
**SAN DIEGO GAS & ELECTRIC COMPANY
SOUTH BAY SUBSTATION RELOCATION PROJECT
HAZARDOUS SUBSTANCE MANAGEMENT AND
EMERGENCY RESPONSE PLAN AND
SITE ASSESSMENT**

**PREPARED
AUGUST 25, 2014**

PREPARED BY:



PREPARED FOR:



TABLE OF CONTENTS

1 – INTRODUCTION..... 1
2 – OBJECTIVES 1
3 – MITIGATION MEASURES..... 2
4 – SITE ASSESSMENT 5
 4.1 SBPP Site Assessment Summary.....5
 4.2 LNG Site Assessment Summary.....6
5 – PLAN IMPLEMENTATION 6
 5.1 Training6
 5.2 Monitoring7
 5.3 Hazardous Materials Release Prevention7
 5.4 Hazardous Materials Release Response.....10
 5.5 Hazardous Waste Management.....13
6 – REFERENCES..... 16

LIST OF ATTACHMENTS

- Attachment A: Figure 1: Project Location Map
- Attachment B: Contact List
- Attachment C: Detailed Summary of Previous Reports

1 – INTRODUCTION

This Hazardous Substance Management and Emergency Response Plan (Plan) describes the measures to be taken by San Diego Gas & Electric Company (SDG&E) and its contractors to address the proper storage, handling, cleanup, and disposal of hazardous substances in accordance with federal, state, and local regulations during construction of the South Bay Substation Relocation Project (Project). In addition, a Site Assessment summarizing known hazardous conditions within the Project site is provided in this Plan. The Project is located in Chula Vista, California, and involves the following:

- construction of a new 230/69/12 kilovolt (kV) Bay Boulevard Substation;
- construction of a 230 kV loop-in, including underground and overhead interconnections;
- relocation of six overhead 69 kV transmission lines;
- extension of a 138 kV transmission line via overhead and underground configurations;
- demolition of the existing South Bay Substation; and
- wetland restoration activities at the D Street Fill Site.

The Plan was prepared in accordance with Applicant-Proposed Measure (APM) HAZ-01, Mitigation Measure (MM) HAZ-1b, and MM HAZ-2 of the California Public Utilities Commission's (CPUC's) Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) for the Project, as well as Special Conditions 16 and 17 of the California Coastal Commission's (CCC's) Coastal Development Permit (CDP) No. E-11-010. Both the MMCRP and CDP include requirements for development of this Plan and implementation of the procedures to be followed in the field during construction. Requirements associated with the operation and maintenance phases of the Project are not included in this Plan. In addition to the fulfillment of the pre-construction requirements for the preparation of a Site Assessment and Hazardous Substance Management and Emergency Response Plan, as specified by APM-HAZ-01, MM HAZ-1b and HAZ-2 of the CPUC MMCRP and Conditions 16 and 17 of the CCC CDP, this Plan references and speaks to other requirements related to hazardous material and waste management discussed in MM HAZ-1a, HAZ-1c, HAZ-3b, HYDRO-1, and HYDRO-2c. The Plan also addresses compliance with applicable federal, state, and local regulations, including California Health and Safety Codes (HSC) Sections 25503.4, 25503.5, and 25504. In addition, safety requirements in Title 8 of the California Code of Regulations (CCR) will be followed where applicable and if a conflict exists between this Plan and any federal or state requirement, the more restrictive requirement shall be followed.

2 – OBJECTIVES

The purpose of this Plan is to provide personnel that will be on site during the construction phase of the Project with a summary of any known hazardous conditions at the Project site, to identify preventive measures and minimize spills or accidental releases of hazardous materials, address proper handling and disposal of hazardous wastes that may be generated during construction, and review the appropriate response to emergency situations that may arise in association with hazardous materials.

The Plan provides Project-specific information for implementing mitigation requirements, as well as the methods that will be utilized to monitor compliance. The management practices and activities in this Plan are intended to accomplish the following objectives:

- Present a summary of known hazardous materials or wastes that may be encountered as discovered through pre-construction studies of Project sites.
- Prevent and minimize the effect of inadvertent releases of hazardous materials, which could impact soil, groundwater, human health, or resources.
- Provide guidance to Project personnel should hazardous material be encountered during construction activities (e.g. potentially contaminated groundwater, buried drums, or other unknown hazardous materials that could be discovered during construction).
- Provide for the proper handling, storage, and disposal of hazardous waste that is used or discovered during construction of the Project.

3 – MITIGATION MEASURES

SDG&E and its construction contractor will implement the procedures provided in this Plan regarding the proper storage, handling, and disposal of hazardous materials during the construction phase of this Project and will take all reasonable precautions to prevent the release of any hazardous materials or improper disposal. This includes the implementation of the relevant requirements found in MM HAZ-1a, HAZ-1b, HAZ-1c, HAZ-2, APM-HAZ-01, HYDRO-1, and HYDRO-2c and CDP Special Conditions (Condition) 16, 17 and 19. The full text of each of these measures is presented below:

APM-HAZ-01: SDG&E would prepare and implement a project-specific Hazardous Substance Management and Emergency Response Plan during the construction period to reduce or avoid potentially hazardous materials for the purposes of worker safety, protection from groundwater contamination, and proper disposal of hazardous materials.

MM HAZ-1a: Prior to construction, all SDG&E, contractor, and subcontractor project personnel would receive training regarding the appropriate work practices necessary to effectively implement hazardous materials procedures and protocols and to comply with the applicable environmental laws and regulations, including, without limitation, hazardous materials spill prevention and response measures. A sign-in sheet of contractor and subcontractor project personnel who have received training shall be provided to California Public Utilities Commission on a regular basis depending on the level of construction activity.

MM HAZ-1b: The Hazardous Substance Management and Emergency Response Plan proposed by APM-HAZ-01 shall be reviewed and approved by the California Public Utilities Commission (CPUC), California Department of Toxic Substances Control, and San Diego County Department of Environmental Health (DEH), Hazardous Materials Division. The Plan shall meet the requirements identified in California Health and Safety Code Sections 25503.4, 25503.5, and 25504 and specifically addressed for the County of San Diego in the County of San Diego DEH, Hazardous Material Division guidance on Hazardous Materials Business Plans.

