

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

In the Matter of:

STATEWIDE ENVIRONMENTAL
SERVICES, INC.
12618 S. MAIN STREET
LOS ANGELES, CALIFORNIA
90061-2317

EPA ID# CAD 000088252;

Matthew Stewart, as an individual;

Firestone Environmental Services,
Inc.; and

Firestone Environmental Services, Inc.
DBA: Prime Environmental Services
Company

Respondents.

Docket HWCA P3-07/08-006

ENFORCEMENT ORDER

Health and Safety Code
Section 25187

INTRODUCTION

1.1. Parties. The State Department of Toxic Substances Control (Department or DTSC) issues this Enforcement Order (Order) to Matthew Stewart as an individual, Statewide Environmental Services, Inc. (SES), Firestone Environmental Services, Inc. (Firestone) and Firestone Environmental Services, Inc. DBA Prime Environmental Services Company (Respondents). Matthew Stewart is President of SES and Firestone and owner/operator of the SES hazardous waste facility described in Section 1.2 below.

1.2. Site. Respondents handled and stored hazardous waste at the SES facility at 12618 South Main Street, Los Angeles, California (Facility or Site).

1.3. Interim Status. The Department authorized Respondents Matt Stewart and SES to manage hazardous waste through an interim status document originally issued to R & R Industrial Waste Haulers on April 6, 1981 and revised to reflect the change of ownership to Respondents Matt Stewart and SES on August 10, 1990. On May 17, 1999, Respondent Stewart as President of Respondents SES and Firestone entered into a settlement agreement with the Department in which the Respondents agreed to cease accepting hazardous waste at the Facility, submit a revised closure plan to the Department for review and approval and close the Facility in accordance with the approved closure plan. The SES Facility ceased accepting waste in approximately July 1999. On July 11, 2000, the Department approved the final revised closure plan for the Facility (the Closure Plan). To date, Respondents have not complied with the settlement agreement because they have not completed closure.

1.4. Jurisdiction. Section 25187 of the Health and Safety Code authorizes the Department to order action necessary to correct violations and assess a penalty when the Department determines that any person has violated specified provisions of the Health and Safety Code or any permit, rule, regulation, standard, or requirement issued or adopted pursuant thereto.

1.5. Exhibits. All exhibits attached to this Order are incorporated herein by this reference.

1.6. Applicable Statutes and Regulations. Copies of the statutes and regulations applicable to this Order are attached as Exhibit A.

DETERMINATION OF VIOLATIONS

2. The Department has determined that:

2.1. Respondents violated California Code of Regulations, title 22, section 66265.111 in that Respondents have failed to close the Facility in a manner that meets the closure standard established in section 66265.111.

2.2 Respondents violated California Code of Regulations, title 22, section 66265.112 , including, but not limited to subsections (b) and (c), in that Respondents have failed to implement, amend and modify the Closure Plan to meet regulatory requirements. Specifically, the Closure Plan requires that it be amended to include a groundwater investigation component. Respondents have failed to amend and implement the Closure Plan to include this component. Respondents have also failed to amend and modify the Closure Plan to reflect an unexpected event (discovery of hazardous waste releases after partial closure of the Facility) that requires modification of the Closure Plan (see section 66265.112(c) (1) (C), (c)(2) and (4)). Further, Respondents have failed to: characterize and determine the full nature and extent of a release and prescribe methods for sampling and testing and determining the extent of decontamination required to satisfy the closure performance standard (see section 66265.112 (b) (4) and (5)). Respondents have also failed to make Department requested modifications, including the modifications described above and a modification to address the contingency for installation of off-site wells and installation of off-site vapor probes to determine the potential risk to humans and the nature and extent of contamination (see section 66265.112 (c) (4)).

2.3 Respondents have violated California, Health and Safety Code section 25246 (b) in that Respondents have not modified and updated the Closure Plan as requested by the Department.

2.4 Respondents have violated California Code of Regulations, title 22, section 66265.113 in that Respondents have not closed the Facility within required time periods.

2.5 Respondents have violated California Health and Safety Code section 25248 in that Respondents have not carried out the Closure Plan during the closure period required by law.

SCHEDULE FOR COMPLIANCE

3. Based on the foregoing Determination of Violations, IT IS HEREBY ORDERED THAT:

3.1.1. Within one hundred eighty (180) days of the effective date of this Order, Respondents shall implement and complete all the tasks in the Soil Gas and Groundwater Investigation Work Plan (Attached as Exhibit B) as modified by the document titled, "Attachment 1 DTSC Comments on April 6, 2007 Work Plan Submitted by SES/Matt Stewart" and attached hereto as Exhibit C. This task includes submittal of a Draft Soil Gas and Groundwater Investigation Report, documenting the results of the implementation of the Soil Gas and Groundwater Investigation Workplan (Exhibit B). The Soil Vapor and Groundwater Investigation Work Plan (Exhibit B) shall be implemented in a manner consistent with the Scope of Work for a RCRA Facility Investigation contained in Exhibit D. Respondents shall perform the work required by this Order in a manner consistent with: the Soil Vapor and Groundwater Investigation Work Plan (Exhibit B) and as modified by the document titled, "Attachment 1 DTSC Comments on April 6, 2007 Work Plan Submitted by SES/Matt Stewart" (Exhibit C);

Scopes of Work (Exhibits D through H); the DTSC-approved Facility Closure Plan approved by DTSC on July 11, 2000 and any other DTSC-approved Workplans; the California Health and Safety Code and other applicable state and federal laws and their implementing regulations; and applicable DTSC or U.S. EPA guidance documents. Applicable guidance documents include, but are not limited to, the "RCRA Facility Investigation (RFI) Guidance" (Interim Final, May 1989, EPA 530/SW-89-031), "RCRA Groundwater Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986), "Test Methods For Evaluating Solid Waste" (SW-846), and "Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA 530/SW-85-031, July 1986).

3.1.1.1 Within fourteen (14) days from the effective date of this Order, Respondents shall designate a Project Coordinator, name the contractors to carry out the terms of this Order, and notify DTSC in writing.

3.1.1.2 On the first day of the month following the effective date of this Order, Respondents shall submit the first Progress Report and shall continue submitting reports at the beginning of every quarter thereafter. As this is a phased investigation, separate progress reports and a final report that summarizes the findings from all phases of the investigation shall be submitted to DTSC. DTSC will review the RFI Report(s) and notify Respondents in writing of DTSC's approval or disapproval.

3.1.1.3. The Draft Soil Vapor and Groundwater Investigation Report shall include a Description of Current Conditions. The Description of Current Conditions shall contain an assessment of interim measures. The assessment shall include options for interim measures that could be implemented at the Facility. The Draft

Report shall also identify any additional data needed for making decisions on interim measures. This new data or information shall be collected during the early stages (i.e. first 90 days) of the Soil Vapor and Groundwater Investigation Work Plan (Exhibit B) and in accordance with the document titled, "Attachment 1 DTSC Comments on April 6, 2007 Work Plan Submitted by SES/Matt Stewart" (Exhibit C). DTSC will review the Respondents' assessment and determine which interim measures, if any, Respondents shall implement at the Facility. If deemed appropriate by DTSC, such determination may be deferred until additional data are collected. The description of current conditions shall include: contaminant concentration contour maps in plan and cross sectional views for all contaminants of concern in soil, soil vapor, and ground water. The Draft Report shall include all data collected by DTSC, Respondents, and the Respondents' consultants and subcontractors. The Draft Report shall include data tables and text summarizing all data collected to date, groundwater elevation data, groundwater elevation maps, well construction logs, chain of custodies for all sampling and all analytical data. The Draft Report shall contain conclusions and recommendations regarding remedies, interim measures, evaluation of data gaps, and proposals/objectives for future work to eliminate potential data gaps.

3.1.1.4 Within ninety (90) days of receiving DTSC comments on the Draft Soil Gas and Groundwater Investigation Report (required by Exhibit B) , Respondents shall complete the Final Soil Gas and Groundwater Investigation Report.

3.1.1.5 Upon completion of the Final Soil Gas and Groundwater Investigation Report, and in the event that it indicates that further investigation is necessary, Respondents shall, within thirty (30) days after completion of the Final Soil

Gas and Groundwater Investigation Report , submit a work plan to DTSC for its review and approval, which provides for Respondents to conduct further investigation in order to identify and delineate the contamination as described in section B, item 12 of Exhibit C, "DTSC Comments on April 6, 2007 Work Plan Submitted by SES/Matt Stewart."

3.1.1.6 In the event a workplan is required to be completed pursuant to section 3.1.1.5, Respondents shall within thirty (30) days after its completion, submit remediation options for review and approval by DTSC as outlined in section 10 of the approved Closure Plan and shall implement the approved remediation option within the timeframe approved by DTSC.

3.1.1. 7. In the event Respondents identify an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous waste constituents, or discovers new solid waste management units not previously identified, Respondents shall notify the DTSC Project Coordinator orally within forty eight (48) hours of discovery and notify DTSC in writing within ten (10) days of discovery summarizing the findings, including the immediacy and magnitude of the potential threat to human health and/or the environment. Within thirty (30) days of receiving DTSC's written request, Respondents shall submit to DTSC an IM Workplan for approval. If DTSC determines that immediate action is required, the DTSC Project Coordinator may orally authorize the Respondents to act prior to DTSC's receipt of the IM Workplan.

3.1.1. 8. If at any time, DTSC finds that on-site workers and/or, occupants of nearby residences or commercial buildings are being exposed to levels of hazardous constituents in soil vapor migrating into indoor air which could cause a threat

to human health, Respondents shall within ninety (90) days submit to DTSC a Workplan for the implementation of Interim Measures ("IM Workplan"). The IM Workplan is subject to approval by DTSC and shall provide for the performance of all Interim Measures necessary to achieve stabilization at the Facility. The IM Workplan shall include a schedule for submitting to DTSC an IM Operation and Maintenance Plan and IM Plans and Specifications. The IM Workplan, IM Operation and Maintenance Plan, and IM Plans and Specifications shall be developed in a manner consistent with the Scope of Work for Interim Measures Implementation appended as Exhibit I.

3.1.1. 9. If DTSC identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous waste constituents, or discovers new solid waste management units not previously identified, DTSC will notify Respondents in writing. Within thirty (30) days of receiving DTSC's written notification, Respondents shall submit to DTSC for review and approval an IM Workplan that identifies Interim Measures that will mitigate the threat.

3.2. Submittals. All submittals from a Respondent pursuant to this Order shall be sent simultaneously to:

Chief
Southern California Permitting and Corrective Action Branch
Department of Toxic Substances Control
1011 N. Grandview Avenue
Glendale, California 91201

3.3. Communications. All approvals and decisions of the Department made regarding submittals and notifications will be communicated to Respondents in writing by the Branch Chief, Department of Toxic Substances Control, or his/her designee. No informal advice, guidance, suggestions, or comments by the Department regarding

reports, plans, specifications, schedules, or any other writings by Respondents shall be construed to relieve Respondents of the obligation to obtain such formal approvals as may be required.

3.4. Department Review and Approval. If the Department determines that any report, plan, schedule, or other document submitted for approval pursuant to this Order fails to comply with the Order or fails to protect public health or safety or the environment, the Department may:

- a. Modify the document as deemed necessary and approve the document as modified, or
- b. Return the document to Respondents with recommended changes and a date by which Respondents must submit to the Department a revised document incorporating the recommended changes.

3.5. Compliance with Applicable Laws: Respondents shall carry out this Order in compliance with all local, State, and federal requirements, including but not limited to requirements to obtain permits and to assure worker safety.

3.6. Endangerment during Implementation: In the event that the Department determines that any circumstances or activity (whether or not pursued in compliance with this Order) are creating an imminent or substantial endangerment to the health or welfare of people on the site or in the surrounding area or to the environment, the Department may order Respondents to stop further implementation of this Order for such period of time as needed to abate the endangerment. Any deadline in this Order directly affected by a Stop Work Order under this section shall be extended for the term of the Stop Work Order.

3.7. Liability: Nothing in this Order shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current, or future operations of Respondents. Notwithstanding compliance with the terms of this Order, Respondents may be required to take further actions as are necessary to protect public health or welfare or the environment.

3.8. Site Access: Access to the site shall be provided at all reasonable times to employees, contractors, and consultants of the Department, and any agency having jurisdiction. Nothing in this Order is intended to limit in any way the right of entry or inspection that any agency may otherwise have by operation of any law. The Department and its authorized representatives shall have the authority to enter and move freely about all property at the Site at all reasonable times for purposes including but not limited to: inspecting records, operating logs, and contracts relating to the Site; reviewing the progress of Respondents in carrying out the terms of this Order; and conducting such tests as the Department may deem necessary. Respondents shall permit such persons to inspect and copy all records, documents, and other writings, including all sampling and monitoring data, in any way pertaining to work undertaken pursuant to this Order.

3.9. Data and Document Availability. Respondents shall permit the Department and its authorized representatives to inspect and copy all sampling, testing, monitoring, and other data generated by Respondents or on Respondents' behalf in any way pertaining to work undertaken pursuant to this Order. Respondents shall allow the Department and its authorized representatives to take duplicates of any samples collected by Respondents pursuant to this Order. Respondents shall maintain a central

depository of the data, reports, and other documents prepared pursuant to this Order. All such data, reports, and other documents shall be preserved by Respondents for a minimum of six years after the conclusion of all activities under this Order. If the Department requests that some or all of these documents be preserved for a longer period of time, Respondents shall either comply with that request, deliver the documents to the Department, or permit the Department to copy the documents prior to destruction. Respondents shall notify the Department in writing at least six months prior to destroying any documents prepared pursuant to this Order.

3.10. Government Liabilities: The State of California shall not be liable for injuries or damages to persons or property resulting from acts or omissions by Respondents or related parties in carrying out activities pursuant to this Order, nor shall the State of California be held as a party to any contract entered into by Respondents or its agents in carrying out activities pursuant to the Order.

3.11. Incorporation of Plans and Reports. All plans, schedules, and reports that require Department approval and are submitted by Respondents pursuant to this Order are incorporated in this Order upon approval by the Department.

3.12. Extension Request: If Respondents are unable to perform any activity or submit any document within the time required under this Order, the Respondents may, prior to expiration of the time, request an extension of time in writing. The extension request shall include a justification for the delay.

3.13. Extension Approvals: If the Department determines that good cause exists for an extension, it will grant the request and specify in writing a new compliance schedule.

OTHER PROVISIONS

4.1. Additional Enforcement Actions: By issuance of this Order, the Department does not waive the right to take further enforcement actions, including, but not limited to, amending this Order to include penalties, or issuing an Order for penalties.

4.2. Penalties for Noncompliance: Failure to comply with the terms of this Order may also subject Respondents to costs, penalties, and/or punitive damages for any costs incurred by the Department or other government agencies as a result of such failure, as provided by Health and Safety Code section 25188 and other applicable provisions of law.

4.3. Parties Bound: This Order shall apply to and be binding upon Respondents, and their officers, directors, agents, employees, contractors, consultants, receivers, trustees, successors, and assignees, including but not limited to individuals, partners, and subsidiary and parent corporations.

4.4. Time Periods. "Days" for purposes of this Order means calendar days.

4.5. Compliance with Waste Discharge Requirements: Respondents shall comply with all applicable waste discharge requirements issued by the State Water Resources Control Board or the Los Angeles Regional Water Quality Control Board.

RIGHT TO A HEARING

5. Respondents may request a hearing to challenge the Order. Appeal procedures are described in the attached Statement to Respondents.

EFFECTIVE DATE

6. This Order is final and effective twenty days from the date of mailing, which

is the date of the cover letter transmitting the Order to Respondents, unless Respondents request a hearing within the twenty-day period.

Date of Issuance: September 27, 2007

Original signed by Jose Kou _____
Jose Kou, P.E.
Chief
Southern California Permitting and
Corrective Action Branch
Department of Toxic Substances Control

Exhibit A

25246. (a) Each owner or operator of a hazardous waste facility shall submit hazardous waste facility closure and postclosure plans to the department and to the California regional water quality control board for the region in which the facility is located. The plans shall contain the owner's or operator's estimate of the cost of closure and subsequent maintenance, shall conform to the regulations adopted by the department and shall comply with applicable state laws relating to water quality protection and monitoring.

(b) The plans specified in subdivision (a) shall be submitted to the department with the application for a hazardous waste facilities permit or when otherwise requested by the department. The plans shall be submitted to the California regional water quality control board with a report of waste discharge submitted in accordance with Section 13260 of the Water **Code**. An owner or operator who has submitted a request for, or received a hazardous waste facilities permit prior to, the adoption of the standards and regulations pursuant to Section 25245 shall submit the plans within 180 days after the department issues a written request for the plans. Prior to actual closure of the facility, the plans shall be updated if requested by the department. However, no owner or operator shall be required to revise or amend a closure plan after the department notifies the owner or operator in writing that the closure of the facility has been completed in accordance with the approved closure plan.

(c) An owner or operator who has not submitted facility closure and postclosure plans shall submit the plans at least 180 days prior to closure of the hazardous waste facility.

(d) This section does not apply to any person operating under a permit-by-rule, a conditional authorization, or a conditional exemption, pursuant to this chapter or the regulations adopted by the department.

22 CA ADC § 66265.111

Term

22 CCR s 66265.111

Cal. Admin. Code tit. 22, s 66265.111

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS
TITLE 22. SOCIAL SECURITY
DIVISION 4.5. ENVIRONMENTAL HEALTH STANDARDS FOR THE
MANAGEMENT OF HAZARDOUS
WASTE
CHAPTER 15. INTERIM STATUS STANDARDS FOR OWNERS AND
OPERATORS OF HAZARDOUS
WASTE TRANSFER, TREATMENT, STORAGE, AND DISPOSAL FACILITIES
ARTICLE 7. CLOSURE AND POST-CLOSURE

This database is current through 9/14/07, Register 2007, No. 37

s 66265.111. Closure Performance Standard.

The owner or operator shall close the facility in a manner that:

- (a) minimizes the need for further maintenance, and
- (b) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or run-off, or waste decomposition products to the ground or surface waters or to the atmosphere, and
- (c) complies with the closure requirements of this chapter including, but not limited to, the requirements of sections 66265.197, 66265.228, 66265.258, 66265.280, 66265.310, 66265.351, 66265.381, 66265.404, and 66265.1102.

Note: Authority cited: Sections 25150, 25159, 25159.5, 25179.6, 25245 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5, 25245 and 58012, Health and Safety Code; 40 CFR Section 265.111.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).

2. Amendment of subsection (c) and Note filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.

3. Amendment of subsection (c) and Note refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.

4. Amendment of subsection (c) and Note refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.

5. Amendment of subsection (c) and Note refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.

6. Editorial correction of History 5 (Register 96, No. 5).

7. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-95 (Register 96, No. 5).

22 CCR s 66265.111, 22 **←CA ADC s 66265.111→**
1CAC

22 **←CA ADC s 66265.111→**

END OF DOCUMENT

22 CA ADC § 66265.112

Term

22 CCR s 66265.112

Cal. Admin. Code tit. 22, s 66265.112

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS
TITLE 22. SOCIAL SECURITY
DIVISION 4.5. ENVIRONMENTAL HEALTH STANDARDS FOR THE
MANAGEMENT OF HAZARDOUS
WASTE
CHAPTER 15. INTERIM STATUS STANDARDS FOR OWNERS AND
OPERATORS OF HAZARDOUS
WASTE TRANSFER, TREATMENT, STORAGE, AND DISPOSAL FACILITIES
ARTICLE 7. CLOSURE AND POST-CLOSURE

This database is current through 9/14/07, Register 2007, No. 37

s 66265.112. Closure Plan; Amendment of Plan.

(a) Written plan. By six months after the effective date of the rule that first subjects a facility to provisions of this section, the owner or operator of a hazardous waste management facility shall have a written closure plan. Until final closure is completed and certified in accordance with section 66265.115, a copy of the most current plan shall be kept at the facility and furnished to the Department upon request, including request by mail. In addition, for facilities without approved plans, it shall also be provided during site inspections, on the day of inspection, to any officer, employee or representative of the Department who is duly designated by the Director.

(b) Content of plan. The plan shall identify steps necessary to perform partial or final closure of the facility at any point during its active life and to perform final closure of the facility at the end of its active life. The closure plan shall include, at least:

(1) a description of how and when each hazardous waste management unit at the facility will be closed in accordance with section 66265.111; and

(2) a description of how and when final closure of the facility will be conducted in accordance with section 66265.111. The description shall

identify the maximum extent of the operation which will be unclosed during the active life of the facility; and

(3) an estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial and final closure, including, but not limited to methods for removing, transporting, treating, storing or disposing of all hazardous waste, identification of and the type(s) of off-site hazardous waste management unit(s) to be used, if applicable; and

(4) a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination necessary to satisfy the closure performance standard; and

(5) a detailed description of other activities necessary during the partial and final closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, groundwater monitoring, leachate collection, and run-on and run-off control; and

(6) a schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule shall include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover shall be included); and

(7) an estimate of the expected year of final closure.

(8) all information necessary to enable the Department to prepare an Initial Study for the closure plan, which meets the requirements of Title 14, CCR section 15063, unless the Department has determined that the closure plan is exempt from the requirements of the California Environmental Quality Act pursuant to Title 14, CCR section 15061.

(c) Amendment of plan. The owner or operator may amend the closure plan at any time prior to the notification of partial or final closure of the facility. An owner or operator with an approved closure plan shall submit a written request to the Department to authorize a change to the approved closure plan. The written request shall include a copy of the amended closure plan for approval by the Department.

(1) The owner or operator shall amend the closure plan whenever:

(A) changes in operating plans or facility design affect the closure plan, or

(B) there is a change in the expected year of closure, or

(C) in conducting partial or final closure activities, unexpected events require a modification of the closure plan.

(2) The owner or operator shall amend the closure plan at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator shall amend the closure plan no later than 30 days after the unexpected event. These provisions also apply to owners or operators of surface impoundments and waste piles who intended to remove all hazardous wastes at closure, but are required to close as landfills in accordance with section 66265.310.

(3) An owner or operator with an approved closure plan shall submit the modified plan to the Department at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator shall submit the modified plan no later than 30 days after the unexpected event. These provisions also apply to owners or operators of surface impoundments and waste piles who intended to remove all hazardous wastes at closure but are required to close as landfills in accordance with section 66265.310. If the amendment to the plan is a Class 2 or 3 modification according to the criteria in section 66270.42, the modification to the plan will be approved according to the procedures in section 66265.112(d)(4).

(4) The Department may request modifications to the plan under the

conditions described in subsection (c)(1) of this section. An owner or operator with an approved closure plan shall submit the modified plan within 60 days of the request from the Department, or within 30 days if the unexpected event occurs during partial or final closure. If the amendment is considered a Class 2 or 3 modification according to the criteria in section 66270.42, the modification to the plan will be approved in accordance with the procedures in section 66265.112(d)(4).

(d) Notification of partial closure and final closure.

(1) The owner or operator shall submit the closure plan to the Department at least 180 days prior to the date on which the owner or operator expects to begin closure of the first surface impoundment, waste pile, land treatment, or landfill unit, or final closure if it involves such a unit, whichever is earlier. The owner or operator shall submit the closure plan to the Department at least 180 days prior to the date on which the owner or operator expects to begin partial or final closure of a boiler or industrial furnace. The owner or operator shall submit the closure plan to the Department at least 180 days prior to the date on which the owner or operator expects to begin final closure of a facility with only tanks or containers used for transfer, treatment or storage, or incinerator units. An owner or operator with an approved closure plan shall notify the Department in writing at least 60 days prior to the date on which the owner or operator expects to begin closure of a surface impoundment, waste pile, landfill, or land treatment unit, or final closure of a facility involving such a unit. Owners or operators with approved closure plans shall notify the Department in writing at least 45 days prior to the date on which the owner or operator expects to begin partial or final closure of a boiler or industrial furnace. An owner or operator with an approved closure plan shall notify the Department in writing at least 45 days prior to the date on which the owner or operator expects to begin final closure of a facility with only tanks or containers used for transfer, treatment or storage, or incinerator units.

(2) The date when the owner or operator "expects to begin closure" shall be either no later than the date on which any hazardous waste management unit receives the known final volume of hazardous wastes or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous waste. The Department may approve an extension to this one-year limit if the owner or operator of a hazardous waste management unit demonstrates to the satisfaction of the Department that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, the owner or operator has taken, and will continue to take, all steps necessary to comply with all interim status requirements, and the extension will not pose a threat to human health and the environment.

