



April 18, 2006

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By loprojectop at 9:21 am, Apr 26, 2006

Jerry Wickham, P.G.  
Alameda County Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Subject: Fuel Leak Case No. RO0002504, PG&E Livermore Training Center, 7205 National Drive, Livermore, CA – Submission of Work Plan for Additional Groundwater Sampling

Dear Mr. Wickham,

As requested in your letter of February 17, 2006, enclosed is the *Groundwater Investigation Work Plan* for PG&E's Livermore Training Center. This Work Plan provides for further assessment of groundwater conditions at the site following the initial groundwater investigation in July, 2005. That investigation was in response to soil and surface water sampling results associated with the removal of two underground fuel tanks in December, 2003.

As recommended by Alameda County Zone 7 Agency and reported in our letter and closure report dated February 21, 2006, the six perimeter wells were permanently closed on February 6, 2006.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Should you have any questions or concerns regarding this, please contact me at 4325 South Higuera St., San Luis Obispo, CA 93401.

Sincerely,

Drew Squyres  
Sr. Project Manager  
(805) 546-3854

cc: Matt Katen, QIC 80201 / Wyman Hong  
Zone 7 Water Agency  
100 North Canyons Parkway  
Livermore, CA 94551

Juan Jayo, PG&E

Enclosure: *Groundwater Investigation Work Plan*



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*By loprojectop at 9:21 am, Apr 26, 2006*

**Groundwater Investigation Work Plan  
PG&E Livermore Training Center  
7205 National Drive  
Livermore, California**

**April 19, 2006  
SECOR PN: 05OT.50212.01/0001**

**Prepared for:**

**Pacific Gas and Electric Company**

**Submitted by:**

**SECOR International Incorporated  
57 Lafayette Circle, 2<sup>nd</sup> Floor  
Lafayette, CA 94549**

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Note: Figures appear at end of report.

# SECOR

The material and data in this report were prepared under the supervision and direction of the undersigned. This report was prepared consistent with current and generally accepted geologic and environmental consulting principles and practices that are within the limitations provided herein.

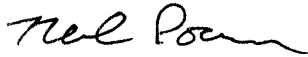
Prepared for:

Pacific Gas and Electric Company

Submitted by:

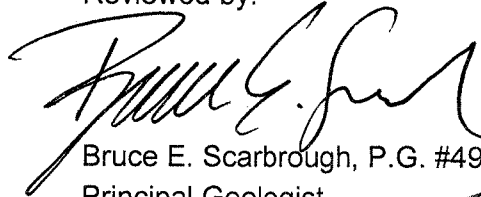
SECOR International Incorporated  
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Prepared by:

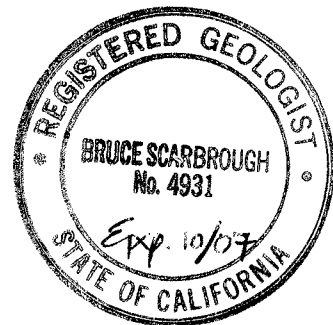


Neil Doran  
Associate Geologist

Reviewed by:



Bruce E. Scarbrough, P.G. #4931  
Principal Geologist



## LIMITATIONS

The conclusions and recommendations contained in this report/assessment are based upon professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location and are subject to the following inherent limitations:

1. The data and findings presented in this report are valid as of the dates when the investigations were performed. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration at the Site, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in the report.
2. The data reported and the findings, observations, and conclusions expressed in the report are limited by the Scope of Work. The Scope of Work was defined by the request of the client, the time and budgetary constraints imposed by the client, and availability of access to the Site.
3. Because of the limitations stated above, the findings, observations, and conclusions expressed by SECOR in this report are not, and should not be, considered an opinion concerning the compliance of any past or present owner or operator of the Site with any federal, state or local law or regulation.
4. No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon Site conditions in existence at the time of investigation.
5. SECOR reports present professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of federal, state or local governmental agencies. Any use of the report constitutes acceptance of the limits of SECOR's liability. SECOR's liability extends only to its client and not to any other parties who may obtain the report. Issues raised by the report should be reviewed by appropriate legal counsel.

## 1.0 INTRODUCTION

SECOR International Incorporated (SECOR) is pleased to present this *Groundwater Investigation Work Plan* (Work Plan) prepared for Pacific Gas and Electric Company (PG&E). The Work Plan describes proposed groundwater assessment activities at PG&E's Livermore Training Center located at 7205 National Drive in Livermore, California. This scope of work was developed in response to your February 17, 2006, letter to Mr. Drew Squyres of PG&E requesting additional assessment of groundwater conditions at the site.

