JW

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

October 27, 2006

Mr. Drew Squyres
PG&E Environmental Affairs
4325 South Higuera Street
San Luis Obispo, CA 93401

Subject: Fuel Leak Case No. RO0002604, PG&E Livermore Training Center, 7205 National Drive, Livermore, CA

Dear Mr. Squyres:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health (ACEH) is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed.

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- Residual concentrations of up to 1.4 milligrams per kilogram (mg/kg) of Total Petroleum Hydrocarbons as diesel remain in soil at the site.
- Residual concentrations of up to 130 micrograms per liter (µg/L) of Total Petroleum Hydrocarbons as diesel remain in groundwater at the site.

If you have any questions, please call Jerry Wickham at (510) 567-6791. Thank you.

Sincerely,

Donna L. Drogos, P.E.
LOP and Toxics Program Manager

Enclosures:
1. Remedial Action Completion Certificate
2. Case Closure Summary

cc:

Ms. Cherie McCaulou (w/enc)
SF- Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Mr. Toru Okamoto (w/enc)
State Water Resources Control Board
UST Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120

Ms. Danielle Stefani (w/enc)
Livermore-Pleasanton Fire Department
3560 Nevada Street
Pleasanton, CA 94566

Ms. Colleen Winey, QIC 80201 (w/enc)
Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551

Jonathon G. Pforr (w/enc)
PG&E
1030 Detroit Avenue
Concord, CA 94518

✓ Jerry Wickham (w/orig enc), D. Drogos (w/enc), R. Garcia (w/enc)

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October 27, 2006

Mr. Drew Squyres
PG&E Environmental Affairs
4325 South Higuera Street
San Luis Obispo, CA 93401

REMEDIAL ACTION COMPLETION CERTIFICATE

Subject: Fuel Leak Case No. RO0002604, PG&E Livermore Training Center, 7205 National Drive, Livermore, CA

Dear Mr. Squyres:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Ariu Levi
Director
Alameda County Environmental Health

ALAMEDA COUNTY
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4325 South Higuera Street
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This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Ariu Levi
Director
Alameda County Environmental Health

CASE CLOSURE SUMMARY
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM

I. AGENCY INFORMATION

Date: September 28, 2006

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6791
Responsible Staff Person: Jerry Wickham	Title: Hazardous Materials Specialist

II. CASE INFORMATION

Site Facility Name: PG&E Livermore Training Center		
Site Facility Address: 7205 National Drive, Livermore, CA 94550		
RB Case No.:	Local Case No.:	LOP Case No.: RO0002604
URF Filing Date: 01/07/2004	SWEEPS No.: ---	APN: 099B-5752-002-00

Responsible Parties	Addresses	Phone Numbers
Drew Squyres, PG&E	PG&E Environmental Affairs, 4325 South Higuera Street, San Luis Obispo, CA 93401	805-546-3854

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
1	3,000 gallons	Gasoline	Removed	12/04/2003
2	3,000 gallons	Diesel	Removed	12/04/2003
Piping			Removed	12/04/2003

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Unknown. No holes, cracks, or other signs of failure were observed in the tanks during removal.		
Site characterization complete? Yes	Date Approved By Oversight Agency: -----	
Monitoring wells installed? No wells installed in immediate vicinity of the site. Six monitoring wells were previously installed at the perimeters of the PG&E Training Area; these wells were decommissioned in 2005.	Number: 0	Proper screened interval? –
Highest GW Depth Below Ground Surface: 28	Lowest Depth: 30	Flow Direction: Northwest
Most Sensitive Current Use: Drinking water source.		

Summary of Production Wells in Vicinity: The nearest water supply well is approximately 1,500 feet east northeast (upgradient) of the site. Based on the levels of residual hydrocarbons at the site and upgradient location of the water supply well, this well does not appear to be a receptor for the site. No water supply wells are located within 2,000 feet of the site in the downgradient direction.	
Are drinking water wells affected? No	Aquifer Name: Spring Sub-basin, Livermore-Amador Basin
Is surface water affected? No	Nearest SW Name: Patterson Reservoir is approximately 1 mile east (upgradient) of the site
Off-Site Beneficial Use Impacts (Addresses/Locations): None	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	Two 3,000 gallon tanks	Transported to Ecology Control Industries in Richmond, CA for disposal	12/04/2003
Piping	Two 55-gallon drums	Removed from site; fiberglass piping removed as hazardous waste, disposal destination not reported; steel piping rinsed and recycled by SIMS Metals, Hayward	12/04/2003
Free Product	None	--	--
Soil	Not reported	--	--
Groundwater	Not reported	--	--