MM HAZ-1c: During removal of hazardous materials, SDG&E shall have an experienced environmental professional with 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training on site. This professional shall monitor the work site for contamination (including the subsurface) and shall ensure the implementation of mitigation measures needed to prevent exposure to the workers or the public. These measures shall include signage and dust control.

MM HAZ-2: As part of the final design, a site assessment shall be performed to augment and consolidate previous studies performed for the entire Proposed Project site to identify where hazardous materials or wastes may be encountered. The site assessment shall be submitted to the California Public Utilities Commission and the Department of Toxic Substances Control at least 60 days prior to construction activities. In the event that grading, construction, or operation of proposed facilities will encounter hazardous waste, SDG&E shall ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Department of Toxic Substances Control and San Diego County Department of Environmental Health (DEH). Excavated soils impacted by hazardous waste or materials will be characterized and disposed of in accordance with CCR Title 14 and Title 22, the Department of Toxic Substances Control, and the San Diego County DEH.

MM HYDRO-1: In accordance with the Storm Water Pollution Prevention Plan (SWPPP) to be prepared under the State General Construction Permit, work crews shall use erosion control measures during grading activities. Implementation of the SWPPP shall help stabilize soil in graded areas and waterways and reduce erosion and sedimentation. Mulching, seeding, or other suitable stabilization measures shall be used to protect exposed areas during construction activities. The SWPPP shall be submitted to the California Public Utilities Commission prior to construction activities.

MM HYDRO-2c: Creek and drainage crossings shall be conducted in a manner that does not result in a sediment-laden discharge or hazardous materials release to the water body. The following measures shall be implemented during jack-and-bore operations:

1. Site preparation shall begin no more than 10 days prior to initiating horizontal bores to reduce the time soils are exposed adjacent to creeks and drainages.
2. Trench and/or bore pit spoil shall be stored at an appropriate distance from the top of bank or wetland/riparian boundary for Telegraph Creek and the drainage along Bay Boulevard. As identified in the Storm Water Pollution Prevention Plan (SWPPP), the Qualified SWPPP Practitioner (QSP) shall have discretion over the trench and/or bore pit spoil storage locations. Spoil shall be stored behind a sediment barrier and covered with plastic or otherwise stabilized (i.e., tackifiers, mulch, or detention).
3. Portable pumps and stationary equipment shall be located a sufficient distance away from water resources (i.e., wetland/riparian boundary, creeks, drainages). As identified in the SWPPP, the QSP shall have discretion over the placement of portable pumps and stationary equipment for the protection of water resources and shall determine whether pumps and equipment require secondary containment with adequate capacity to contain a spill (i.e., a pump with 10-gallon fuel or oil capacity should be placed in secondary containment capable of holding 15 gallons). A spill kit shall be maintained on site at all times.

4. Immediately following backfill of the bore pits, disturbed soils shall be seeded and stabilized to prevent erosion and temporary sediment barriers left in place until restoration is deemed successful.

Condition 16: Hazardous Substance Management and Emergency Response Plan. PRIOR TO THE START OF CONSTRUCTION, SDG&E shall submit a project-specific Hazardous Substance Management and Emergency Response Plan to the Executive Director for review and approval. This Plan shall identify measures that will reduce or avoid potentially hazardous materials for the purpose of worker safety, protection from groundwater contamination and proper disposal of hazardous materials. This plan shall include a training program to ensure workers can effectively implement hazardous materials procedures and protocols to comply with the applicable environmental laws and regulations, including hazardous materials spill prevention and response measures. The plan shall also include monitoring of all hazardous materials removal activities by an experienced environmental professional, approved by the Executive Director, with 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training. This professional shall monitor the work site for contamination (including the subsurface) and shall ensure the implementation of mitigation measures needed to prevent exposure to the workers or the public. These measures shall include signage and dust control.

Condition 17: Final Hazardous Material Site Assessment. AT LEAST 60 DAYS PRIOR TO CONSTRUCTION, SDG&E shall submit to the Executive Director for review and approval a final site assessment identifying where hazardous materials or wastes may be encountered. This assessment shall augment and consolidate previous studies performed for the Project site. In the event that grading, construction, or operation of proposed facilities will encounter hazardous waste, SDG&E shall ensure compliance with all applicable federal, state and local regulations.

Condition 19: Creek and Drainage Crossings. Creek and drainage crossings shall be conducted in a manner that does not result in a sediment-laden discharge or hazardous materials release to the water body. The following measures shall be implemented during jack-and-bore operations:

- a. Site preparation shall begin no more than 10 days prior to initiating horizontal bores to reduce the time soils are exposed adjacent to creeks and drainages.
- b. Trench and/or bore pit spoil shall be stored at an appropriate distance from the top of bank or wetland/riparian boundary for Telegraph Creek and the drainage along Bay Boulevard. Trench and/or bore pit, spoil storage locations shall be identified in the SPPP. Spoil shall be stored behind a sediment barrier and covered with plastic or otherwise stabilized (i.e., tackifiers, mulch, or detention).
- c. Portable pumps and stationary equipment shall be located a sufficient distance away from water resources (i.e., wetland/riparian boundary, creeks, drainages). The SPPP shall identify locations for portable pumps and stationary equipment that maximize protection of water resources and identify which equipment requires secondary containment with adequate capacity to contain a spill (i.e., a pump with 10-gallon fuel or oil capacity

should be placed in secondary containment capable of holding 15 gallons). A spill kit shall be maintained on site at all times.

- d. Immediately following backfill of the bore pits, disturbed soils shall be seeded and stabilized to prevent erosion and temporary sediment barriers left in place until restoration is deemed successful.

4 – SITE ASSESSMENT

As required by MM HAZ-2 of the MMCRP and Condition 17 of the CDP, the following section summarizes findings of previous site assessments and investigations that may be useful if hazardous materials are encountered during construction of the Project. These previous studies include Phase I Environmental Site Assessments (ESAs) performed at the South Bay Power Plant (SBPP) and the former liquid natural gas (LNG) site, and a Phase II Environmental Site Assessment (ESA) performed at the LNG site. Based on the results of these prior studies showing no evidence of contamination at the Project site, as summarized in Attachment C: Detailed Summary of Previous Reports, additional investigation and augmentation of the results of prior reports within this document was not warranted. As shown on Attachment A: Figure 1: Project Location Map, the SBPP is adjacent to the existing South Bay Substation and the Bay Boulevard Substation site is located within the LNG site. Please note that the former SBPP site has since been decommissioned and demolished.