(3) For units meeting the requirements of section 66265.113(d), the date when the owner or operator "expects to begin closure" shall be no later than the date on which the hazardous waste management unit receives the known final volume of non-hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional non-hazardous wastes, no later than one year after the date on which the unit received the most recent volume of non-hazardous wastes. If the owner or operator can demonstrate to the Department that the hazardous waste management unit has the capacity to receive additional non-hazardous wastes and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and threats to the environment, including compliance with all applicable interim status requirements, the Department may approve an extension to this one-year limit. A facility operating under the requirements of section 66265.113(d) shall continue to be subject to the facility fee specified in Health and Safety Code, Division 20, section 25205.2(d), until the facility has complied with the requirements of section 66265.113(a). Health and Safety Code, Division 20, section 25205.2(d)(4) shall not apply to a facility operating pursuant to section 66265.113(d).

(4) The owner or operator shall submit the closure plan to the Department no later than 15 days after:

(A) termination of interim status except when a permit is issued simultaneously with termination of interim status; or

(B) issuance of a judicial decree or final order under Health and Safety Code section 25358.3 or article 8 of chapter 6.5 of division 20 of the Health and Safety Code to cease receiving hazardous wastes or close.

(5) The Department will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications to the plan no later than 30 days from the date of the notice. The Department will also, in response to a request or at the Department's own discretion, hold a public hearing whenever such a hearing might clarify one or more issues concerning a closure plan. The Department will give public notice of the hearing at least 30 days before it occurs. Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined. The Department will approve, modify, or disapprove the plan within 90 days of its receipt. If the Department does not approve the

plan the Department shall provide the owner or operator with a detailed written statement of reasons for the refusal and the owner or operator shall modify the plan or submit a new plan for approval within 30 days after receiving such written statement. The Department will approve or modify this plan in writing within 60 days. If the Department modifies the plan, this modified plan becomes the approved closure plan. The Department shall assure that the approved plan is consistent with sections 66265.111 through 66265.115 and the applicable requirements of article 6 of this chapter and sections 66265.197, 66265.228, 66265.258, 66265.280, 66265.310, 66265.351, 66265.381, 66265.404, and 66265.1102. A copy of the modified plan with a detailed statement of reasons for the modifications shall be mailed to the owner or operator.

Note: Authority cited: Sections 25150, 25159, 25159.5, 25245, 58004 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5, 25245 and 25246, Health and Safety Code; 40 CFR Section 265.112; Sections 21080(c), 21080.1, 21080.3, 21082.1, 21100 and 21151, Public Resources Code.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Amendment of subsection (d)(4) and Note filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (d)(4) and Note refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (d)(4) and Note refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
5. Amendment of subsection (d)(4) and Note refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-95 (Register 96, No. 5).
7. New subsection (d)(3), subsection renumbering, and amendment of newly designated subsection (d)(5) and Note filed 6-20-96; operative 7-20-96 (Register 96, No. 25).

8. Amendment of subsections (a) and (d)(1) and Note filed 7-1-96; operative 7-31-96 (Register 96, No. 27).

9. Change without regulatory effect amending subsection (d)(2) filed 10-22-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 43).

10. Change without regulatory effect amending subsection (d)(3) filed 12-23-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 52).

11. Change without regulatory effect amending subsection (d)(3) filed 1-7-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 2).

12. Change without regulatory effect amending subsection (d)(5) filed 8-15-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 33).

22 CCR s 66265.112, 22 **←CA ADC s 66265.112→**
1CAC

22 **←CA ADC s 66265.112→**

END OF DOCUMENT

22 CA ADC § 66265.113

Term

22 CCR s 66265.113

Cal. Admin. Code tit. 22, s 66265.113

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS
TITLE 22. SOCIAL SECURITY
DIVISION 4.5. ENVIRONMENTAL HEALTH STANDARDS FOR THE
MANAGEMENT OF HAZARDOUS
WASTE
CHAPTER 15. INTERIM STATUS STANDARDS FOR OWNERS AND
OPERATORS OF HAZARDOUS
WASTE TRANSFER, TREATMENT, STORAGE, AND DISPOSAL FACILITIES
ARTICLE 7. CLOSURE AND POST-CLOSURE

This database is current through 9/14/07, Register 2007, No. 37

s 66265.113. Closure; Time Allowed for Closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner or operator complies with all applicable requirements in subsections (d) and (e) of this section, at a hazardous waste management unit or facility, or within 90 days after approval of the closure plan, whichever is later, the owner or operator shall treat, remove from the unit or facility, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The Department may approve a longer period if the owner or operator demonstrates to the satisfaction of the Department that:

(1)(A) the activities required to comply with this subsection will, of necessity, take longer than 90 days to complete; or

(B) 1. the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the facility owner or operator complies with subsections (d) and (e) of this section; and

2. there is a reasonable likelihood that a person other than the owner or operator will recommence operation of the hazardous waste management

unit or the facility within one year; and

3. closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(2) the owner or operator has taken and will continue to take all steps to comply with all applicable interim status requirements and the longer period will not pose a threat to human health and the environment.

(b) The owner or operator shall complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner or operator complies with all applicable requirements in subsections (d) and (e) of this section, at the hazardous waste management unit or facility, or 180 days after approval of the closure plan, if that is later. The Department may approve an extension to the closure period if the owner or operator demonstrates that:

(1)(A) the partial or final closure activities will, of necessity, take longer than 180 days to complete; or

(B) 1. the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the facility owner or operator complies with subsections (d) and (e) of this section; and

2. there is reasonable likelihood that a person other than the owner or operator will recommence operation of the hazardous waste management unit or the facility within one year; and

3. closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(2) the owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed, but not operating, hazardous waste management unit or facility, including compliance with all applicable interim status requirements.

(c) The demonstrations referred to in subsections (a) and (b) of this section shall be made as follows:

(1) the demonstrations in subsection (a) of this section shall be made at least 30 days prior to the expiration of the 90-day period in subsection (a); and

(2) the demonstrations in subsection (b) shall be made at least 30 days prior to the expiration of the 180-day period in subsection (b), unless the owner or operator is otherwise subject to the deadlines in subsection (d) of this section.

(d) The Department may allow an owner or operator to receive non-hazardous wastes in a landfill, land treatment, or surface impoundment unit after the final receipt of hazardous wastes at that unit, if:

(1) The owner or operator submits an amended Part B application, or a Part B application, if not previously required, and demonstrates to the Department that:

(A) the unit has the existing design capacity as indicated on the Part A application to receive non-hazardous wastes; and

(B) there is a reasonable likelihood that either the owner or operator or another person will receive non-hazardous wastes in the unit within one year after the final receipt of hazardous wastes; and

(C) the non-hazardous wastes will not be incompatible with any remaining hazardous wastes in the unit, or with the facility design and operating requirements of the unit or facility under this chapter; and

(D) closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and

(E) the owner or operator is operating and will continue to operate in compliance with all applicable interim status requirements of this chapter and with all applicable regulations promulgated by other state agencies governing discharges of hazardous or non-hazardous wastes to land and water, including, but not limited to, regulations promulgated by the California Integrated Waste Management Board and the State Water Resources Control Board; and

(2) The Part B application includes an amended waste analysis plan, monitoring and response program for groundwater, air and soil-pore gas required under articles 6 and 18 of this chapter, human exposure assessment required under Title 42, U.S.C. section 6939a, and closure and post-closure plans, and updated cost estimates and demonstrations of financial assurance for closure and post-closure care as necessary and appropriate, to reflect any changes due to the presence of hazardous constituents in the non-hazardous wastes and changes in closure activities, including the expected year of closure, if applicable under section 66265.112(b)(7), as a result of the receipt of non-hazardous wastes following the final receipt of hazardous wastes; and

(3) The Part B application is amended, as necessary and appropriate, to account for the receipt of non-hazardous wastes following receipt of the final volume of hazardous wastes; and

(4) The Part B application and the demonstrations referred to in subsection (d)(1) and (d)(2) of this section are submitted to the Department no later than 180 days prior to the date on which the owner or operator receives the known final volume of hazardous wastes, or no later than 90 days after the effective date of this rule, whichever is later.

(e) In addition to the requirements in subsection (d) of this section, an owner or operator of a hazardous waste surface impoundment that is not in compliance with the liner and leachate collection system requirements pursuant to Title 22, CCR, Division 4.5, Chapter 15, Article 11 shall:

(1) Submit with the Part B application:

(A) a contingent corrective measures plan, and

(B) a plan for removing hazardous wastes in compliance with subsection (e)(2) of this section; and

(2) Remove all hazardous wastes from the unit by removing all hazardous liquids and by removing all hazardous sludges to the extent practicable without impairing the integrity of the liner(s), if any.

(3) Removal of hazardous wastes shall be completed no later than 90 days after the final receipt of hazardous wastes. The Department may approve an extension to this deadline if the owner or operator demonstrates that the removal of hazardous wastes will, of necessity, take longer than the allotted period to complete and that an extension will not pose a threat to human health or the environment.

(4) If a release of hazardous waste that is a statistically significant increase (or decrease in the case of pH) in hazardous constituents over background levels or that exceeds the facility's protection standards for groundwater, air, or soil-pore gas at the points of compliance, if applicable, is detected in accordance with the requirements in articles 6 or 18 of this chapter, the owner or operator of the unit:

(A) shall implement corrective measures in accordance with the approved contingent corrective measures plan required by subsection (e)(1) of this section no later than one year after detection of the release of hazardous waste, or approval of the contingent corrective measures plan, whichever is later;

(B) may continue to receive wastes at the unit following detection of any release only if the approved corrective measures plan includes a demonstration that continued receipt of wastes will not impede corrective action; and

(C) may be required by the Department to implement corrective measures in less than one year, or to cease receipt of wastes until corrective measures have been implemented if necessary to protect human health or the environment.

(5) During the period of corrective action, the owner or operator shall provide semi-annual reports to the Department that describe the progress of the corrective action program, compile all monitoring data for groundwater, air, and soil-pore gas, and evaluate the effect of the continued receipt of non-hazardous wastes on the effectiveness of the corrective action.

(6) The Department may require the owner or operator to commence closure of the unit if the owner or operator fails to implement corrective action measures in accordance with the approved contingent corrective measures plan within one year as required in subsection (e)(4) of this

section, or fails to make substantial progress in implementing corrective action and achieving the facility's protection standards for groundwater, air, or soil-pore gas, or background levels if the facility has not yet established a protection standard for groundwater, air, or soil-pore gas.

(7) If the owner or operator fails to implement corrective measures as required in subsection (e)(4) of this section, or if the Department determines that substantial progress has not been made pursuant to subsection (e)(6) of this section, the Department shall do the following:

(A) notify the owner or operator in writing that the owner or operator shall begin closure in accordance with the deadlines in subsections (a) and (b) of this section and provide a detailed statement of reasons for this determination.

(B) provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the decision no later than 20 days after the date of the notice.

(C) If the Department receives no written comments, the decision will become final five days after the close of the comment period. The Department shall notify the owner or operator that the decision is final, and that a revised closure plan, if necessary, shall be submitted within 15 days of the final notice and that closure shall begin in accordance with the deadlines in subsections (a) and (b) of this section.

(D) If the Department receives written comments on the decision, the Department shall make a final decision within 30 days after the end of the comment period, and shall provide the owner or operator in writing and the public through a newspaper notice, a detailed statement of reasons for the final decision. If the Department determines that substantial progress has not been made, closure shall be initiated in accordance with the deadlines in subsections (a) and (b) of this section.

(E) The final determinations made by the Department under subsections (e)(7)(C)-(D) of this section are not subject to administrative appeal.

Note: Authority cited: Sections 25150, 25159, 25245, 58004 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5, 25200.10,

25245 and 25246, Health and Safety Code; 40 CFR Section 265.113.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Amendment of subsections (a), (a)(1)(B)1., (b), (b)(1)(B)1., (b)(2) and (c)(1)-(2), new subsections (d)-(e)(7)(E) and amendment of Note filed 6-20-96; operative 7-20-96 (Register 96, No. 25).
3. Change without regulatory effect amending subsections (a), (b) and (e)(5) filed 10-22-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 43).
4. Change without regulatory effect amending subsection (d)(2) filed 12-23-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 52).
5. Change without regulatory effect amending subsection (e)(3) and Note filed 6-7-2004 pursuant to section 100, title 1, California Code of Regulations (Register 2004, No. 24).

22 CCR s 66265.113, 22 **←CA ADC s 66265.113→**
1CAC

22 **←CA ADC s 66265.113→**

END OF DOCUMENT

**Soil-Vapor and Groundwater
Investigation Work Plan**

**Former Statewide Environmental Services Facility
12618 South Main Street
Los Angeles, California 90061**

April 16, 2007

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APPENDIX

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Appendix C

Health and Safety Plan
DTSC Advisory-Active Soil Gas Investigation
Analytical Data

FIGURES

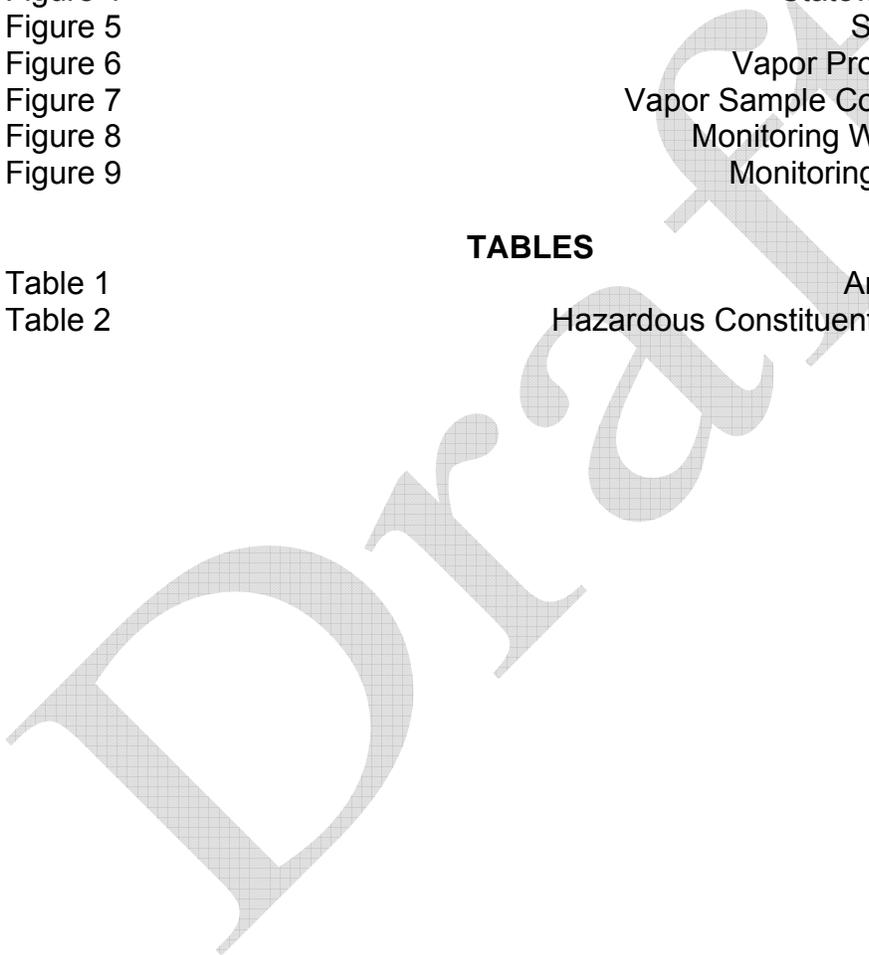
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Regional Map
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Monitoring Well Design

TABLES

Table 1
Table 2

Analytical Data
Hazardous Constituents of Concern



Soil-Vapor and Groundwater Investigation Work Plan

**Former Statewide Environmental Services Facility
12618 South Main Street
Los Angeles, California 90061**

1.0 FACILITY IDENTIFICATION

- 1.1 Facility Name
Statewide Environmental Services, Inc (SES)
- 1.2 EPA ID Number
CAD 000088252
- 1.3 Facility Address
12618 S. Main Street
Los Angeles, California 90058-1627.
- 1.4 Mailing Address
Attn: Mr. Matthew Stewart
18414 South Santa Fe Avenue
Rancho Dominguez, CA 90221-5612
- 1.5 Contact Person
Matthew Stewart
(310) 629-7570
- 1.6 Previous Facility Operator
Statewide Environmental Services, Inc., R&R Industrial Waste Haulers
- 1.7 Previous Facility Owners
Statewide Environmental Services, Inc., R&R Industrial Waste Haulers
- 1.8 Land Owners
Roberto Perez
416 W. 130th St.
Los Angeles CA 90061
- 1.9 Preparer of Work Plan
Department of Toxic Substances Control
1011 North Grandview Avenue

Glendale, California 91201

1.10 Nature of Business

SES was a RCRA off-site hazardous waste transfer and storage facility. The site has been sold and is currently used for manufacture and storage of wooden pallets.

1.11 Location

The SES facility is located in the community of Athens, near the cities of Compton and Gardena in an unincorporated area of Los Angeles County. The property which contained the former facility is 0.41 acres in area. Regional and local location maps are included as Figures 1 and 2 respectively

2.0 GEOLOGY AND HYDROGEOLOGY

2.1 Geology

The SES facility lies within the Central Basin Pressure Area of the Central Plain of Los Angeles County. The Central Plain is part of a deep structural trough that extends from the Hollywood Hills southeast into Orange County. Geologic formations beneath SES include Recent Alluvium, the Lakewood Formation, and the San Pedro Formation (information from California Department of Water Resources, Bulletin 104, published in 1961).

The Recent Alluvium beneath SES includes inter-bedded layers of clays, silts and silty sands in what is believed to be the Bellflower Aquitard underlain by the Semi-Perched Aquifer encountered at 38-60 feet in the vicinity. The Semi-Perched Aquifer extends to a depth of 90 feet (DWR, Bulletin, 104, 1961).

Underlying the Recent Alluvium, sediments of the upper Pleistocene Lakewood Formation are present to a depth of approximately 200 feet. The Lakewood Formation contains the Exposition and Gardena Aquifers. Beneath SES the Semi-Perched Aquifer occurs at approximately 38-50 feet bgs (DWR, Bulletin 104, 1961).

Unconformably underlying the Lakewood Formation, sediments of the lower Pleistocene San Pedro Formation extend to a depth of approximately 1,150 feet. Aquifers within the San Pedro Formation include the Hollydale, Jefferson, Lynwood, Silverado, and the Sunnyside (DWR, Bulletin 104, 1961).

2.2 Hydrogeology

Based on a limited groundwater investigation conducted at the facility in 2001, depth to groundwater beneath the facility is approximately 38-50 feet. Groundwater elevation data from the nearby drinking water production wells indicates that the intakes for drinking water production wells are set below a depth of 200 feet. A groundwater investigation is planned for Statewide Environmental Services, Inc. so that the potential human health risk can be assessed and future potential remediation can be planned accurately and appropriately using site specific data.

In the absence of site specific data concerning the direction of groundwater flow beneath the facility, information was obtained from the Hydrologic Records Division of the Los Angeles County Department of Public Works. This agency indicates that the groundwater flow direction in aquifers below 200 feet is to the southwest but may vary locally due to pumping. Based on data given in the Water Replenishment District Annual Report on Results of Water Quality Monitoring, Water Year 1993-94 dated February 1995, most of the wells in the Central Basin are screened in the lower aquifers.

Geologic information from other sites in the area indicates that the depth to uppermost groundwater is approximately 38-50 feet bgs, consistent with data previously collected by SES.

Based on work performed at other facilities, depth to the uppermost groundwater within 1 to 1.5 miles of Statewide Environmental Services, Inc. has been measured at 35 to 85 feet. No drinking water supply wells or monitoring wells are located directly on the previous SES property.

Document review of the groundwater conditions for the former Arco Station located at 105 E. El Segundo Boulevard (less than 1,000 feet south of the subject site) indicate that the depth to groundwater varied between approximately 40 feet and 66 feet due to free product and vapor extraction. The depth to groundwater fluctuated approximately 20 feet since the groundwater monitoring wells were installed. The groundwater flow direction on October 24, 2006, varied from west-northwest to south on the Arco site.

2.3 Weather and Climatic Conditions

The climate in the Los Angeles area is characterized by warm, dry summers, low precipitation, and mild winters. Average daily winter temperature is 51°F and average daily summer temperature is 75°F. During the year, temperatures range from a low near 20°F during the winter to a high of over 100°F during the summer. More than 2/3 of the annual rainfall occurs from November through April with approximately 90% occurring between December and March. Little rain falls between May and October due to the semi-permanent Pacific high pressure system that prevents storms from entering the area. Mean annual precipitation ranges from 15 inches near downtown Los Angeles to 25 inches at the base of the San Gabriel Mountains. In these mountains, average annual rainfall has reached as high as 40 inches with extremes ranging between 40% and 200% of normal. Relative humidity averages 45% year round; 40% to 70% in winter, and 10 to 20% in summer.

Prevailing winds are generally light and westerly or southwesterly. Night and early morning winds are usually northeasterly. Some afternoon sea breezes blow across the Los Angeles area. Summer daytime wind speed averages 10-15 miles per hour (mph) whereas the winter daytime wind speed averages 5-8 mph. There is little seasonal variability in this pattern. Occasionally during autumn and winter, Santa Ana wind conditions develop from a high pressure zone to the northeast that brings dry, high velocity winds from the deserts to the northeast.

3.0 FACILITY DESCRIPTION

3.1 Hazardous Waste Management

SES was a RCRA hazardous waste transfer and storage facility which accepted wastes from off-site. Hazardous wastes managed at SES consisted of solid and liquid wastes, including RCRA and non-RCRA hazardous wastes as well as nonhazardous wastes. Hazardous Constituents of concern are listed in Table 2. The wastes were handled and stored in 55-gallon drums. Site Plans of both the former R&R facility and the SES facility were provided by Mr. Matt Stewart. Reproductions of these plans are included as Figures 3 and 4 respectively.

Operation of the site by the previous owner, R&R Industrial Waste Haulers (R&R), is defined in the Part A Permit application, submitted by R&R on November 19, 1980. It lists a variety of wastes as being stored in containers at the facility. Previous facility sketches submitted with the Part A application show two above ground tanks for storage of hazardous wastes. No design details are available and there is no information indicating that DTSC was ever provided with design information regarding tanks at the facility. Waste oil and waste solvents were previously stored in two tanks near the eastern boundary of the property.

Research indicates that a 5,000 gallon above ground storage tank (AST) was used for solvent storage, and a 4,000 gallon AST was used for used oil storage. Based on previous documentation, these tanks appear to have been located on the area that includes the original concrete storage pad in the approximate center to the eastern portion of the facility. The previous operator transferred ignitable and certain corrosive wastes from containers into bulk shipments in vacuum trucks. Containerized wastes were stored at the facility and re-shipped in the same containers to final treatment and disposal facilities.

When the facility was purchased by Statewide Environmental Services in August 1990, a number of different waste types were present in containers. The 4,000 and 5,000 gallon storage tanks were no longer present.

During the period of time when the facility was operated by SES, containers were primarily stored on the concrete secondary containment pad. Other containers of wastes were on trucks parked at the facility awaiting offsite shipment. The facility is completely paved, and according to the facility owner, had been paved for several years. No design details were provided.

During SES ownership and operations the facility had two waste management units: a container storage area, and a waste loading/unloading and staging area. However, the same waste containers passed through both of these areas.

The site now consists of a parcel which is surrounded by a block wall on the south, north and east and west sides, with two gates for vehicle entry on the west side. Concrete pads surrounded by berms/drainage channels are provided for secondary containment of liquid wastes during SES owned operations. Some pads also were provided with liquid collection sumps. The entire facility was paved in concrete and bermed at the perimeter during the implementation of the closure plan. Two access gates were provided along Main Street. Steel cargo containers were previously used for offices, a laboratory and storage. Solid waste consisted primarily of soil impacted with oil. The waste was handled in drums, vacuum trucks, 20 cubic yard bins.

The facility began implementation of a DTSC approved closure plan. All waste was removed from the facility, the site was decontaminated and initial subsurface investigations were completed to evaluate the potential for historical releases. A closure certification report has not been received documenting the sampling results, conclusions and analyses of sampling results.

The RCRA hazardous waste management units had been moved around the facility over time. The primary maximum contaminant levels (MCLs) for trichloroethene (TCE) have been exceeded in groundwater samples collected during the initial sampling undertaken under the closure plan. Elevated concentrations of volatile

organic compounds [tetrachloroethene (PCE), vinyl chloride, 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethene (1,2-DCE) and trichloroethane (TCA)] were detected.