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP
(Please see Attachments 1 through 7 for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	<1	<1	<250(1)	<50(1)
TPH (Diesel)	1.4	1.4	300(1)	130(1)
Oil and Grease	NA	NA	NA	NA
Benzene	<0.005	<0.005	<0.5	<0.5
Toluene	<0.005	<0.005	<0.5	<0.5
Ethylbenzene	<0.005	<0.005	<0.5	<0.5
Xylenes	<0.005	<1	<1	<1
Heavy Metals	9.5(2)	9.5(2)	130(3)	130(3)
MTBE	<0.005(4)	<0.005(4)	7,500(5)	0.6(5)
Other (8240/8270)	NA(6)	NA(6)	NA(6)	NA(6)

(1) The maximum concentrations before cleanup were detected in a grab groundwater sample collected directly from the tank pit during tank removal. The maximum concentrations after cleanup were from grab groundwater samples collected during site investigation.
(2) Total lead; no other metals analyses performed.
(3) Total lead detected in a grab groundwater sample collected directly from the tank pit excavation. No other lead analyses performed for groundwater.
(4) No fuel oxygenates detected in soil.
(5) MTBE was detected at a concentration of 7,500 ppb and tert-butyl alcohol was detected at a concentration of 2,200 ppb in a grab groundwater sample collected approximately 10 feet below ground surface (bgs) from the tank pit excavation. MTBE was detected at a maximum concentration of 0.6 ppb and TBA was not detected in grab groundwater samples from three soil borings. DIPE, ETBE, TBA, and TAME were <5 ppb in all groundwater samples analyzed.
(6) No analyses by EPA Methods 8240 or 8270.

Site History and Description of Corrective Actions:

The site is within PG&E's Livermore Training Center. One 3,000-gallon gasoline UST and one 3,000-gallon diesel UST were removed from the site in December 2003. The tanks appeared to be in good condition and no staining or odors were observed in the excavation during tank removal. Four soil samples were collected from native soil in the sidewalls of the excavation. TPH as gasoline, TPH as diesel, BTEX, MTBE, and other fuel oxygenates were not detected in the soil samples.

Two grab samples were collected from accumulated water within the base of the excavation that was suspected to be from a broken pipe in the tank excavation. MTBE was detected at a concentration of 7,500 µg/L and tert-butyl alcohol was detected at a concentration of 2,200 µg/L in one of the grab water samples. TPHd was detected at a concentration of 300 µg/L in one of the water samples but TPHg was not detected in either of the water samples.

Three direct-push soil borings were advanced to a maximum depth of 32 feet bgs to investigate the extent of soil and groundwater contamination at the site in June 2005. Soil samples were collected in each of the three borings and grab groundwater samples were collected in two of the borings. MTBE was detected at a maximum concentration of 0.6 µg/L in the grab groundwater samples from the borings. TPHg , BTEX, and other fuel oxygenates were not detected in groundwater. Based on these results, the elevated concentration of MTBE detected in the grab water sample collected from the tank pit excavation during removal is not believed to be representative of groundwater conditions. TPHd was detected at a concentration of 130 µg/L in one grab groundwater sample collected from a downgradient boring. TPHd was also detected in soil at concentration of 1.4 mg/kg in a sample collected directly above the water table.

Two additional soil borings were advanced west (downgradient) of the former diesel and gasoline USTs on June 9, 2006. The soil borings were logged continuously to depths of approximately 287 to 32 feet bgs. No staining, odors, or elevated PID readings were observed in the soils during drilling. Petroleum hydrocarbons and fuel oxygenates were not detected in grab groundwater samples collected from each of the downgradient soil borings.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? ---		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? ---		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health based upon current land use and conditions.		
Site Management Requirements: None		
Should corrective action be reviewed if land use changes? No		
Was a deed restriction or deed notification filed? No		Date Recorded: --
Monitoring Wells Decommissioned: Yes	Number Decommissioned: 6	Number Retained: 0
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: --		

V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:

Residual TPH as diesel was detected in groundwater at a concentration of 130 µg/L, which exceeds the ESL for TPH as diesel in drinking water. The TPH as diesel in groundwater is limited to the area of the former USTs and is not expected to affect downgradient receptors. TPH as diesel has not been detected at elevated concentrations in soil. Based on the absence of a long-term source of TPH as diesel in the soils, TPHd concentrations in groundwater can be expected to decrease over time due to natural attenuation processes.