4.1 SBPP SITE ASSESSMENT SUMMARY

The 2007 Phase I ESA, File No. 34318-000, for the SBPP identified three Recognized Environmental Conditions (RECs) as defined by the American Standard Testing Method 1527-05. The 2007 Phase I included the existing South Bay Substation as well as the SBPP transformer banks and the switchyard. The RECs included minor surface staining of soil near electrical equipment and evidence of volatile organic compounds (VOC), primarily Trichloroethylene (TCE), in groundwater directly upgradient of the existing South Bay Substation. A letter dated January 27, 2009 to the Department of Toxic Substances and Control (DTSC) discussing the groundwater VOC concentrations upgradient of the South Bay Substation clearly notes that the source of the VOC detections were from the former off-site automobile junkyard located immediately east and upgradient of the current South Bay Substation (Haley & Aldrich 2009a). In 2010 Haley & Aldrich completed another Phase I Investigation, assessing the same area and included no new RECs associated with the South Bay Substation (FEIR 2013).

Groundwater sampling conducted from 2006 to 2012 showed natural attenuation of VOC concentrations; that is, VOC concentrations decreased over this time period. Groundwater monitoring conducted in December 2012 showed no VOC detections in groundwater sampled directly down gradient of the existing South Bay Substation (Haley & Aldrich 2013). A closure letter from the County of San Diego Department of Environmental Health (DEH) dated April 22, 2013, stated that the former junkyard site was remediated and cleanup goals had been achieved.

The conclusion that the historic RECs found in the 2007 and 2010 ESAs were no longer a concern was also confirmed in Section D.8.1 of the Final Environmental Impact Report for the

Project on page D.8-2, which stated that “these are considered historical concerns and appear to have been remediated.” Accordingly, SDG&E does not anticipate encountering any contaminated soil or groundwater during demolition activities at the existing South Bay Substation site. Additional information regarding each REC is included in Attachment C: Detailed Summary of Previous Reports.

4.2 LNG SITE ASSESSMENT SUMMARY

In 2007 a Phase I ESA, File No. 34318-000, was conducted for the former LNG site. The RECs and historical RECs associated with the approximately 33-acre site included oil staining of surface soil at various locations around the site, a historic oil spill, historic mercaptan spill and use of herbicides/pesticides in the northwestern portion of the site, and the potential for fuel residue around the concrete pad associated with firefighting training performed by the Chula Vista Fire Department.

As a result of the findings of the Phase I ESA, a follow-up Phase II ESA was conducted at the LNG site to further investigate potential contamination below the ground surface. Depending on the depth and location of the samples, soil was tested for total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCB), VOC, metals, pesticides, and herbicide. In addition, some borings included collection of groundwater samples that were analyzed for total TPH and VOC. The results of the Phase II investigation concluded the following:

- One soil sample detected TPH-diesel range at a concentration of 330 milligram/kilogram (mg/kg). This TPH concentration is below the historical cleanup level of 1000 mg/kg.
- VOC and PCB detections were below the laboratory reporting limits (i.e. non-detectable) at all boring locations.
- Barium, chromium, copper, cobalt, vanadium, and zinc were detected in the soil samples; however, detection concentrations were below the published California Environmental Protection Agency for Southern California’s range of naturally occurring background levels.
- TPH and VOC were not detected in groundwater samples.

Accordingly, the results from the Phase I and II ESAs indicated that the proposed Bay Boulevard Substation site does not possess contamination with constituents sampled during the Phase II investigation. Moreover, of the three soil and groundwater samples obtained from the Bay Boulevard Substation site, TPH, PCB, and VOC were all non-detectable. Therefore, no hazardous materials are anticipated to be encountered during construction of the Project.

5 – PLAN IMPLEMENTATION

5.1 TRAINING

In accordance with MM HAZ-1a and CDP Condition 16 all Project personnel will receive training to implement this Plan, as well as applicable environmental laws and regulations related to hazardous materials handling, storage, and spill prevention and response measures, prior to construction. SDG&E will maintain sign-in sheets documenting participation of Project

personnel and will provide documentation to the CPUC on a regular basis and the CCC as requested.

In addition, Project personnel responsible for hazardous material release response activities will receive training as required by federal and state law, including Title 8 CCR Section 5194 (h), Title 8 CCR Section 5192 (e).

5.2 MONITORING

SDG&E will designate an experienced 40-hour HAZWOPER field representative (field representative) to monitor, enforce, and document adherence to the Plan for construction activities, as required by MM HAZ-1c and CDP Condition 16. The field representative may assist with identifying areas of potential contamination discovered during construction or caused by construction. The field representative will be on site as needed to monitor compliance with the Plan during removal of hazardous materials and will assist with implementation of measures necessary to prevent and minimize impacts to workers, the public, and the environment associated with hazardous materials. The field representative or their designee will perform inspections as follows:

- Routine Project site inspections during construction—including storage areas and construction staging areas, dumpsters, stockpiles, and other areas where trash and debris are collected—will be performed to review that hazardous material and wastes are being managed and disposed of properly. These inspections will occur weekly and will be documented during active construction at the site. Inspection records will be available for review by CPUC and other agencies during normal business hours upon request.
- Storm water that collects in secondary containment structures will be inspected prior to being discharged in accordance with the Project's SWPPP.
- Excavation and trenching operations will be monitored to identify signs of potential contamination as may be indicated by soil that is stained, odorous, or otherwise suspect. If contamination is suspected, the field representative will follow the procedures set forth in Section 5.4 Hazardous Materials Release Response to assess and determine any potential threat to human health and the environment and respond to the potential release.
- Jack-and-bore operations will be monitored by SDG&E's drilling contractor to identify any issues, including inadvertent releases of hazardous materials. The right-of-way and bore path will be monitored during jack-and-bore operations by construction personnel to identify any issues during drilling operations. If a release is identified, field personnel will follow the procedures set forth in Section 5.4 Hazardous Materials Release Response.

5.3 HAZARDOUS MATERIALS RELEASE PREVENTION

As provided by Section 25501(o) of the California HSC, hazardous materials include any material that poses a significant present or potential hazard to human health, safety, or the environment because of its quantity, concentration, or physical or chemical characteristics.

