm Water Discharges** ☐ **Other (e.g., workshops offered by agencies, SWRCB/RWQCB, or professional organizations)**			
Name	Company	Telephone Number	SWPPP Responsibilities[(a)]	Received Complete SWPPP or Excerpt (Yes/No)

(a) SWPPP responsibilities may include one or more of the following: BMP Installation, Inspection, Maintenance; Training; SWPPP Revisions, Non-Storm Water Discharges, Storm Water Sampling

Appendix F

SWPPP Non-Compliance Report Form

SWPPP NON-COMPLIANCE REPORT

Dischargers who cannot certify compliance with the permit and/or who have had other instances of non-compliance, excluding exceedances of water quality standards, shall notify the RWQCB within 30 days.

Inspector Name:	
Inspector Phone Number:	
Non-Compliance Identification Date:	

Description of Non-Compliance:
Initial assessment of any impact caused by the non-compliance:
Actions required to achieve compliance:
Time schedule of remediation activities:
When compliance will be achieved:

Appendix G

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN

Long Beach LNG Import Project

Pier T, Port of Long Beach

Long Beach, California 90802

WDID No. _____

Date Prepared May 2005

Prepared by:

Name of Firm:	***Tetra Tech EC, Inc.***
Street Address	***1940 E. Deere Ave, Suite 200***
City, State, and Zip:	***Santa Ana, CA 92705***
Telephone No.:	***949-756-7500***

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1.0 INTRODUCTION

1.1 SAMPLING AND ANALYSIS PLAN DESCRIPTION

This Sampling and Analysis Plan provides the technical detail and protocols for conducting storm water quality monitoring. Storm water quality monitoring will be required whenever the failure of a BMP (for example, a breach, malfunction, leakage or spill) has occurred. Storm water samples will be collected and analyzed for constituents that are not visible in storm water runoff. This Sampling and Analysis Plan will be amended if necessary as permit requirements or site conditions require. The techniques and methodologies for collection of storm water and analyses of water quality constituents are the standard of use by the U.S. Environmental Protection Agency (EPA).

1.2 ROLES AND RESPONSIBILITIES FOR STORM WATER MONITORING

The Storm Water Pollution Prevention Plan (SWPPP) Compliance Inspector will have overall responsibility for storm water monitoring. Overall, this person shall:

- Maintain overall responsibility for the monitoring effort;
- Serve as primary contact with the analytical laboratory regarding sampling issues;
- Conduct or oversee sample collection;
- Coordinate sample delivery to the analytical laboratory;
- Ensure that proper documentation is recorded; and
- Ensure that Quality Assurance/Quality Control (QA/QC) procedures are followed.

On a day-to-day basis, Compliance Inspector duties will also include:

- Prepare storm water monitoring equipment;
- Collect storm water in laboratory-provided sample bottles;
- Complete all applicable documentation (site logs, checklists, chain-of-custody forms); and

Deliver samples to water quality laboratory.

-

2.0 MONITORING SITE LOCATIONS

Monitoring locations include any pipe, culvert, gutter, channel, stream, or other conveyance that transports storm water runoff from the site. In some locations, these conveyances will be permanent structures. In other cases, the storm water conveyances may change in type of location due to changes in the construction activity. Specific monitoring locations are likely to vary from event to event (except for the area of the site where pre-existing lead contamination is known to exist). The selection of monitoring equipment used to collect grab samples may vary depending on the site.

3.0 LABORATORY ANALYSIS

This section of the Sampling and Analysis Plan describes the laboratory analysis of the water quality samples collected. It provides a general description of the protocols and the analytical constituents for water quality testing.

3.1 WATER QUALITY ANALYSIS

Grab samples of storm water will be collected and monitored for biological, physical, and chemical water quality constituents. Section 7 of the Sampling and Analysis Plan describes the sample collection, preservation, and delivery procedures.

3.2 ANALYTICAL CONSTITUENTS

The types of non-visible pollutant analyses that may be required are presented in Table 3-1. The table also lists the laboratory analytical method to be used, target reporting limit (concentration), minimum sample volume, container and preservative types, and holding time for each analysis.

Table 3-1. List of Non-Visible Laboratory Analytical Constituents

Constituent/Parameter Name	Constituent Abbreviation	Bottle Type	Volume Required(1) (mL)	Preservation
Conventional				
Specific Conductance	EC	Poly-Propylene	50	N/A
pH(3)	pH		50	N/A
Hydrocarbons				
Total Recoverable Petroleum Hydrocarbons	TRPH	Glass	1000	4 degrees Celsius
Oil and Grease (HEM/SGT)	O&G		1000	H_2SO_4 to pH<2
Nutrients				
Nitrate-Nitrogen	NO_3-N	Poly-Propylene	100	4 degrees Celsius
Ammonia-Nitrogen	NH_3-N		100	None
Total Phosphorus	Total P		100	HNO_3 or H_2SO_4 to pH<2
Detergents	MBAS		500	4 degrees Celsius
Bacteriological				
Coliform (Fecal)	FC	Poly-Propylene	50	$Na_2S_2O_3$
Coliform (Total)	TC		50	$Na_2S_2O_3$
Metals				
Total Recoverable	TR	Poly-Propylene	250	HNO_3 or H_2SO_4 to pH<2
Dissolved (4)	Diss		250	HNO_3 or H_2SO_4 to pH <2(2)
Organics				
Volatile Organics	VOCs	Glass	2 x 40 vials	4 degrees Celsius
Semi-Volatile Organics	SVOCs		1000	4 degrees Celsius
Pesticides	Pest		1000	4 degrees Celsius

Notes:

(1) For analytical methods, reporting limits, and other specifications, see Table 4-1.

(2) Dissolved metals preserved after filtration.

(3) Report pH to nearest 0.1 std. pH unit. Also report temperature at time of measurement.

(4) Filter dissolved samples prior to analysis.

4.0 DATA QUALITY OBJECTIVES

4.1 PROJECT GOALS AND OBJECTIVES

The storm water monitoring conducted for the construction site will evaluate the amount and concentration of non-visually detectable constituents that may be transported from the site during storm events because of a breach, malfunction, leakage, spill, application of soil amendments, or due to pre-existing contamination at the site. Specific objectives of the storm water monitoring are to:

- Comply with the storm water monitoring requirements under the California Storm Water General Permit for Construction Activities[1]; and
- Evaluate the presence of non-visually detectable pollutants in storm water runoff due to a breach, malfunction, leakage, spill, application of soil amendments, or historic contamination in order to repair, replace, maintain, or select and implement more effective BMPs.

4.1.1 Monitoring Due to a Breach, Malfunction, Leakage, or Spill

Non-visible pollutant monitoring in areas not historically contaminated and without soil amendments will proceed according to the following steps:

Step 1. Is there a non-visible pollutant present that may be discharged from the site in storm water runoff? If yes, then proceed to Step 2.

Step 2. Is the non-visible pollutant stored in a watertight condition (i.e., in a watertight container, in a building, or under a watertight roof)? If no, then proceed to Step 3.

Step 3. Does routine weekly, pre-rain, during-rain, or post-rain visual monitoring reveal that there has been or there is currently occurring a spill or leak, or a breach or malfunction of a BMP that could result in the discharge of a non-visible pollutant in storm water from the site? If yes, then proceed to Step 4.

Step 4. After containing the spill, leak, breach, or malfunction, do you still suspect that there is currently, has been, or could be, a discharge (i.e., transport off the site) in storm water of a non-visible pollutant? If yes, then proceed to Step 5.

Step 5. Conduct non-visible pollutant monitoring according to the following steps:

A. **Identify parameters.** For all samples, analyze the sample for indicator parameter(s) relevant to the particular pollutant for which the non-visible pollutant monitoring is being conducted. More detail regarding the specific parameters to be analyzed may be found in Table 4-1.

[1] State Water Resources Control Board Resolution No. 2001-046.