Ethylene dibromide and 1,2-diochloroethane analysis not performed.

Conclusion:

Alameda County Environmental Health staff believe that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment based upon the information available in our files to date. No further investigation or cleanup is necessary. ACEH staff recommend case closure for this site.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Jerry Wickham	Title: Hazardous Materials Specialist
Signature: Jerry Wickham	Date: 09/28/06
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: Donna L. Drogos	Date: 09/28/06

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

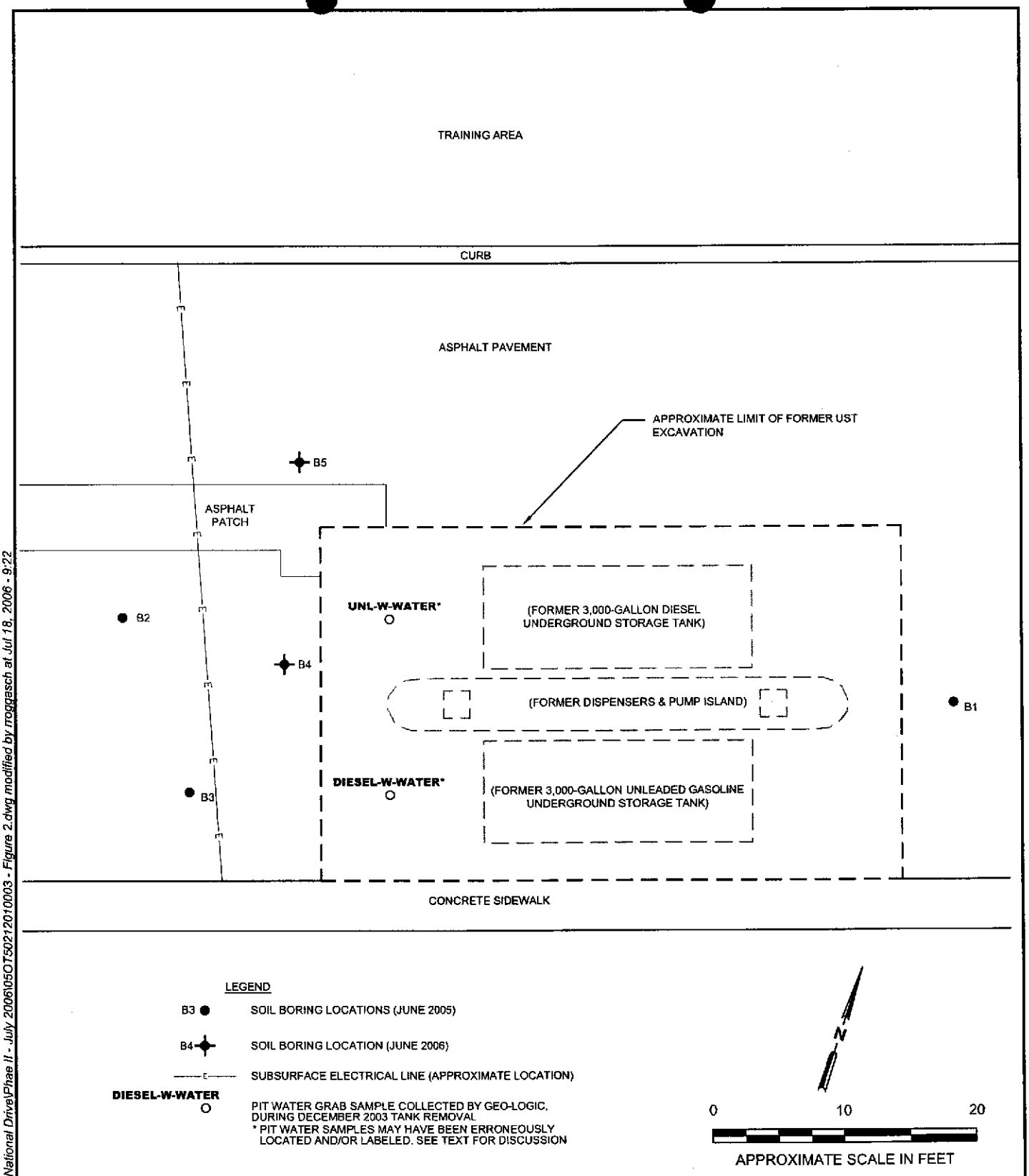
Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB:
Signature: Cherie McCaul	Date: 10/25/06