Materials and waste may be considered hazardous if they exhibit hazardous characteristics (i.e., toxicity, ignitability, corrosivity, or reactivity), which may include petroleum products, lubricants, and extremely hazardous substances. In addition, federal and state laws require that soils containing contaminants—such as lead, gasoline, and industrial solvents at concentrations above acceptable levels—be handled and disposed of as hazardous waste as discussed in Section 5.5 Hazardous Waste Management of this Plan.

Hazardous Material Storage Areas (HMSAs) will be staged in a manner to prevent releases, explosions, or other chemical reactions. Designated HMSAs on the Project will be properly signed, secured, and will follow all storage restrictions, container management rules, and reporting as required by local, state, and federal requirements. Materials stored at or above the local, state, and or federal thresholds will be subject to a Hazardous Materials Business Plan (HMBP) and a Spill Prevention Control and Countermeasure (SPCC) Plan per 40 Code of Federal Regulations (CFR) 112; CCR Title 19, Sections 2620-2732, CCR Title 24, Part 9, Section 80.115; and California HSC, Division 20, Chapter 6.95.

During construction, hazardous materials will be used as common work practice. Typical materials used during construction include petroleum-based products, such as diesel, gasoline, lubricating oils, transformer oil, grease, and universal wastes. Universal wastes include used batteries, used aerosol cans, and used light bulbs, and are subject to special hazardous waste disposal regulations under 40 CFR Part 273. Accidental releases may occur as a result of mishandled materials, improper storage practices, leaking vehicles and equipment, or equipment failures. SDG&E and its contractors will implement the following measures to prevent and minimize release of hazardous materials:

- Storage, handling, and transportation of flammable and combustible liquids, including gasoline, diesel fuel, and gas cylinders will be performed in accordance with rules developed under state and federal regulations Title 8 CCR Section 1740 and 29 CFR 1910.106, respectively. These regulations include use of a licensed hazardous material transporter, fire protection requirements, storage quantity limitations, and spacing and location requirements.
- Hazardous materials will be stored in signed designated areas located away from drainage areas and hazards, such as electrical outlets or overhead hazards, as feasible.
- Containers of hazardous materials will remain closed unless adding or removing material.
- Hazardous materials will be stored in a secured location to prevent the risk of damage, vandalism, or theft. A secured location shall mean an area that is gated, locked, guarded or otherwise under the control of Project personnel.
- Incompatible materials will be stored in segregated areas. Materials that are incompatible will not be placed in the same container or in an unwashed container that previously held such material.

- Personnel responsible for managing hazardous materials will be trained in proper handling, storage, and transportation requirements, as well as appropriate emergency response procedures.
- Equipment containing petroleum or other hazardous substances will be inspected on a regular basis for leaks or signs of deterioration that could cause a leak or release.
- Appropriate signage will be installed to depict potentially hazardous areas in accordance with Title 8 CCR Section 3340 and California Fire Code (CFC) Section 2703, et seq.
- A 25 foot no-smoking zone will be established in areas where flammable materials are stored in accordance with CFC Section 2703.7.1. Signs stating “No smoking or open flame” will be conspicuously placed in the area where flammable, combustible, or reactive waste is located. Flammable or combustible materials will be appropriately grounded (as necessary) and stored separately from vehicles and equipment.
- Hazardous materials will be stored in Department of Transportation (DOT)-approved containers or other compatible containers. When appropriate, hazardous materials will be stored in designated hazardous material storage areas and managed in accordance with this Plan.
- Storage locations of portable pumps, stationary equipment, and requirements for secondary containment will be coordinated on site with the Qualified Storm Water Practitioner (QSP) for the Project to protect water resources.
- Only compatible containers designated for storing hazardous materials will be used. If a container is found to be damaged or leaking, the damaged container will be transferred to an overpack drum or the contents will be transferred to a container that is in good condition, and the damaged container will be disposed of properly. The overpack drum will also be clearly labeled with the type of material and hazard classification.
- Containers will be clearly labeled with the content and hazard classification.
- Containers will be maintained in good condition, with no leaks, ruptures, bulges, etc.
- Project personnel will adhere to manufacturer’s recommendations on use, storage, and disposal of chemical products used during construction activities.
- Proper communication of hazardous chemicals which Project personnel may be exposed to will be implemented as required by Title 8 CCR Section 5194. This includes having Safety Data Sheets (SDS) for all hazardous materials used during construction available on site or readily accessible by Project personnel.
- Measures to prevent overfilling of fuel storage containers will be implemented. This may include use of a fuel gauge, fuel level alarms, or other devices as appropriate.

- If any areas are impacted by hazardous materials, dust control methods to control airborne contaminants will be employed for the protection of workers, the public, and the environment in accordance with Title 8 CCR Section 5155.
- Spill kits containing absorbent material and other spill response equipment sufficient to contain anticipated release scenarios will be clearly marked and readily accessible near designated hazardous material and waste storage areas, as well as jack-and-bore locations.
- Reasonable spill prevention measures, such as the use of spill-safe fuel cans and drip pans will be implemented, as appropriate, when transferring or using hazardous materials.
- Secondary containment will be used for storage tanks containing 55-gallons or more of oil. Deposited material will be removed from containment areas and from containment systems.
- All construction equipment and vehicles will be maintained in accordance with the manufacturer's recommendations to help prevent fluid leaks.
- Leaking equipment will not be permitted to enter the jobsite.
- Equipment repairs and refueling will be performed in a manner to prevent impact to waterbodies or groundwater (e.g., performing operations outside of resources when feasible, not leaving fueling activities unattended unless a pump shut-off valve is utilized, and utilizing drip pans).
- Best Management Practices (BMPs) outlined in the SWPPP will be followed to protect storm water.

In addition, hazardous materials stored on site during construction that would exceed threshold levels would require preparation of a HMBP and SPCC Plan. These thresholds are 55 gallons of liquid, 500 pounds of solids, or 200 cubic feet of gas for a HMBP and 1,320 gallons of oil stored in 55-gallon or larger containers for SPCC. If a HMBP is required, it will be submitted to the San Diego DEH within 30 days of bringing hazardous materials on site. The Plans will be available for review on site and will be updated as necessary throughout construction. A separate HMBP and SPCC Plan will be developed for implementation during the operation and maintenance phase of the Project as required by law.