B. **Identify type of testing.** Determine whether field or laboratory testing will be employed, based on Table 6-1.

i. Field testing. The following personnel have been assigned by the owner and properly trained to oversee the collection and analysis of field samples:

Name	***Phone***
Name	***Phone***

All field testing will be conducted following the manufacturer's instructions on the testing device for the analysis of both the contaminated and uncontaminated samples in addition to the steps described below.

ii. **Laboratory testing.** Field testing for certain parameters or for certain non-visible pollutants may not be feasible using field testing methods. In these instances, laboratory testing will be employed. The selected analytical laboratory should be contacted to obtain proper containers, including any required preservatives. The field testing personnel named above shall be responsible for collecting samples for analysis in the laboratory. Once collected and transported, laboratory samples will be analyzed in accordance with 40 CFR Part 136.

C. **Comply with timing requirements.** Collect all samples within the first two hours of discharge from rain events that occur during daylight hours (7 days per week, including weekends and holidays) and which generate runoff.

D. **Identify location(s) and collect sample(s).** Determine the proper sampling location(s).

i. Collect all samples at a point before the storm water runoff from the site mixes with storm water flowing in the receiving water or public storm drain.

ii. Collect samples at the relevant location(s) based on the following:

a) Identify the discharge point(s) and the potential testing locations on the relevant catchment, sub-watershed, or sub-basin map prepared for the project.

b) If the site has multiple discharge locations, samples should be collected of runoff from the area where the spill, leak, or BMP malfunction or breach occurred, if possible. Alternatively, samples may be taken from a catch basin inlet accepting flow from the area where the spill, leak, or BMP malfunction or breach occurred.

c) All discharge locations sampled must be safely accessible.

E. **Collect uncontaminated sample.** Collect and analyze an uncontaminated sample. Select a location on the site either upstream or otherwise away from the area sampled that does not drain the area where the spill, leak, or BMP malfunction or breach occurred. If feasible, the location for collection of the uncontaminated sample should be in the same phase of development as the sample potentially containing a non-visible pollutant. For example, if the sampling event takes place in an area where mass grading is occurring, the

uncontaminated sample should, likewise, be collected in an area were mass grading is occurring, as opposed to an area where buildout is nearly complete.

F. **Prepare documentation.** Prepare a Non-Visible Pollutant Monitoring Report (provided in Appendix G-1) for each sampling event and append the form to the SWPPP. Keep all analytical data, including chain-of-custody forms, with the SWPPP until such time as a Notice of Termination is submitted and approved.

G. **Evaluate the data.** If analysis of the samples indicate that non-visible pollutants are being discharged from the site, determine if you need to make any reports to the Los Angeles Regional Water Quality Control Board under Section 7.3 of the SWPPP. In addition to any reporting obligation, take the following steps as soon as possible:

Step 1. Repair or replace any BMP that has failed.

Step 2. Maintain any BMP that is not functioning properly due to lack of maintenance.

Step 3. Evaluate whether additional or alternative BMPs should be implemented.

H. **Use trained personnel.** Personnel trained in the collection of field or laboratory samples shall collect the contaminated and uncontaminated samples for all non-visible pollutant monitoring. Appropriate personnel shall be available to collect samples on regular working days, as well as on weekends and holidays, should the need arise. Training of personnel to collect the samples will include training regarding sample collection methods, operation of field analysis devices or laboratory collection and transport protocols, and appropriate indicator parameters to be analyzed for the non-visible pollutants sampled.

4.1.2 Monitoring Areas of Historic Contamination or Soil Amendments

For non-visible pollutant monitoring in the areas of historic contamination or application of soil amendments, monitoring shall proceed as follows:

Step 1. **Identify area(s) to be monitored.** Determine the area(s) to be monitored. Areas to be monitored will be those areas for which remediation of the historic contaminants is not yet complete (or for which detection of non-visible pollutants is still occurring), and those areas where soil amendments have been applied.

Step 2. **Identify analytical parameters.** Analyze the sample for the indicator parameter(s) relevant to the particular pollutant for which the non-visible pollutant monitoring is being conducted. More detail regarding the specific parameters to be analyzed may be found in Table 6-2.

Step 3. **Identify type of testing.** An analytical laboratory will analyze all samples from the historically contaminated area. The selected laboratory should be contacted to obtain proper containers, including any required preservatives. The field testing personnel named above shall be responsible for collecting samples for analysis in the laboratory. Once collected and transported, laboratory samples will be analyzed by the laboratory selected in accordance with 40 CFR Part 136.

Analysis for any soil amendments applied at the site may be both field and laboratory testing, in accordance with Table 4-2. The field testing personnel named above will be responsible for performing the field tests and collecting samples for analysis in the laboratory. All laboratory samples will be analyzed by certified water quality laboratory.

Step 4. **Comply with required timing.** For the areas of historic site contamination, collect all samples within the first two hours of discharge from rain events that occur during daylight hours and which generate runoff. Every rain event shall be monitored in the historically contaminated areas, so long as those rain events occur during daylight hours and so long as they generate runoff, until the area of historic contamination has been mitigated.

For areas of applied soil amendments, if the data from the first monitoring event show a problem, then it is advisable that field monitoring be continued to verify that pollutants are no longer being discharged in the storm water runoff from the site. Additionally, the discharge must be reported to the Los Angeles Regional Water Quality Control Board in accordance with the requirements of the General Permit.

Step 5. **Identify sampling location(s) and collect sample(s):**

A. Collect all samples at a point before the storm water runoff from the site mixes with storm water flowing in the receiving water or public storm drain.

B. Collect samples at the relevant location based on the following:

i. In locations downstream of applied soil amendments.

ii. All discharge locations sampled must be safely accessible.

Step 6. **Take uncontaminated sample(s).** Collect and analyze uncontaminated sample(s) as follows:

A. Collect all samples at a point above (upstream) of where the storm water runoff contacts the non-visible pollutants.

B. Collect samples at the relevant location based on the following:

i. In locations upstream of applied soil amendments.

ii. All discharge locations sampled must be safely accessible.

Step 7. **Prepare** d**ocumentation.** Prepare a Non-Visible Pollutant Monitoring Report (provided in Appendix G-1) for each sampling event and append the form to the SWPPP. Keep all analytical data with the SWPPP until such time as a Notice of Termination is submitted and approved.

Step 8. **Define frequency of sampling.** If two consecutive sampling events for a particular pollutant in a particular area reveal a level of pollutant discharge as zero or below the detection limit for the analysis method used, then that pollutant in that particular area need not be monitored in future storms.

Table 4-1. Testing Requirements for Pollutants Not Visually Detectable: Pollutants Due To Breach, Malfunction, Leakage, or Spill

Pollutant Source	Field Test[1]	Laboratory Test[1]
Demolition		
Sediment	(visible)	
Paint Strippers	N/A	Volatile Organics
Solvents	N/A	Volatile Organics
Adhesives	N/A	Semi-Volatile Organics
Vehicle Fuels	N/A	Oil and Grease or TPH
Metals	N/A	Total/Dissolved Metals
Bacteria	N/A	Total/Fecal Coliform
Litter	(visible)	
Utility Installation		
Sediment	(visible)	
Fuels/Lubricants	N/A	Oil and Grease/TPH
Chlorinated Water	Colorimetric	
Concrete	pH	Lab pH
Pesticides/Herbicides	N/A	Pesticide Scan/Semi-Volatile Organics
Fertilizers	N/A	$NO_3/NH_3/P$
Bacteria	N/A	Total/Fecal Coliform
Vertical Construction		
Sediment	(visible)	
Paint Strippers	N/A	Volatile Organics
Solvents, Thinners	N/A	Volatile Organics
Detergents	Colorimetric	MBAs
Adhesives, Sealants, Resins	N/A	Semi-Volatile Organics
Fuels, Lubricants, Hydraulic Fluid	N/A	Oil and Grease or TPH
Concrete	pH	Lab pH
Litter	(visible)	
Bacteria	N/A	Total/Fecal Coliform
Organics	N/A	Semi-Volatile Organics
Paint	(visible)	
Wood (sawdust)	(visible)	
Acid Wash	pH	Lab pH
Asphalt (liquid)	N/A	TPH
Habitat Conservation		
Sediment	(visible)	
Nutrients (Fertilizers)	N/A	$NO_3/NH_3/P$
Bacteria	N/A	Total/Fecal Coliform

[1] Based on consultation with SWPPP Preparer or monitoring specialist.