3.2 Secondary Containment

The Facility was not paved during the former operations under R&R. Research indicates that a 5,000-gallon above ground storage tank (AST) used for solvent storage, and a 4,000-gallon AST used for used oil storage, were operated by R&R without secondary containment. Based on previous documentation, these tanks appear to have been located on the area that includes the original concrete storage pad in the approximate center of the facility. When the facility was purchased by Statewide Environmental Services in August 1990, a number of different waste types were present in containers. The 4,000 and 5,000 gallon storage tanks were no longer present. During the operation by SES, Inc. the facility was fully paved with either concrete or asphalt and was surrounded by a concrete containment berm except at the entrance/exit to the facility. Containers were primarily stored on the concrete secondary containment pads

4.0 HAZARDOUS WASTE CONSTITUENTS

4.1. Management of Investigation Derived Wastes

Hazardous Constituents of Concern are listed in Table 2. All hazardous waste generated during the investigation will be disposed off-site. Classification of wastes will be in accordance with applicable federal and state regulations. Wastes that are determined to be hazardous will be shipped under hazardous waste manifest by a licensed hazardous waste transporter to a permitted disposal facility. Treatment method for hazardous waste will be determined after the waste has been characterized. Signed copies of the manifests will be maintained for 3 years from the date the waste was accepted by the initial transporter and will be included with investigation report. Wastes generated during the investigation will include but may not be limited to the following:

- Development water
- Purge Water
- Decontamination rinsate and waste water
- Soil cuttings

5.0 LAND DISPOSAL RESTRICTIONS

Hazardous waste will be managed in accordance with applicable Land Disposal Restrictions as described in CCR, Title 22, §66268.7(a)(1) and (2).

6.0 DECONTAMINATION PROCEDURES

6.1 Contaminated Equipment

Decontamination is required for the following equipment between sampling points and after investigation activities: soil, gas and groundwater sampling equipment (drilling equipment, pumps, tubing lines, tools and sampling equipment).

Prior to sampling and between samples, all reusable sampling equipment employed during the field investigation will be decontaminated by washing in a solution of laboratory grade non-phosphate detergent and water. The equipment will be then double-rinsed in distilled water and allowed to air dry. Drilling equipment will be either decontaminated using a truck-mounted steam cleaner on site or completed at the driller's facility. Decontamination rinsate will be placed in containers and temporarily stored onsite. Temporary storage and disposal of decontamination rinsate is discussed in Section 4.1 and Section 18.0.

6.2 Field Decontamination of Equipment and Disposal

Decontamination of drilling and field sampling equipment and field instruments will be conducted in a thorough and step-wise manner, such as described below. Decontamination will be conducted in a designated contamination reduction zone. Such procedures will be documented in the field log book.

Sampling equipment will be thoroughly cleaned prior to the collection of each sample using a laboratory grade non-phosphate detergent solution, followed by rinsing with tap water, and followed by a final distilled water rinse.

Steps taken to assure sample integrity and minimize the potential for cross contamination will include:

- Establishing a field decontamination location in an area removed from known or suspected contamination.
- Decontaminating sampling equipment prior to and between each use.
- Disassembling sampling equipment prior to decontamination and operating pumps in the decontamination liquids to circulate within internal parts.
- Evaluating discolored or obviously contaminated equipment for new sampling activities.
- Properly handling decontaminated equipment prior to actual use.

- Containerizing decontamination rinsate, development water, purge water, and soil cuttings separately in containers, secured; properly labeled; and retained on-site pending receipt of analytical results. Container labels will include the following information: name and telephone number of waste generator, contents, Facility name, and accumulation start date.

6.3 Decontamination Procedures

- Decontaminate pumps, tubing, lines, water level indicator, field parameter measurement equipment, and all non-dedicated or non-disposable sampling equipment by high pressure washing or steam or with a laboratory grade non-phosphate detergent (e.g., Liquinox) solution. Pump rinse water into drums, portable tanks or tanker trucks.
- Rinse by high pressure washing with tap water. Pump rinse water into DOT-specified 55-gallon drums or portable tanks.
- Final rinse with deionized or distilled water. Pump rinse water into DOT-specified 55-gallon drums or portable tanks.

7 SOIL GAS SAMPLING PLAN

7.1 Soil Gas Sampling

Sampling and analysis of soil gas from the multi-level permanent soil vapor probes will be conducted to identify the lateral and vertical extent, and the upward migration potential of hazardous wastes releases into the underlying soil. The following sections describe the investigative methods to be implemented. Soil gas probes will be installed and sampled at three locations and three depths off-site of the Facility and one locations on-site. The sampling and analysis program described in this section will be performed to assess the lateral and vertical extent of the subsurface contamination. Sampling and analysis procedures described herein shall be conducted in accordance with: Advisory – Active Soil Gas Investigations by DTSC and the RWQCB (January 2003) and U.S. EPA Test Methods for Evaluating Solid Waste (SW-846) Update III unless otherwise specified in these conditions. Applicable QA/QC Methods defined in SW-846 Update III shall be followed for the analysis of samples. The soil gas sampling previously completed, (47 samples) found that the on-site soil gas analytical results exceed the industrial concentrations listed in the California Human Health Screening Levels (CHHSLs). Sampling and analysis of soil gas from the four multi-level permanent soil vapor probes will be conducted to identify the lateral and vertical extent and upward migration potential of hazardous wastes releases into the underlying soil and to evaluate the risk to occupants of nearby residences and commercial buildings.

The report which shall result from this work plan will include an indoor air evaluation of the

past data or data collected for this work plan. The evaluation shall examine the potential for release from soils and groundwater to ambient air and indoor air at nearby residences and commercial buildings or potential receptors occupying the property under the current and any planned future land use.

7.2 Previous Sampling

All analytical data collected from previous investigations of the site are included in Appendix A. Locations of the soil gas, soil and groundwater sample points are depicted on Figure 5. Analytical results from the soil, soil gas and groundwater investigations are summarized in Table 1. Soil gas sampling was performed at the subject property on March 20 and April 3, 2001. Soil gas samples were taken from 47 points at depths ranging from 13 feet below surface grade (bsg) to 35 feet bsg. On April 3, 2001, four samples were taken from soil gas sample points SG7, SG8, SG23 and SG27 using Summa Canisters. All four Summa Canister samples were taken at depths of 17 feet. These samples were analyzed for vinyl chloride and fixed gases by Performance Analytical, Inc. The Performance Analytical lab sheets (PAI Project No. P2100724) and Chain-of-Custody are attached to this report. Reported levels of tetrachloroethene (PCE) in soil gas beneath the former locations of the solvent and waste-oil tanks ranged from 2.4 micrograms per liter ($\mu\text{g}/\text{l}$) in sample point SG31 at a depth of 17 feet to 186 $\mu\text{g}/\text{l}$ from sample point SG7 at a depth of 17 feet. Reported levels of trichloroethene (TCE) in soil gas ranged from 1.1 $\mu\text{g}/\text{l}$ in SG38 at a depth of 33.5 feet to 20 $\mu\text{g}/\text{l}$ in SG43 at a depth of 33.5 feet.

Fourteen soil borings were advanced on April 3, 2001. Soil samples from these borings were collected at depths ranging from 5 feet to 41 feet. Groundwater grab samples collected from direct push open holes was performed on December 14, 2001. Three grab groundwater samples were collected at depths ranging from approximately 56 to 58 feet.

Results of the Hydropunch sampling event were submitted to the DTSC in the Leymaster Environmental Consulting (LEC) report titled *Preliminary Groundwater Investigation Report*, dated February 17, 2002.

No formal reports were prepared by Targhee Inc, the on site consultant but all the test results were given to the DTSC Viz. Richard Allen. The DTSC, Hazardous Materials Laboratory (HML) analyzed the soil samples collected on April 3, 2001 for volatile organic compounds in accordance with EPA method 5035. The HML analytical sheets are attached to this report. Soil samples were analyzed for CAM metals, pesticides and semi-volatile organic compounds by SES's Lab, AER laboratories. Those AER laboratory results are attached to this work plan.

The analytical data for the soil gas survey are attached to this report.

Grab samples of groundwater collected from open holes drilled to depths of 56-58 feet detected PCE at 2.5 to 3.1 micrograms per liter ($\mu\text{g/L}$) and TCE at 8.6 to 200 $\mu\text{g/L}$.

Locations of the soil gas, soil and groundwater sample points from previous investigations are depicted on Figure 5.

Analytical results from the soil, soil gas and groundwater investigations are summarized in Table 1.

7.3 Soil Gas Investigation and Sampling Program

The work plan for soil gas investigation and groundwater investigation are discussed in the following subsections.

The following sections describe the investigative methods to be implemented. Soil gas will be sampled at three depths underlying and the Facility. The sampling and analysis program described in this section will be performed to assess the lateral and vertical extent of the subsurface contamination. Sampling and analysis procedures described herein shall be conducted in accordance with: Advisory – Active Soil Gas Investigations by DTSC and the RWQCB (January 2003) and U.S. EPA Test Methods for Evaluating Solid Waste (SW-846) Update III unless otherwise specified in these conditions. Applicable QA/QC Methods defined in SW-846 Update III shall be followed for the analysis of samples.

8 SOIL GAS, SOIL AND GROUNDWATER INVESTIGATION

This task is composed of several subtasks as follows:

Pre-field Activities including:

- Modifying the existing approved Health and Safety Plan
- Utility clearance
- Permit applications

Field Activities including:

- Soil gas probe installation
- Mobile lab soil gas sampling and analysis using TO-14B soil gas sample collection and analysis
- Groundwater monitoring well installation
- Groundwater sampling
- Quality assurance/quality control (QA/QC) procedures

Following is a discussion of each these subtasks:

8.1 Pre-Field Activities

Prior to the initiation of field work, the Contractor will perform several tasks including:

- Reviewing the Health and Safety Plan (HASP) submitted with this report
- Performing a utility clearance including the notification of Underground Service Alert
- Obtaining Subcontractors
- Organizing field documentation

8.2. Health and Safety Plan

A Facility specific HASP has been prepared for the Statewide Environmental Services, Inc. Facility based on the information available to date and is provided as Appendix A. The HASP includes the following components:

- Project information including work plan and utility clearance information
- A health and safety risk analysis including chemical and non-chemical hazards
- Field implementation procedures for the HASP including personal protective equipment (PPE) requirements, monitoring equipment requirements, and decontamination procedures for heavy equipment, personnel, samples and sampling equipment and decontamination waste handling
- Facility operating procedures including initial Facility entry procedures and daily operating procedures
- Emergency response procedures including emergency incident procedures, emergency routes, and Facility specific requirements in the event of an emergency

The HASP also includes Facility maps and health and safety forms that document daily monitoring of personnel working onsite as well as air monitoring documentation and a hospital route map.

8.3. Utility Clearance

Underground Service Alert (USA) or other utility locating service will be notified by the Contractor a minimum of 48 hours prior to the commencement of drilling activities. In addition, the subcontractor will perform utility clearance for each boring location using information provided by USA, Facility utility maps (if available), geophysical methods, ground-penetrating radar or a magnetic pipe locator. All proposed locations of subsurface investigation will be clearly marked with white paint or surveyors flagging. The locating service will contact all utility owners of record within the Facility vicinity and notify them of the intention to conduct subsurface investigations in proximity to buried utilities.

Subsurface geophysics may be used, if necessary, in an effort to identify subsurface lines and obstructions in investigative areas where the presence of underground services or utilities is unclear or unknown. Geophysical methods may include: magnetic, electromagnetic induction, ground penetrating radar (GPR), and electromagnetic line location. Magnetic and electromagnetic technologies are used to identify underground tanks, drums, and conduits. These features are detected due to the ferrous and electrically conductive material of their construction. GPR may be used as a follow-up technology to characterize identified magnetic or electromagnetic anomalies.

As an additional measure, each boring location will be hand augured to a depth of five feet to reduce the likelihood of encountering underground utilities with the drilling machinery.

8.4. Permit Application, Access Agreement, Warrants

Prior to conducting drilling activities, all necessary permits will be obtained from the City or County of Los Angeles and the Environmental Health Department for the installation of the monitoring wells. It is anticipated that permits can be obtained within 1 to 2 weeks of application. Warrants or access agreements for public rights of way and private property for the soil gas survey and the one on-site and two off-site groundwater well locations will be arranged prior to field work. If access cannot be agreed upon DTSC will provide access for the Contractor to sample on these properties using its authority.

8.5. Field Activities and Investigation Methods

The objectives of the proposed work are to:

- Investigate the potential impact to groundwater beneath the SES Facility;

- Characterize the lateral extent of water and soil vapor contamination and to find any indication if an upgradient source has impacted the groundwater.

These objectives require the following subtasks:

- Soil Gas Probe Installation
- Soil Gas Sampling and Analysis
- Groundwater Monitoring Well Installation
- Groundwater Sampling
- QA/QC Procedures

Following is a discussion of each of these tasks:

The SES facility will be assessed using an active soil-gas investigation. The soil-gas investigation will be implemented following the DTSC *Advisory – Active Soil Gas Investigations* dated January 28, 2003. This document is included in Appendix B. The sample collection process will be conducted using a mobile laboratory according to Attachment 1 and the *Advisory – Active Soil Gas Investigation* by DTSC and RWQCB (January 2003). A general description of the sample collection procedures is provided in the following sections. Notification to DTSC of the date and time of sampling will be at least 10 working days in advanced of proposed sampling.

In order to determine the lateral and vertical extent of soil gas impacted by VOCs, DTSC requires the installation of four soil gas probes. The probes will be located on and off-site of the facility. An evaluation of soil gas must be performed with respect to the adjacent mobile home park and the residence to the northeast of the facility. Any proposed remediation goal must meet acceptable human health based levels as defined by DTSC. One multi-level soil vapor probe will be located in the area of highest soil vapor concentrations on the facility property. One will be located near the nearest residential structure on 3854 126th Street. One will be located off-site near the location of the nearest mobile home on the mobile home park adjacent to the facility. Lastly, one will be located near one of the commercial business adjacent to the former facility. This will allow evaluation of potential soil gas migration to adjacent properties and potential human exposures to occupants. If significant soil gas concentrations are encountered or if DTSC finds a human health threat, additional probe points shall be installed.

LEC proposes the following initial investigation:

- Construct multi-level soil vapor probes at four locations described above. Sampling intervals will be installed at 5, 17 and 33 feet.
- Sample and analyze the three intervals from the two locations in accordance with *Advisory – Active Soil Gas Investigation* by DTSC and RWQCB (January 2003)

All soil gas samples will be analyzed for fixed and biogenic gases (CO_2 , O_2 , N_2 , and CH_4). Soil gas samples will be analyzed in the field by a mobile laboratory using EPA Method 8010/8020, 8260 or equivalent.

A report will be prepared detailing the results from the soil vapor investigation. A map showing sampling points, diagrams showing cross-sections with lithologic and contoured concentration data and description of the protocols used during the soil gas investigation will be included in the report.

8.6 Soil Gas Sample Locations and Depths

Flexibility will be maintained in the implementation of the work plan so that field modifications such as adjustment of the vertical depth intervals and placement of the soil vapor measurements can be made as real time evaluation of lithology and analytical results occurs.

Should rainfall occur during outdoor sampling activities, suspension of activities is not a sufficient response. The surfaces of the locations under investigation must be covered, especially if concrete or asphalt has been stripped away or if any excavations have been made. There must be no ponding of water within or around the excavation. Any cuttings of stripped or excavated materials must be carefully and securely covered. Run-off from areas under investigation or infiltration into the soil and surrounding areas are not allowed.

Where necessary, the concrete/asphalt cover will be cored to allow penetration of the drilling equipment. The top of the probe tubing will be fitted with an adaptor which will be connected to a sampling tube. This tube will be connected to a syringe, evacuated cylinder, or air pump that will withdraw ambient air (initially) and soil-gas. To prevent the introduction of outside ambient air into the sampling train, all adaptor and tube connections at the surface will be tightly sealed. A flow meter will be installed allowing the measurement of the flow rates.

8.7. Probe Construction

The four soil vapor probe locations with three screened intervals each will be constructed as follows:

- Advance the borings to a depth of 35 feet bsg using a 10-inch diameter hollow-stem auger, obtaining soil samples for logging and PID screening at 5-foot intervals beginning at a depth of 5 feet. Place soil vapor probes consisting of 1/8 inch ID tubing with 6 inch stainless steel screen intervals will be installed at approximately 4.5-5', 16.5-17' and 32.5-33 feet.
- Place #3 Monterey Sand at approximately one to two inches above and below the 6" stainless steel screens.

- Place a bentonite seal, (hydrating at frequent intervals) between each 8-10” sand pack for the screened intervals
- Place bentonite seal from the shallowest probe screened interval to the surface.
- Install 1/8 inch ID –airtight brass swagelock fittings on tubing
- Install a traffic-rated locking well vault for surface completion with sloping concrete apron surrounding the vault. Tubes must be labeled with a permanent metal tag showing their depth and suggested purge volume.

8.8 Purge Testing

Purge volumes versus concentration testing will be conducted at the beginning of the soil-gas investigation to evaluate the optimal purge volume to use during sampling. Three purge volumes will be collected and tested for the target compounds described in Attachment 1. Additional purge volumes may be required based on the behavior of the concentration curve produced by the first three purge volumes. If VOCs are detected, the purge volume with the highest analytical result will be selected as the optimal volume of soil-gas to purge prior to sample collection.

If VOCs are not detected, an amount equal to the volume of tubing will be purged. The zone of influence for the soil-gas sampling points is an important consideration in selecting the purge volume. The depth of the sampling point, the tubing diameter, and length of soil-gas sampling interval are all factors that must be considered in this decision. The estimated soil-gas capture zone will be calculated from the following: sample depths, sample probe volume, purge volume, soil porosity, and volume of soil-gas collected. These calculations will be used to identify a maximum purge volume and to demonstrate that subsequent sample collection is not diluted with atmospheric air.

8.9 Soil Gas Sample Collection and Analysis

After the necessary purging has been completed, a soil-gas sample will be collected from the interval by attaching a gas-tight syringe or a glass bulb to the sampling tube and withdrawing the sample manually. Tedlar bags will not be used. Soil gas holding times in excess of 20 minutes are unacceptable. This is primarily due to leakage uncertainties and possible soil moisture/condensate effects.

Samples obtained from the 5-foot probes will be collected using Summa Canisters and will be delivered to a State certified laboratory as quickly as possible (within 12 hours). The remaining samples will be analyzed by an onsite mobile laboratory.

All samples will be analyzed by direct injection into a gas chromatograph/mass spectrometer. A three point calibration check will be performed by the laboratory in

accordance with Attachment 1. The laboratory's analytical procedures, column characteristics, and sample flow rate are described in Attachment 1. Also described are the QA/QC procedures to be employed in support of the analytical data.

As stated in EPA Methods 8010/8020 or 8021, which will be utilized, 5030 extraction and direct injection of gas shall be performed. The soil gas guidelines indicate that any appropriate combination of detectors, mass spectroscopy can demonstrably achieve the QA/QC requirements and specificity for the VOC list, in addition to any additional site-specific constituents of concern. The detection limits of the soil vapor samples will remain as low as practical, with a goal of 1 µg/l. Notification to DTSC of the date and time of sampling will be at least 10 working days in advance of proposed sampling.

9.0 GROUNDWATER INVESTIGATION

Groundwater grab samples collected using direct push methods were collected on December 14, 2001. Three grab groundwater samples were collected at depths ranging from 56 to 58 feet. Results of the analyses of samples collected from open direct push holes were submitted to the DTSC. Grab samples of groundwater collected from open holes drilled to depths of 56-58 feet contained PCE at 2.5 to 3.1 µg/l and TCE at 8.6 to 200 µg/l. As described in Section 7.0, the groundwater and subsurface soil contains evidence of releases resulting from facility operations. SES was instructed to implement the approved Closure Plan after detecting contamination in groundwater. Closure implementation ceased in late 2001. Section 10.1 of the Facility's approved closure plan provides that a groundwater investigation shall be conducted if contamination is found during the initial soil sampling phase of the investigation. This investigation is intended to aid in determining the nature and extent of the elevated concentrations of TCE previously detected in site groundwater. The previous analytical data were obtained from grab samples collected from direct push open hole samples

Three borings will be drilled to 70 feet and converted to groundwater monitoring wells with a 10-foot screen across the water table. The vertical position of the well screen and screened interval length may be modified in the field by the contractor in consultation with DTSC present on-site or available by phone. SES proposes to sample the wells on a quarterly basis for a period of one year. If the wells indicate that there is a confirmed source of groundwater contamination the facility will implement a contingency to implement further groundwater reconnaissance downgradient.

DTSC is requiring a phased groundwater investigation. The primary objectives of this initial investigation are to determine the direction of groundwater flow, acquire more data to delineate the impact and extent of the contaminant plume and assist in assessing the

potential impact of soil vapor contamination on occupants of the facility and nearby residences.

9.1 Monitoring Well Boring Locations

Three groundwater wells will be installed initially as the first phase, on- and off-site to uppermost groundwater. Water levels will be measured in the wells to determine the direction of groundwater flow. The wells will be sampled in order to evaluate any contaminant migration from the SES facility. After the groundwater flow direction is determined and the groundwater contamination is statistically confirmed, SES will continue with a second phase of additional groundwater reconnaissance methods such as cone penetrometer/hydropunch samples and a minimum of two permanent wells to completely determining the off-site lateral and vertical extent of groundwater contamination.

The screened interval of the wells will be 10 feet in length. The monitoring wells will be developed and sampled using the procedures described in Section 10.3. The wells will not be developed until a minimum of three days have elapsed after installation. Groundwater samples shall not be collected until two weeks after development.

Well construction, development, sampling, and decommissioning will be in accordance with the following guidelines: Monitoring Well Design and Construction for Hydrogeologic Characterization, Guidance Manual for Groundwater Investigations, Guidelines for Hydrogeologic Characterization at Hazardous Substances Release Sites (Volumes I and II), Representative Sampling of Groundwater for Hazardous Substances Release Sites, and Reporting Hydrogeologic Characterization Data from Hazardous Substances Release Sites, by the State of California Environmental Protection Agency, 1995.

The three borings to be completed as monitoring wells will be placed in the following locations: One well will be place on the SES facility. Two wells will be placed at the approximate locations shown on the attached map (Figure 8) on public rights of way. The locations of these wells may be adjusted based on the presence of underground utilities or due to physical or logistical drilling problems. The borings will be drilled using the hollow stem auger drilling method to the uppermost aquifer.

The annulus of the groundwater monitoring well will be filled with cement/bentonite slurry. The well will be filled to the ground surface in accordance with California Department of Water Resources requirements

9.2 Groundwater Monitoring Well Installation

The groundwater monitoring wells will be constructed with flush-threaded, 4-inch diameter Schedule 40 PVC blank casing and 4-inch diameter slotted PVC screen. The length of the screened interval will be 10 feet. A 3-inch to one foot section of blank casing will be placed below the screened interval to act as a sediment trap. The annular space between each well screen and borehole will be packed with clean, graded sand, which will extend from the bottom of the borehole to approximately two feet above the screened interval.

A 2- to 3-foot bentonite seal will be placed above the sand pack followed by a tremmie tube emplaced pressure-grouted bentonite slurry sanitary seal to approximately five feet below grade, with concrete to ground surface. The surface completion of the well will have a flush-mounted, traffic-rated well vault and sloping raised concrete apron. The well will be equipped with a pressure-fitted, locking well casing cap.

In order to prevent delays in the granting of well permits from the County of Los Angeles Environmental Health Department and to ensure that the designs are consistent with the DTSC and County of Los Angeles requirements, all designs and permit applications must be submitted to DTSC for approval before being submitted to the County of Los Angeles. The designs must be consistent with the following criteria:

The investigation of the extent of contamination and lithologic data must proceed to the first occurrence of groundwater to determine if groundwater has been impacted by the facility or if there is a potential upgradient source. The boring permits for the groundwater monitoring well must be to at least 60 feet or to the first occurrence of groundwater.

The groundwater well permit and designs should also allow for depths up to 70 feet below ground surface.

After groundwater is encountered the boring will be converted to a groundwater monitoring well. If the groundwater well is not completed to the maximum permitted depth, revised well or boring permits will be submitted to the County of Los Angeles within seven days if necessary.