5.4 HAZARDOUS MATERIALS RELEASE RESPONSE

Although all efforts will be taken to prevent an inadvertent release of hazardous materials during construction of the Project, if a release does occur, effective and prompt response will be implemented to help reduce the potential for exposure of hazardous materials to human health and the environment. In the event of a release or discovery of contaminated material, the following procedures will be implemented:

- Once discovery of a release has been made, the observer will contact the designated field representative and Environmental Inspector (EI).
- The appropriate Project personnel, along with the field representative or EI will work together to determine proper containment, cleanup, storage, and disposal of the release as described in Section 5.4.0 Containment and Cleanup Procedures of this Plan.
- The field representative or EI will contact the SDG&E Environmental Compliance Lead and the SDG&E Hazardous Materials Specialist (HMS) as needed to notify them of the release.
- If a release is reportable, notification will be made to the CPUC and other agencies as required by law, and described as follows:
 - a. Federally regulated hazardous materials, if released to the environment in any amount equal to or greater than their established Reportable Quantity (RQ), will require agency notification. If a spill is equal to or exceeds a RQ under federal regulations 40 CFR 302, the National Response Center (NRC), California Emergency Management Agency (CAL EMA), and the San Diego County DEH (Certified Unified Program Agency [CUPA]) will be immediately notified. In addition, a written report to Cal EMA will be submitted within 30 days, as appropriate. Records and test reports will be retained with the Project files for at least three years, and then will be archived.
 - b. Spills that reach navigable waters, spill on the ground within 500 feet of a surface water, well, or domestic water supply source, cause pollution of surface water or groundwater, meet or exceed Reportable Quantities (i.e., 42 gallons for oil), or cause a nuisance or a potential threat to public health will be reported to the CAL EMA, San Diego DEH and the NRC.
 - c. Spills that occur on a State of California highway will be reported to the California Highway Patrol.
 - d. Spills that threaten wildlife will be reported to the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS), as required.
 - e. Spills that threaten waters of the state or United States will be reported to the State Water Quality Control Board (SWQCB), Regional Water Quality Control Board (RWQCB), CCC, and U.S. Army Corps of Engineers (USACE), as appropriate.
 - f. If a release has the *potential* to enter the environment or pose a threat to human health, it *may* be reportable. Potential to enter the environment includes, a spill within a building that has active vents, drains, or grates that may seep into the environment, or a release to secondary containment if this area is pervious, or released hazardous material that could volatilize into the air. It cannot be

assumed because a release occurs within a covered area (i.e. building, garage, or porous asphalt) within the boundaries of the Project that appropriate response and agency reporting does not apply. If a release has the potential to harm human health or the environment, depending on the potential threat, the following agencies may be notified: San Diego DEH, NRC, CAL EMA, California Highway Patrol, SWQCB, CCC, CDFW, RWQCB and USACE.

It is the responsibility of the Owner or Operator (i.e., SDG&E) to make agency notifications if a reportable release occurs. If a release occurs as a result of any action caused by SDG&E's construction contractor, immediate communication with appropriate SDG&E personnel will be made in compliance with this Plan. Contact information for the agencies and personnel referenced above can be found in Attachment B: Contact List.

5.4.0 Containment and Cleanup Procedures

Containment of a hazardous material release will be performed by authorized Project personnel trained in spill response procedures. Cleanup personnel must wear the appropriate personal protective equipment (PPE) and be familiar with the waste storage procedures. Containment procedures that may be implemented during construction include, but are not limited to, the following:

- If the release is relatively small, absorbent pads and material will be applied to the surface of the release to absorb all of the liquid.
- Incidental releases of hazardous materials that can be absorbed, neutralized, or otherwise controlled safely at the time of release by employees in the immediate release area, will be immediately cleaned.
- Discharge into storm drains or other storm water conveyance systems will be prevented by obstructing those features that are located in the area of the release with plastic, booms, and/or earthen dikes.
- Releases will be secured and covered with plastic sheeting to protect the contamination from spreading during rainfall.
- The risk of a large release could occur during transformer filling and fueling operations. Fuel trucks containing transmission oil or diesel fuel typically contain a volume of approximately 10,000 gallons. If a large release of a petroleum-based product occurs, earthen ditches or dikes will be constructed around the release site to prevent the discharge from flowing off site or into waterways, and Project personnel will determine if a licensed emergency spill response contractor should be utilized. The licensed emergency spill response contractor that will be utilized in the event of a large release will be identified by SDG&E's construction contractor before to the start of construction.
- Drilling operations will cease in the event an inadvertent release associated with jack-and-bore activities occurs. The released material will be properly contained, cleaned up, and disposed of in compliance with applicable state and federal laws. In the event a release occurs in a sensitive resource or outside the approved right-of-way, agency

notification in accordance with Section 5.4 Hazardous Materials Release Response and cleanup would occur in coordination with the appropriate agencies.

- If it is determined that the release cannot be safely contained by Project personnel, the field representative, EI or Contract Administration (CA) will determine if work should cease in the area, if emergency assistance is necessary, and if containment procedures can be implemented safely. If it is decided that emergency assistance is necessary, the field representative, EI or CA will contact 911.
- Appropriate signage will be placed around spill to prevent individuals and vehicles from entering larger release areas until the field representative or HMS is able to assess the situation for safety.

Once the release of hazardous material has been contained, cleanup personnel will clean the contaminated area by implementing the following measures:

- Appropriate absorbent materials will be used to thoroughly clean the spill area to the extent possible.
- Spills will not be diluted with water or other liquids for purposes of mitigating the spill. If the use of water or other liquids is necessary for final cleaning or dust control, the water or other liquids will be collected and disposed of in accordance with all local, state, and federal regulations.
- All contaminated material, including rocks, mulch, soil, and cleanup material, will be removed, stored, and disposed of as a hazardous waste in accordance with all local, state, and federal regulations.

5.5 HAZARDOUS WASTE MANAGEMENT

This section describes the measures that will be taken during construction of the Project to address the proper procedures for the storage, management, and disposal of hazardous wastes in accordance with Project mitigation measures and permit conditions, as well as applicable state and federal regulations (CCR Title 22 Section 66261.1-66261.7 and 40 CFR 260, et seq., respectively).