Table 4-2. Testing Requirements for Pollutants Not Visually Detectable: Pollutants Due To Historic Contamination or Soil Amendments

Historic Contamination[1]			
Area(s)	Pollutant(s)	Field Test(s)	Laboratory Test(s)
Soil Amendments [2, 3]			
To be identified by Project Engineer	Based on product MSDS and consultation with SWPPP Preparer or Monitoring Specialist	TBD. May include pH, electrical conductivity (EC)	TBD.

[1] Based on Section 2.1 of the SWPPP.

[2] Soil amendments include any material that is added to the soil to change its chemical properties, engineering properties, or erosion resistance that could become mobilized by storm water and would not be visible in the runoff. Soil amendments include lime, cementitious binders (e.g., gypsum), chlorides, emulsions, polymers, soil stabilizers, and tackifiers applied as a stand-alone treatment (i.e., without mulch). Plant fibers (such as straw or hay), wood and recycled paper fibers (such as mulches and matrices), bark or wood chips, green waste or composted organic materials, and biodegradable or synthetic blanket fibers would not be included as soil amendments in this context because they would be visible in storm water runoff.

[3] Sampling and analysis is required for construction projects that utilize soil amendments that are in contact with storm water runoff, unless independent test data are available that demonstrate acceptable concentration levels.

4.2 Analytical Reporting Limits

Reporting limits are the lowest concentration of a constituent that can be reliably quantified within specified limits of precision and accuracy during routine laboratory operating procedures. Section 3 lists the chemical constituents that will be analyzed in order to meet the water quality monitoring requirements of the permit. Tables 4-1, 4-2, 4-3, and 4-4 list the testing requirements for pollutants not visually detectable due to breach, malfunction, leakage or spill; testing requirements for pollutants not visually detectable due to historic contamination and soil amendments; specifications for non-visible laboratory constituent analyses; and precision and accuracy control limits for non-visible analytical constituents respectively. Reporting limits were based on the limits that are achievable by most contract analytical laboratories.

4.3 Analytical Precision, Accuracy, and Completeness

Precision

Analytical precision is the measure of the degrees of agreement among replicate analyses of a sample (i.e., the closeness of two or more measured values to one another). This Sampling and Analysis Plan recommends the collection of duplicate samples that can be compared and a relative percent difference (RPD) calculated to determine the precision of water quality analysis. The RPDs listed in Table 4-4 represent the acceptable differences in duplicate samples to confirm precision of the laboratory water quality analyses.

Accuracy

Accuracy of a water quality constituent is determined from the deviation of a measured value from the true value. This Sampling and Analysis Plan recommends the use of both laboratory control spikes measured in blanks, and matrix spikes measured in samples collected at storm water outfalls. The upper and lower recovering limits of the spikes are included in Table 4-4 and reflect the accuracy with which the true water quality is being measured.

Completeness

Completeness refers to the total percentage of samples that are both analyzed and validated with respect to all the samples collected. The completeness goal for this project is 85 percent. This means that at least 85 percent of the water quality results must be acceptable without qualification to adequately meet project goals. The control limits for analytical precision and accuracy for each analytical constituent are listed in Table 4-4.

Table 4-3. Specifications For Non-Visible Laboratory Constituent Analyses

Constituent Name	Method Type	EPA Method Number	Holding Time	Units	Target Reporting Limit
Conventional					
EC	N/A	120.1	ASAP	umhos/cm	1
PH	Electrometric	150.1	ASAP	pH unit	+/- 0.1
Hydrocarbons					
TRPH	Gas chromatography	8015b	14 days	µg/L	50
O&G (HEM/SGT)	Gravimetric	1664	28 days	mg/L	5
Nutrients					
NO_3-N	Ion chromatography	300.0	48 hours	mg/L	0.1
NH_3-N	Titrimetric	350.2	28 days	mg/L	0.1
Total P	Colorimetric	365.2	28 days	mg/L	0.03
Bacteriological					
FC	Multiple-tube fermentation	9211E	6 hours	MPN/100 ml	1
TC	Multiple-tube fermentation	9221B	6 hours	MPN/100 ml	1
Metals					
TR	GFAA; ICP-MS	200.8	Filter for dissolved fraction and preserve within 48 hours; analyze within 6 months.	µg/L	0.2-5*
Diss	GFAA; ICP-MS	200.8		µg/L	0.2-5*
Organics					
VOCs	GC-MS	8020	14 days	µg/L	0.5-50
SVOCs	GC-MS	8270	Extract in 7 days, analyze within 40 days.	µg/L	0.05-0.25
Pest	Gas chromatography	8141, 8081		µg/L	0.05-1
Detergents					
MBAS	Colorimetric	425.1	48 hours	mg/L	0.1

* Target Reporting Limit varies by metal.

Table 4-4. Precision and Accuracy Control Limits for Non-Visible Analytical Constituents

Constituent/Parameter Name	EPA Method Number	Maximum Allowable RPD (%)	MS/MSD Recovery Lower Limit (%)	MS/MSD Recovery Upper Limit (%)
Conventional				
EC	120.1	N/A	N/A	N/A
pH	150.1	20	N/A	N/A
Hydrocarbons				
TRPH	8015b	21	45	129
O&G (HEM/SGT)	1664	18	79	114
Nutrients				
NO_3-N	300.0	20	80	120
NH_3-N	350.3	20	80	120
Total P	365.2	20	80	120
Bacteriological				
FC	SM 9221E	N/A	N/A	N/A
TC	SM 9221B	N/A	N/A	N/A
Metals				
TR	200.8	20	75	125
Diss	200.8	20	75	125
Organics				
VOCs	8020	20-30	See method: constituent specific	
SVOCs	8270	30-50	See method: constituent specific	
Pesticides	8141/8081	20	See method: constituent specific	
Detergents				
MBAS	425.1	N/A	N/A	N/A

N/A: Not available.

5.0 FIELD EQUIPMENT MAINTENANCE

This section describes the equipment that will be used for collecting storm water samples and information on the proper cleaning of sampling bottles.

5.1 WATER QUALITY SAMPLING EQUIPMENT

All storm water samples will be collected as manual grab samples. Sample collection equipment may vary, depending on the specific monitoring location and configuration. Examples of typical equipment include:

- Polypropylene scoops, jars, or flat trowels;
- Polypropylene buckets;
- Polypropylene containers attached to an extendable aluminum pole;
- Polypropylene funnels;
- Latex gloves (always wear during sample collection);
- Cooler filled with ice (to keep water samples cold);
- Distilled water (for rinsing sampling equipment); and
- Towels and paper towels.

A comprehensive list of sampling equipment is provided as a checklist on the next page.

SAMPLING EQUIPMENT CHECKLIST

Field/Specialty Box

____ Water-proof Pens (2)
____ Sampling and Analysis Plan (1)
____ Sample Funnels
____ Latex Gloves (24 pairs)
____ Paper Towels (1 roll)
____ Paper Cups (2 cups)
____ Ziploc Bags (1 box)
____ Solvex (green) Gloves (2 pairs)
____ Duct Tape (1 roll)
____ First Aid Kit (1)
____ Flashlight w/ extra batteries (2)
____ Sample Scoops (3)
_____ Clipboard w/Data Sheets
_____ Cutting Knife (1)
_____ Fire Extinguisher (1)
_____ Field Test Kit (pH and conductivity meters); colorimetric test kits (for detergents and/or chlorine)

Safety/Traffic Equipment

_____ Cellular Telephone (1)
_____ Hard Hat for each Team Member
_____ Traffic Safety Vests
_____ Rain Gear with reflective tape
_____ Safety Boots (with steel toes)

Other

_____ Ice for coolers (purchase en route)
_____ Bubble wrap for sample bottles
_____ Coolers
_____ Sunglasses (2)
_____ Sunscreen
_____ Soap
_____ Reflective Tape

Signature_____ **Date**_____ **Time:** _____

5.2 CLEANING OF SAMPLE COLLECTION BOTTLES

All sample collection bottles and lids will be cleaned prior to sample collection by the laboratory, consistent with the equipment cleaning procedures described in this section. This cleaning protocol will be provided to the selected analytical laboratory prior to receipt of sampling bottles in preparation for a sampling event. The analytical laboratory cleaning procedures are:

Water Sample Collection Bottles (Laboratory Protocols)

1. Rinse bottle with warm tap water three times as soon as possible after emptying sample.
2. Soak in a 2% detergent (e.g., Contrad®) solution for 48 hours; scrub with clean plastic brush.
3. Rinse three times with tap water.
4. Rinse five times with Milli-Q® or equivalent (water passed through two filters after deionized system), rotating the bottle to ensure water contact with the entire inside surface.
5. Rinse three times with hexane, rotating the bottle to ensure contact with the entire inside surface (use 30ml per rinse).
6. Rinse six times with Milli-Q water.
7. Rinse three times with 2N nitric acid (1 liter per bottle, per rinse) rotating the bottle to ensure contact with the entire inside surface.
8. Rinse six times with Milli-Q water.
9. Cap bottle with Teflon™-lined lid, cleaned as specified below.