The locations of the three wells to be surveyed will be specified by DTSC before the commencement of drilling. The locations of these wells will be within a one-mile radius of the Statewide Environmental Services Facility. The water levels in these wells will be measured to determine the local groundwater flow direction and to determine any flow direction changes due to seasonal changes. The work plan will use the USGS hydraulic conductivity estimates for USCS system classified aquifer material in order to estimate groundwater velocity.

DTSC will collect samples of groundwater from the selected wells.

The groundwater wells adjacent to the Facility property will be flush-mounted completions with sloped concrete aprons which will surround the surface completion to prevent surface runoff from entering the well. The well will be fitted with a locked, liquid-tight, pressure fitted well cap. The monitoring well design must include a 10-foot maximum length screened interval. The keys to the well vault and casing cap lock should only be accessible to the County of Los Angeles, DTSC and the Contractor.

9.3 Monitoring Well Development, Surveying and Groundwater Elevation Measurement

Prior to developing the monitor well, groundwater should be checked for immiscible layers using an interface probe (supplied by the contractor) or a NAPL sensitive dye (e.g. Sudan IV, supplied by DTSC) to detect potential immiscible phases in groundwater. The monitoring well will be developed using standard surging and bailing techniques prior to groundwater sampling. Each well will be surged using an appropriately sized surge block attached to a 10-foot section of steel AW rod and a stainless steel line. The wells will be surged in approximately 3-foot intervals. The wells will then be bailed with a clean stainless steel or PVC bailer to remove a portion of the silts and clays. The wells will be further developed by having groundwater with less than 5 nephelometric turbidity units is achieved or 10 casing volumes of groundwater have been removed by pumping or bailing. During development, water pH, conductivity, turbidity and temperature will be monitored by the contractor and recorded on the sampling log. The development of all wells must be observed, recorded and submitted to DTSC in the field notes (indicator parameter measurement, equipment, observations, before and after water elevations, recovery times and other observations).

The elevation of each well shall be surveyed to a notched mark on the top of the well casing relative to a bench mark or known datum by a licensed land surveyor. The well identification and well survey mark shall be identified by a tag or other permanently attached method within the well vault. Well identification will also be conspicuously marked on the outside of the well. The total depth should be compared to the as-built depth to measure siltation at least annually to determine if redevelopment is necessary.

The groundwater surface elevations of all wells shall be measured to an accuracy of 0.01 foot with an electronic water or oil/water interface sounder relative to the surveyed well datum. The water level elevation will be measured and recorded prior to purging and before sampling.

9.4 Groundwater Sampling

Sampling will not occur until 2 weeks after well development. At least 72 hours will pass between construction and development to allow curing of the well construction materials. Prior to the collection of groundwater samples, a minimum of one casing volume of groundwater will be removed from each well by bailing or by pumping at a rate which does not exceed the recovery rate of the well. The contractor will calculate the well casing volume and measure and record the purge rate and volume. Whenever possible, purge rates must not exceed recharge rates. The objective is to avoid purging a well to dryness whenever possible. Field notes must include the color (if any) and possibly odor of purged water. The contractor must measure, record and report the equipment used, and stabilization criteria for measurement and stabilization of field parameters. Turbidity, oxidation reduction potential, and dissolved oxygen must also be measured. Wells must be purged until the field parameters stabilize. Temperature, electrical conductivity, and pH will be monitored periodically to determine that these parameters have stabilized (do not change from the last measurement by a factor greater than 10% for conductivity and temperature and within one pH unit) prior to sampling. Field parameter stabilization criteria are generally +/- 0.1 pH unit, +/- 1°C, +/- 10% of the last measurement of conductivity and turbidity. If some field parameters do not stabilize, no more than five casing volumes will be removed prior to collection of groundwater samples. Groundwater field parameters shall be monitored, analyzed and reported to DTSC. All measurements of field parameters must be recorded in the field log. Field parameter stabilization criteria are generally +/- 0.1 pH unit, +/- 1°C, +/- 10% of the last measurement of conductivity and turbidity. The minimum purge volume between stabilization tests must be stated (e.g., one half casing volume). Turbidity must be measured with a turbidity meter. Visual estimates are not sufficient. The contractor must report the calibration procedures and frequency and record keeping for all meters used during sampling. Expiration dates of standard solutions used for calibration of meters must be recorded in the field log. Deviations noted during sampling activities (e.g., meter drift) must be recorded in the field log. A low-flow pumping rate shall be used, measured, and recorded using a totalizer, flow gage, graduated stick in a drum and a stop watch or other means. Micropurging or no-purge methods may be used. Groundwater samples will be collected from each well in 40-milliliter VOA vials with a Teflon septum with zero headspace, as required by laboratory analysis for EPA Method 8010/8020 or 8260B. Amber 1-liter bottles will be used for TPH sample collection, 1-liter plastic bottles for will be used for metals, and 1-liter amber bottles will be filled for pesticide analyses. Containers prepared with preservatives will not be overfilled. Sampling rates should generally not exceed 100 ml/minute. Clean, powderless, surgical gloves (or another type of approved glove) should be worn by sampling personnel and changed often. The contractor must collect the groundwater samples according to the least stable to most stable analytes (e.g., VOCs first, SVOCs, pesticides, metals, etc.).

The initial three groundwater monitoring wells will be measured and sampled quarterly for a period of one year. DTSC may require extended periodic monitoring of the initial three wells and/or additional wells based on the concentrations and groundwater velocity.

Future quarterly groundwater monitoring events must include a description of the sampling order based on the contaminant data (least contaminated to most contaminated). This sequence will determine the order of which wells will be checked for water level measurements and sampling. This is necessary in order to minimizing the potential for cross contamination. The contractor must inspect, record and submit well head conditions in the field notes. These sheets must be submitted to DTSC in the field notes and must record the: condition of well casing, total depth versus as-built comparisons, well lock, markings, any standing water at the surface, and any suggested maintenance will be recorded in the field notes.

9.5 Quality Assurance/Quality Control (QA/QC) Samples

For QA/QC purposes, duplicate, equipment rinse-blank, trip-blank and field-blanks shall be obtained for analysis. A duplicate sample is an additional sample that is collected at nearly the same time as the original. The equipment rinse-blank is a vial of water of known purity that has circulated through the bailer or other sampling device prior to sampling and after the decontamination process. The trip blank is a vial of distilled water included in the thermally-insulated ice chest during sampling and shipping. Field-blanks will also be collected to mimic the actual groundwater sampling as much as possible by pouring water of known purity into sampling vials to determine whether ambient conditions affect the samples. These QA/QC blanks are used to provide an indication of contamination introduced as a consequence of the sampling and shipping procedure.

All QA/QC samples shall be analyzed for VOCs using EPA Method 8260.

10.0 DTSC NOTIFICATION

Prior to commencing with investigation field activities, the Contractor will notify DTSC by phone and e-mail at least 10 business days in advance of any field work. DTSC will be the lead regulatory agency for the SES work plan and will be the primary point of contact.

11.0 CONDUCT PRE-FIELD ACTIVITIES

A site-specific Health and Safety Plan has been prepared and is included in Appendix A. This plan has been prepared in accordance with Occupational Safety and Health Administration regulations, 29 CFR 1910.120, and applicable DTSC guidance. This plan identifies potential hazards associated with physical activities and potential exposure to hazardous constituents identified during previous sampling activities at the Facility. All field investigation activities will be conducted in accordance with this work plan.

All field activities will be directed by a geologist or civil engineer licensed to practice in the State of California. The utility clearance will be obtained prior to drilling activities to identify underground and overhead utilities/hazards at the Facility. Underground Service Alert (USA) will be notified at

least 48 hours prior to the commencement of drilling activities to identify municipal utilities at the Facility. Prefield activities will include obtaining all appropriate and necessary permits to install and sample the boring and groundwater monitoring wells. Prior to the initiation of field work, the Contractor will obtain subcontractors, and organize field documentation. The contractor will perform utility clearance for each boring location using geophysical methods, ground-penetrating radar or a magnetic pipe locator. All proposed locations of subsurface investigation will be clearly marked with white paint or surveyors flagging. The locating service will contact all utility owners of record within the Facility vicinity and notify them of the intention to conduct subsurface investigations in proximity to buried utilities. As a precautionary measure, each boring location will be hand augered to a depth of five feet to reduce the likelihood of encountering underground utilities with the drilling machinery. Prefield activities will include obtaining all appropriate and necessary permits to install and sample the boring and groundwater monitoring wells.

12.0 QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The contractor will be responsible for the laboratory quality assurance and quality control (QA/QC) procedures under their standard operating procedures. The Contractor will only be required to collect QA/QC samples and be responsible for proper field collection, decontamination, preparation and transportation related QA/QC and will not be required to perform any other tasks in the QA/QC protocols. These guidelines have been established to ensure the reliability and accuracy of analytical data, and have been designed in accordance with professional standards, government regulations and guidelines, and specific project goals. The samples will be analyzed to the lowest level practical quantitation limits (PQLs). Also included are protocols for:

- Laboratory QA/QC
- Field QA/QC procedures including data quality objectives

Quality Control (QC) measures will be followed as part of the plan's quality assurance program and will be conducted in accordance with U.S. EPA guidelines. Field QC will include appropriate sampling methods, sample containers, and preservatives and the collection of field blanks and duplicates. Laboratory QC will include the analysis of calibration standards, laboratory reagent blanks, matrix spikes, and replicate samples.

The purpose of the QC measures will be to determine both the accuracy and the precision of data collected. Precision, an indication of the reproducibility of data elements, will be measured by comparing the results of duplicate sampling and analysis. Accuracy, an indication of how closely data elements reflect true conditions, will be measured by the use of blanks and spiked samples.

Quality Assurance (QA) measures will be used to monitor the sampling program from sample collection through sample analysis. The QA program includes review of sample collection protocols, chain-of-custody procedures, and quality control data.

12.1 QC Blanks

QC blanks will be used to identify and quantify contaminants which may be introduced to the sample as a result of the sampling and/or analytical process, but which may not be present in the environment from which the sample was collected. Field blanks and equipment blanks will be collected/prepared during this investigation. Reagent blanks and the matrix spike and matrix spike duplicates will be made up of soil from the Facility. For soil-vapor samples a mobile laboratory may be used.

12.2 QC Sample Instructions

Specific details for the number and type of QC samples to be collected include:

- A trip blank for VOC analysis will be prepared each day. Trip blanks will be used to identify compounds that might be introduced to sample containers during transport and/or storage. Trip blanks will be prepared at the laboratory using distilled water of known purity. One trip blank will be prepared for each sampling day and will accompany the sampling personnel during sampling activities. The trip blank will be deionized water transferred to a sample bottle at the analytical laboratory. The trip blank containers will not be opened in the field. These blanks will be stored with the field samples and handled according to chain-of-custody protocols. One trip blank from each sample shipment will be analyzed for applicable chemical constituents.
- One equipment blank will be prepared and analyzed for the appropriate analytical methods per day for each piece of sampling equipment (after decontamination activities) per day. The equipment blank will be used to identify compounds that might be introduced by the sample collection process, sampling equipment, or the sampling environment. Equipment blanks will be generated using sampling equipment required to collect the sample. The equipment blank will consist of distilled water which has been poured over decontaminated equipment, contained and transferred in appropriate sample containers, and handled in a similar manner as the assessment samples. The equipment blank will be analyzed for applicable chemical constituents.
- Field duplicates will be collected and analyzed for a minimum of 5% of all samples. Duplicate samples will be collected to test field and laboratory precision. Duplicate soil samples will be collected by retaining both samples sleeves from the same sample barrel. Duplicate samples will be handled and analyzed with the original samples. At least 5% of soil samples will be collected for duplicate sample analysis.
- One matrix spike duplicate and one method blank will be prepared and analyzed by the laboratory for the appropriate analytical methods per day of sample collection. Matrix spiked sample analysis will be used to evaluate the effect of the sample matrix on the analytical methodology and the precision of laboratory instrumentation. The laboratory will prepare and run one matrix

spike sample per day of sample collection. The matrix spike samples will be analyzed for applicable chemical constituents. A laboratory reagent blank (also referred to as a "method blank") will be generated and analyzed for applicable chemical constituents for laboratory quality control. The reagent blank monitors the level of contamination which may be introduced by reagents, tubing, or glassware. A reagent blank will be processed through the entire analysis procedures. At least one laboratory reagent blank will be generated and analyzed for every day of sample collection. Laboratory reagent blanks will also be used in calculation of the laboratory limits of detection and quantification. Laboratory reagent blanks will not be used to justify failure to attain the PQLs nor introduction of constituents of concern by the laboratory. Such problems will necessitate re-analysis even if new samples must be acquired. The contractor will not "Blank Adjust" the analytical data.

12.3 Samples Control/Chain of Custody

One member of the sampling team will be assigned to assemble the necessary containers, container labels, and laboratory request sheets. All sample containers will be labeled with the following information:

- Sample number
- Sampling personnel
- Sample type
- Project name and number
- Parameters to be analyzed
- Any preservative added to the sample
- Facility name and sampling point
- Date and time of sample collection

All sample labels will be selected to remain legible even if wet. The sample designation will incorporate sample location and depth. Field and equipment blanks will be sent "blind" to the laboratory. They will be designated a sample number in an attempt to shield their purpose and reduce potential laboratory bias.

12.4 Sample Analysis

Laboratories that will perform analyses on samples collected during this investigation will be required to have a satisfactory QA/QC program to assure the reliability of analytical results. Samples shall be analyzed by a Department of Health Services ELAP certified laboratory using U.S. EPA SW-846 Update III approved methods. Confirmation of sample analyses within specific holding times shall be obtained from the laboratory and included in the Investigation Report.

The contractor and laboratory subcontractor will evaluate QA/QC results to assess the validity of the sample data. Laboratory data for reference samples or standards will be reviewed to assess the degree of instrument calibration and to determine overall method bias. Data for laboratory replicate samples will be used to determine reproducibility, and, therefore, precision.

The contractor and laboratory subcontractor will evaluate the data based on percent recovery or relative percent difference of duplicate concentrations and mean and standard deviation of upper and lower control limits. A value of three times the standard deviation will be used to indicate a potential QA/QC concern which may require further evaluation.

12.5 Laboratory Reporting

Analytical laboratory results will be reported in the format of the laboratory form for VOCs. This will allow DTSC's review of data adequacy to proceed more expeditiously.

Potential QA/QC concerns with respect to the samples will be evaluated independently by DTSC. If the data are not satisfactory, re-sampling may be required.

13.0 PRE-SAMPLING ACTIVITIES

Prior to collecting samples, the following activities will be conducted:

- Review project objectives and identify sampling locations.
- Review operation of sampling equipment and schedule of analyses to be performed.
- Review existing Facility specific Health and Safety Plan.
- Conduct a tailgate health and safety meeting to review health and safety procedures with all field personnel.

14.0 AIR MONITORING

The photo-ionization detector (PID) will be calibrated at least once per day using standard calibration procedures, and document in the field notebook. To minimize downtime, routine maintenance of this instrument will be conducted. Routine maintenance includes wiping dust and foreign materials from instrument surfaces and periodically cleaning the lamp. Replace lamp as necessary.

15.0 CONCRETE CORING

The on-site and off-site sampling locations are covered by concrete and/or asphalt. These locations will be core-drilled to provide access to the underlying soil. Conventional concrete coring equipment or drilling equipment will be used to cut through the asphalt or concrete surface.

16.0 SAMPLE COLLECTION/PRESERVATION

During sample collection, the following activities will be conducted:

- Collect samples following QA/QC procedures described in this section.
- Place samples in sample containers and store in an ice chest packed with ice or blue ice for sample preservation.

The samples will be handled to preserve the representative integrity of the samples and to minimize volatilization and exposure to light and heat. The described refrigeration, handling, storage and transport methods will limit the effects of biological activity, hydrolysis of chemical compounds and complexes, absorption, and volatilization in the sample.

The laboratory will be contacted at least one week prior to sampling for a complete list of sample volumes required and further methods of preservation to be used, subject to consultation by phone with DTSC staff.

Samples that require refrigeration will be stored in an ice-chest containing ice or blue ice to maintain samples at 4 °C during field activities and transportation. A thermometer will be placed in

the ice-chest to monitor temperature. As the ice melts, liquid will be drawn off such that the samples are never immersed in water.

16.1 Sample Labeling

The Contractor will affix a label to each sample and provide the following information:

- Sample identification number
- Project name
- Collection date and time
- Sample location
- Name of sample collector
- Pertinent handling information
- Analytical method and preservative (if any)

Sample labels will identify the depths at which samples were collected. The depth will be part of the sample designation. Sample designation will correlate between all citations (technical and laboratory reports, chain-of-custody and Facility plan).

16.2 Chain-of Custody

The Contractor will maintain a chain-of-custody record which must accompany each shipment of soil and groundwater samples, and must include the following information:

- Sampler(s) name
- Sample identification number
- Project name
- Date and time of sample collection
- Sample type (e.g. soil, water)
- Type and number of sample containers
- Analyses requested for each sample
- Name address of laboratory performing analysis
- Special handling or analytical instructions
- Date and time sample was relinquished
- Signature of personnel involved in chain-of-custody/possession

16.3 Sample Transport

The Contractor will prepare and transport groundwater and soil gas samples as follows:

- Seal chain-of-custody record in a waterproof bag and enclosed in an insulated ice chest with the respective samples for delivery to the laboratory. Sample containers will be placed inside two protective sealable plastic bags and inserted upright in the ice chest. Field sampling forms and a chain-of-custody record will be completed at the time of sample collection. The number of sample containers and any preservative will be noted along with the analyses to be performed. When transferring the possession of the sample, the individuals relinquishing and receiving the sample will sign, date, and note the time on the chain-of-custody record. The original record will accompany the samples to the testing laboratory and a copy of the record will be retained as part of the investigation report documentation. Chain-of-custody procedures described in U.S. EPA SW-846 Update III will be followed. The chain-of-custody form will indicate that the laboratory shall not sub-sample from the ends or sides of the sample tubes. Transportation of the samples will comply with applicable DOT shipping requirements.
- Include trip blank (provided by laboratory, HPLC water) with VOC samples.
- Fill ice chest with ice or blue ice and packing material as required to preserve sample during transport.
- Clearly label ice chest with laboratory address and return address.
- Seal ice chest to prevent tampering during transport.

16.4 Daily Field Activity Log

The Contractor will throughout the investigation note and describe all field activities in daily logs taken by the field engineer or geologist. General information described in the logs will include the following:

- Date and time of entry
- Personnel on site
- Description of daily activities and events
- Other pertinent information

During sampling activities, the log entries will be expanded to include the following:

- Description of soil sampling activities, actual number, location, depth and size of samples taken, description of sampling point, description of sample, equipment used and procedures followed
- Name and personnel of sampling subcontractor
- Date and time of sample collection
- Sketches and/or diagrams describing important activities
- Other pertinent field observations

A hard-bound log book will also be kept by the Contractor with all entries written in ink. The log book will contain information pertinent to soil sampling. Entries in the log book will include the following information:

- Facility name
- Purpose of sampling
- Location of sampling site
- Field contact
- Type of matrix sampled
- Description of sampling methodology
- Names and affiliations of all sampling team members
- Name and address of field contact
- Date and time of sample collection
- Weather at time of collection
- Description, location, depth, and identification of samples
- Field measurements and observations
- Signature of personnel responsible for sampling

Boring or lithologic logs will be provided and will provide information on soil description, condition and sample collection. This is in addition to the "Field log book" and daily field logs. The Contractor will have a California registered geologist or civil engineer or California-certified engineering geologist sign the boring logs for each boring. Note that any non-registered person being utilized to log borings will be directly supervised by the responsible registered person in charge. The person signing the logs will spend a reasonable amount of time in the field supervising the logging. The final lithologic boring logs and as-built groundwater monitoring well logs will be signed by a registered geologist or civil engineer licensed in the State of California.

During sample collection, the following information will be recorded on individual boring logs by the field geologist: project name, boring number, drilling date, and boring location; full name of the field geologist or engineer; lithologic column with graphical lithologic log; sample depths; depth to any saturated zones, if encountered; incremental and termination depths in feet; sample identification number; time of sample collection; sample description (in accordance with the Unified Soils Classification System [USCS]); soil color; estimated moisture content; estimated plasticity; percent recovery of sample; type(s) of equipment used for chilling, sampling, and measurement; and, other pertinent observations, such as presence or absence of visible contamination and organic vapor readings (soil samples and cuttings will be monitored for organic vapors using PID).

17.0 WASTE MANAGEMENT PROCEDURES

Soil cuttings, groundwater, and decontamination rinsate generated during sampling activities will be containerized and temporarily stored on the drill site pending receipt of laboratory data. After laboratory data are received, a qualified waste-disposal subcontractor will be identified to provide disposal services. All disposal activities will be performed in accordance with applicable local, state, and federal regulations regarding the transport and disposal of hazardous and/or non-hazardous waste (as appropriate). Copies of manifests for disposed material will be submitted to DTSC in the Investigation Report.

18.0 INVESTIGATIVE REPORT

The Investigation Report (Report) for the proposed soil-gas sampling, soil-matrix sampling, and groundwater sampling will include the following:

- Summary discussion of sampling activities
- Analytical results
- Determination of the groundwater flow direction, hydraulic gradient, flow rate, and the concentration of contamination in the saturated and vadose zone
- Laboratory data, chain-of-custody, sample analysis, and QA/QC results
- Hazardous waste manifests
- Sampling protocols
- Construction diagrams
- Other significant events or deviations from the work plan
- Conclusions regarding the potential for upgradient or regional groundwater contamination source
- Recommendations for potential further investigation and remediation options
- The report must include all soil characterization data in tables with comparison to applicable regulatory criteria.

The primary objective of this investigation is to delineate the impact and extent of the TCE and PCE ground water and soil vapor contaminant plumes and to determine the potential impact of soil vapor contamination on occupants of the facility and nearby residences.

The report shall also include supporting documents, including daily field work log, a summary of activities performed, copies of all manifests, and all laboratory analytical results.

The report shall include an indoor air evaluation of the past data along with or data for collected as a result of this work plan. The evaluation shall examine the potential for release from soils and groundwater to ambient air and indoor air at nearby residences or receptors occupying the property under the current and any planned future land use. SES must perform an indoor air evaluation using the Johnson & Eddinger (J&E) model. The evaluation must use site specific soil parameters and meet the objective of determining the indoor air risk to all the neighboring residences and businesses. The report must include identification of potential receptors, such as the adjacent mobile home park, nearby residences and businesses. The report must include a population (surrounding immediate community), distance to human

receptors including sensitive receptors (e.g., schools, daycare centers or senior citizens).

The report must show the regional hydraulic gradient, direction of flow, description of aquifers (including confined or unconfined conditions), description of aquitards (including thickness, permeability and continuity, presence of perched ground water, identification of recharge and discharge areas, background water quality, identification of existing wells (including locations design e.g., construction materials, screened intervals, annular seals, depths, pump intake levels, pumping rates, volumes and times of operation, ownership and locations of service areas, etc.). Existing monitoring data such as water level measurements, hydrographs, chemical analytical data from the published literature and records of other release sites in the area may be useful. The report must include the current uses of ground water and the distance to and depth to the nearest spreading grounds, rivers, surface water bodies, flood control channels, and potable water, agricultural or industrial supply wells. The report must include geologic information, including formations, geologic setting and a hydrogeologic conceptual model. The Work plan must include geologic and contaminant concentration cross-sections tables, figures, water level elevation contour maps, contaminant concentration maps, soil types, unified soil classification system descriptions, stratigraphic data, groundwater well locations, ground water elevations and groundwater contaminant concentration data

The report must describe the known and potential releases. The report must include an evaluation of the previously discovered contaminant's potential for release to ground water. The report must include a description of the characteristics of COPCs (e.g., molecular weight, viscosity, pH, density, melting point, water solubility, mobility, toxicity, Henry's Law Constant, vapor pressure, octanol water coefficient (K_{ow}), organic carbon partitioning coefficient (K_{oc}), sorption coefficient (K_D).

The Report shall also include supporting documents, including daily field work log, a summary of activities performed, copies of all manifests, and all laboratory analytical results. Laboratory analytical results from subsequent quarterly groundwater or soil vapor monitoring events will be presented in separate quarterly progress reports submitted to DTSC as required by the order. Sample results should be received within 60 days after receipt of sampling.

The report must establish, or propose methods for establishment, of background concentrations for chemicals of potential concern in soils, and ground water. The methodology for development of background and rationale (including regional studies and statistical methods) should be included. Background samples for soils were collected in the initial implementation of the closure plan. Those analyses must be presented and a statistically derived background level for soils should be developed. Comparison of the developed background with the concentrations found on site must be shown in the report.