VIII. MONITORING WELL DECOMMISSIONING

Date Requested by ACEH: No wells installed	Date of Well Decommissioning Report: ---	
All Monitoring Wells Decommissioned: ---	Number Decommissioned: ---	Number Retained: ---
Reason Wells Retained: ---		
Additional requirements for submittal of groundwater data from retained wells: ---		
ACEH Concurrence - Signature:		Date: 10/26/06

Attachments:
1. Site Location Map
2. Site Plan and Soil Boring Locations
3. Soil Analytical Results
4. Water Analytical Results
5. Boring Logs

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.



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

SECOR
57 Lafayette Circle, 2nd Floor
Lafayette, CA
PHONE: (925) 299-9300 FAX: (925) 299-9302

FOR:				FIGURE:
P G & E - LIVERMORE TRAINING CENTER 7205 NATIONAL DRIVE LIVERMORE, CA		SITE PLAN AND SOIL BORING LOCATIONS		2
JOB NUMBER: 05OT.50212.01.0003	DRAWN BY: RRR	CHECKED BY: ND	APPROVED BY: ND	DATE: 07/18/06

K:\PG&E\PG&E - Livermore\2705 National Drive\Phae II - July 2006\05OT50212010003 - Figure 2.dwg modified by roggasch at Jul 18, 2006 - 9:22

TABLE 1
SOIL ANALYTICAL RESULTS
P. G. & E. - Livermore
7205 National Drive, Livermore, CA

Samples collected on 12/3 and 12/4/03.

Sample/ Depth (feet)	TPH-d (ppm)	TPH-g (ppm)	BTEX (ppm)	MTBE by 8260	Other Fuel Oxygenates	Total Lead (ppm)
UNL-WEST (10')	NA	<1.0	<0.005	<0.005	ND	8.1
UNL-EAST (10')	NA	<1.0	<0.005	<0.005	ND	7.5
DIESEL-WEST (10	<1.0	<1.0	<0.005	<0.005	ND	9.1
DIESEL-EAST (10	<1.0	<1.0	<0.005	<0.005	ND	8.0
Comp S1	<1.0	<1.0	<0.005	<0.005	ND	<5.0
Comp S2	<1.0	<1.0	<0.005	<0.005	ND	5.3

EXPLANATION:
ppm = parts per million

ATTACHMENT 3

Table 1
Soil Sample Analytical Results
Pacific Gas & Electric Company
Livermore Training Center
7205 National Drive, Livermore, CA

Sample ID	Depth (ft)	Sample Date	EPA Method 8015M		EPA Method 8260B								
			TPH/g	DRO	Benzene	Toluene	Ethylbenzene	Xylenes	TBA	MtBE	DIPE	ETBE	TAME
B1-28'	28	6/3/2005	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005
B2-23'	23	6/3/2005	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005
B3-24.5'	24.5	6/3/2005	<1.0	1.4	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.005	<0.005
ESL		**Residential Soil (>3m)**	**100**	**100**	**0.044**	**2.9**	**3.3**	**2.3**	**0.073**	**0.023**	NE	NE	NE
			(gasolines)	(middle distillates)									

Notes:
All analytical results reported in milligrams per kilogram (mg/kg)
< Indicates analyte was not detected at or above specified reporting limit
TPH/g = Total petroleum hydrocarbons as gasoline
DRO = Diesel range organics (carbon chain length C10 to C28)
TBA = Tert-butyl alcohol
MtBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = Tert-amyl methyl ether
ESL = Environmental screening levels for subsurface soils greater than 3 meters deep - residential land use permitted, where potentially impacted groundwater is a current or potential source of drinking water (San Francisco Bay Area Regional Water Quality Control Board - Interim Final, February 2005 - Summary Table C-1).
NE = Not established

TABLE 2
WATER ANALYTICAL RESULTS
P. G. & E. - Livermore
7205 National Drive, Livermore, CA