Sample Bottle Lids

1. Make up a 2% solution of disinfectant soap (Micro®) in warm tap water.
2. Rinse tubing three times with the 2% Micro solution, wash lids and strainers with Micro solution and a plastic brush.
3. Rinse three times with tap water.
4. Rinse three times with Milli-Q water.
5. Rinse three times with a 2N nitric acid solution.
6. Soak 24 hours in a 2N nitric acid solution.
7. Rinse three times with Milli-Q water.
8. Seal the tubing on both ends with clean latex material.
9. Individually double-bag tubing in properly labeled new polyethylene bags. Double-bag lids and strainers individually in Ziploc™ bags.

Cleaning Solutions

The following cleaning solutions are effective and appropriate for use in cleaning storm water sampling bottles and equipment.

- 2% Contrad = 200 ml concentrated Contrad (detergent) per full 10L bottle of Milli-Q water.
- 2% HNO3 Acid = 80 ml concentrated HNO3 acid (16N) per gallon of Milli-Q water.
- 2% Micro = 80ml concentrated Micro (disinfectant) per gallon of Milli-Q water.

6.0 MONITORING PREPARATION AND LOGISTICS

Pre-storm sampling event procedures include tracking weather forecasts, evaluating storm sampling criteria, and preparing sampling equipment before each storm event.

6.1 STORM SAMPLING CRITERIA

The following storm sampling criteria have been established to determine which storms will be sampled for water quality constituents:

- The storm event produces measurable runoff

AND

- There may be pollutants in the runoff that are not visually detectable due to:
  - Runoff contacting and discharging from an area of historic contamination; OR
  - Runoff contacting and discharging from surfaces to which soil amendments have been applied; OR
  - Inspections indicate a breach, spill, leakage, or malfunction has occurred.

In each instance, runoff is to be sampled both upstream and downstream of the activity triggering the requirement to sample.

6.2 WEATHER TRACKING

The SWPPP Compliance Inspector will track weather forecasts on a daily basis. The daily tracking includes review of publicly available data (e.g., the National Weather Service, The Weather Channel, Internet weather sites). When data from these various sources indicate that a storm event is imminent, storm water sampling staff will be on "stand-by alert" in the event that storm water sampling is required. The storm water sampling staff will be prepared to mobilize to collect samples, if required, **during the first two hours of runoff**.

6.3 SAMPLE BOTTLE ORDERING

Storm water sample collection bottles will be purchased from the selected analytical laboratory. The laboratory will provide the correct type and size of bottles required for the particular analysis being conducted. In addition, the laboratory will add preservative to the sample bottles, if required. A sufficient amount of bottles must be ordered to collect both environmental and quality control composite samples and to ensure that a shortage of bottles does not occur. The analytical laboratory will provide blank water for the collection of required field blank samples.

6.4 SAMPLE BOTTLE LABELING

Storm water collection bottles will be pre-labeled prior to each sampling event. All labels will include the site name, collection date and time, site outfall location, names of the sampling team, event sample

number and bottle number (if more than one). Only the collection date and time, sample location and number, and sampling personnel names will need to be filled out at the time of collection. All other information can be filled out in a dry environment prior to field mobilization. All information will be written with a permanent quick-drying ink marker that is water- and fade-resistant on a water-resistant label prior to transport to the laboratory.

6.5 FIELD EQUIPMENT PREPARATION

If the updated forecast shows that the potential storm event will satisfy the selection criteria within the next 12 hours, field sampling personnel will set up the grab sampling equipment, bottles, and coolers. The procedures for field equipment preparation are as follows:

- Determine where samples may need to be collected;
- Obtain proper sample bottles;
- Set up prepared coolers containing ice and labeled water sample bottles;
- Set up grab sampling gear and field support equipment (flashlights, tarp, table, as needed); and
- Place all equipment supplies in a convenient location to be mobilized from.

Detailed field procedures for sample collection are outlined in Section 7 of the Sampling and Analysis Plan.

7.0 SAMPLE COLLECTION, PRESERVATION, AND DELIVERY

This section describes the procedures involved in the collection, preservation, and delivery of water quality samples to the analytical laboratory. Information describing sample representativeness and the analytical prioritization of the individual water quality analyses are also included.

7.1 SAMPLE COLLECTION METHODS

If possible, field teams will consist of two persons. Because of the unpredictability of storm events, and the requirement to sample within the first two hours of runoff, it is desirable for field crews to be available to arrive at the monitoring sites before any significant storm water runoff has been observed.

Grab Storm Water Sample Collection

Field personnel will arrive at the monitoring sites before the event to ensure that samples are collected within the first two hours of runoff. Provided there is adequate runoff available, the grab samples will be collected upstream and downstream of the area requiring monitoring.

Detailed Grab Sample Collection Procedures for Each Monitoring Site

A. Inspect general conditions of the site. Note the conditions of the site at the time of sampling.

B. Once flowing water is observed in the drain pipe (or other storm water conveyance), manually collect a water sample with the polypropylene collection device.

C. Once sufficient water has been collected in the device, carefully pour the water into each of the laboratory sample bottles using the polypropylene funnels. Note: For collection of the oil and grease sample, a glass or metal funnel should be used.

D. After all water samples have been collected, rinse off the polypropylene collection device and funnels with distilled water and towel dry to prepare for the next sampling event.

7.2 FIELD MEASUREMENT METHODS

Certain grab samples will require field measurement of certain parameters. To accomplish this, pour a portion of storm water a clean plastic cup for field measurements. Electrical conductivity and pH can be measured using hand-held devices. The devices will be calibrated prior to mobilization at the monitoring site. At some locations, colorimetric field test kits (e.g., HACH field kits) may be used to test for the presence of chlorine or detergents. Follow manufacturers' instructions on proper use of the test kits. The measurements will be recorded in field notes and on the chain-of-custody forms. The sample portion will then be discarded following recording of the field measurements.

7.3 SAMPLE CONTAINERS AND HANDLING

Sampling procedures involving handling items that have direct contact with the samples (i.e., sampling container, container lid, etc.) will be performed in accordance with proper sample handling techniques designed to minimize contamination of the sample. In summary, sampling personnel are required to wear clean powder-free nitrile gloves. One member of the field team will not come into contact with any other

items and will change gloves between sample collections or when the gloves have come in contact with any potential source of contamination. The other field team member will be responsible for cleaning of sampling equipment and all other activities that do not involve handling items that have direct contact with the sample.

7.4 QA/QC Sample Collection Methods

In order to maintain sample integrity, the following QA/QC procedure will be followed during collection of a storm water grab sample:

> Wearing clean powder-free nitrile gloves, one member of the field team will collect the storm water samples with the polypropylene scoop and the collection funnels. The second team member will organize the appropriate sample bottles and will label the collected samples. Once the entire sample volume has been collected, the first team member will pour a portion of the sample as required into a cup and take the field measurements while the second member records the data.

7.5 Forms and Procedures for Documenting Sample Collection and Field Measurements

The following forms are to be completed during each storm event monitored at each site:

- Chain-of-custody form (An example of a chain-of-custody form appears on the next page.)
- Monitoring checklist (found in Section 5.1)
- Non-Visible Pollutant Monitoring Report (see Appendix G-1).