### 1.1 Background

The site is an active PG&E training center located in the Las Positas Valley area of eastern Livermore (Site Plan, Figure 1). One 3,000-gallon unleaded gasoline underground storage tank (UST) and one 3,000-gallon diesel UST were removed from the on-site fueling station in December 2003. Analytical results from confirmation soil samples reported no detectable concentrations of petroleum hydrocarbons or related constituents. Analytical results from a grab water sample obtained from the open UST pit reported methyl tert-butyl ether (MtBE) at 7,500 micrograms per liter ( $\mu\text{g/L}$ ) and tert-butyl alcohol (TBA) at 2,200  $\mu\text{g/L}$ . According to the UST removal report, the water may have originated from a broken underground pipe located several feet below ground surface.

In June 2005, SECOR advanced three direct-push soil borings near the USTs to assess whether elevated concentrations of fuel oxygenates observed during UST removal were representative of groundwater conditions. SECOR's hydrogeologic assessment of the site indicated a westerly to northwesterly groundwater flow direction. Soil boring B-1 was advanced east of the former USTs and soil borings B-2 and B-3 were advanced west of the former USTs. The locations of B-2 and B-3 had to be moved approximately 5 feet to the west due to a subsurface electrical line adjacent to the former tank pit. The June 2005 soil boring locations are illustrated on Figure 2. Grab groundwater samples were obtained from approximately 30 feet below ground surface (bgs) in soil borings B-1 and B-3; soil boring B-2 was abandoned at approximately 24 feet due to refusal. Diesel-range organics (DRO) were detected in both grab groundwater samples at a maximum concentration of 130  $\mu\text{g/L}$  and MtBE was detected at 0.60  $\mu\text{g/L}$  in the groundwater sample from soil boring B-3.

The December 12, 2003, UST removal report prepared by Geo-Logic has discrepancies involving sample IDs and their locations relative to the two USTs. Geo-Logic collected confirmation soil samples and pit water samples from locations adjacent to each of the two USTs. Geo-Logic's Figure 1, included in their report, indicates that the diesel UST was located in the northern half of the tank pit and the gasoline UST was located in the southern half of the tank pit. This orientation is consistent with a design drawing provided by PG&E. However, the sample IDs for Geo-Logic's confirmation soil samples and pit water samples

are transposed; sample IDs with the 'UNL' prefix (suggesting unleaded gasoline) are shown to have been collected near the diesel UST and sample IDs with the 'DIESEL' prefix are shown to have been collected near the unleaded gasoline UST. These discrepancies were noted by PG&E during preparation for the scope of work described herein.

It is unknown whether the samples were appropriately located in the field and mislabeled either in the field or on the drawing, or if the samples meant to characterize soil and groundwater conditions near the gasoline UST were inadvertently collected near the diesel UST, and vice versa. Mr. Squyres of PG&E spoke with a representative of Geo-Logic regarding these uncertainties, and this representative could not provide resolution.

In evaluating how these discrepancies affect soil and groundwater characterization performed to date, SECOR believes that soil conditions have been adequately characterized. Soil samples labeled 'DIESEL', possibly collected from near the gasoline UST, were analyzed for total petroleum hydrocarbons as diesel (TPH-d) and gasoline (TPH-g), as well as benzene, toluene, ethylbenzene and xylenes (BTEX), fuel oxygenates, and total lead. No constituents were detected above reporting limits except for total lead, which was detected at concentrations less than 10 milligrams per kilogram (mg/kg). Soil samples labeled 'UNL', possibly collected from near the diesel UST, were not analyzed for TPH-d. However, because of the absence of detectable concentrations of petroleum hydrocarbons in all soil samples (including two stockpile samples), SECOR believes that soils beneath the USTs have been adequately characterized and warrant no further attention.

PG&E received technical comments regarding the investigation in your letter dated February 17, 2006. In the letter, you stated that groundwater flow beneath the site was towards the northwest and requested that PG&E present plans to collect a groundwater sample directly downgradient of the former gasoline UST. Because of the uncertainty regarding the locations of the pit water samples collected during UST removal, SECOR proposes advancing two soil borings to characterize groundwater. Each soil boring will be advanced approximately 10 feet northwest of the pit water grab sample locations as documented by Geo-Logic. These pit water grab sample locations and the proposed soil boring locations are illustrated on Figure 2.

## 2.0 PROPOSED SCOPE OF WORK

SECOR proposes advancing two soil borings (B-4 and B-5) directly downgradient of the former USTs, assuming a northwesterly groundwater flow direction. The soil borings will be advanced to first-encountered groundwater and a grab groundwater sample will be collected and analyzed for constituents of concern. These locations may have to be modified slightly to maintain 5 feet of clearance from the subsurface electrical conduit present near the former tank pit, but we are confident that the soil borings can be advanced in locations appropriate for downgradient assessment of groundwater conditions. The proposed soil boring locations are illustrated on Figure 2.