The report will be prepared upon completion of all the activities in this work plan. One of the objectives of the report is to document all sampling, monitoring, health and safety and field

activities and measurements and to verify proper implementation of activities discussed in this work plan.

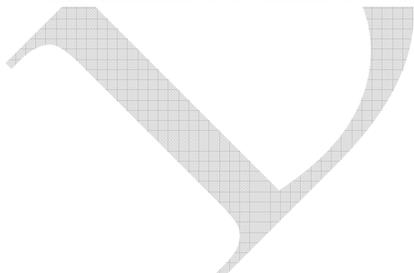
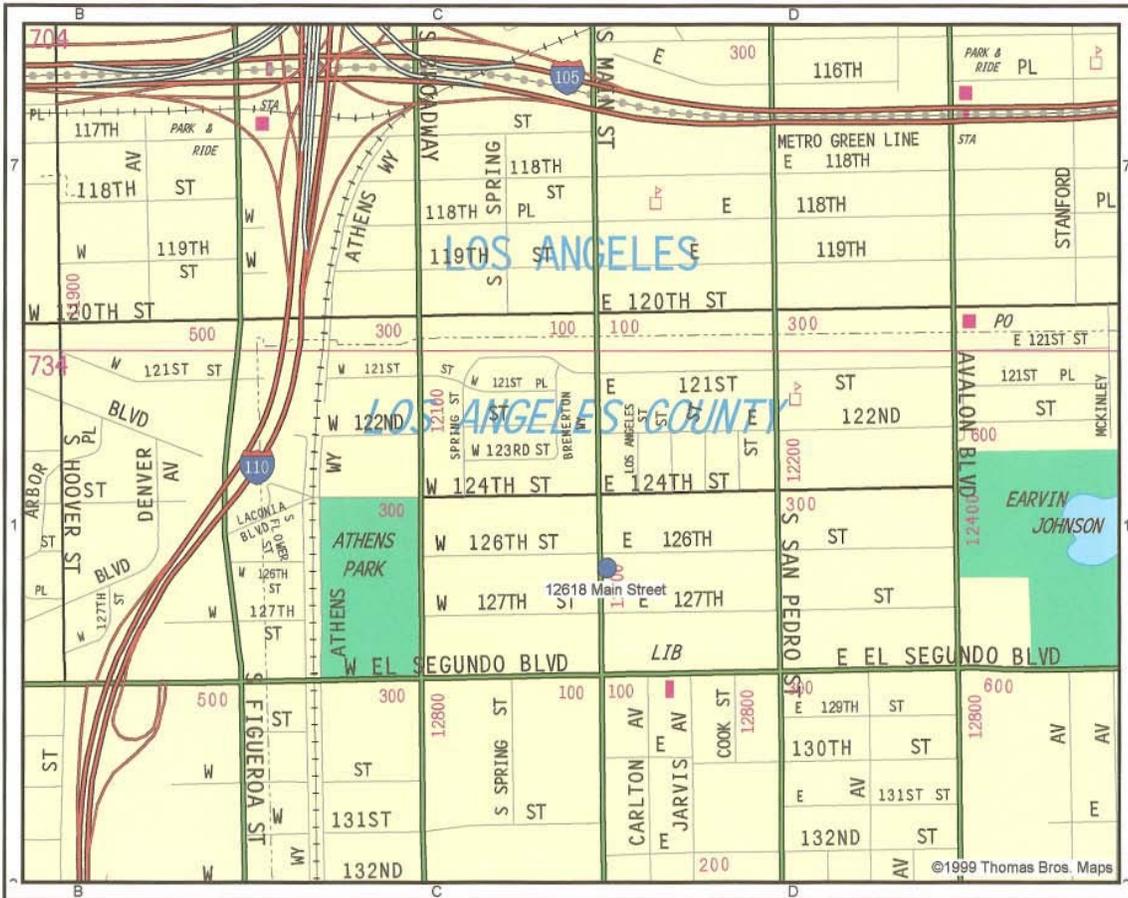
The lithologic boring logs and as-built groundwater monitoring well log will be signed by a registered geologist or civil engineer licensed in the State of California.

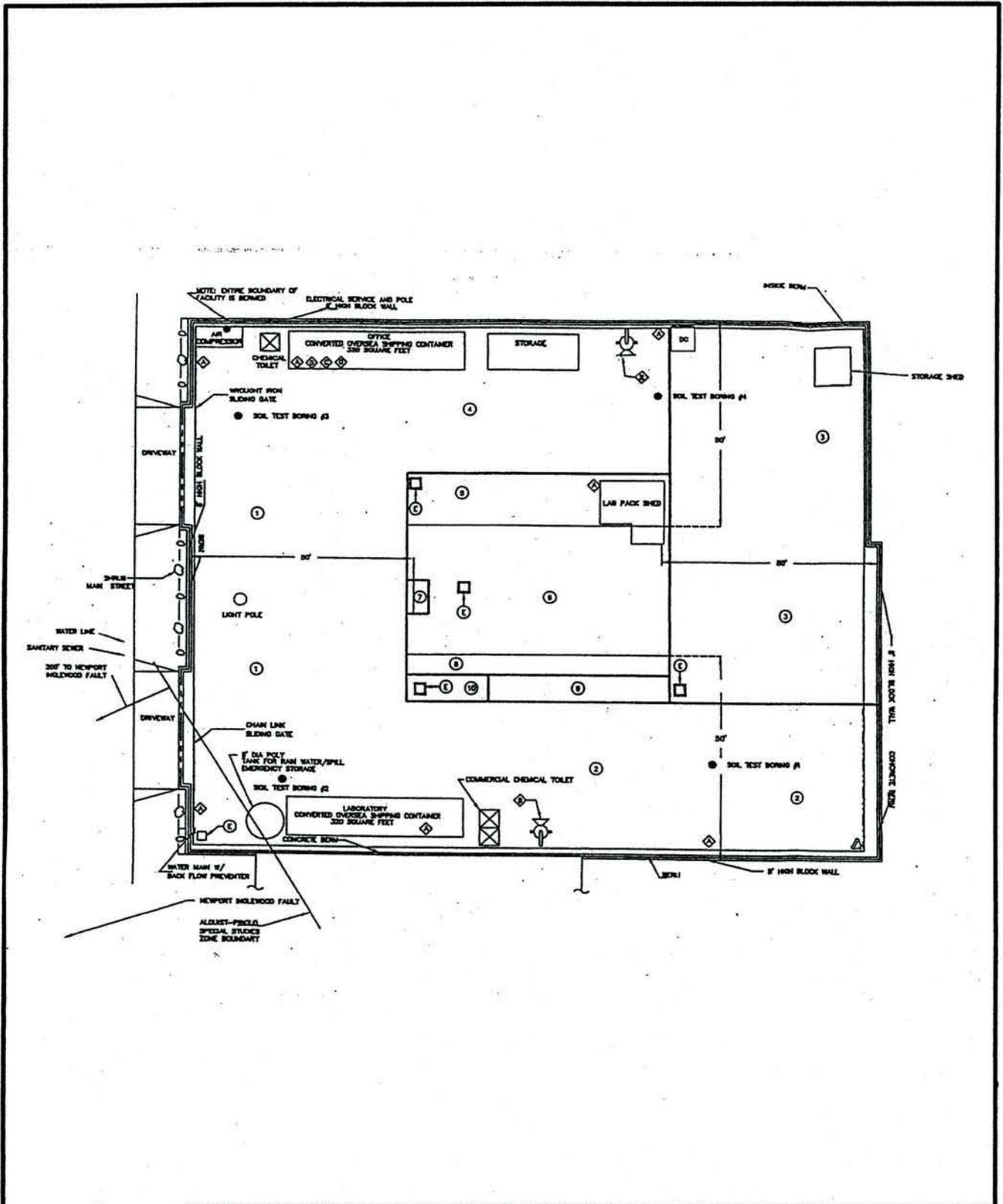
19.0 ANALYTICAL TEST METHODS

The analytical methods are selected based on the knowledge of the existing wastes and wastes accepted and contamination detected to date. The EPA analytical method to be used for groundwater sample analysis for the work plan are 8010/8020/8260, 6010, modified 8015, and 8081. Soil gas will be analyzed using U.S. EPA Method TO-14B. Groundwater must be analyzed for elemental COPCs and for non-naturally occurring contaminants found above ambient levels in soils (VOCs, and pesticides) Dissolved oxygen, hydrogen, ethene, methane, carbon dioxide, nitrogen, oxidation/reduction potential, pH and other biological attenuation parameters must be measured to evaluate the feasibility of natural attenuation of groundwater, in the event that a remedy is required.

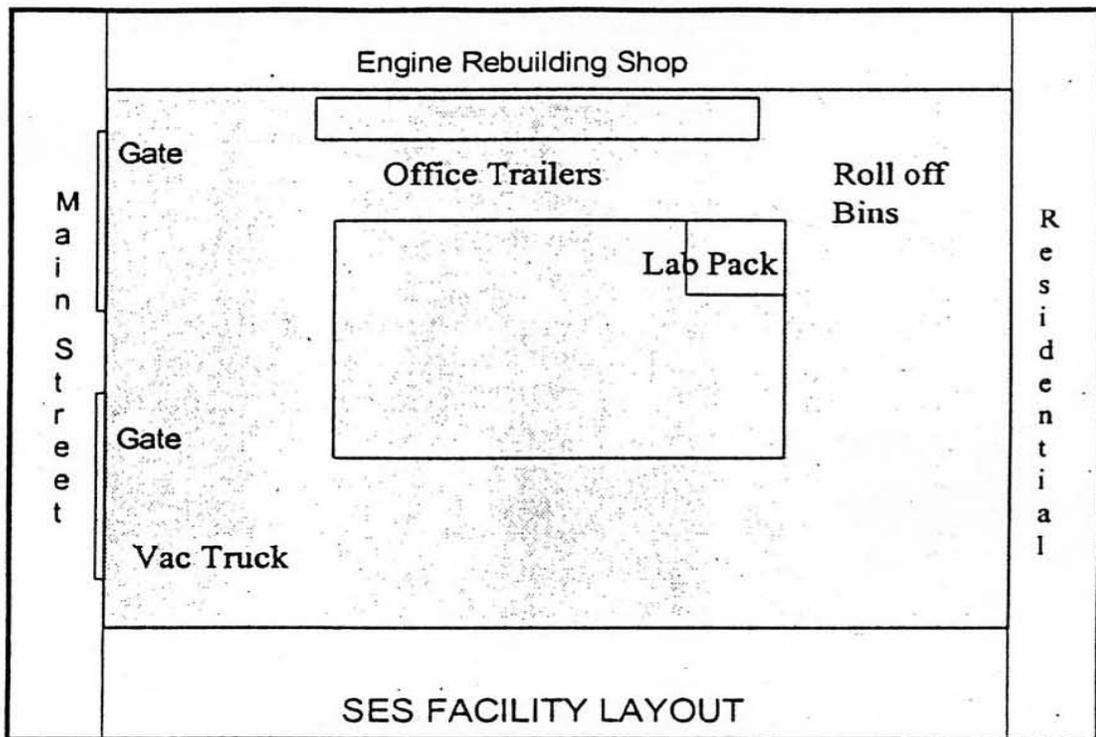
Soil gas analyzed using a mobile lab will be analyzed for VOC using a modified 8260 and for petroleum hydrocarbons using modified 8015. All soil, soil gas (TO-14) and groundwater analyses will be completed by the subcontracted State-Certified Laboratory. SES must collect all the site specific data to allow for the evaluation of monitored natural attenuation and vadose zone modeling, to establish remediation goals. Such factors include: grain size, soil moisture content, estimated or measured soil permeabilities, soil and ground water pH, total organic carbon, bulk density, porosity, thickness of unsaturated zone (vadose zone), chemical oxygen demand (an indicator of the oxygen equivalent of the organic matter content of groundwater susceptible to oxidation), ammonia nitrogen, (a parameter important for potentially applicable bioremediation technologies), phosphates, nitrates, carbonates, iron, total suspended solids (an important factor in oxidation processes), and turbidity (an important factor in oxidation processes).

Detection limits for ground water must be below the MCLs for all VOCs, not only for vinyl chloride and dichloroethene isomers. The contractor should report reporting limits (e.g., should be the practical quantitation limit for each contaminant), detection limits (detection limits must be below all the corresponding regulatory criteria), practical quantitation limit (PQL), matrix spike/matrix spike duplicates (minimum 5% of total samples, surrogates, laboratory control methods (analytical method calibration procedures including calibration checks and the conditions necessitating re calibration), laboratory control samples (LCS), control limits (Relative percent difference, percent recovery, accuracy, precision), laboratory corrective action, data validation procedures.

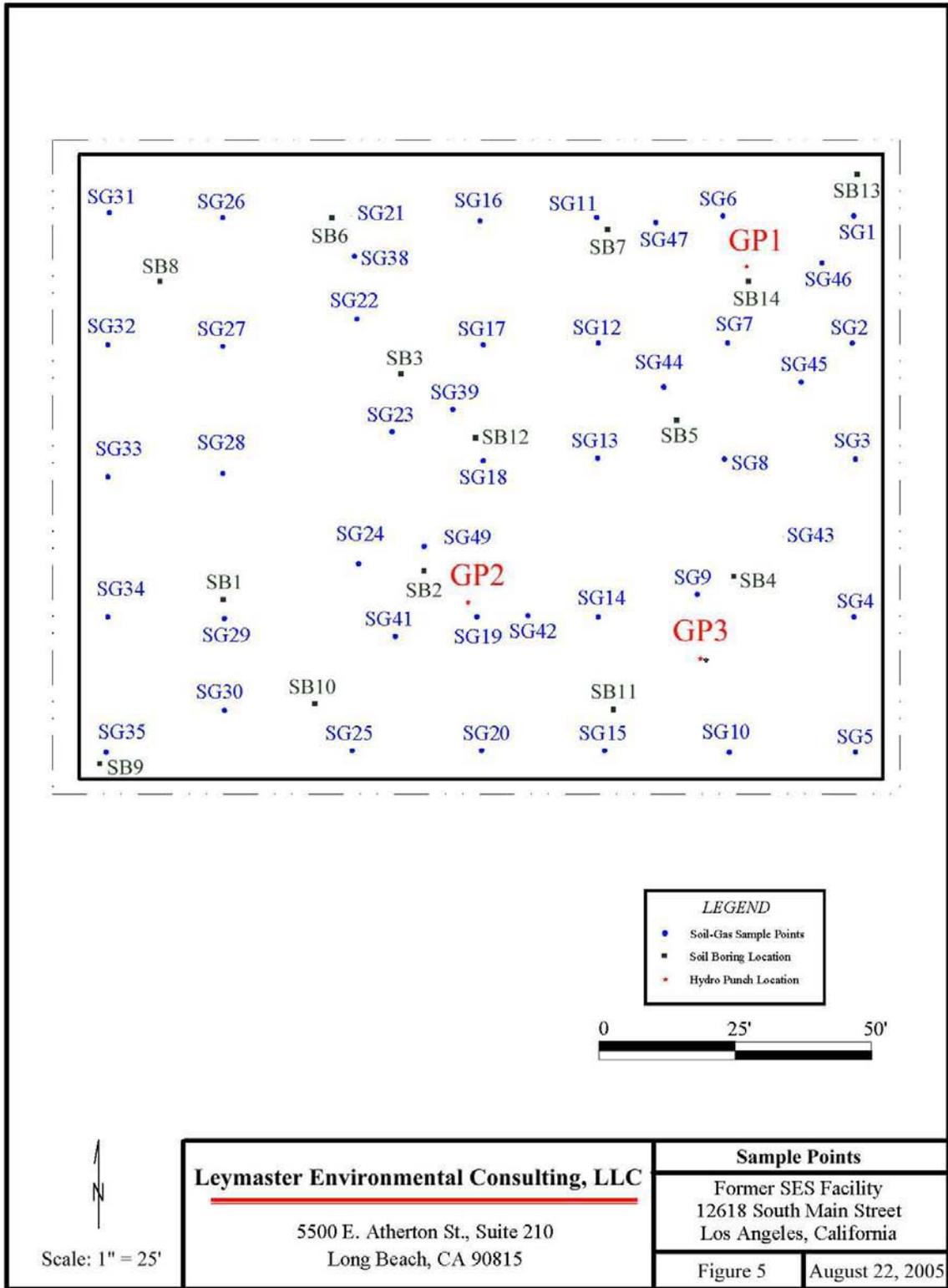


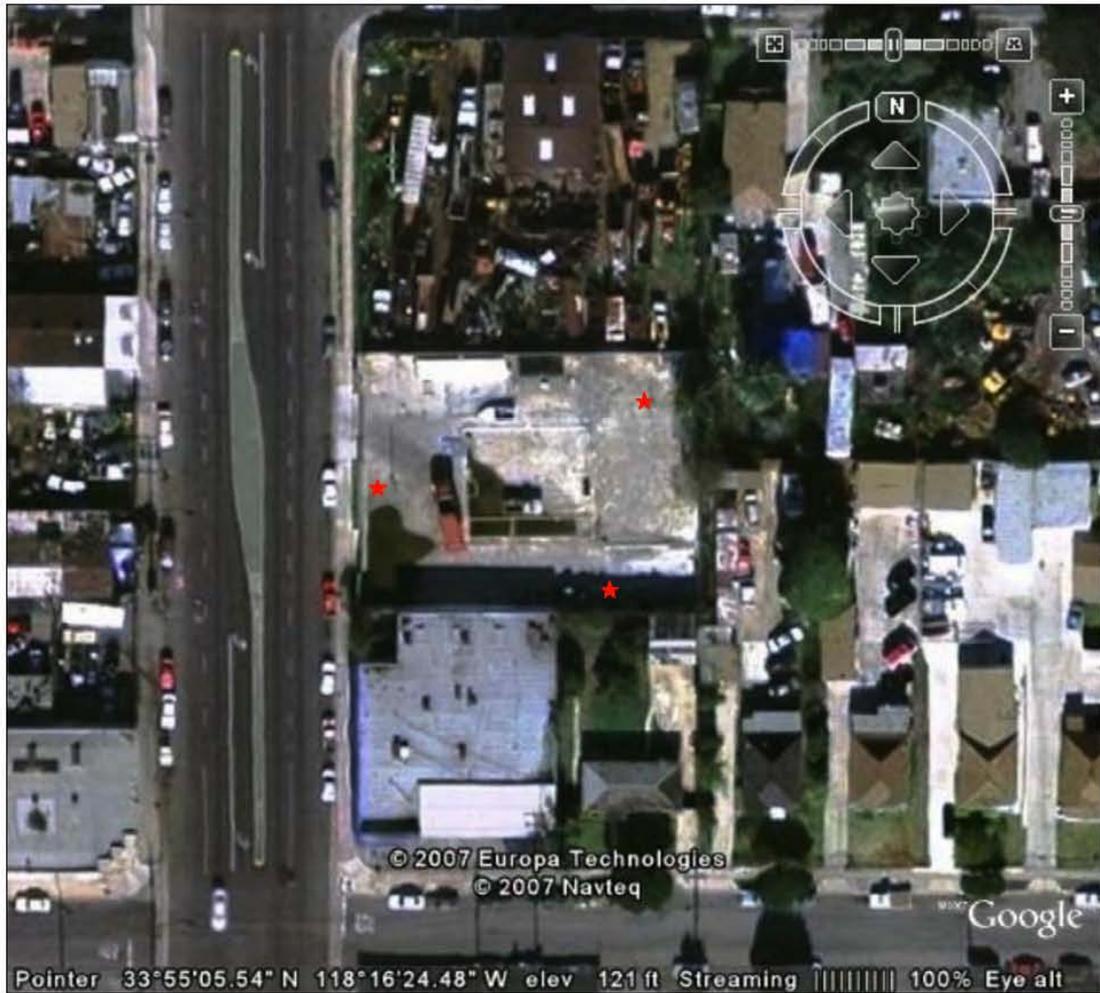


Leymaster Environmental Consulting, LLC 5500 E. Atherton St., Suite 210 Long Beach, CA 90815	R & R Site Plan	
	Former SES Facility 12618 South Main Street Los Angeles, California	
	Figure 3	August 22, 2005



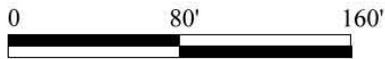
Leymaster Environmental Consulting, LLC 5500 E. Atherton St., Suite 210 Long Beach, CA 90815	Statewide Site Plan	
	Former SES Facility 12618 South Main Street Los Angeles, California	
	Figure 4	August 22, 2005





LEGEND

★ Proposed Groundwater Monitoring Well Location



Leymaster Environmental Consulting, LLC

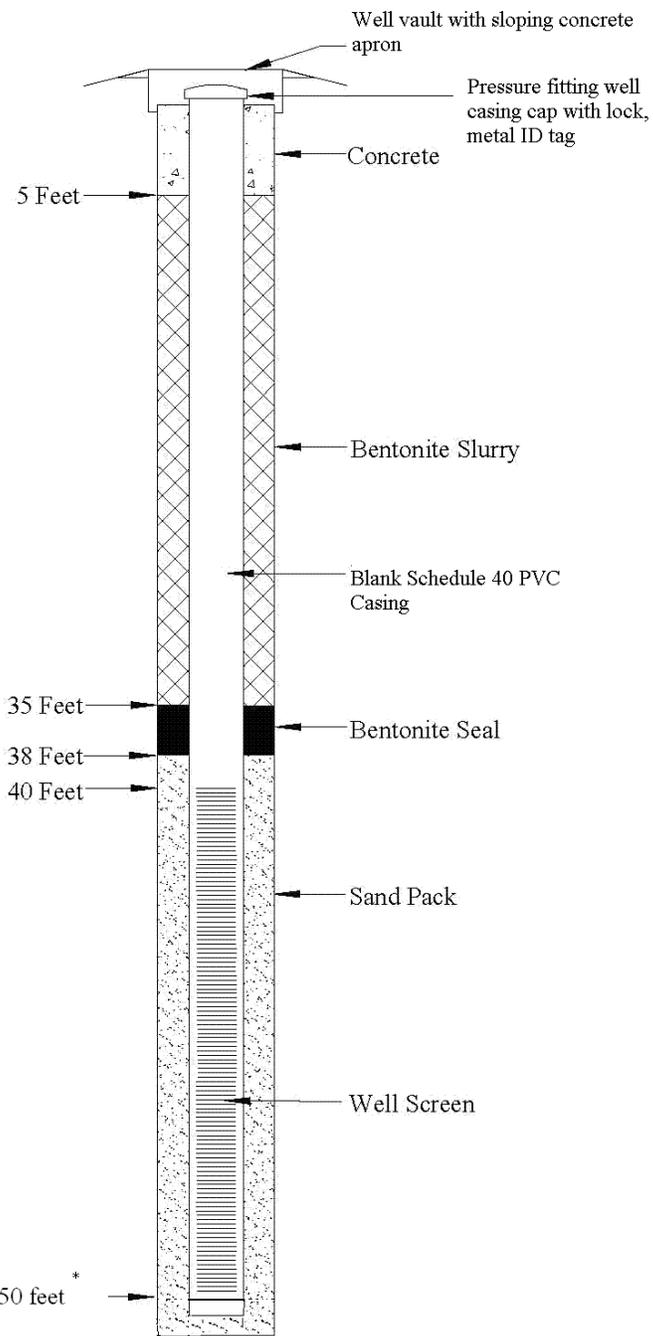
5500 E. Atherton St., Suite 210
 Long Beach, CA 90815

GROUNDWATER WELL LOCATIONS

Former SES Facility
 12618 South Main Street
 Los Angeles, California

Figure 6

March 12, 2007



* - Screened interval may be adjusted in the field based on geologic conditions observed in the field with the approval of DTSC in the field or available by phone.