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE ____/____/____

PROJECT NAME: _____ PROJECT NO: _____

Sample ID	Time Collected	Sample Type	Container	Preservation Temp	Preservation Chemical	Analysis Required (Method)

Total Number of Samples Shipped: _____ Comments: _____

Sampler's Signature: _____

Relinquished By	Received By	Date
Signature: _____	Signature: _____	___/___/___
Printed Name: _____	Printed Name: _____	Time
Company: _____	Company: _____	_____
Reason: _____	Reason: _____	
Relinquished By	Received By	Date
Signature: _____	Signature: _____	___/___/___
Printed Name: _____	Printed Name: _____	Time
Company: _____	Company: _____	_____
Reason: _____	Reason: _____	

7.6 LABORATORY COMMUNICATION PROCEDURES

The SWPPP Compliance Inspector will contact the analytical laboratory 24 hours before the anticipated beginning of the storm event. The laboratory will be instructed to prepare sample bottles for use at the monitoring sites and to prepare for receipt of samples during and following the storm event.

7.7 SAMPLE SHIPPING/DELIVERY AND CHAIN OF CUSTODY

After grab samples are collected, storm water sampling staff are responsible for delivery of grab samples to the analytical laboratory as soon as possible to meet sample holding time requirements. If samples are to be analyzed for bacteria, they must be delivered to the laboratory within six hours of sample collection. Samples for all other analyses should be delivered within 24 hours of collection. The laboratory should be notified of estimated time of delivery and be alerted when weekend delivery is required. The following list outlines the packaging and shipping procedures for pick-up:

- Assemble and package all sample bottles in an orderly and secure manner for delivery to the laboratory.
- Verify information on the chain-of-custody form completed by the field crew on a cooler-by-cooler basis.
- If multiple coolers contain bottles from the same station, indicate this on all related forms.
- Use military time (i.e., 2 p.m. = 1400 hours) for all entries in the Chain-of-Custody form.
- If necessary, re-pack coolers with ice to keep samples cool and to prevent breakage.
- Place the completed chain-of-custody form in a Ziploc™ bag and place the form in the cooler with the bottles.
- Pack any sampler bottles to be cleaned for delivery to lab.

7.8 SAMPLE PRESERVATION AND FILTRATION

During collection of grab samples, the field teams will seal sample bottles in Ziploc bags, place them in a cooler, and pack the cooler with ice in order to preserve the samples below 4 degrees Celsius. Once samples are at the laboratory, they will be refrigerated until analysis.

Sample filtration and/or preservative may be required for some analyses, including dissolved metals. Because of contamination concerns, this will be performed in the laboratory in accordance with procedures specified by the appropriate analytical method.

8.0 QUALITY ASSURANCE/QUALITY CONTROL

8.1 FIELD AND LAB PROCEDURES FOR QA/QC

The measurement of chemical constituents at the trace level is often difficult due to inherent properties of environmental samples, field sampling techniques, and analysis techniques. In order to assess and maximize data quality, a strict QA/QC program will be implemented as an integral part of the sampling plan. The QA/QC program is designed to enable an evaluation and validation of the analytical data for accuracy, and precision and contamination. This section describes the QA/QC program for field sample collection and for laboratory analysis.

8.1.1 QA/QC for Water Sample Collection

Several additional samples will be collected in the field and analyzed to help identify potential sources of error introduced into the storm water sampling process. These samples will include equipment blanks, field sample duplicates, and laboratory sample duplicates. The specific procedures for collecting each of these samples are provided below.

Equipment Blanks – Equipment blanks will be obtained to verify that the sample equipment is not a source of contamination. Sample blanks will be collected from the grab sample collection equipment during at least one storm event. Deionized water, supplied by the laboratory, will be passed through clean equipment and collected following normal sample collection procedures.

Laboratory Duplicates (Splits) – Sampling staff will collect occasional samples based on sufficient volume of storm water collected for the laboratory to perform laboratory duplicates to assess the precision of the analytical laboratory methods. The laboratory will perform laboratory duplicates for approximately 10% of the total number of samples collected. Laboratory duplicate procedures are explained in more detail in Section 8.1.2.

Field Duplicates (Splits) – Duplicate grab samples will be collected and analyzed for 10% of the total number of grab samples collected.

8.1.2 Laboratory QA/QC

The analytical laboratory will also run method-specific QA/QC protocols, such as Matrix Spike/Matrix-Spike Duplicates and Method Blanks. The laboratory QA/QC analyses are listed in Table 8-1. The QA/QC sample frequency for both field and laboratory QA/QC samples is listed in Table 8-2.

Table 8-1. Laboratory QA/QC Analyses

Type of Analysis	Description
Standards	Calibration standards with known concentrations will be prepared and used in the laboratory to obtain instrument calibration curves in accordance with the provisions of the various method specifications.
Method Blanks	Analyte-free water will be processed through all sample preparation procedures at the analytical laboratory and analyzed as a method blank. This will provide an indication as to whether contamination is occurring as a result of laboratory procedures. Method blanks will be prepared and analyzed by the laboratory for each QC batch analyzed.
Laboratory Duplicates (Splits)	The laboratory will analyze duplicate samples corresponding to 25% of the total number of samples collected. A sufficient amount of water volume will be collected in the field under normal sample collection procedures. However, the sample container will be labeled "laboratory duplicate" indicating to the laboratory that a split should be taken on that particular sample.
Matrix Spikes	Internal spikes (matrix spikes) will be prepared in the laboratory by adding a known amount of target and or surrogate analyte(s) into a field sample prior to laboratory preparation. To meet project goals, the matrix spike will be at one to five times the analyte concentration, in the original sample to prior analysis for the analyte. If the matrix spike is outside of the desired one to five range, a second spike will be required. Each of the spiked samples will also be analyzed in duplicate for an assessment of the analytical method precision. Matrix Spikes will be prepared and analyzed by the laboratory at a 10% frequency.

Table 8-2. QA/QC Sample Frequency

QA/QC Sample Type	Sampling Frequency
Equipment Blanks	Will be collected from polypropylene grab sampling equipment prior to the sampling season.
Field Duplicates	Will be collected for 10% of the total number of samples collected.
Laboratory Duplicates	Will be collected for 10% of the total number of samples collected.
Matrix Spike/ Matrix Spike Duplicates	Will be collected for 10% of the total number of samples collected.
Method Blanks	Will be run with each QC batch analyzed by the laboratory.

9.0 LABORATORY SAMPLE PREPARATION AND ANALYTICAL METHODS

Before analysis, the laboratory will be involved in the following activities:

- Reviewing the QA/QC criteria;
- Determining maximum reporting limits, turnaround times and report formats;
- Coordinating with construction site storm water sampling staff prior to the sampling event; and
- Providing sampling staff with clean sample bottles and blank water.

10.0 DATA MANAGEMENT AND REPORTING PROCEDURES

10.1 ANALYTICAL DATA VALIDATION

Results of precision and accuracy and contamination checks will be reviewed after each storm event. In the event that data quality objectives are not met, data will be qualified and documented as necessary.

Data collected from the laboratory will be validated through the following procedures:

- Review hard copy data package;
- Compare chain-of-custody forms to logbooks and laboratory data reports to ensure successful data transfer;
- Ensure that laboratory reports are complete;
- Ensure that there are no typographical errors or incongruities in the data;
- Compare QA/QC results with data quality objective criteria;
- Tabulate and analyze the success rate of each QA/QC parameter; and
- Document and report out-of-range values.

10.2 ELECTRONIC DATA TRANSFER

Data from the laboratory will be delivered in hard copy and electronic format. Both data packages will include:

- A narrative of any problems, corrections, anomalies, and conclusions; and
- Results/summary of QA/QC elements, including:
  - sample extract and analysis dates
  - method blanks, laboratory control spikes, and matrix spikes
  - analytical accuracy
  - analytical precision
  - reporting limits.

10.3 REPORTS

Monitoring reporting requirements are described in Section 7.3 of the SWPPP.