The following sections describe work tasks associated with soil boring advancement and abandonment, sample collection and analysis, and reporting. A preliminary project schedule is included at the end of this document.

### 2.1 Task 1 – Preliminary Activities

#### Permitting and Underground Utility Clearance

SECOR will obtain a soil boring permit from the Zone 7 Water Agency. Prior to drilling, SECOR will mark the work area in white paint and notify Underground Service Alert five working days before the work date. In addition, SECOR will subcontract with a private utility locator (Cruz Brothers Locators) to clear the proposed soil boring locations of underground utilities.

#### Health and Safety Plan

SECOR will update the site-specific Health and Safety Plan (HASP) for the proposed scope of work. The HASP will identify the tasks and potential hazards and describes the required personal protective equipment.

### 2.2 Task 2 – Groundwater Investigation

#### Drilling and Sampling

SECOR will subcontract with Gregg Drilling and Testing (Gregg Drilling) to advance two direct-push soil borings for collection of grab groundwater samples. The soil borings will be advanced to first-encountered groundwater, anticipated at approximately 30 feet bgs. SECOR will first attempt to use the direct-push method for advancing the soil borings. However, due to adverse drilling conditions encountered during the June 2005 phase of work, Gregg Drilling will mobilize with a drilling rig capable of advancing 8-inch-diameter hollow-stem augers. The augers will be used if the direct-push method encounters refusal before reaching groundwater.



The top 5 feet of each soil boring will be advanced using a hand auger to confirm the absence of subsurface utilities. Recovered soils will be logged by a SECOR geologist according to the Unified Soil Classification System (USCS), and soils will be screened in the field for volatile vapors using a photoionization detector (PID). If the direct-push method is successful, the boreholes will be cored continuously from 5 feet bgs to the total depth of investigation. If it is necessary to use hollow-stem augers, Gregg Drilling will collect undisturbed soil samples approximately every 5 feet using a California split-spoon sampler. Upon reaching groundwater, Gregg Drilling will advance the borehole approximately 4 feet into the water-bearing zone and insert a temporary well screen to facilitate collection of a groundwater sample using a disposable bailer. Samples will be collected into laboratory-supplied glassware and transported via courier to the analytical laboratory.

### Sampling and Analysis Plan

Grab groundwater samples will be submitted to Torrent Laboratory, Inc. in Milpitas, California, following standard chain-of-custody protocol. The grab groundwater samples will be analyzed for the following constituents:

- TPH-g and BTEX by U.S. Environmental Protection Agency (USEPA) Method 8015M/8021B;
- TPH-d by USEPA Method 8015M/3510 with silica-gel cleanup; and
- Fuel oxygenates by USEPA Method 8260B.

In addition, a trip blank will be included with the sample shipment and analyzed for TPH-g, BTEX, and fuel oxygenates.

### Waste Management and Site Restoration

Following completion of sampling activities, the soil borings will be backfilled with neat cement grout, finished with concrete, and colored to match the existing asphalt surface. All investigation-derived waste (soils and decontamination rinsate) will be stored on-site in 55-gallon steel drums for disposal by PG&E.

## **2.3 Task 3 – Reporting**

Following receipt of laboratory analytical reports, SECOR will prepare a summary report of findings. The report will include a site plan showing the former UST pit and soil boring locations, tabulated analytical results, lithologic and hydrologic observations and interpretations, and a discussion of the findings. The report will include complete laboratory data and soil boring logs.

### 3.0 SCHEDULE

Pending your approval of this Work Plan, SECOR and Gregg Drilling are scheduled to perform the drilling and sample collection on May 3, 2006. A report of findings will be submitted to your office three to four weeks following receipt of analytical results.