Department of Toxic Substances Control, Region 3
 1011 North Grandview Avenue
 Glendale, California 91201

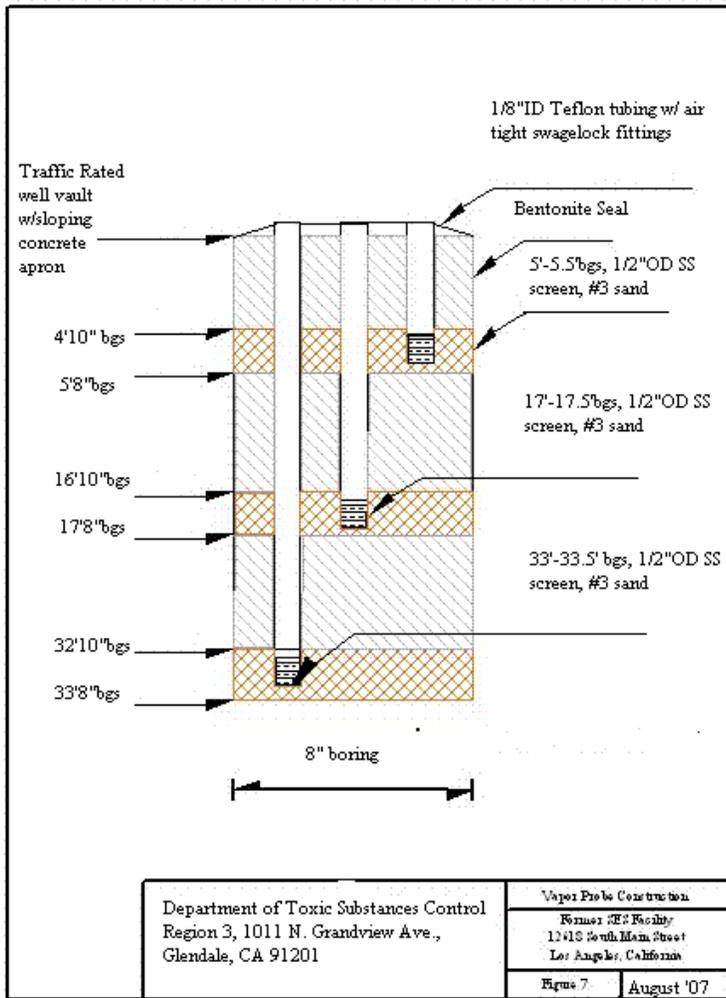


Monitoring Well Design

Former SES Facility
 12618 South Main Street
 Los Angeles, California

Figure 7

August 17, 2007



17'												
SG21-17'	?	1.7	<1	<1	<1							<1
SG22-17'	?	7.4	<1	<1	<1							<1
SG23-17'	?	57	<1	<1	<1							<1
SG24-17'	?	8.6	<1	<1	<1							<1
SG25-17'	?	30	<1	<1	<1							<1
SG26-17'	?	26	<1	<1	<1							<1
SG27-17'	?	36	<1	<1	<1							<1
TO SG27-17'	4/3/2001	65.5	8.4	35.1	2.6		0.4	1.7		1.2	0.82	1.3
SG28-17'	?	5.6	<1	<1	<1							<1
SG29-17'	?	8.8	<1	<1	<1							<1
SG30-17'	?	38	<1	<1	<1							<1

Soil-Gas Analytical Results
 Former Statewide Environmental Services, Inc.
 12618 S. Main Street, Los Angeles, California

Soil-Gas Samples											
Sample Number	Date Sampled	PCE (ug/L)	TCE (ug/L)	1,1-DCE (ug/L)	cis,1,2-DCE (ug/L)	Vinyl Chloride (ug/L)	m,p-Xylene (ug/L)	1,1,2-TCF (ug/L)	Chloroform (ug/L)	TCFM (ug/L)	1,1,1-TCA (ug/L)
SG31-17'	?	2.4	<1	<1	<1						
SG32-17'	?	3.2	<1	<1	<1						
SG33-17'	?	1.9	<1	<1	<1						
SG34-17'	?	1.3	<1	<1	<1						
SG35-17'	?	<1	<1	<1	<1						
SG38-33.5'	4/3/01	6.6	1.1	21	<1						
SG39-33.5	4/3/01	81	11	33	3.4						
SG40-33.5'	4/3/01	3.3	<1	16	<1						
SG41-20'	4/3/01	21	2.6	13	4.3						
SG41-35'	4/3/01	80	8.3	18	5.6						
SG42-33.5	4/3/01	184	16	29	8.4						
TO SG42-33.5	4/3/01	162.0	16.0	11.6	8.6	0.05		3			
SG43-33.5	4/3/01	145	20	18	4.0						
TO SG43-33.5	4/3/01	57.6	7.8	8.5	1.9	0.01		1.0			
SG44-17.5	4/3/01	10	<1	2.8	<1						
SG44-33'	4/3/01	97	15	32	<1						
SG45-33.5	4/3/01	47	10	19	<1						
SG46-33'	4/3/01	9	<1	1.3	<1						
SG47-13'	4/3/01	15	<1	<1	<1						
SG47-33'	4/3/01	58	6.9	27	<1						

< indicates below stated laboratory detection limit ? sample date is unknown Those samples having estimated results below quantification limit are shown as non-detect

Soil Analytical Results
 Former Statewide Environmental Services, Inc.
 12618 South Main Street, Los Angeles, California

Soil Samples					
Sample Number	Date Sampled	PCE (ug/Kg)	TCE (ug/Kg)	1,1-DCE (ug/Kg)	cis,1,2-DCE (ug/Kg)
SB1-25'	4/19/01	4.9	<6	<8	<6
SB2-25'	4/19/01	15	<6	<5	8.2
SB3-35'	4/10/01	6.9	<6	<?	<6
SB4-30'	4/19/01	17	<6	<7	<6
SB5-25'	4/19/01	2.4	<5	<6	<6
SB5-35'	4/19/01	13	<6	<5	<6
SB6-35'	4/10/01	6.4	<6	<5	<6
SB7-35'	4/10/01	11	<6	5.6	<6
SB8-37'	4/10/01	16	<4	<4	<6
SB8-41'	4/10/01	13	<4	<4	<6
SB9-20'	4/10/01	<13	<13	<?	<6
SB9-35'	4/10/01	10	<5	<?	<6
SB10-17'	4/10/01	8.5	<5	<5	<6
SB10-20'	4/10/01	1.9	<5	<5	<6
SB10-35'	4/10/01	6.8	<6	<6	<6
SB11-5.5'	4/10/01	8.6	<6	<?	6.9
SB11-20.5'	4/10/01	12	<6	<?	<6
SB13-37'	4/19/01	3.6	<6*	<4	<6
SB14-5'	4/19/01	23	<6	<6	<6
SB14-15'	4/19/01	14	<6	<6	<6
SB14-20'	4/19/01	24	<6	6.1	<6
SB14-35'	4/19/01	<6	<6	<6	<6

< indicates below stated laboratory detection limit

* sample SB13-37' is shown as non-detect on the Table provided by SES. The attached analytical report contains results for a sample number SB113 37.0B with TCE concentration of 42 mg/Kg. LEC is unsure if sample SB113 37.0B corresponds with sample SB13-37' ? sample results were not found in laboratory report Those samples having estimated results below quantification limit are shown as non-detect

Groundwater Analytical Results
Former Statewide Environmental Services, Inc.
12618 South Main Street, Los Angeles, California

Groundwater Samples				
Groundwater	PCE	TCE	1,3,5-TMB	1,2,4-TMB
MCL	5.0	5.0	ne	ne
GP1	ND	200	ND	ND
GP2	2.5	8.6	1	3.3
GP3	2.8	14	ND	ND
GP3DUP	3.1	16	ND	ND

ne - not established

Draft

HEALTH AND SAFETY PLAN

Former Statewide Environmental Services Facility Soil and Groundwater Investigation

12618 South Main Street
Los Angeles, California

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HEALTH AND SAFETY PLAN

Former Statewide Environmental Services Facility Soil and Groundwater Investigation

12618 South Main Street
Los Angeles, California

1.0. INTRODUCTION

1.1 GENERAL

This Health and Safety Plan (HASP) is intended to address safety and health hazards/procedures to be observed during the performance of site boring, exploration and sampling in accordance with the Soil and Groundwater Work Plan.

This HASP will govern contractor operations involving the following activities:

- Site boring and well installation utilizing a hollow stem drill rig
- Handling and management of drill cuttings
- Groundwater sampling
- Soil gas sampling

1.2 POLICY STATEMENT

It is the policy of Leymaster Environmental Consulting, LLC (LEC) to provide a safe and healthful work environment for all its employees. LEC considers no phase of operations or administration to be of greater importance than injury and illness prevention. Safety takes precedence over expediency or shortcuts. At LEC, we believe every accident and every injury is avoidable. We will take every reasonable step to reduce the possibility of injury, illness, or accident.

This HASP is a project-specific document, and is intended to augment and not replace existing health and safety programs, injury and illness protection plans, hazard communication programs, respiratory protection programs, hearing conservation programs, trench safety programs, training programs, standard operating procedures and other safety related programs, methods or procedures developed by LEC, contractors and subcontractors for their own employees. These include both voluntary and regulatory required programs.

1.3 HEALTH AND SAFETY PROVISIONS AND OBJECTIVES

The provisions of this Health and Safety Plan are mandatory for all LEC, contractor and subcontractor onsite personnel while engaged in any operations at the Project Site. LEC requires that visitors to the work locations also abide by these procedures (see Section 10.4).

Drilling and sampling operations covered under this HASP include, but are not limited to:

- Initial work location reconnaissance, including utility clearance
- Site preparation and layout

Onsite hazard controls and monitoring include, but are not limited to:

- Continuous monitoring of all onsite personnel for compliance with requirements set forth in this HASP
- Handling and storage of suspect drill cuttings

Potential physical and chemical hazards associated with the above tasks are described in Section 5.

Operational changes to this HASP that could affect the health or safety of personnel, the community, or the environment will not be made without prior approval of the LEC Health and Safety Project Manager (H&S PM), and the LEC Health and Safety Professional. In the event of a conflict between this HASP and federal, state, or local regulations, the more stringent will apply.

It is understood that the LEC employees' onsite will have completed training to perform hazardous waste operations or emergency response actions as described in Title 8 of the California Code of Regulations, Chapter 4, Subchapter 7 and Title 29 of the Code of Federal Regulations, Part 1910. In addition, this HASP addresses only drilling and sampling operations involving assumed non-hazardous materials.

Although LEC employees' onsite will have completed training to perform hazardous waste operations or emergency response actions, the objective of the HASP is to prevent personal contact with potentially impacted soil and/or soil gas. This will be accomplished through proper management of site hazards and attention to hazard avoidance.

1.4 KEY CONSTRUCTION MANAGEMENT DOCUMENTS

In addition to this Health and Safety Plan, a Soil-Gas and Groundwater Investigation Work Plan will be implemented.

1.5 REFERENCES

This Health and Safety Plan complies with requirements specified in applicable U.S. Department of Labor Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (CAL/OSHA), and U.S. Environmental Protection Agency (EPA) regulations. This HASP follows the guidelines established by the regulatory agencies in the following documents:

Standard Operating Safety Guides, U.S. EPA, November 1984

Title 8 of the California Code of Regulations, Chapter 4, Subchapter 4 (commencing with Section 1500), Construction Safety Orders (CAL/OSHA)

Title 29 of the Code of Federal Regulations, Part 1926 (29 CFR 1926), Safety and Health Regulations for Construction (OSHA)

National Oil and Hazardous Substances Contingency Plan

1.6 ORGANIZATION

The HASP is organized into twelve (12) sections. Section 1 gives an introduction and identifies specific health and safety objectives. Section 2 gives a brief description of the project, and summarizes historical uses of the site. Sections 3 through 12 address specific health and safety plan requirements.

2.0. BACKGROUND

The following history of the site is based on documentation received from the Department of Toxic Substances Control (DTSC) in their summary of the Closure Plan Hearing conducted March 11, 2000 and from information communicated verbally by Mr. Matt Stewart. The site is depicted on Figure 1 – *Site Plan*.

Currently, usage prior to 1973 is unknown. Apparently, waste handling operations on the subject property began in 1973 when R&R Industrial Waste Haulers began using the site. The DTSC issued an Interim Status Document (ISD) in 1981 which allowed the facility to operate prior to a permit determination. Statewide Environmental Services (SES) purchased the facility in 1990. SES services included the handling and temporary storage of RCRA wastes. According to Mr. Stewart, the primary wastes handled by SES were used oil and liquid paint.

An ISD was issued to SES for continued storage and transfer of hazardous waste in 1990. SES also applied for a permit at this same time. In 1998 this permit application was denied by the DTSC. Denial was appealed by SES in August of 1998. The appeal was denied in May of 1999 and SES entered into an agreement to cease operating and close the facility.

A preliminary soil gas survey was performed on March 20 and April 3, 2001. Soil gas samples were obtained from 47 sample points at various depths. The primary compounds of concern detected during this investigation were tetrachlorethene (PCE) and trichlorethene (TCE). PCE levels ranged from 2.4 micrograms per liter ($\mu\text{g/L}$) to 186 $\mu\text{g/L}$. TCE levels ranged from 1.1 $\mu\text{g/L}$ to 20 $\mu\text{g/L}$.

A preliminary groundwater investigation was conducted on December 14, 2001. Three hydropunch groundwater grab samples were taken. PCE was detected in these samples at concentrations ranging from 2.5 $\mu\text{g/L}$ to 3.1 $\mu\text{g/L}$. TCE was detected at 8.6 $\mu\text{g/L}$ to 200 $\mu\text{g/L}$.

Additional Health and Safety issues encountered during the project may/will include:

Health and Safety Monitoring: Field observation and monitoring will be performed on an as-needed basis during drilling, well installation and sampling operations at the Project Site.

Construction Safety and Work Zone Delineation: Active work areas will be delineated by installing temporary construction barriers, controls and safety features.

Excavated Soil Management: Excavation, stockpiling and hauling of earthen materials removed during drilling operations at the project site may be performed.

Ground Water Management: Decon and purge water will be temporarily stored onsite in D.O.T. approved 55-gallon drums until analytical results verify if the fluids can be disposed of as non-hazardous. The drums will be labeled with the appropriate name (decon, well number, etc.), date, time and generator's name.

Following receipt of analytical, the purge water will be disposed of under appropriate manifest. A copy of the manifest will be included in the Soil-Gas and Groundwater Investigation Report.

The following field work will be performed to support the scope items identified above:

Utility Clearance. Contractors will mark the areas to be excavated and will contact Underground Service Alert (USA) to identify underground utilities within the marked areas. Final excavation locations (if necessary) will be determined after the utility clearance survey is completed. Contractors will pothole utilities that cross the trench alignments to confirm their location and depth prior to excavation.

Health and Safety Monitoring and Air Monitoring. LEC will perform health and safety monitoring and air monitoring on an as-needed basis during field activities. Air monitoring will be performed as described in Section 6.1. All field readings will be recorded on a field log sheet.

Construction Debris/Non-Hazardous Waste Management. Construction-related debris will be accumulated in a designated non-hazardous waste accumulation area. Construction-related debris will be removed from the site, and BMPs will be implemented to manage the wastes stored in the non-hazardous waste accumulation area.

Suspect Earthen Material. Suspect earthen materials developed during drilling activities will be temporarily stored onsite in D.O.T. approved 55-gallon drums until analytical results verify if the material can be disposed of as non-hazardous. The drums will be labeled with the appropriate name (well number, etc.), date, time and generator's name.

3.0 HEALTH AND SAFETY RESPONSIBILITIES

The following health and safety authorities and responsibilities are established for underground work activities covered under this HASP.

3.1 LEC HEALTH AND SAFETY PROJECT MANAGER (Mark Slater)

The LEC Health and Safety Project Manager (H&S PM) has operational management authority for all health and safety monitoring operations during underground construction as part of this project, and is responsible to the Corporate Health and Safety Director of LEC for ensuring that all project health and safety activities are completed in accordance with requirements set forth in this guidance document. The H&S PM is responsible for ensuring that proper health and safety provisions are incorporated into the management and operations of the work activities. Specific duties include:

- Conducting periodic safety reviews of the project site and project documentation,
- Maintaining compliance with the Health and Safety Plan and other safety regulations,
- Approving in writing each addendum to the Health and Safety Plan,
- Documenting that site personnel assigned have received the proper training and medical clearance prior to entering the site,
- Discussing potential health and safety hazards with the designated health and Safety Professional and the Site Supervisor.

3.2 SITE SUPERINTENDENT (Robert Damon)

The Site Supervisor (superintendent) is an LEC employee responsible for managing all contractor and subcontractor field activities conducted during the project. This individual also has administrative responsibility for implementation of the HASP. With regard to health and safety, this includes communicating site requirements to all personnel, observing that the Contractor(s) Site Foreman and subcontractors enforce all provisions of the HASP, working with the Site Safety Officer to implement all elements of this HASP, and consulting with the Health and Safety Professional regarding changes to the HASP in response to operational changes or improved site knowledge. Other responsibilities include:

- Reading and becoming familiar with this HASP,
- Performing site inspections to find hazards and observe employees at work,
- Ensuring that proper personal protective equipment is available, used properly, and cleaned/stored appropriately when not in use,
- Stopping work, as required, to maintain personal and environmental health and safety,
- Discussing potential health and safety hazards with the designated Health and Safety Professional and the LEC H&S PM, and
- Implementing changes as directed by the LEC H&S PM and in approved HASP addenda.

3.3 SITE SAFETY OFFICER (Robert Damon)

The Site Safety Officer (SSO) manages the safety aspects of on-site activities at the Site covered by this HASP. The SSO also serves as the coordinator for on-site safety, and will assist the Site Superintendent and the Site Foreman in the field implementation of this HASP. The responsibilities of the SSO also include:

- Maintaining a copy of this HASP and any subsequent revisions at the work site,
- Coordinating with the Site Superintendent to ensure that proper personal protective equipment is available, used properly, and cleaned/stored appropriately when not in use,
- Maintaining documentation of health and safety related activities such as air monitoring, safety briefings, etc. as required in this HASP,
- Performing site inspections to find hazards and observe employees at work,
- Performing air monitoring at scheduled intervals as defined in this HASP,
- Stopping work when necessary to prevent injury or illness and ensure personal and environmental health and safety,
- Investigating all injuries and illnesses,
- Determining evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation,

- Developing and implementing corrective action plans to eliminate or mitigate hazards,
- Presenting field safety meetings and maintaining attendance logs and records,
- Implementing the respiratory protection program,
- Maintaining decontamination procedures which meet established criteria, and
- Ensuring that all subcontractor personnel assigned to this project have received appropriate training in the hazards associated with the job (as detailed in this HASP).

3.4 SUBCONTRACTORS

Subcontractors are responsible for assigning specific work tasks to their employees, and for ensuring that their personnel are properly trained and participate in health and safety programs, which fulfill the requirements, specified in this HASP (e.g., hearing conservation, respiratory protection, etc.). Each subcontractor's management will provide qualified employees and allocate sufficient time, materials and equipment to safely complete assigned tasks. In particular, each subcontractor is responsible for equipping its personnel assigned to this Project with all required personal protective equipment.

LEC considers each subcontractor to be an expert in all aspects of the work operations for which they are tasked to provide, and each subcontractor is responsible for compliance with those regulatory requirements, which pertain to the services provided. Each subcontractor is expected to perform its operations in accordance with its own unique safety policies and procedures, to ensure that hazards associated with the performance of the work activities are properly controlled. Copies of safety documentation for the subcontractor procedures/requirements conflict with requirements specified in this HASP, the more stringent guidance will be adopted.

Hazards not listed in this HASP but known to any subcontractor, or known to be associated with a subcontractor's services, must be identified and addressed during the daily field safety briefing (see Section 10.2.2) prior to beginning work operations. The SSO has the authority to halt any subcontractor operations, and to remove any subcontractor or subcontractor employee from the work area for failure to comply with established health and safety procedures or for operating in an unsafe manner.

3.5 ON-SITE PERSONNEL AND VISITORS

All LEC and subcontractor personnel performing duties related to the project at the site are required to read and acknowledge their understanding of this HASP. All visitors (including third-party observers) to contractor-controlled areas of the work site (see Section 9.2) must also read and acknowledge their understanding of this HASP, and must conform to all HASP requirements. LEC reserves the right to suspend work activities as necessary to protect visitor safety or health if entry to controlled work areas (see Section 9.1) is required by individuals who do not meet HASP requirements.

All personnel will abide by the requirements of this HASP and cooperate with site authorities to ensure a safe and healthful work site. Site personnel are required to report immediately any of the following to the SSO:

- Accidents and injuries, no matter how minor,
- Unexpected or uncontrolled releases of any hazardous substances, and any symptoms of

exposure to a hazardous substance,

- Any unsafe or malfunctioning equipment, and
- Any changes in site conditions which may affect the health or safety of project personnel.

4.0 HEALTH AND SAFETY PROGRAMS

Any person performing work on-site within an active work area and any visitor requiring entry to active areas of the work site will meet the following requirements.

4.1 GENERAL HEALTH AND SAFETY TRAINING

Personnel involved with drilling and sampling activities will have completed health and safety training courses commensurate with their specific duties in compliance with the Contractors IIPP. The training will include, but is not limited to:

- Hazard communication,
- Protective clothing,
- Respiratory protection,
- Hearing conservation,
- Heat stress,
- Decontamination,
- Prevention of slip, trip, and fall hazards, and
- Safe lifting techniques and safe work practices.

4.2. SITE-SPECIFIC TRAINING

All field personnel will be trained concerning the potential hazards at the site, and exposure prevention or control measures. Field personnel will be:

- Instructed on the contents of this HASP,
- Made aware of task-specific physical hazards and other hazards which may be encountered during site work (see Section 5.0),
- Informed about the potential routes of exposure, protective clothing, precautionary measures, and symptoms or signs of chemical exposure, and heat stress, and
- Made aware of fire prevention measures, fire extinguishment methods, and evacuation procedures.

Site-specific training will be performed prior to the start of any work task, and will be supplemented with daily site safety briefings for the duration of the work task. The training will be conducted by the SSO or

his designated representative before daily work activities begin. Training will be documented on LEC's *Field Safety Briefing Form*, attached to this document.

5.0 HAZARD ASSESSMENT

5.1 POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

Hollow stem auger drilling, soil sampling, soil gas sampling and groundwater sampling+ activities to be performed as part of the Soil-Gas and Groundwater Investigation, present a wide range of potential chemical and physical hazards to which personnel may be exposed. These are due both to the hazards presented by the work locations themselves (e.g., presence of contamination), and those which may be encountered during the completion of the required scope of work. The potential hazards include, but are not limited to:

- Potential exposure to soils containing elevated levels of heavy metals,
- Exposure to soil with very high or low pH (corrosive properties),
- Exposure to dust and other air-borne particulates generated from the drilling operation,
- Slipping or falling hazards due to open excavations and uneven ground,
- Hazardous noise produced during drilling or excavating activities,
- Heat/cold stress, depending heavily on time of year, personal protective equipment in use, and specific work tasks/activities undertaken,
- Hazards involving underground electrical, gas or other utilities, or overhead electrical lines,
- Snapping cables, slings, and ropes during drilling operations,
- Cleaning and decontamination of equipment,
- Vehicular traffic and
- Physical hazards related to lifting and other activities performed during construction activities.

Physical hazards not listed here but known to any subcontractor or known to be associated with any subcontractor-provided services must be identified to the SSO and addressed prior to beginning work. Relevant information pertaining to such hazards will be presented to personnel during daily field safety briefings (see Section 10.2.2).

5.2 TASK HAZARD ANALYSIS

5.2.1 Reconnaissance Activities

Reconnaissance activities include initial site walks, staking or other marking activities, utility location

operations, and setup of site security and control measures. During these activities the work site will be walked and work locations identified. Drilling locations will be marked with stakes or white paint in conformance with USA guidelines.

Hazards, which may be encountered, include heat stress and sunburn, potential for unprepared walking surfaces as well as wooden pallets and other contractor operations associated with ongoing activities. Level D personal protective equipment (PPE) will be worn at all times during site reconnaissance activities. Requirements for Level D PPE are described in Section 7.2.1.

Also, the following requirements should be observed:

- Watch carefully where you walk. Do not step in shadows until you are sure of your footing. Shadows may hide pits, holes, or other unstable footing.
- Carefully choose your footholds when crossing rocky, uneven, or loose ground surfaces.
- Due to the large volume of traffic and equipment with poor visibility, always wear a high visibility vest. Be aware of traffic flow directions and patterns.

5.2.2 Drilling and Excavation Operations

Operations involving hollow stem drilling equipment present potential hazards from falling debris, mechanical failure of hydraulic lines, and being hit by moving equipment (i.e., augers, surge blocks, wire cable). Level D personal protective equipment will be worn at all times during drilling activities. Equipment should be properly inspected on a regular basis in accordance with industry-established procedures to minimize the risk of mechanical failure.

In addition to physical hazards associated with drilling equipment, there is the potential for excessive noise to be produced around the equipment. Section 5.8 provides details concerning the hazards associated with high noise levels.

5.3 ENVIRONMENTAL CONTAMINANTS OF CONCERN

Table 1 presents a list of potential environmental contaminants of concern. Table 2 provides a summary of the hazards associated with these materials.