Appendix G-1

Non-Visible Pollutant Monitoring Report

NON-VISIBLE POLLUTANT MONITORING REPORT

Owner/Operator: _____ WDID No.: _____

Date of Sampling Event: _____ Time Runoff Started: _____

I. Reason for Sampling

Check one:

☐ Historic contamination

☐ Breach, malfunction, leakage, or spill

☐ Application of soil amendments

Describe: _____

_____

II. Non-Visible Pollutant Sample(s) Collection Information

Location sample(s) taken: _____

Time sample(s) taken: _____

Number of samples: _____

Non-visible pollutant(s) for which sample(s) was collected: _____

III. Uncontaminated Sample Collection Information

Location sample(s) taken: _____

Time sample(s) taken: _____

Number of samples: _____

IV. Field Analysis

☐ Not Performed

Device(s) used: _____

Parameter	Uncontaminated Sample		Non-visible Pollutant Sample	
	1	2*	1	2*

* If duplicate is taken

V. Laboratory Analysis

☐ Not Performed

Analytical Laboratory: _____

Parameters: _____

Attach laboratory results and chain-of-custody forms to this form.

Sample(s) collected by: _____ **Date:** _____
(Signature)

Printed Name and Title: _____

NON-VISIBLE POLLUTANT MONITORING REPORT

VI. Follow-Up Actions Taken (check appropriate boxes based on evaluation of test results)

☐ Repaired or Replaced BMP that has failed.

Describe: _____

_____

☐ Maintained BMP that is not functioning properly due to lack of maintenance.

Describe: _____

_____

☐ Implemented Additional or Alternating BMPs.

Describe: _____

_____

☐ Notified Regional Board of discharge.

Date: _____

Signature: _____ **Date:** _____

Printed Name and Title: _____

APPENDIX H

SEDIMENT CONTROL PLAN

SEDIMENT CONTROL PLAN

The intent of this Sediment Control Plan is to identify baseline mitigation measures for minimizing erosion and sedimentation using best management practices (BMPs) that are applicable to Sound Energy Solutions' (SES) Long Beach LNG Import Project. The project will be located on a 25-acre site on Pier T at designated Berth 126 within the Port of Long Beach (POLB) in Los Angeles County, California and will involve construction of a liquefied natural gas (LNG) import terminal capable of unloading LNG ships ranging in capacity up to 208,000 cubic meters. The project will provide an average sendout capacity of 700 million standard cubic feet per day with a peak capacity of 1 billion standard cubic feet per day. The LNG terminal facilities will include:

- an 1,100-foot-long LNG ship berth and unloading facility with unloading arms, mooring and breasting dolphins, and a fendering system that will be capable of unloading one ship at a time;
- two LNG storage tanks, each with a gross volume of 160,000 cubic meters (1,006,000 barrels) surrounded by a security barrier wall;
- 20 electric-powered booster pumps;
- four shell and tube vaporizers using a primary, closed-loop water system;
- three boil-off gas compressors, a condensing system, a natural gas liquids recovery system, and an export ethane (C_2) heater;
- an LNG trailer truck loading facility with a small LNG storage tank;
- a natural gas meter station and odorization system;
- utilities, buildings, and service facilities; and
- associated hazard detection, control, and prevention systems; site security facilities; cryogenic piping; and insulation, electrical, and instrumentation systems.

A 36-inch-diameter natural gas sendout pipeline will extend approximately 2.3 miles north from the LNG terminal, crossing the Cerritos Channel with a horizontal directional drill (HDD), and terminating at Southern California Gas Company's (SoCal Gas) existing Line 765 at its Salt Works Station. A 4.6-mile-long, 10-inch-diameter C_2 pipeline will be constructed approximately parallel to the natural gas sendout pipeline as far as the interconnection point with SoCal Gas' existing Line 765 and will continue on a primarily due north route, through city streets, to ConocoPhilips' Los Angeles Refinery – Carson facility. The project will also include 0.8 mile of electric distribution lines to provide 66 kilovolt service to a new substation (the Sound Substation) that will be located within the LNG terminal boundaries at the northern end of the site. Approximately 4,160 circuit feet of overhead 954 spaced aerial cable on 10 tubular steel poles will be installed. The first 830-foot-long extension will connect along the APL Substation tap along Pier T Avenue, going westerly to the new Sound

Substation, and requires the installation of one new pole switch. The remaining 3,300-foot-long extension will connect along the Dock Substation tap along Seaside/Ocean Boulevard, going southerly to the new Sound Substation, and requires the installation of one new pole switch.

Construction of the LNG terminal facilities will occur entirely within a previously disturbed and currently maintained portion of the existing Pier T on land leased from the POLB. The site is located on fill land and was historically used as a naval shipyard. It is currently a paved/asphalted area with abandoned buildings that will be demolished and removed by the POLB prior to the start of any construction activities for the LNG terminal. There are no wetlands or vegetation on site; Long Beach Middle Harbor abuts the south and west sides of the site.

The entire route of the natural gas and C_2 pipelines is within heavily disturbed, industrialized areas. No wetlands or residential areas will be crossed. One waterbody (the Cerritos Channel) and several railroad lines, driveways, and roads will be crossed by both pipelines. The C_2 pipeline will also cross the Dominguez Channel.

This Sediment Control Plan incorporates those sections of the Federal Energy Regulatory Commission's (FERC or Commission) January 2003 *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland And Waterbody Construction and Mitigation Procedures* (Procedures) that are relevant to the environmental conditions in the project area.

Mitigation measures embedded in the FERC Plan and Procedures are included here for purposes of confirming environmental protection for all aspects of the project, including the pipelines and the rehabilitation of the wharf and marine facilities.

Provisions of the Plan and Procedures that SES considers unnecessary due to local conditions are identified in Table H-1 along with justification for why those provisions are not applicable.

Table H-1
Justification for Not Incorporating Provisions of the Plan and Procedures

Section	Topic	Justification
Procedures		
II.A. 2	Schedule for trenching or blasting within each waterbody greater than 10 feet wide or within any designated coldwater fishery	No applicable resources.
II B 1	File plans for any extra work areas that would be closer than 50 feet from the water's edge	Extra work areas for the Cerritos and Dominquez Channel crossings will be located over 50 feet from the

Table H-1 **Justification for Not Incorporating Provisions of the Plan and Procedures**		
Section	**Topic**	**Justification**
		waterbody.
II B 3	Use of construction right-of-way greater than 75 feet in wetlands	No wetlands crossed.
IV. A. 1. f.	No concrete coating within 100 feet of a wetland or waterbody	No plans for concrete coating activities .
V.A.2, 4	Potable surface water intakes, trenching or blasting in waterbodies	No applicable resources or activities.
V.B.1	Time window for instream work	No freshwater instream work; POLB will comply with U.S. Army Corps of Engineers permit time windows for dredging in Long Beach Harbor.
V.B.2	Extra Work Areas	Extra work areas for the Cerritos and Dominquez Channel crossings will be located over 50 feet from the waterbody.
V.B.3 c,d,e,f	Pipeline paralleling waterbody, multiple channel waterbodies, flow rates in channel, buffers and setbacks	Extra work areas for the Cerritos and Dominquez Channel crossings will be located over 50 feet from the waterbody; no applicable resources or activities.
V.B.5	Equipment bridges	No applicable activity.
V.B.6 a, b, c	Dry-ditch crossing methods including dam-and-pump, flume	No applicable activity.
V.B.7	Crossings of minor waterbodies	No applicable resources.
V.B.8	Crossings of intermediate waterbodies	No applicable resources.
V.B.9	Crossings of major waterbodies	Plans for the crossings will be submitted to appropriate federal and state regulatory agencies
V.B.10.a	Sediment barrier at waterbody crossings	Extra work areas for the Cerritos and Dominquez Channel crossings will be located over 50 feet from the waterbody.
V.B.10.c	Trench plugs	No applicable activities; horizontal directional drill and existing pipe bridge crossings.
V.C.	Restoration	No applicable resources or activities.
V.D.	Vegetation control and protection	No vegetation present on Pier T or at crossing locations requiring protection. No noxious weed