**FIGURES**

Groundwater Investigation Work Plan

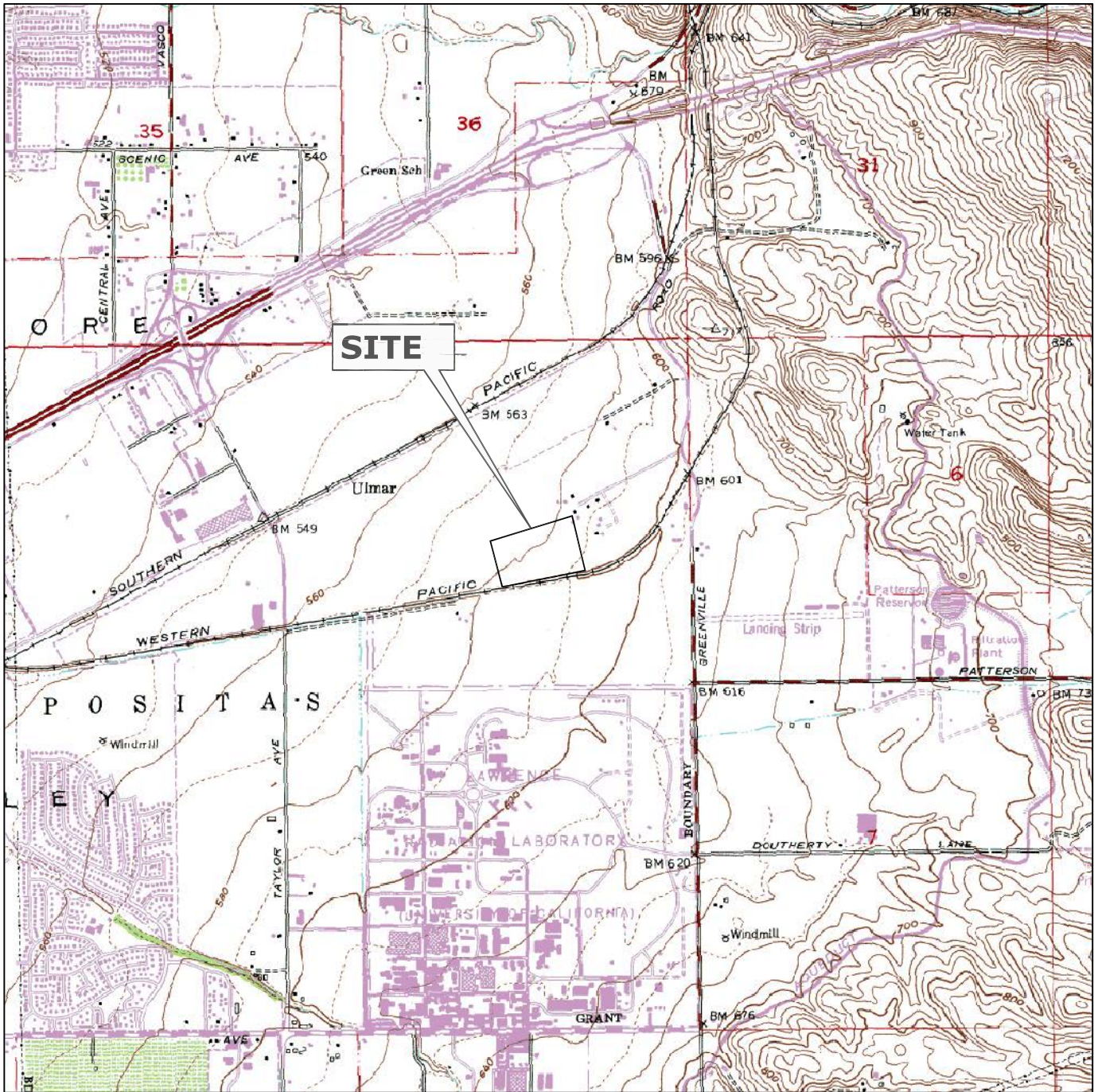
PG&E Livermore Training Center

7205 National Drive

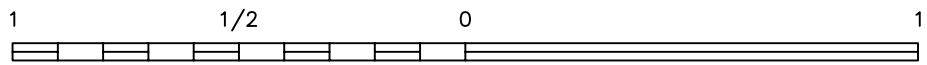
Livermore, California

SECOR PN: 05OT.50212.01/0001

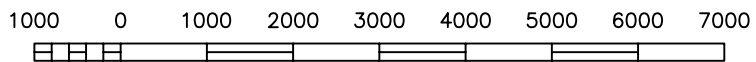
April 19, 2006



CALIFORNIA




SCALE (MILES)



SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; ALTAMONT, CALIFORNIA; 1978