5.3.1 Heavy Metals

Heavy metals including Copper, Silver and Lead have been determined to be potential contaminants of concern at this site. The primary route of exposure would be from the inhalation of dust containing these heavy metals.

Exposure can result in dry throat, cough, headache, tight chest, muscle cramps, nausea, and reduced pulmonary function. Target organs include respiratory system, brain and nervous systems, kidneys and liver.

5.3.2 Corrosive Materials (High or Low pH)

Concern over potential corrosive soils warrants caution during all activities. Exposure may cause skin irritation, eye, nose and throat irritation or burning. Corrosive soils may cause severe damage to

sensitive nasal and respiratory membranes. Potential blindness is possible from corrosive soils.

5.4 HEAVY MACHINERY/EXCAVATION ACTIVITIES

The use of heavy machinery (drill rigs) in areas where unprotected personnel are operating warrants special attention on the part of all personnel. Operators should ensure that equipment is working properly and is being run in a safe manner, and should be aware of the location of unprotected personnel at all times while operating this machinery to avoid serious accidents. Other personnel must be aware of heavy equipment operations and exercise proper caution to avoid placing themselves in an unsafe situation.

5.5 HEAT STRESS

Heat stress is a major hazard, especially for works wearing protective clothing. The same protective materials that shield the body from chemical exposure also limit the dissipation of body heat and moisture. Personal protective clothing can therefore create a hazardous condition. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the prevention of heat stress casualties.

5.5.1 Heat Exhaustion

Symptoms: Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, with clammy skin, and he or she may perspire profusely. The pulse is weak and fast, breathing is shallow. He or she may faint unless they lie down.

First Aid: Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling). Remove all protective outerwear. Call a physician. Treat the victim for shock. (Make the victim lie down, raise his or her feet 6-12 inches and keep him or her warm but loosen all clothing). If the victim is conscious, it may be helpful to give him or her sips of water. Transport victim to a medical facility as soon as possible.

5.5.2 Heat Stroke

Symptoms: This is the most serious of heat casualties due to the fact that the body excessively overheats the body temperature and often rises to 110°. As the victim progresses toward heat stroke, symptoms such as headache, dizziness, nausea, oppression, can be noted, and the skin is observed to be dry, red, and hot. Sudden collapse and loss of consciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly.

First Aid: Immediately evacuate the victim to a cool and shady area. Remove all protective outerwear and all personal clothing. Lay the victim on his or her back with the head and shoulders slightly elevated. Apply cold wet towels, ice bags, etc. to the head, armpits, and thighs. Sponge off the bare skin with cool water or rubbing alcohol, if available, or even place the victim in a tub of cool water. The main objective is to cool without chilling the victim. Give no stimulants or hot drinks. Since heat stroke is a severe medical condition requiring professional medical attention, emergency medical help should be summoned immediately to provide on-site treatment of the victim and proper transport to a medical facility.

5.5.3 Prevention of Heat Related Conditions

A. General

- Maintain good physical conditioning and control your blood pressure (avoid weight gain, smoking, etc.).
- Eat regularly and properly. Increase salt intake through food consumption during the hot season or hot spells and avoid the use of salt tablets. Consult a physician if you are on a salt restrictive diet.
- Regulate alcohol intake if you are going to be working in hot environments, either from ambient conditions or through the wearing of Chemical Protective Clothing.
- Obtain basic First Aid and CPR training.
- Participate in a yearly medical monitoring program. If you are on medication or have a chronic medical history, consult a physician prior to working in a hot environment.

B. On Site/Scene

- If you anticipate fieldwork, get acclimated and conditioned prior to working in high temperatures. This process usually takes from 4 – 7 days.
- Plan site work for cooler periods in the day, early morning or evening.
- Take frequent short breaks. Open or remove protective clothing while on break.
- The Site Safety Plan shall include a telephone number for the local hospital, ambulance and rescue squad.
- Drink cool water or an electrolyte solution while on the site/scene. Vary your intake of both fluids. While working on site/scene, drink 1 cup of replacement fluid every 15 – 20 minutes. Remember that the sensation of thirst is not a good gauge for the need for replacement fluids.
- Work using the buddy system. Watch out for your buddy and fellow workers. Look for the signs and symptoms of heat related emergencies. Workers with heat related emergencies may have physiological as well as physical problems. Workers may do unsafe things, make poor decisions, or act hastily due to the situation.
- If you experience the symptoms of heat related emergencies, STOP WORK, notify your on-site supervisor, and then go to a cool, shaded area and rest. If the condition persists or worsens, consider seeking advance medical care. If in doubt, call for an ambulance.
- Monitoring for Heat Stress shall be performed by the SSO. Workers shall be advised of precautions and symptoms of Heat Stress.

5.5.4 Heat Rash

Also known as prickly heat, this is a condition affecting the skin. This condition occurs in situations where the skin remains wet most of the time. The sweat ducts become plugged and a skin rash soon appears.

A. Signs and Symptoms

- Skin rash over affected areas of the body.
- Tingling or prickling sensation on the affected areas.

B. Emergency Care

- Take shower after working in heat.
- Dry the skin thoroughly.
- Change underwear as needed.
- Stay in cool place after work hours.
- Avoid repeated exposure to heated environment until condition improves, when possible.

5.5.5 Heat Cramps

Heat Cramps are muscle pains, usually in the lower extremities, or both, which occur secondary to profuse sweating with accompanying salt depletion. Heat Cramps most often afflict people in good physical condition, who overwork in conditions of high temperature and humidity. Untreated, Heat Cramps may progress to Heat Exhaustion.

Treatment of Heat Cramps is aimed at eliminating the exposure and restoring the loss of salts and water.

A. Signs and Symptoms

- Cramps in the extremities and abdomen, which come on suddenly during vigorous activity. Heat Cramps can be mild with only slight abdominal cramping and tingling in the extremities, but more commonly present intense and incapacitating pain in the abdomen and extremities.
- Respiration rate will increase, decreasing after the pain subsides.
- Pulse rate will increase.
- Skin will be pale and moist.
- Body temperature will be normal.
- Loss of consciousness and airway maintenance are seldom problems with this condition.
- Generalized weakness will be noted as the pain subsides.

B. Emergency Care

- Move the worker to a cool environment. Have him lie down if he feels faint.
- If the worker is not nauseated, he may be given 1 or 2 glasses of an electrolyte solution. Have the worker drink slowly. The use of salt tablets is not recommended, as they may precipitate nausea.
- If the worker is nauseated, avoid giving anything by mouth until the nausea subsides.
- Avoid massaging the cramping muscles. This rarely helps and may actually aggravate the pain.
- As the salt and water level is replenished, the worker's pain will subside. He may wish to return to work, however this is NOT recommended for a period of 12 hours. Further exertion may lead to heat exhaustion or heat stroke.

These are only guidelines for the care of Heat Related Emergencies. Actual training in emergency medical care or basic first aid is recommended.

Heat stress or related illnesses could arise at any time during the course of this project. Wearing protective clothing under confining conditions, increased energy expense and elevated surrounding temperatures could cause personnel to experience symptoms of a heat related disorder.

LEC shall ensure the TLV established for Heat Stress by the ACGIH is not exceeded for workers who wear permeable clothing (cloth coveralls). Work/rest schedules shall be based upon ambient temperature and direct sunlight intensity. Monitoring of workers who wear protective clothing (chemically resistant coveralls) shall be implemented where ambient temperatures reach or exceed 75 degrees F.

The following procedures shall be used to determine the work/rest periods:

- Measure heat rate (HR) by the radial pulse for 30 seconds as early as possible in the rest period. If the HR exceeds 110 beats per minute (BPM), the next work period shall be shortened by 1/3, while the rest period stays the same. If the HR is 110 BPM at the beginning of the next rest period, the following work cycle shall be shortened by another 1/3, while the length of the rest period again remains the same.
- Measure body temperature using a fever strip or oral thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99 degrees F. If it does, the next work period shall be shortened by 1/3, while the rest period remains the same. If the OT exceeds 99.7 degrees F at the beginning of the next work period, the work period shall be shortened by another 1/3. The OT shall be measured again at the end of the next rest period to make sure it has dropped below 99 degrees F.
- Workers shall not be allowed to wear semi-permeable or impermeable clothing when his/her OT exceeds 100.6 degrees F.
- Body water loss shall be measured if Heat stress has become a problem. Employees shall be measured on a scale accurate to +/- 0.25 lb. They shall be measured in the morning and evening, preferably nude. Body water loss should not exceed 1.5 percent of total body weight.

Suggested Frequency of Physiological Monitoring for Fit and Acclimatized Workers

Adjusted Temperatures*	Normal Work Ensemble	Impermeable Ensemble
90 deg F or >	After each 45 min of work	After each 15 min of work
87.5 – 90 deg F	After each 60 min of work	After each 30 min of work
82.5 – 87.5 deg F	After each 90 min of work	After each 60 min of work
77.5 – 82.5 deg F	After each 120 min of work	After each 90 min of work
72.5 – 77.5 deg F	After each 150 min of work	After each 120 min of work

*Adjusted Temperature= $t_a F + (13 \times \%Sunshine)$ where (t_a) is the ambient temperature measured with a glass thermometer. %Sunshine is measured by estimation of total available sunshine (100% sunshine = 0% cloud cover and 0% sunshine = 100% cloud cover).

5.5.6 Prevention of Sunburn

When working in the sun, regardless of temperature, exposed skin is vulnerable to sunburn. Protect exposed skin with an appropriate sunscreen. A sunscreen with a sun protection factor (SPF) of 15 or greater is recommended for a full day in the sun.

5.6 SLIPS, TRIPS, FALLS, AND PROTRUDING OBJECTS

Hazards from protruding objects, careless movements, or placement of materials on paths or foot traffic areas present a problem with regard to slips, trips, falls, and puncture wounds. Personnel will use a reasonable amount of effort to ensure the prevention of such injuries.

5.7 HAZARDOUS NOISE ENVIRONMENTS

Working around large equipment often creates excessive noise. The effects of noise can include physical damage to the ear, pain, and temporary and/or permanent hearing loss. Workers can also be startled, annoyed, or distracted by noise during critical activities.

The Health and Safety Professional can monitor employee exposure to hazardous noise levels from time to time as part of the hearing conservation program (see Section 6.2). However, for all work on this project, hearing protection will be worn at all times when normal conservation becomes difficult at distances of 3 feet or less.

5.8. UNDERGROUND UTILITIES

Various forms of underground utility lines or pipes may be encountered during site activities. Prior to the start of intrusive operations, contractors will obtain authorization from all concerned public utility department offices (i.e. contacting Underground Service Alert [USA]). Where necessary, a private utility locating service will be used to identify potential buried objects and/or utility crossing. Should intrusive operations cause equipment to come into contact with utility lines, the SSO and the Health and Safety Professional will be notified immediately. Work will be suspended until the appropriate actions for the particular situations can be taken.

6.0 MONITORING PLAN

This section of the HASP presents monitoring requirements and analytical methods, which will be used to assess employee exposure to chemical and physical hazards. Monitoring will consist primarily of onsite determination of various parameters (airborne contaminant concentrations, heat stress effects, etc.), but

may be supplemented by more sophisticated monitoring techniques (i.e. exposure assessment) where necessary.

The SSO is responsible for designating individuals within the work crew who will perform monitoring activities and complete the documentation of results. The SSO is also responsible for the collection, review and maintenance of the completed documentation.

6.1 AIRBORNE CONTAMINANT CONCENTRATIONS

Release of airborne organic vapors is not anticipated to occur during any of the operations. Hence, air monitoring for organic vapors is not anticipated to be performed.

6.1.1 Confined Space Monitoring

Confined space monitoring must be sufficient to properly characterize employee exposures, and provide knowledge of work location conditions in enough detail to determine PPE requirements as work progresses. No confined space entry is anticipated on this project.

6.1.2 Work Area Perimeter Monitoring

Monitoring will be conducted to assess release of contaminants to the surrounding “community” (the area, and anyone in it, not within the controlled work area(s) related to this project – see Section 9.1). The primary airborne contaminant from drilling will be from airborne dust. Monitoring of airborne dust will be performed by visual observation.

In the event that concentrations of contaminants released at the work area perimeter exceed established action levels, the SSO will implement appropriate mitigation measures, such as:

Drilling and Excavation

- Reduce the advance rate of the drilling and excavation and/or speed of moving vehicles
- Increase frequency of watering or use dust suppressants

Drill Cuttings

- Immediately place in 55-gallon drums

If mitigation measures are found to be inadequate, the SSO/Site Supervisor will halt onsite operations until effective control can be achieved.

6.2 NOISE EXPOSURE

Exposure to excessive noise can damage hearing ability and cause permanent hearing loss. It is the intent of LEC to prevent permanent hearing loss from noise exposure.

When noise levels exceed 85 decibels on the A-weighted scale (85 dBA), workers are required to use appropriate hearing protection. The SSO is also empowered to designate work areas where hearing protection will be used by all personnel (LEC employees, contractor, and subcontractor personnel and/or visitors).

Potential sources of hazardous noise related to site investigation activities are limited to the various types of equipment used in the performance of work activities. Noise exposure levels can be expected to vary during the performance of the various investigation activities, dependant upon the equipment selected and used by each individual subcontractor. All LEC field personnel who are medically monitored participate in a hearing conservation program meeting the requirements specified below. It is expected that where operations may expose workers to hazardous noise, that LEC will provide personnel who also participate in a hearing conservation program, which should include the following elements:

- Baseline survey of noise exposures
- Baseline audiometric testing
- Annual or biannual audiometric testing
- Annual training on the use and need for hearing protection
- Distribution of hearing protectors to employees in the program
- Maintenance of records
- Contractors and subcontractors are individually responsible for the adequacy of their own program.

6.3 HEAT STRESS MONITORING

Due to the use of protective clothing and other equipment, there is a high potential for heat stress to pose a significant safety hazard to workers. To mitigate the effects of heat stress, it will be necessary to establish a work routine that incorporates appropriate rest periods to allow workers to remove protective clothing, drink fluids (vital when extreme sweating is occurring) and rest.

The frequency and length of such work breaks must be determined by the individual work location supervisor based upon factors such as the ambient temperature and sunshine, the amount of physical labor being performed, the physical condition of the workers and protective clothing being used. In any case, breaks must be sufficient to prevent workers from manifesting symptoms of heat stress, which can include irritability, confusion, lethargy, and headache.

Workers are being encouraged to immediately report any difficulties or heat-related problems that they may experience or observe in fellow workers. Supervisors will use this information to alter the work-break schedule to accommodate such problems. During breaks, workers should be encouraged to drink plenty of water or other liquids to replace lost fluids and to help cool off. If any worker exhibits signs of severe heat distress, such as profuse sweating, extreme confusion and irritability, or pale, clammy skin, that worker shall be relieved of all duties at once and made to rest in a cool location and drink plenty of water. Anyone exhibiting symptoms of heat stroke (red, dry skin, or unconsciousness) will be taken immediately to the nearest medical facility while taking steps to cool the person during transportation (clothing removal, wet the skin, air conditioning, etc.). Heat stroke is a life threatening condition that must be treated by competent medical authority.

6.4 PERSONAL SAMPLING

Measurement of employee exposure to chemical contaminants will be performed at the discretion of the Health and Safety Professional. Monitoring techniques will also be determined by the Health and Safety Professional, and will conform to applicable OSHA and NIOSH sampling methods. Samples will be collected by, or under the direction of, a member of the LEC Technical Services Division. Any analytical laboratory performing analysis of personal samples shall be accredited by the American Industrial Hygiene Association (AIHA).

6.5 MAINTENANCE AND CALIBRATION OF EQUIPMENT

All monitoring equipment will be maintained and calibrated in accordance with manufacturer recommendations. All pertinent data will be logged in a health and safety logbook and maintained on site for the duration of site activities. Calibration of all monitoring equipment will be performed daily.

6.6 SAMPLING RESULTS

Where exposure assessment (personal) sampling is performed, the LEC H&S PM will be responsible for informing DCMI personnel, contractor and subcontractors of their monitoring results to comply with OSHA regulations and good occupational health practices. Each employee will be notified in writing of the results, which represent that his/her exposure was within the OSHA permissible exposure limits (PELs) within 5 working days after the receipt of monitoring results.

Whenever the results indicate that an employee exposure exceeds the permissible exposure limit(s), notification shall be provided to the affected employee stating the specific permissible exposure limit(s) that was exceeded and providing a description of the corrective action taken to reduce exposure to a level below the PEL. Results of monitoring for other hazardous and harmful physical contaminants shall also be reported to employees in the same manner.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 PERSONAL PROTECTIVE CLOTHING

The harmful effects that chemical substances may have on the human body often necessitate the use of protective clothing. Proper selection of personal protective equipment (PPE) depends upon a number of factors. Protection against different types of chemicals and differing concentrations of those substances can be quite varied. The tasks to be performed and the probability of exposure to the substance must also be considered when specifying protective clothing.

Once the specific hazard has been identified, appropriate clothing can be selected. The protection level assigned must match the hazard confronted. Protective clothing ensembles range from safety glasses, hard hats, and safety shoes to fully encapsulating suits with a supplied source of breathing air. Selection of appropriate PPE is specified in the task hazard analyses found in Section 5.2, and upgrade criteria based upon onsite monitoring results are presented in Table 4. In addition, Section 7.2 provides additional guidance concerning the appropriate levels of protection, which should be utilized during site activities.

7.1.1 Head Protection

Employees will wear hard hats during outdoor site investigation activities. Ear protection and face shields may be attached to hard hats, if required.

7.1.2 Eye Protection

Eye protection will be worn at all times, meeting the following requirements:

- Provide adequate protection against the particular hazards for which they are designed
- Be reasonably comfortable when under the designated conditions, fit snugly and not unduly interfere with the wearer's movements
- Be durable, and
- Be easily cleaned and disinfected.

Contact lenses do not provide adequate eye protection. Contact lens wearers must use the same additional eye protection as for non-lens wearers. Contact lenses may be worn under full-face respirators (if required to be worn), but are generally not acceptable with half-face respirators.

Persons whose vision requires correction and are required to wear eye protection may wear goggles or spectacles of one of the following types:

- Spectacles whose protective lenses provide optical correction (Rx),
- Goggles that can be worn over corrective (Rx) spectacles without disturbing the adjustment of the spectacles, and
- Goggles that incorporate corrective (Rx) lenses mounted behind the protective lenses.

Due to the limited potential for high velocity impact hazards associated with the work activities, the use of sunglasses will be permitted at the work sites, however wire framed sunglasses will not be permitted. Subcontractor employees who do not have suitable eye protection will have an appropriate type of eye protection provided to them by their respective employers.

7.1.3 Ear Protection

Appropriate hearing protection, including ear plugs, canal caps, and ear muffs, will be provided when noise may be a problem, such as around heavy machinery, power support equipment, and impact tools, or whenever normal conversation becomes difficult at distances of 3 feet or less. Employees who may be exposed to hazardous noise must be participants in a hearing conservation program which meets the requirements of CCR§5096-5100 (29 CFR 1910.95).

7.1.4 Foot Protection

Employees will wear appropriate foot protection while working on site, which will consist of leather boots with safety toes. Footwear must meet the specifications of ANSI 241.1-1969, which is the standard for industrial footwear with safety toes.

7.1.5 Hand Protection

Employees will use appropriate hand protection when exposed to hazards that could cause injury to the hands. Gloves must resist puncturing and tearing as well as provide any necessary chemical resistance.

7.1.6 Respiratory Protection

The use of respiratory protection will not be required for this project. However, a nuisance dust mask can be worn at the discretion of individual workers.

Where respiratory protection is used for nuisance dust, the following requirements shall be followed:

- Only NIOSH-approved dust masks will be used, and
- Dust masks will not be reused and will be disposed of daily after use.

LEC personnel participate in a Corporate Respiratory Protection Program meeting the requirements of CCR §5144. It is expected that Contractors and subcontractors whose personnel may be required to utilize respiratory protection will have a similar program; however its specific elements will not be reviewed or approved by LEC, who assumes no responsibility for inadequate employee respiratory measures. Each subcontractor is individually responsible for the adequacy of its own respiratory protection program.

7.1.7 Body Protection

Protective clothing and body protection is selected on the basis of the tasks to be performed and the hazards, both chemical and physical, to which the worker may be exposed. For all work areas, including the “clean” support and administrative areas, appropriate work clothing will be worn that at least covers from the knees to shoulders. Tank and halter tops are not appropriate. Bathing suits, shorts, and cut-off pants are not appropriate.

In more hazardous work areas, substantial pants and long sleeves are appropriate. Chemical-protective body protection will be selected using predicted chemical exposures and the clothing manufacturer’s chemical specific permeation and degradation information to provide optimum protection.

7.2 CHEMICAL PROTECTIVE ENSEMBLES

In order to aid in the selection of personal protective equipment (PPE), various ensembles have been developed which provide increasing levels of protection. These ensembles are designated, in increasing levels of complexity and protection, as Levels D, C, B, and A. The specific equipment comprising each level of protection will vary slightly, but are defined primarily by the type of respiratory protective equipment used, and secondly by skin protection. The information presented below consists of a description of the equipment, applications and limitations for ensemble, which might be utilized during construction activities. Specific PPE requirements for each task associated with this project are presented in Table 5, while upgrade criteria linked to results of onsite monitoring activities are provided in Table 4.

The following requirements shall apply to the use of any PPE:

- Only medically certified individuals will be permitted to use PPE above Modified Level D,
- Personnel will utilize only equipment, which has been provided for use at the Project sites. Designation of appropriate PPE is the responsibility of the Site Supervisor,
- All PPE will be properly fitted to the individual user.

7.2.1 Level D

Level D protection is the lowest level of personal protection allowed during any activity at the site. Level D provides for physical protection only (i.e., against workplace physical hazards only), and includes no use of respiratory protection.

The use of Level D protective equipment is permissible only when all of the following conditions are met:

1. Total contaminant concentrations have not been measured above the Level C upgrade action levels specified in Table 4, and
2. Work functions preclude splashes, immersion, significant skin contact or potential for unexpected inhalation of any chemical contaminants.

During LEC work activities, Level D protection will be the primary level of protection worn during all operations where contact with contaminated materials is unlikely. Upgrading to greater levels of protection will be executed as required in the monitoring guidelines outlined in Table 4.

Typical Level D Equipment List

- Hardhat
- Work clothing (long pants, long-sleeved, button-down shirt)
- Safety glasses/face shield
- Safety-toed work boots
- Hearing protection (as required)
- Safety vest with reflective elements

Where work tasks require handling of samples/sampling equipment, which presents only a limited potential for skin contact with contaminated materials, personnel will utilize Level D PPE, with the addition of chemically protective gloves and/or a chemically protective apron. Acceptable gloves/aprons must be constructed of nitrile or butyl rubber compounds, and must be watertight. One acceptable glove is Best Safety's N-Dex glove, which is thin (allowing excellent dexterity) and provides proper chemical protective properties. Other similar gloves are also acceptable. Leatherwork gloves may be used over the chemically-protective gloves to provide better physical protection, however such gloves will require disposal at the conclusion of sampling since proper decontamination is not feasible.

7.2.2 Modified Level D

If the potential exists for contact with chemical contaminants (e.g., splashes, "dirty operations, etc."), but if the respiratory hazard is low, the use of a Modified Level D ensemble is appropriate. Modified Level D consists of protective clothing to preclude hazards due to contact with contaminated materials, but does not provide increased respiratory protection. The use of protective clothing in the Modified Level D ensemble can also serve to aid in personal cleaning and decontamination efforts through the use of disposable outer protective garments.

The limitations specified above for Level D PPE apply equally to Modified Level D, except that in this ensemble some contact with contaminated material can be tolerated.

The use of Modified Level D PPE will be required for onsite operations where contact with contaminated soils/samples can be expected (e.g., soil handling/containerization).

Typical Modified Level D Equipment List

- Chemical-resistant disposable outer coveralls (e.g., Tyvek TM or polyethylene-coated Tyvek TM coveralls)
- Chemical-resistant (e.g., nitrile) outer gloves (taped to outer coveralls)
- Chemical-resistant (e.g., nitrile) inner gloves
- Butyl apron (optional, for use where splash potential is high)
- Hardhat
- Safety glasses/face shield
- Chemical-resistant safety boots (taped to outer coveralls)
- Hearing protection (as required)
- Safety vest with reflective elements (night work only)

7.2.3 Level C

The use of Level C protective equipment during site activities is not permissible for this project because LEC personnel have not completed training to perform hazardous waste operations or emergency response actions as described in Title 8 of the California Code of Regulations, Chapter 4, Subchapter 7 and Title 29 of the Code of Federal Regulations, Part 1910. Should onsite monitoring indicate that Level D PPE is inadequate; the SSO will stop all work, and will contact the Health and Safety Professional for further guidance. Upgrade to Level C PPE will not be permitted without the concurrence of the Health and Safety Professional, and the preparation of supplemental Health and Safety requirements addressing the additional procedures, which will be observed.