Table H-1 **Justification for Not Incorporating Provisions of the Plan and Procedures**		
Section	**Topic**	**Justification**
		populations present.
VI.	Wetland crossing procedures	No wetlands crossed.
VII. A 1,3,. – B.2, C.	Hydrostatic testing procedures for wetlands and waterbodies	No applicable resources; hydrostatic test water will be purchased from public water supply.
Plan		
II.B.3	Environmental Inspector (EI) responsible for flagging clearing limits	No applicable activities; no clearing needed.
II.B.4	EI responsible for flagging sensitive resources	No applicable activities; Cerritos Channel crossing does not approach the waterbody closer than 200 feet; Dominquez Channel will be crossed using an existing pipe bridge.
II. B. 8., 9., and 11.	EI responsibilities relative to access roads, wetlands, compaction, rutting, or soils imported for agricultural and residential use.	No applicable facilities or resources.
III. A. 2.	Expanded cultural resources and endangered species surveys	No anticipated need to work outside of approved areas.
III. B. – C.	Drain tile and irrigation systems and grazing deferment.	No applicable resource.
III. F.	Agency coordination for permanent erosion control, revegetation, noxious weeds, and soil pests.	No applicable resource concerns; no noxious weed populations present in work areas or on Pier T.
IV. A. 2.	Right-of-way shall not exceed 75 feet	No applicable facility.
IV. B.- D.	Topsoil segregation, drain tile and Irrigation	No applicable resource concerns.
IV.E.2	Crushed stone access pads in residential or agricultural areas	No applicable facility.
IV. F. 1.a-d	Temporary slope breakers	No slopes
IV. F. 3	Mulching slopes	No slopes.
V. A. 1– 5, 7.	Cleanup of construction right-of-way	No applicable facility, no slopes, and no contours to restore.
V. B. – D.	Trench and slope breakers, soil compaction, revegetation	No applicable resource concerns.
VI.	Off-road vehicle control	No forested lands
VII. A 1–2, 4– 6, B	Monitoring, maintenance, and reporting	No applicable facilities

I. PRECONSTRUCTION FILING (FERC Procedures II.)

A. SES plans to obtain hydrostatic test water from public water supply sources and to discharge the water through existing stormwater drains in the POLB. Before construction, SES will file with the Secretary of the Commission the final plans identifying the hydrostatic test water sources and discharge location. (FERC Procedures II.A.1. and VII.B.3.)

B. Construction at the site will require construction within 50 feet of the harbor waters. SES will file site-specific construction plans with the Secretary of the FERC showing the location of sediment controls prior to construction. (FERC Procedures II.B.1.)

II. ENVIRONMENTAL INSPECTOR (FERC PROCEDURES III. AND PLAN II.A.)

A. SES will designate at least one Environmental Inspector during construction of the facilities and the pipeline owner(s) will designate an Environmental Inspector as called for in federal or state permits who shall have peer status with all other activity inspectors. (FERC Plan II.A.2.FERC Procedures II.A.1)

B. The Environmental Inspector will have the authority to stop activities that violate the environmental conditions of the Order, state and federal environmental permit conditions, or POLB requirements; and to order appropriate corrective action. (FERC Plan II.A.3.)

C. The Environmental Inspector's responsibilities will at a minimum include: (FERC Plan II.B.)

1. Ensuring compliance with the requirements of SES' Sediment Control Plan, Stormwater Pollution Prevention Plan (SWPPP), the environmental conditions of the FERC authorization, the mitigation measures proposed by SES (as approved and/or modified by the Order), other environmental permits and approvals, and requirements of the POLB. (FERC Plan II.B.1.)

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance. (FERC Plan II.B.2.)

3. Identifying erosion/sediment control and soil stabilization needs in all areas. (FERC Plan II.B.5)

4. Ensuring that the location of dewatering structures will not direct water into known cultural resources sites or locations of sensitive species. (FERC Plan II.B.6)

5. Verifying that dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into the harbor. If such deposition is occurring,

the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence. (FERC Plan II.B.7)

6. Ensuring restoration of contours. (FERC Plan II.B.10)

7. Determining the need for and ensuring that erosion controls are properly installed, as necessary to prevent sediment flow into the harbor, sensitive areas, and onto roads. (FERC Plan II.B.12)

8. Inspecting and ensuring the maintenance of temporary erosion control measures at least: (FERC Plan II.B.13.)

   a. on a daily basis in areas of active construction or equipment operation;

   b. on a weekly basis in areas with no construction or equipment operation; and

   c. within 24 hours of each 0.5 inch of rainfall.

9. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification. (FERC Plan II.B.14)

10. Keeping records of compliance with the environmental conditions of the FERC Order, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other Federal or state environmental permits during active construction and restoration. (FERC Plan II.B.15)

11. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase. (FERC Plan II.B.16)

III. PRECONSTRUCTION PLANNING (FERC Procedures II, IV. and V. and Plan III.)

A. SES will identify all construction work areas that will be needed for safe construction and will ensure that appropriate cultural resources and biological surveys have been conducted. (FERC Plan III.A.1.)

B. SES has provided a plan for the HDD of the Cerritos Channel and will provide this plan to the pipeline owner(s) for compliance purposes. (FERC Procedure V.B.6.d)

C. SES plans show that the HDD crossings are as perpendicular to Cerritos Channel as possible given presence of other utilities and crossing engineering. (FERC Procedure V.B.3.b).

D. SES plans show nearest work areas to Cerritos Channel are at least 50 feet from the waterbody and that there will be no equipment, ground disturbance, or spoil storage within 50 feet of the waterbody. (FERC Procedure V.B.3.a,b, V.B.4.a)

E. The pipeline owner(s) will submit plans for the HDD crossing of the Cerritos Channel to applicable regulatory agencies and will obtain and comply with the terms and conditions of all necessary permits, including the U.S. Army Corps of Engineers section 10 permit and Regional Water Quality Control Board section 401 permits if necessary. (FERC Procedures II.B.2, 4, IV.A.1.d, V.A.1, 3, 4, and V.B.3.a)

F. SES will plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration. (FERC Plan III.D.)

G. SES will determine methods and locations for the disposal of construction debris (e.g., timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements. (FERC Plan III.E.)

H. SES will have a copy of the SWPPP prepared for compliance with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements. The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and federal agencies. (FERC Plan III.G. and Procedures IV.A.)

I. SES and its contractors will structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to the harbor. SES and its contractors will, at a minimum, ensure that: (FERC Procedures IV.A.1.a. through IV.A.1.e.)

    1. all employees handling fuels and other hazardous materials are properly trained;

    2. all equipment is in good operating order and inspected on a regular basis;

    3. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

    4. all equipment is parked overnight and/or fueled at least 100 feet from the Cerritos and Dominquez Channel crossings. On Pier T, where construction requires equipment parked overnight or fueled closer than 100 feet from the

Long Beach Harbor, SES contractors will use appropriate measures to prevent spills and provide for prompt cleanup in the event of a spill; and

5. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of the harbor or the Cerritos and Dominquez Channels, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas.

J. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must: (FERC Procedures IV.A.2.a. through d.)

1. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;

2. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

3. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

4. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

K. SES will coordinate with the appropriate local, state, and federal agencies as outlined in this Sediment Control Plan and in the FERC Order. (FERC Procedures VI.B.)

IV. CONSTRUCTION PROCEDURES (FERC Procedure IV, V, Plan IV.)

A. SES will limit all project-related ground disturbance to the approximate project site, laydown area, and other areas approved in the FERC Order. SES will request FERC approval for any project-related ground disturbing activities outside these approved areas. All construction or restoration activities outside of the approved areas will be subject to all applicable survey and mitigation requirements. (FERC Plan IV.A.1.)

B. SES will maintain safe and accessible conditions at all access points during construction. (FERC Plan IV.E.1.)

C. SES will install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls will be properly maintained throughout construction (on a daily basis) and reinstalled as necessary until replaced by permanent erosion controls or restoration is complete. (FERC Plan IV.F.)

D. SES will install and maintain temporary sediment barriers as needed to prevent sediment from leaving the site or entering the harbor where the harbor is adjacent to the project site. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth, sand bags, or other appropriate materials. (FERC Procedures VI.A.2, D, and Plan IV.F.2.a. through IV.F.2.c.)

E. SES (for testing tanks) and the pipeline owner(s) (for testing pipelines) will obtain hydrostatic testing permits from the Regional Water Quality Control Board, Los Angeles Region and will abide by their terms and conditions and by any terms and conditions set by the POLB for the use of its storm drain system. Water will be purchased from the public water supply and discharged to the existing POLB storm drain system for both tank and pipeline facilities. (FERC Procedures VII A.2.d).

F. The pipeline owner(s) will construct trench breakers as required for the slope of the trench. (FERC Plan V.B.1)

V. CLEANUP (FERC Plan V.A.)

A. SES will remove construction debris from all construction work areas unless the POLB approves otherwise. (FERC Plan V.A.6.)