To properly manage all forms of hazardous wastes that may be generated during construction of the Project, all Project personnel will adhere to the requirements of this Plan and the following waste procedures will be implemented:

- Littering will be prohibited. Food-related garbage and trash will be deposited in designated containers and removed from the Project on a regular basis.
- Waste bins that may potentially contain hazardous materials will be covered (i.e., scrap-metal bins with material contained fuel or oil residue). These containers will be emptied prior to reaching capacity.

- Hazardous waste will be secured in appropriate containers and stored to protect from weather and potential vandalism, as described in Section 5.3 Hazardous Materials Release Prevention.
- Hazardous waste will be transported only by state-registered hazardous waste haulers to a properly permitted treatment, storage, or disposal facility approved by SDG&E. These haulers will be registered by the State Department of Toxic Substances Control and California Highway Patrol, as required by law.
- Used rags and gloves impacted with hazardous material will be placed into designated containers and disposed of at a proper waste-handling facility or laundered at an approved facility.
- Empty containers that previously held hazardous materials will be marked “Empty” with the date that the drum was emptied. These containers will be properly disposed of and will not be stored on site for more than one year [22 CCR 66261.7(f)].
- Work areas will be kept clean of unneeded pollutants to minimize the potential for an inadvertent release.
- Absorbent pads, contaminated clothing and gloves, and other waste materials that are used during cleanup procedures will be placed in an approved, labeled, waste container for disposal. All cleanup debris will be considered hazardous waste, unless a waste characterization is performed and it is demonstrated to be non-hazardous.
- Hazardous wastes that fall under universal waste management rules (i.e., used batteries, “empty” aerosol cans, used electronic devices, used light bulbs) are required to be labeled as “Universal Waste” and will include the generator’s name, address, and phone number accumulation start date, and contents. Universal waste disposal will occur within one year and managed in accordance with Title 22 CCR Section 66273.
- All containers holding waste will be appropriately labeled in accordance with Title 22 CCR Section 66262.34 (f) and will include the generator’s name, address, and phone number; accumulation start date; “Hazardous Waste;” characteristic; physical state; and the name and address of the facility where the waste was generated. Hazardous waste disposal shall occur within 90 days, or as required by law.

SDG&E’s designated field representative will be contacted in the event that Project personnel are unsure of the proper waste procedures to be implemented in the event of a hazardous material spill, leakage, or discovery. Contact information for SDG&E’s designated Hazardous Materials Specialist is provided in Attachment B: Contact List.

5.5.0 Waste Storage Locations

Hazardous wastes generated or discovered during construction will be stored in a well-signed Hazardous Waste Storage Area (HWSA). During construction, waste may be stored at locations that have an HMBP, such as the South Bay Substation, Bay Boulevard Substation site, or at contractor staging areas. Construction waste may be stored at other Project locations for short

periods of time, but hazardous waste will be removed at the end of the day and transported to a designated HWSA. An HMBP will be developed for wastes stored above threshold quantities at Project locations as required by law. A copy of the HMBP will be submitted to DEH within 30 days of bringing or generating hazardous wastes on site, in compliance with 20 HSC 6.95.

5.5.1 Demolition Waste

Dismantling of the South Bay Substation could uncover oil, lead-based paint, asbestos-containing material (ACM), and PCBs. Prior to initiating demolition work, which is anticipated to begin in approximately three years, a Hazardous Materials Survey will be conducted to identify any potential hazardous materials at the existing substation. If hazardous materials are identified, a work plan will be developed and submitted to the appropriate agency, such as DTSC, San Diego County DEH, and San Diego Air Pollution Control District, as required. Removal of any hazardous materials found on site will occur in accordance with applicable local, state and federal regulations by a properly licensed and trained contractor prior to demolition and any oil-containing equipment will be drained and disposed of in accordance with the measures described in Section 5.5.2 Waste-Specific Management and Disposal Requirements.

The Hazardous Material Survey will occur immediately following energization of the Bay Boulevard Substation, with an anticipated duration of approximately 2 to 4 months. In the unlikely event that revisions to this Plan are necessary to adequately address management of hazardous substances associated with demolition of the existing South Bay Substation, this Plan will be amended and resubmitted to CPUC and CCC prior to the start of demolition activities.

5.5.2 Waste-Specific Management and Disposal Requirements

The following measures will be utilized to manage hazardous waste found (i.e., uncovered during grading and construction) or produced during construction of the Project:

- Drilling residue and drilling fluids will be characterized and if found to be hazardous, will be disposed of in accordance with applicable regulations. This includes potential hazardous material released from jack-and-bore operations, such as non-pressurized lubricating fluids, in accordance with MM HYDRO-2c.
- Waste generated as part of construction procedures, such as water-laden dredged materials and drilling mud, will be contained and not allowed to flow into drainage channels or receiving waters.
- All broken asphalt and concrete will be collected and recycled when feasible, or properly disposed of in accordance with local, state, and federal requirements.
- Hazardous waste will be disposed of at a SDG&E-approved, appropriately permitted and licensed disposal facility in accordance with all local, state, and federal requirements.

6 – REFERENCES

- California Code of Regulations. Title 8, Articles 7, 32, 107, 109.
<https://govt.westlaw.com>. Accessed June 2014.
- California Code of Regulations. Title 19, Division 2, Chapter 4.
<https://govt.westlaw.com>. Accessed June 2014.
- California Code of Regulations. Title 24, Part 9, Section 80. <https://govt.westlaw.com>.
Accessed June 2014.
- California Code of Regulations. Title 22 Section 66273. <https://govt.westlaw.com>.
Accessed June 2014.
- California EPA (CalEMA). Hazardous Waste Generator Requirements Fact Sheet. 2002.
http://www.ac.gov.org/forms/aceh/HW_Generator_Requirements.pdf. Accessed
May 14, 2014.
- California Fire Code. Title 24, Part 9, Chapter 27, Section 2703.
[http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_27_sec003](http://publicecodes.cyberregs.com/st/ca/st/b300v10/st_ca_st_b300v10_27_sec003.htm)
.htm. Accessed June 2014.
- California Health and Safety Code. Chapter 6.95 Articles 1 and 2. Online.
<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25500-25520>. Accessed May 30, 2014.
- California State Water Resources Control Board GEOTRACKER. Online.
http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000004646
- Code of Federal Regulations. Title 40, Part 112, 260, 302, et seq.,
http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr112_main_02.tpl. Accessed June 2014.
- Code of Federal Regulations. Title 29, Section 1910. <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=386302abbfa1b0714d42f4e5995fcd14&ty=HTML&h=L&n=29y5.1.1.1.8&r=PART>. Accessed June 2014.
- County of San Diego. Department of Environmental Health. Hazardous Materials. HazMat Business Plan (HMBP). Online. <http://www.sdcountry.ca.gov/deh/hazmat/hazmat.html>.
Accessed May 11, 2014.
- Department of Toxic Substances Control. 2014. California Code of Regulations, Title 22, Section 66262.34(f). Online.
http://www.dtsc.ca.gov/LawsRegsPolicies/Title22/upload/OEARA_REG_Title22_Ch12_Art3.pdf. Accessed May 30, 2014.
- Haley & Aldrich Inc. Phase I Environmental Site Assessment of the Existing Electrical Substation/Switchyard South Bay Power Plant. May 2007.