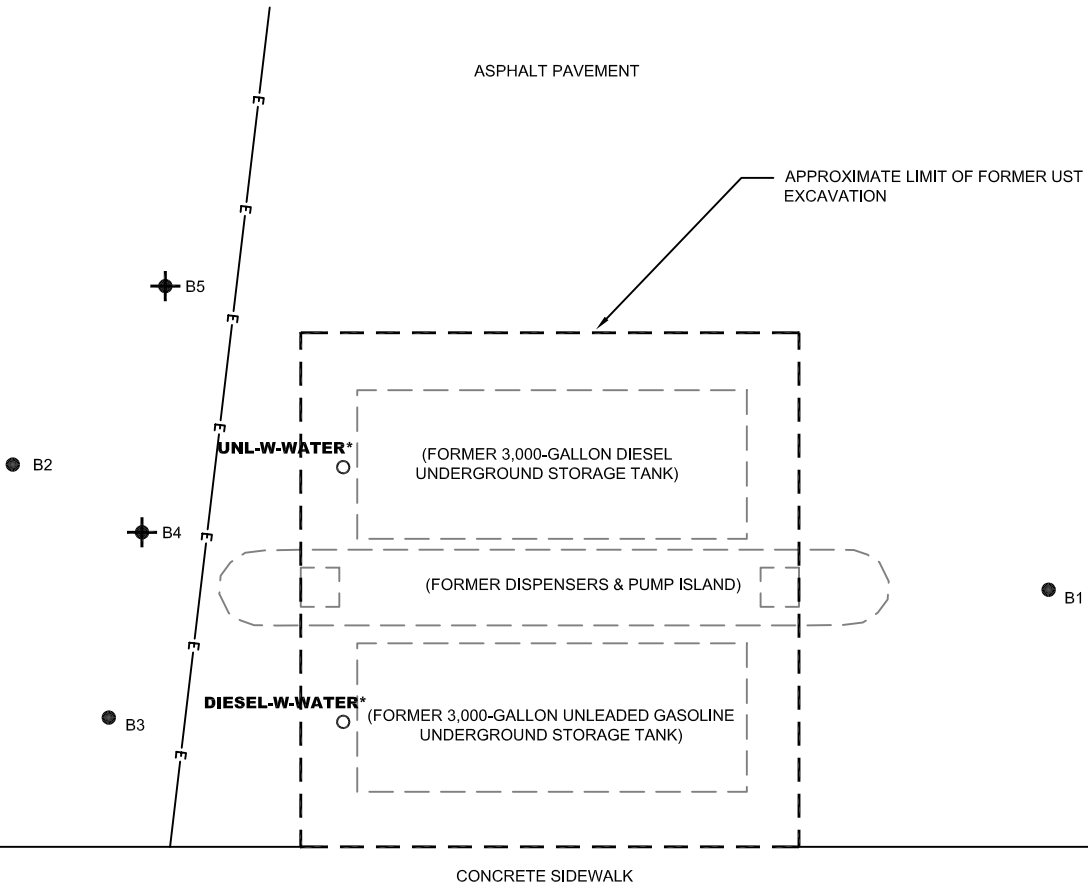
 <b>SECOR</b> 57 Lafayette Circle, 2nd Floor Lafayette, CA PHONE: (925) 299-9300 FAX: (925) 299-9302	FOR: <b>P G &amp; E - LIVERMORE          TRAINING CENTER          7205 NATIONAL DRIVE          LIVERMORE, CALIFORNIA</b>		<b>SITE LOCATION MAP</b>		FIGURE <b>1</b>
	JOB NUMBER: 05OT.50212.00	DRAWN BY: S. SIMMONS	CHECKED BY:	APPROVED BY:	DATE: 6/20/05

TRAINING AREA

CURB

ASPHALT PAVEMENT

APPROXIMATE LIMIT OF FORMER UST  
EXCAVATION



**LEGEND**

B3 ● SOIL BORING LOCATIONS (JUNE 2005)

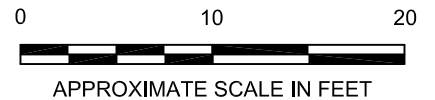
B4 ⊕ PROPOSED SOIL BORING LOCATION

—E— SUBSURFACE ELECTRICAL LINE (APPROXIMATE LOCATION)

**DIESEL-W-WATER**



PIT WATER GRAB SAMPLE COLLECTED BY GEO-LOGIC,  
DURING DECEMBER 2003 TANK REMOVAL  
\* PIT WATER SAMPLES MAY HAVE BEEN ERRONEOUSLY  
LOCATED AND/OR LABELED. SEE TEXT FOR DISCUSSION



REFERENCE: BASE MAP FROM GEO-LOGIC, TITLED; SITE PLAN, FIGURE 1,  
DATE DECEMBER 4, 2003.



FOR:  
P G & E - LIVERMORE  
TRAINING CENTER  
7205 NATIONAL DRIVE  
LIVERMORE, CA

SITE PLAN AND  
PROPOSED SOIL BORING LOCATIONS

FIGURE:

2

JOB NUMBER:  
05OT.50212.01.0001

DRAWN BY:  
RRR

CHECKED BY:  
ND

APPROVED BY:  
ND

DATE:  
14 APRIL 2006