B. SES will monitor and correct problems with drainage resulting from construction. (FERC Plan VII.A.3.)

APPENDIX I

SPILL PREVENTION AND RESPONSE PROCEDURE

SPILL PREVENTION AND RESPONSE PROCEDURE
LONG BEACH LNG IMPORT PROJECT

1 PURPOSE

The purpose of this Spill Prevention and Response Procedure (SPRP) is to provide preventive and mitigative measures to be employed by Sound Energy Solutions, Inc. (SES) to avoid or minimize the environmental impact of spills or releases of fuels, lubricants, or other hazardous materials within 100 feet of any waterbody associated with the construction of the proposed LNG terminal.

2 PLANNING AND PREVENTION

SES will require its contractors to implement proper planning and preventive measures to minimize the likelihood of spills, and to quickly and successfully cleanup a spill if one should occur. As part of the planning that will be undertaken prior to construction, detailed preparations will be made to ensure that storage arrangements for any hazardous materials, chemicals, fuels, lubricating oils or other such materials required for performing the construction tasks, are safe and secured in containers manufactured for the suited purpose.

3 ROLES AND RESPONSIBILITIES

SES's construction contractor (Contractor) shall designate an independent contractor that is an expert in environmental clean-up (Emergency Response Contractor). This independent contractor shall be responsible for remediating spills that are considered beyond the capabilities of the Contractor.

The Contractor shall be responsible and accountable for any and all of its subcontractors' activities relative to environmental regulations and requirements. All subcontractors shall comply with the SPRP.

The Contractor shall provide SES with copies of Material Safety Data Sheets (MSDS) for any hazardous chemicals supplied by the Contractor. SES shall provide the Contractor with copies of MSDS for any hazardous chemicals supplied by SES.

The Contractor shall be considered the waste generator for all spills caused by Contractor activity.

The Contractor shall identify and prepare a written inventory of approved waste transporters and disposal sites for both hazardous and non-hazardous wastes near the site of construction activities. This information shall be provided to SES' chief inspector.

4 TRAINING

All personnel responsible for handling any fuel, lubricants, chemicals, or hazardous materials shall receive training on the requirements of this SPRP.

Handling of all fuel, lubricants, chemicals, or hazardous materials shall be conducted by personnel who have been trained for the specific task.

The training specified above shall be completed prior to commencing any activities or carrying out any task associated with such materials.

The Project Manager or his designee shall be responsible for ensuring the requirements of this section are completed.

5 SPILL PREVENTION AND MITIGATION MEASURES

5.1 GENERAL

The Contractor will be responsible for developing and maintaining an equipment list to be kept on site for spill countermeasures. This list will be submitted to SES and to the Federal Energy Regulatory Commission and the Port of Long Beach for approval prior to commencing construction. In addition, the Contractor will be responsible for developing a list of Best Management Practices, including equipment inspection measures, that will be employed and for submitting that list prior to construction for approval by SES and by appropriate federal, state, and local agencies.

5.2 CONTAINER STORAGE AND SECONDARY CONTAINMENT STRUCTURES

All containers of 55 gallons or greater for fuel or hazardous materials shall be stored in designated areas equipped with secondary containment structures within the construction workspaces. All storage will occur at a distance greater than 100 feet from any surface water. These structures shall provide a minimum containment volume of 110 percent of the volume of the largest storage vessel and provide at least 1-foot of freeboard. If 55-gallon drums of fuel or hazardous materials require temporary storage in the immediate work area, they shall be stored in polyethylene drum spill skids.

Earthen secondary containment areas shall be made impervious to spills by lining the area with ≥40-mil gauge plastic sheeting.

All fuel and hazardous chemical containers shall be properly labeled and identified.

5.3 LEAK AND STRUCTURAL INTEGRITY INSPECTIONS

During construction activities, daily visual inspection will be made on vehicles, stationary equipment, secondary containment areas (tank and drum storage areas), and spill response areas to look for indications of leaks. At the LNG terminal site, all equipment will be inspected by a site environmental officer upon arrival at the site and before being put to work.

A. FUELS AND HAZARDOUS MATERIAL HANDLING

- Fueling for mobile equipment will take place in designated areas only. At the time of construction, the Contractor will supply SES with a drawing of designated fueling areas, which must be greater than 100 feet from any surface water. Suitable drip trays shall be placed underneath the equipment fuel tank nozzle or sump prior to the work commencing. Absorbent material/pads will be available at the immediate location while refueling or servicing is taking place and any drips will be cleaned up on completion of each operation.

- If possible, stationary equipment will be located a minimum distance of 100 feet from any waterbody or site boundary and placed within a drip tray or on a concrete slab having raised edges. During the actual refueling and servicing of stationary equipment, a supply of sand and absorbent pads will be available adjacent to the equipment location. Stationary equipment location and fueling/servicing arrangements will be agreed upon by the Contractor and the SES Environmental Inspector.

- Fuel tanks located on barges will be located over drip trays or within a containment area suitable to collect any leaks or spills and prevent fluids flowing from the barge. Absorbent pads will be held in the immediate location of the equipment during re-fueling or servicing. In addition, the barge will be equipped with floating booms to be deployed immediately in the event of a spill when transferring fuel from an adjacent barge or land based delivery tanker to replenish fuels stored on board.

6 TYPICAL HAZARDOUS MATERIALS

Typical hazardous materials to be stored on site will include fuels, oils, and greases for the construction equipment together with other materials, such as for finish painting and other necessary protective coatings. The quantity of hazardous materials that will be permitted on site at any one time will be limited to that required as short-term supply

only (i.e. "ready to use"). The individual types of materials will be segregated and stored in accordance with manufacturers' recommendations and all state or federal laws as applicable.

The exact quantities of materials needed on a daily basis will be calculated and recorded as part of the preconstruction planning activity.

7 SPILL HANDLING PROCEDURE

7.1 INITIAL SPILL MANAGEMENT

- Immediately upon learning of any fuel, oil, or hazardous material spill, the person discovering the situation shall initiate actions to contain the spill and shall initiate actions to eliminate the source of the spill.

- The SES Facility Manager or Contractor shall be notified immediately.

- An Emergency Response Contractor shall be used in event the spill containment and cleanup is beyond the capabilities of the Contractor.

- The Environmental Inspector shall assist the Contractor's Spill Coordinator in determining spill notification requirements to the appropriate federal, state, and local agencies.

- The type of material and quantity released shall be identified and appropriate personal protective equipment shall be worn as recommended by the product (see specific MSDS).

- Spill containment may include construction of earthen dikes around the spill area, deployment of absorbent materials, or use of commercially available spill kits.

- Contaminated soil and spilled material shall be stored in appropriate and properly labeled containers.

- If a spill enters a surface water, containment booms shall be deployed and product shall be removed with a vacuum truck, if necessary.

- For large spills on land, pooled material shall be pumped into tank trucks.

7.2 LAND BASED

Drip trays and containment areas will be kept clean of any fuel or oil residues at all times. However, in the event of a spill or fuel/oil leak occurring on land-based equipment outside of the drip tray or containment, the source of the discharge will be identified and immediate steps taken to prevent any further discharge. Spilled fuel will be prevented from spreading before being collected and placed in suitable containers for disposal. Soils contaminated by the spill, together with absorbent materials used to cleanup the spill, will also be gathered for disposal at an approved location.

7.3 OVER WATER

Spills occurring within drip trays or containment areas around equipment mounted on barges will be dealt with in the same manner as for land-based events. However, in the event of spills occurring over water, the source of discharge will be identified and measures taken to prevent further discharge. The floating boom held on board the barge will be immediately deployed to surround the affected area and the residue collected with the use of a suction pump or buckets and absorbent materials depending upon the volume involved. Contaminated fluids will be placed into a suitable container or tank for disposal at an authorized location.

7.4 MATERIAL DISPOSAL

Spilled materials, contaminated soils and water, absorbents, and miscellaneous spill-related debris require proper handling. It is the Contractor's responsibility to properly dispose of these and any other materials associated with spill containment and cleanup.

The Contractor shall supply SES with copies of all documentation concerning the disposal of contaminated soil, water, and other materials.