- Haley & Aldrich, Inc. Phase I Environmental Site Assessment of the Former SDG&E LNG Facility. May 2007.
- Haley & Aldrich, Inc. Phase II Subsurface Investigation, San Diego Gas & Electric Former SDG&E LNG Facility in Chula Vista, CA. June 2007.
- Haley & Aldrich, Inc. Report on SWMU 16 Source of VOC in Groundwater, South Bay Power Plant, Chula Vista, CA. January 2009a.
- Haley & Aldrich, Inc. Fourteenth Groundwater Monitoring Event. South Bay Power Plant, Chula Vista CA. February 2013.
- South Bay Substation Project. Final Environmental Impact Report/Environmental Impact Statement. 2013. Online.
<http://www.cpuc.ca.gov/environment/info/dudek/sbsrp/FinalEIR.htm>. Accessed May 19, 2014.
- South Bay Substation Relocation Project. Proponent Environmental Assessment (PEA) Volume II. June 2010. <http://www.cpuc.ca.gov/environment/info/dudek/sbsrp/PEA.htm>. Accessed May 30, 2014.

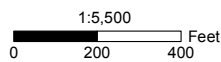
ATTACHMENT A: FIGURE 1: PROJECT LOCATION MAP



Figure 1: Project Vicinity Map

South Bay Substation Relocation Project

- | | | | |
|---|-------------------------------|---|------------------------------------|
|  | Former LNG Site |  | Limits of Temporary Disturbance |
|  | Existing South Bay Substation |  | Permanent Cut and Fill |
|  | Former South Bay Power Plant |  | Permanent Substation and Driveways |
|  | Substation Wall | | |
|  | 12.42-Acre Parcel Boundary | | |



ATTACHMENT B: CONTACT LIST

Due to its confidential nature, Attachment B: Contact List has been removed.

ATTACHMENT C: DETAILED SUMMARY OF PREVIOUS REPORTS

2007 Phase I Environmental Site Assessment at South Bay Power Plant

In 2007 Haley and Aldrich conducted a Phase I site assessment to identify and determine any areas of *Recognized Environmental Concerns* (RECs) at the South Bay Power Plant (SBPP). Phase I identified three RECs associated with the site as defined by the American Standard Testing Method 1527-05. The site under investigation included a 7.4-acre area located entirely within the boundary of the SBPP (Attachment A: Figure 1: Project Location Map). The RECs from the 2007 Phase I are as follows:

REC #1 *Stained Soil beneath switch reservoirs*

Explanation *Sporadic minor surface staining was observed on surface soil where electrical equipment reservoirs were observed beneath the transformers. Although fluids (condensation or oil) were observed on each of the reservoirs present, staining on surface soil was only observed at four locations, at the time of the site walk.*

REC #2: *Stained Soil beneath central 69 KV Transformer*

Explanation *Surface staining was observed beneath the transformer, within the secondary containment.*

REC #3: *Upgradient VOC impacted groundwater*

Explanation *VOCs, primarily TCE, have been detected in groundwater directly upgradient of the substation. The source for the VOCs appears to be an off-site former automobile junk yard located immediately east of Interstate (I-) 5 Freeway.*

Impacted soil found in REC # 2 was mitigated in 2009 when the transformer was removed. Soil staining found in REC # 1 was not observed during a 2010 site assessment follow up (Haley and Aldrich 2010).

As stated in REC # 3, VOC-impacted groundwater was discovered upgradient of the South Bay Substation. Historic groundwater samples concluded that the groundwater upgradient of the South Bay Substation was contaminated with VOCs. In 2009 Haley and Aldrich submitted to the Department of Toxic Substances Control (DTSC) a letter summarizing available information regarding the automobile junkyard believed to be responsible for the groundwater contamination. The letter concluded the presence of VOCs found in groundwater monitoring wells on SBPP property was the result of operations of the former automobile junkyard. Results from groundwater sampling concluded that there was a decreasing trend in VOC concentrations as the distance from the junkyard increased. This follows the pattern of groundwater flow and direction in this area, which flows from the former junkyard, east to west, to the area upgradient of the South Bay Substation site. Groundwater sampling conducted from 2006 to 2012 showed natural attenuation of VOC concentrations. In December 2012 samples collected down gradient of the South Bay Substation indicated no detections of VOCs (Haley & Aldrich 2013). In April of 2013, the County of San Diego Department of Environmental Health, Land and Water Quality Division issued a letter that cleanup goals established for the site had been met, and the case was

subsequently closed. There are no other known or historic groundwater issues at the former SBPP site.