7.2.4 Level B

The use of Level B protective equipment during site activities is not permissible at this site.

7.2.5 Level A

The use of Level A protective equipment is not permissible for this project.

8.0 DECONTAMINATION

Decontamination involves the physical removal and/or neutralization of harmful contaminants in order to

prevent their migration to previously uncontaminated areas, and to minimize the potential for adverse health effects. The extent of decontamination depends on the hazard and the quantities of the contaminant.

Contamination can occur from:

- Contacting vapors, gases, mists, or air particulates,
- Splashes while sampling or opening containers,
- Handling contaminated instruments or equipment,
- Assisting contaminated personnel during routine operations, decontamination procedures, and emergencies, and
- Chemicals used for the decontamination of equipment or in construction operations (i.e. solvent based adhesive, glues, etc.).

Decontamination of equipment and personnel will be performed upon exit from the work area (see Section 9.1). Contractors and subcontractors will provide all necessary decontamination equipment. The Project Manager is responsible for ensuring that the setup and implementation of decontamination procedures that are adequate for the nature and level of contaminants encountered and consistent with the following requirements.

8.1 DECONTAMINATION PROCEDURES

Decontamination procedures appropriate for the existing work area and work tasks will be specified by the SSO. Such procedures must be in place before site operations begin, and they must remain in place (modified as necessary) throughout the period of activity, wherever possible, the need for decontamination should be reduced through work practices that minimize contact with contaminants.

Decontamination will be performed only in designated areas. Separate areas may be set up for equipment and personnel.

8.2 PERSONNEL DECONTAMINATION

Decontamination procedures are carried out on all personnel leaving any work area. Under no circumstances (except emergency evacuations) will personnel be allowed to leave the site without fully decontaminating.

Decontamination of personnel should consist primarily of soap and water washing and water rinse of exterior protective gear to remove contaminants, followed by doffing of the gear. Coveralls should be removed by turning the clothing inside out. Requirements appropriate to the degree of contamination expected for each protective equipment ensemble is established below, however modifications of these procedures may be necessary in response to specific conditions encountered at the work site(s).

8.2.1 Level D Personnel Decontamination

Personnel exiting any work area who are utilizing Level D PPE (see Sections 5.2 and 7.2.1) will perform decontamination in accordance with the following guidelines:

- Place tools, instruments, samples and trash at an appropriate location. The equipment drop area should be clean and dry and at a minimum, plastic bags should be available for trash. Waste PPE will not be placed in the same containers as general trash,
- Inspect equipment, samples, and if applicable, tools for signs of residual amounts of contamination or excessive soil buildup. If present, soils and contamination must be completely cleaned off of equipment, samples, and tools prior to removal from the work area,
- Personnel will visually check themselves for signs of excessive soils and possible contamination, especially on the work boots. If observed, soils and contamination will be completely removed before further decontamination is performed, and
- Prior to exiting a work area, personnel will wash their hands with soap and water in order to minimize the potential for contaminant exposure.

8.2.2 Modified Level D Personnel Decontamination

Where work activities are performed in Modified Level D PPE (see Sections 5.2 and 7.2.2) personnel will perform decontamination using the following guidelines:

- Place tools, instruments, samples and trash at an appropriate location. The equipment drop area should be clean and dry and at a minimum, plastic bags should be available for trash. Waste PPE will not be placed in the same containers as general trash,
- Inspect equipment, samples, and if applicable, tools for signs of residual amounts of contamination or excessive soil buildup. If present, soils and contamination must be completely cleaned off of equipment, samples, and tools prior to removal from a work area,
- Personnel will visually check themselves for signs of excessive soils and possible contamination. If observed, soils and contamination will be completely removed before further decontamination is performed,
- Wash and rinse outer work gloves and boots (boot covers) with soap and water,
- Wash/brush off outer protective coverall (Tyvek TM),
- Untape wrists and ankles,
- Remove outer work gloves and place them in an appropriate container specified for waste PPE,
- Remove outer Tyvek TM coveralls and place them in an appropriate container specified for waste PPE,
- Wash, rinse, and remove inner protective gloves and place them in an appropriate container specified for waste PPE, and
- Wash hands using soap and water (separate from other decontamination cleaners/solutions).

8.3 EQUIPMENT DECONTAMINATION

Equipment to be decontaminated includes hollow stem augers, tools, monitoring equipment, sampling equipment, and sample containers.

General equipment decontamination consists of soap and water wash, and a water rinse. If soap and water alone cannot remove contamination, additional procedures may be used such as steam cleaning.

Sampling Equipment: Sampling equipment will be decontaminated before and between sampling to prevent cross contamination. Sampling equipment may include trowels, shovels, bailers, submersible pumps, geotechnical samplers, sleeves, and backhoe buckets.

All sampling equipment will be decontaminated using an Alconox wash, or equivalent, followed by two clean water rinses (preferably de-ionized water). The sampling tool will then be rinsed with de-ionized or distilled water and air dried.

Heavy Equipment: Hollow stem augers and other equipment which may contact contaminated soils/ground water, will be cleaned with high-pressure water or a portable high-pressure steam spray followed by a soap and water rinse. Loose material shall be removed by brush.

All cleaning water should be collected and stored in conformance with Best Management practices.

Dust Mask Decontamination: Dust masks will be disposed of daily and will not be reused.

Personal Articles: In addition to being decontaminated, protective clothing, and other personal articles must be sanitized before they can be used again. The insides of clothing become soiled from exhalation, body oils, and perspiration. If practical, protective clothing should be machine washed after a thorough decontamination. Otherwise, it should be cleaned by hand.

Instruments: Monitoring equipment should be protected as much as possible from contamination. Drape, mask, or otherwise cover as much of the instruments as possible with plastic without hindering the operation of the unit. Contaminated instruments will be taken from the drop area; their protective coverings removed and disposed of in appropriate containers. Any remaining dirt or obvious contamination will be brushed or wiped with a damp disposable paper wipe. The units can then be placed in a clean plastic tub, taken inside, wiped with damp disposable wipes and dried.

Be aware that many instrument manufacturers and rental companies will not accept contaminated equipment for repair, and that a heavily contaminated piece of equipment, if improperly handled, may have to be disposed of as hazardous waste.

8.4 DISPOSAL OF DECONTAMINATION WASTES

Wastes generated from decontamination activities collected during the project will be handled in a manner, which does not cause exposure to workers or affect the environment. Wastes must be stored in sealed DOT approved drums until profiled for disposal or further handling.

All excavated soil management activities can be performed in Level D PPE.

Waste PPE and equipment will also be placed into appropriate containers. No sampling of this waste is anticipated because they will present only minimal hazards to personnel. All activities involving these containers can be accomplished in Level D PPE.

8.5 DECONTAMINATION DURING EMERGENCIES

Often during emergencies the need to quickly respond to an accident or injury must be weighed against the risk to the injured party from chemical exposure. It may be that the time lost or the additional handling of an injured person during the decontamination process may cause greater harm to the individual than the exposure that would be received by undressing that person without proper decontamination.

Decisions concerning the appropriate decontamination process during an emergency must be made by the SSO, with consideration to the following:

Physical Injury: Physical injuries can range from minor to life threatening. In severe instances life-saving care should be instituted immediately without considering decontamination, however, in most cases, normal decontamination procedures can be followed.

Heat Stress: Heat-related illness ranges from heat fatigue to heat stroke, the latter being the most serious. Heat stroke requires prompt treatment to prevent irreversible damage to health or death, and protective clothing may have to be cut off to allow more rapid treatment. Less serious forms of heat stress may require prompt attention or they may lead to a heat stroke. As a guide, if the victim is able to adequately perform decontamination without unusual assistance, no special procedures should be attempted. If the victim is too incapacitated to perform a normal decontamination routine, then emergency decontamination and prompt medical care are warranted.

Chemical Exposure: When protective clothing is grossly contaminated, contaminants may be transferred to the wearer or to treatment personnel and cause injuries. Using the same criteria as for heat stress, if the victim is able to adequately perform decontamination without unusual assistance, no special procedures should be attempted. If the victim is too incapacitated to perform a normal decontamination routine, then emergency decontamination and prompt medical care are warranted, but unless severe medical problems could result, any significantly contaminated protective clothing should be washed off as rapidly as possible and carefully removed.

9.0 SITE CONTROL AND WORK ZONES

Contractors and subcontractors are responsible for the safety and protection of all personnel at work locations at the Site. Therefore, a control area will be established around each work location to protect untrained or unprotected workers from exposure to contaminants or other hazards. Access to the controlled areas will be limited to authorized work personnel and visitors who comply with the requirements of this HASP. Contractors and subcontractors will exercise control over their work areas whenever work operations are in progress, or when hazards related to the presence of chemical contaminants or physical hazards due to work activities may be encountered. At the conclusion of each work period, the SSO is responsible for ensuring that all work location hazards have been eliminated, in order to allow unrestricted access during non-working periods.

The SSO is responsible for delineating the boundaries of each controlled work area, based upon requirements set forth in Section 9.1, results of monitoring obtained during work operations, and site-specific conditions (e.g., proximity of roads or buildings and terrain peculiarities).

9.1 CONTROLLED WORK AREAS

Requirements

Work locations where ongoing operations create the potential for contact with or inhalation of contaminants (above action levels), or exposure to physical hazards of work operations, are considered to be limited-access controlled areas. A Defined Work Zone will be established at each such work location to prevent unauthorized access by personnel when there is the potential for exposure to chemical or physical hazards. Once work begins, no one will be allowed within this work zone without wearing the designated level of protective equipment and meeting the training requirements specified in this HASP.

Where practical, a single entry/exit point should be established at the edge of each work zone to facilitate control of personnel entering the area, and as the location for the set-up of decontamination stations. Initial requirements for work zone set-up are presented here as a guide, however location-specific factors must also be considered. Work zones will be determined by the contractor and or subcontractor based on the type of operation being performed and specific equipment being used. Typical distances for initial set up of the work zone are:

Drilling Operation: Five feet in all directions will be cleared around the equipment.

Decontamination: 30 feet in all directions from the decontamination station location for large vehicle efforts conducted at a decontamination pad. For personal and small parts decontamination conducted at the work location, keep decontamination activities within the applicable work zone established for that operation.

Work Zone Delineation and Security

Work Zones should be delineated using traffic cones and yellow "CAUTION" tape (if needed), which provides a visible and physical barrier to prevent entry by unauthorized persons. Placement of vehicles and K rails can be used to provide additional security. The SSO/Task Leader will be responsible for maintaining the integrity of the perimeter during work activities, and will maintain a surveillance of the Work Zone to prevent unauthorized entry. If such an entry should occur, the trespasser will be immediately escorted outside the area, or all work at that location must cease. All personnel, equipment and supplies, which enter a work zone, must be decontaminated or containerized as waste prior to leaving.

At the conclusion of all work location tasks, controlled areas must be properly cleaned so as to be non-hazardous ("clean") prior to relaxation of entry control procedures and PPE requirements. Due to other requirements at the site, it may be necessary to "safe" each work location at the conclusion of each work period to allow for "other" unrestricted uses of the site.

9.2 THE SUPPORT ZONE

The areas, which lie outside any defined work zone location, are considered to be free of work-related hazards. In this area, the requirements for protective equipment usage can be relaxed, and tasks, which do not present significant hazards (including administrative/management activities), can be conducted. For convenience, the uncontrolled areas of the site will be referred to as the Support Zone, however it should be understood that within this area the contractor and subcontractor exercises no control and assumes no responsibilities for actions not directly related to its own work activities. Access to these areas is unrestricted, and Support Zone areas are available for other uses during all non-working hours.

The Support Zone can be used for set up and storage of all equipment, vehicles and supplies which are

not required for immediate use in a defined work zone, and can serve as a work area for all non-hazardous tasks which might be undertaken (e.g., paperwork). A break area will also be designated in the Support Zone where personnel can eat, drink, and smoke. The break area is the only place where such activities are permitted by contractor and subcontractor personnel. There are no requirements for delineation or marking of Support Zone boundaries since it encompasses all portions of the property where work activities or security considerations do not require access control.

10.0 HEALTH AND SAFETY OPERATING PROCEDURES

10.1 GENERAL

10.1.1 Smoking, Eating, and Drinking

In order to minimize the potential for exposure to site contaminants, smoking, eating, drinking, gum chewing and application of cosmetics will not be permitted inside defined work zones at any time. Field workers, even those working in Level D conditions (see Section 7.2.1), will wash their hands and face prior to leaving and prior to eating or drinking. Consumption of alcoholic beverages is prohibited at the site.

10.1.2 Site Awareness

Field crew members shall be familiar with the physical characteristics and requirements of the work site, including;

- Accessibility to equipment and vehicles
- Communication
- Defined work zones (areas of suspected contamination or significant physical hazard)
- Site access
- Supplemental illumination by mobile lighting
- Emergency procedures and evacuation assembly points
- Location of protective and emergency equipment and relevant first-aid procedures.

The number of personnel and equipment permitted inside any Work Zone should be minimized, consistent with site operations.

10.2 SITE HEALTH AND SAFETY MEETINGS

10.2.1 Site Safety Orientation

The SSO will conduct a site safety orientation for every person assigned to the project on the following occasions:

- Before field personnel begin work at the site

- When there are significant revisions or modifications to the Health and Safety Plan
- When additional workers or subcontractors begin field work and when authorized visitors are required to enter the Exclusion Zone Areas

A record of the site safety orientation will be documented by each personnel's signing of the signature page, which accompanies each site-specific addendum. Records of additional meetings, including attendees, will be maintained in the project health and safety file. The Health and Safety Professional will assist the SSO to develop the site safety orientation.

At a minimum, the orientation and training meeting agenda must include:

- Distribution of this HASP
- A review of this HASP and the site-specific safety guidance document
- Hazard awareness of contaminants, which may be encountered on site
- Fire safety training, fire extinguishments, and evacuation procedures
- Attendee signatures to acknowledge receipt and understanding of the HASP and an agreement to comply

10.2.2 Field Safety Briefings

The Site Foreman will conduct a field safety briefing at the start of each workday. When necessary (at a minimum weekly), the SSO will review and discuss the health and safety issues associated with the work, problems encountered, and modifications to existing procedures during the field safety briefing. Documentation of the field safety briefings will be accomplished by using the safety briefing sign-in log located at the end of this document. The SSO maintains copies of all safety briefing sign-in logs in the project files. All field personnel associated with each day's project activities are required to attend these meetings.

10.3 ACCIDENT OR INCIDENT REPORTS

All accidents and incidents that occur on site during field activities associated with this project will be promptly reported to the SSO and the Site Supervisor. The Site Supervisor will provide timely notification to the LEC H&S Project Manager. The supervisor of the injured employee or work crew will initiate the written report. For convenience, the *Supervisor's Report of Incident* attached to this document may be used to ensure all relevant information is recorded. The Site Superintendent or Site Foreman completes the "Supervisor" section of the form and forwards it to the LEC Health and Safety Project Manager. The LEC Health and Safety Project Manager completes the "Manager" section of the form and forwards it to the Health and Safety Professional.

10.4 VISITOR CLEARANCES

Visitors will not be allowed within the Work Zones unless they comply with the health and safety requirements of this HASP, and can demonstrate a need for entry into the work area, which is acceptable to the SSO. All visitors (including the site owner or the owner's representative, or regulatory agency

representatives) desiring to enter a defined work area must observe the following procedures:

Obtain a briefing from the SSO on the hazards associated with the site activities being performed, and acknowledge receipt of this briefing by signing the appropriate field safety briefing form and this HASP.

If the site visitor requires entry to any Work Zone, but does not comply with the above requirements, all work activities within the Work Zone must be suspended and monitoring must indicate that no airborne contaminant concentrations are present which exceed the established background levels and/or the physical hazard has been abated. Until these requirements have been met, entry will not be permitted.

10.5 CONTRACTOR SAFETY

In addition to the requirements of this Health and Safety Plan, contractors and subcontractors performing work under this HASP will observe the rules outlined by their own company policies. Compliance with these rules will be observed by contractors and subcontractors (during all phases of site activities).

10.6 BUDDY SYSTEM

Due to the potential for accident or injury, no person is permitted to work alone inside any Work Zone. To ensure that this requirement is observed, a buddy system will be implemented in which members of the work crew shall be paired off in teams of two who will maintain visual contact with each other at all times. Team members should observe each other for any signs of difficulty. Anyone exhibiting symptoms of potential overexposure or other difficulty should be taken immediately to the nearest medical facility.

10.7 WASTE HANDLING

Suspect excavated soil; waste PPE and other wastes will be collected and managed throughout the project. Waste shall not be allowed to accumulate and shall be contained in DOT-approved drums. Additional protocols to be followed include:

- When not in use, drums/containers will be covered with a tight-fitting lid,
- At the conclusion of each working shift, all drums/containers will be placed in the designated waste storage area. This area will be properly marked and secured, and
- Manual lifting, carrying or moving of drums/containers will not be permitted. A drum handling cart or similar apparatus will be used for moving drums/containers from collection points to the designated storage area.

10.8 WORKSITE SANITATION

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials. Anyone observed throwing contaminated material or PPE away with municipal wastes will be removed from the site.

10.8.1 Water Supply

A water supply meeting the requirements of Title 8 CCR § 1524 will be utilized, consisting of the

following:

Potable Water. An adequate supply of potable water will be available for field personnel consumption. Contractors and subcontractors will provide potable water for field personnel consumption for their individual employees. Potable water can be provided in the form of water bottles, canteens, water coolers, or drinking fountains. Where drinking fountains are not available, individual use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

Non-Potable Water. Non-potable water may be used for hand washing and cleaning activities. Non-potable water will not be used for drinking purposes. Any non-potable water sources will be clearly labeled as such.

10.8.2 Toilet Facilities

In accordance with Title 8 CCR § 1527, employees will be provided washing facilities (e.g., buckets with water and hand soap) at each work location. The use of water and hand soap (or similar substance) will be used by each employee following exit from a Work Zone, prior to breaks and at the end of daily work activities.

10.9 COMMUNICATIONS

Effective communication is essential to safe working conditions and the successful completion of the project. External communication is maintained by LEC using cellular telephone links. Cellular phones will be required during all earth moving activities and to facilitate communications with Contractor, DCMI and LEC management personnel, and if necessary to notify appropriate emergency response units (e.g., police, ambulance teams, fire department, etc.).

11.0 EMERGENCY CONTINGENCY PLAN

The following responsibilities and response actions are in accordance with the requirements for an Emergency Response and Contingency Plan.

There are four major categories of emergencies that could occur during site investigation activities:

- Illnesses and physical injuries (including injury-causing chemical exposure).
- Catastrophic event (fire, explosion, earthquake, or chemical release).
- Safety equipment problems.
- Minor spills or leaks of equipment fuel (e.g., gasoline) or decontamination fluids.

Although a catastrophic event or severe medical emergency is unlikely to occur during work activity at the site, this emergency contingency plan has been prepared for this project should such critical situations arise. The purpose of this procedure is to establish the appropriate response actions for emergency situations, the means of communications, and the responsibilities of key personnel at the site.

11.1 RESPONSIBILITIES

11.1.1 Site Safety Officer (SSO)

The SSO is the primary coordinator for all emergency activities. Responsibilities include:

- Evaluating the severity of the emergency,
- Implementing appropriate response action,
- Directing worker response activities,
- Summoning appropriate emergency services (fire department, ambulance, etc.), and
- Notifying all site personnel, the Health and Safety Professional, and concerned authorities of the emergency situation.

11.1.2 Other On-Site Personnel

It will be the obligation of the field personnel to inform the SSO of all emergency situations and to abide by their issued response actions. Special medical problems of field personnel such as allergies to insects, plants, prescription medication, etc. will be reported to the SSO.

11.2 EMERGENCY EQUIPMENT

Provisions will be made to have appropriate emergency equipment available and in proper working condition.

11.2.1 First-Aid Kits

Each work site shall have a first-aid kit meeting the following requirements:

- First-aid kits in weather-proof containers, meeting all regulatory requirements, shall be present at all locations where contractor personnel and subcontractors will be working,
- First-aid kits shall be available at each work location at all times, and
- Only designated personnel will be permitted to use first-aid kits.

During all work operations, at least one individual will be present at all times who is a certified first aid provider.

11.2.2 Eyewash Units

Eyewash units meeting the requirements of ANSI Standard 2358.1-1981 will be available at each work location. These units will also comply with the provisions of 8 CCR § 5162, and shall be capable of supplying hands-free irrigation for both eyes for at least 15 minutes at a flow rate of at least 0.4 gallons per minute.

11.2.3 Fire Extinguisher

A fire extinguisher capable of extinguishing Class A, B, and C fires will be available for use at the site at

each work location at all times, and personnel will be readily aware of the location of the fire extinguisher for immediate use. At a minimum, the fire extinguisher shall carry a rating of 10-A, 10-B, C.

11.2.4 Spill Containment and Cleanup

Equipment for containment and cleanup of small spills of fuel or cleaning solvents will be available.

11.3 WORK STOPPLEC AND CORRECTIVE ACTIONS

The SSO will require temporary work stoppage and implementation of corrective actions if any of the following conditions are encountered:

- Air monitoring shows concentrations of airborne contaminants exceeding Level D requirements as presented in Table 4.
- Concentrations of airborne contaminants outside any controlled area (see Section 9.1) exceed 50 percent of the unprotected exposure limits required by OSHA (OSHA PEL's).
- Emergency conditions directly affect the health and safety of onsite workers or offsite residents or properties.

Corrective actions may include modification of personal protection levels, ventilation, evacuation, or other necessary measures as determined by the SSO using guidance found in this HASP (mitigation measures in Section 6.1.2). The SSO is empowered to unilaterally stop work if necessary to meet health and safety requirements.

11.4 NON-CATASTROPHIC EMERGENCY RESPONSE ACTIONS

The following procedures will be implemented in response to specific non-catastrophic emergency situations:

11.4.1 Medical Emergencies

Medical emergencies can be described as situations that present a significant threat to the health of personnel. These can result from chemical exposures, heat stress, cold stress, and poisonous insect or snake bites. Medical emergencies must be dealt with immediately and proper care should be administered. This may be in the form of first-aid and emergency hospitalization. In the event of a medical emergency:

- All injured individuals may be given appropriate emergency first-aid by a qualified individual trained in first-aid, and
- Severely injured personnel shall be transported to the designated hospital listed in Table 6.

The route to the hospital is shown on Figure 2.

11.4.2 Safety Equipment Problems

An emergency may develop due to malfunction or other problems associated with health and safety equipment being used by field personnel. These equipment problems must be corrected before proceeding with field activities. Health and safety problems that may occur include:

- Leaks or tears in protective clothing,

- Failure of respiratory protective devices (air-purifying respirators), and
- Encountering contaminants for which prescribed protective equipment may not be suitable.

Any person encountering a problem with protective equipment will evacuate the Work Zone and will immediately decontaminate and remove all protective clothing and other equipment. As necessary, the affected employee can be evaluated by a physician if overexposure is suspected.

11.4.3 Fuel/Solvent Spills

In the event of a small spill of fuel or cleaning solvents, actions should be taken to immediately contain the spill. This can include the use of spill containment devices (spill “pillows”, etc.) or other barriers. The SSO will direct the cleanup of spilled material as quickly as possible. Cleanup will be performed using an absorbent material. Waste will be collected and containerized.

11.5 CATASTROPHIC EVENT PROCEDURES

In the event of a catastrophic incident:

Work activities will cease and all project personnel will be evacuated from the work location. The evacuation will proceed in a direction opposite of the critically affected area with all personnel assembling in a pre-designated location outside of the job site proper (determined and presented as part of the daily field briefing),

A headcount will be taken by the SSO or designated alternate of the assembled employees and any injured individuals shall be administered first-aid, and

If not present at the affected work location, the SSO, the Site Foreman, the Site Supervisor, the LEC H&S PM, and the LEC Health and Safety Professional will be contacted immediately.

A universal signal for emergency evacuation (e.g., use of a horn), and designation of the evacuation assembly location, shall be established by the SSO and briefed to all workers during initial site-specific training. Any changes mandated by changing site conditions shall be determined by the SSO and communicated to workers during the daily field safety briefing.