2007 Phase I and Phase II Environmental Site Assessment at Former Liquefied Natural Gas Site

In 2007 Haley and Aldrich also conducted a Phase I investigation of the former liquefied natural gas (LNG) site, previously owned by SDG&E. The former LNG site is approximately 33 acres that is currently owned by the San Diego Unified Port District. The following RECs and Historical RECs (HRECs) were identified:

REC #1: *Potential Impacted Soil at Vaporizer Unit Piping*

Explanation: *During operation of the LNG facility, oil from the piping of a Vaporizer Unit was reportedly spilled onto the ground next to the unit. There has been no assessment of the soil in this area.*

REC #2: *Potential Impacted Soil at Odorizer Unit*

Explanation: *During the operation of the LNG facility, oil from an Odorizer Unit was reportedly spilled onto the ground. There has been no assessment of the soil around the unit.*

REC #3: *Previous Oil Spill Northwest Portion of the Site*

Explanation: *A 500-gallon oil spill reportedly occurred on the northwest side of the site in approximately 1974. There was minimal clean up at the time and confirmation sampling was not performed. The extent of contamination if any is unknown.*

REC #4: *Abandoned Pipe Containing Oil and Water near Former Vaporizer*

Explanation: *During the site visit an abandoned pipe containing, what appeared to be a mixture of oil and water, was observed on the north side of the site, next to the concrete pad of a Former Vaporizer Unit. The soil immediately around the pipe was discolored and appeared to have been impacted.*

REC #5: *Herbicides/Pesticides in Soil*

Explanation: *Reportedly herbicides/pesticides were used on the northwestern portion of the subject site for weed control. There is a potential for shallow residual herbicide/pesticide in soil in this area of the site.*

REC #6: *Fire Fighting Training on Concrete Pads*

Explanation: *Reportedly, Chula Vista Fire Department conducted firefighting training on the concrete pad. As they may have used fuel to start the fire, and then water to wash it off of the*

concrete pad, there is a potential for shallow residual petroleum product in soil in this area of the site.

HREC #1:

According to the previous maintenance manager of the LNG facility, a 1,600-gallon spill of water and mercaptan, an odorizer for natural gas, occurred in the northwest side of the subject site in early 1980s. The spill reportedly entered into underground utility trenches. A minimal cleanup of the impacted soil involving removing the top layer of the soil was reportedly conducted. Furthermore, during the previous soil sampling at the site soil samples from this area were collected and analyzed for mercaptan and results did not show any impact.

In summary, Haley and Aldrich identified six RECs and one HREC located within the boundary of the former LNG site. Due to their findings of the Phase I, a follow up subsurface investigation was conducted to determine potential contamination below the ground surface. Haley and Aldrich oversaw the advancement of 10 soil borings ranging between five and 20 feet below ground surface (bgs) and collected six groundwater samples at select boring locations from approximately 20 feet bgs (see Figure 3). Depending on the depth and location of the borings, soil was sampled for total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and metals. Certain borings were sampled for pesticides and herbicide. Groundwater samples were analyzed for total TPH and VOCs.

The results of the Phase II investigation concluded the following:

- Only one soil sample detected TPH-diesel range at a concentration of 330 mg/kg. This TPH concentration is below the historical cleanup level of 1000 mg/kg.
- VOC and PCBs detections were below the laboratory reporting limits, or non-detect at all boring locations.
- Barium, chromium, copper, cobalt, vanadium, and zinc were detected in the soil samples; however, detection concentrations were below the published California Environmental Protection Agency for Southern California's range of naturally occurring background levels.
- TPH and VOCs were not detected in the groundwater samples.

Results from the 2007 subsurface soil investigation indicate the area proposed for the substation relocation is not contaminated with constituents sampled during the Phase II investigation. Only three of the 10 soil and water samples are located within the footprint of the Project area. Of these three sample locations TPH, PCBs, and VOCs were all non-detect in both soil and groundwater. Therefore, no hazardous materials or substances are expected to be encountered during the grading, construction, or operations of the Project. Should any potentially hazardous

materials or waste be encountered during the grading and construction phase, SDG&E will ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Department of Toxic Substances Control and San Diego County Department of Environmental Health (DEH). Excavated soils impacted by hazardous waste or materials will be characterized and disposed of in accordance with CCR Title 14 and Title 22, the Department of Toxic Substances Control, and the San Diego County DEH.

2010 Phase I Environmental Site Assessment Update at a Portion of the Former Liquefied Natural Gas Site

In 2010 Haley and Aldrich conducted a Phase I update to their 2007 Phase I site assessment of the former LNG site. The 2007 Phase I included the entire 33 acres of the former LNG site which includes the site of the Bay Boulevard Substation. The 2010 Phase I was conducted only for the 22-acre Bay Boulevard Substation site. The updated Phase I revealed no evidence of RECs in connection with the 22-acre Bay Boulevard Substation area.



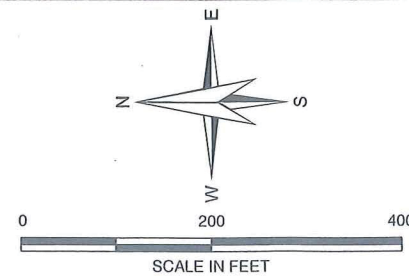
Former LNG Site-Chula Vista				
Proposed Sampling Locations and Rationale				
Boring #	Soil Sample	GW Sample	Location	Rationale
1	X	X	Southern Side of the Site	Data Gap-No Previous Sampling Data Available
2	X	No	East Side of the Site	Data Gap-No Previous Sampling Data Available
3	X	X	East Side of the Site-Center	Data Gap-No Previous Sampling Data Available
4	X	X	Inside Bermed Area-South Central	Data Gap-No Previous Sampling Data Available
5	X	No	Inside Bermed Area-South of Small LNG Tank Pad	Data Gap-No Previous Sampling Data Available
6	X	No	Inside Bermed Area-Southeast of Large LNG Tank Pad	Data Gap-No Previous Sampling Data Available
7	X	X	North Side of the Site-LNG Plant 1	Dumping of oil into the soil via pipe
8	X	X	Northwest Side of the Site-LNG Plant 2	500-gallon oil spill
9	X	No	North Side of the Site-LNG Plant 2	Abandoned oil with oil/water mix
10	X	X	North Side of the Site-LNG Plant 2	Odorize-Plant 2- Discolored soil with oil dumping during operation

G:\94318_SBA\PHIL\10000\GIS\MapProjects\94318-000-0003-HASoilSampleLoc.mxd

LEGEND

- SOIL SAMPLE LOCATION BY HALEY & ALDRICH (APRIL 2007)
- ⊕ SOIL AND GROUNDWATER SAMPLE LOCATION BY HALEY & ALDRICH (APRIL 2007)
- ▭ SITE BOUNDARY

NOTE:
ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



HALEY & ALDRICH FORMER LIQUEFIED NATURAL (LNG) FACILITY

SOIL AND GROUNDWATER SAMPLE LOCATIONS

SCALE: AS SHOWN
MAY 2007

FIGURE 3