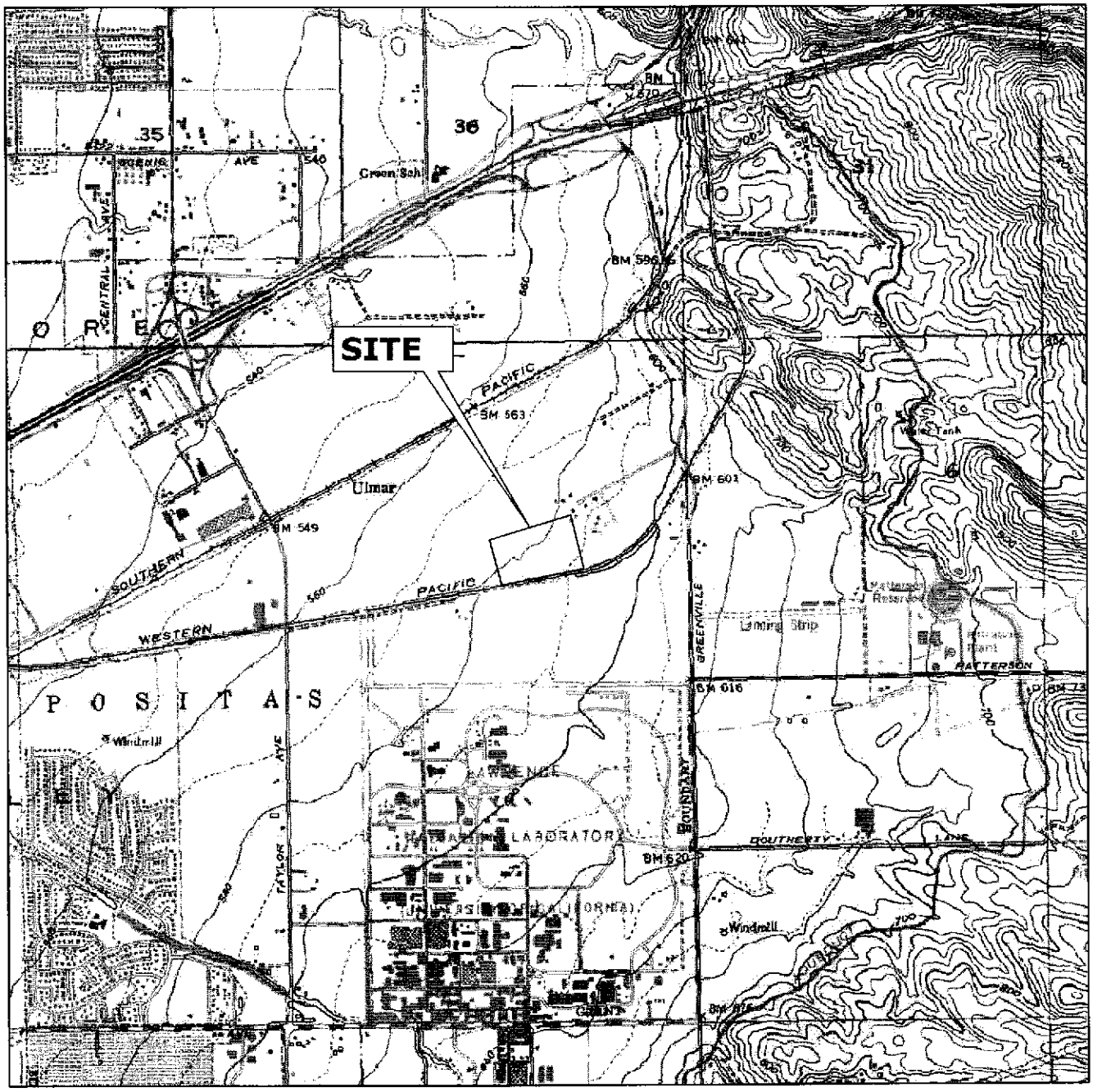
Samples collected on 12/4/03.

Sample/ Depth (feet)	TPH-d (ppb)	TPH-g (ppb)	BTEX (ppb)	MTBE by 8260	TBA (ppb)	Lead (ppm)
DIESEL-W-WATER	300	<50	ND	150	90*	0.065
UNL-W-WATER	NA	<250	ND	7,500	2,200*	0.13

EXPLANATION:
ppb = parts per billion

* Other fuel oxygenates were non-detectable.

ATTACHMENT 4



N

1 1/2 0 1

SCALE (MILES)

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE (FEET)

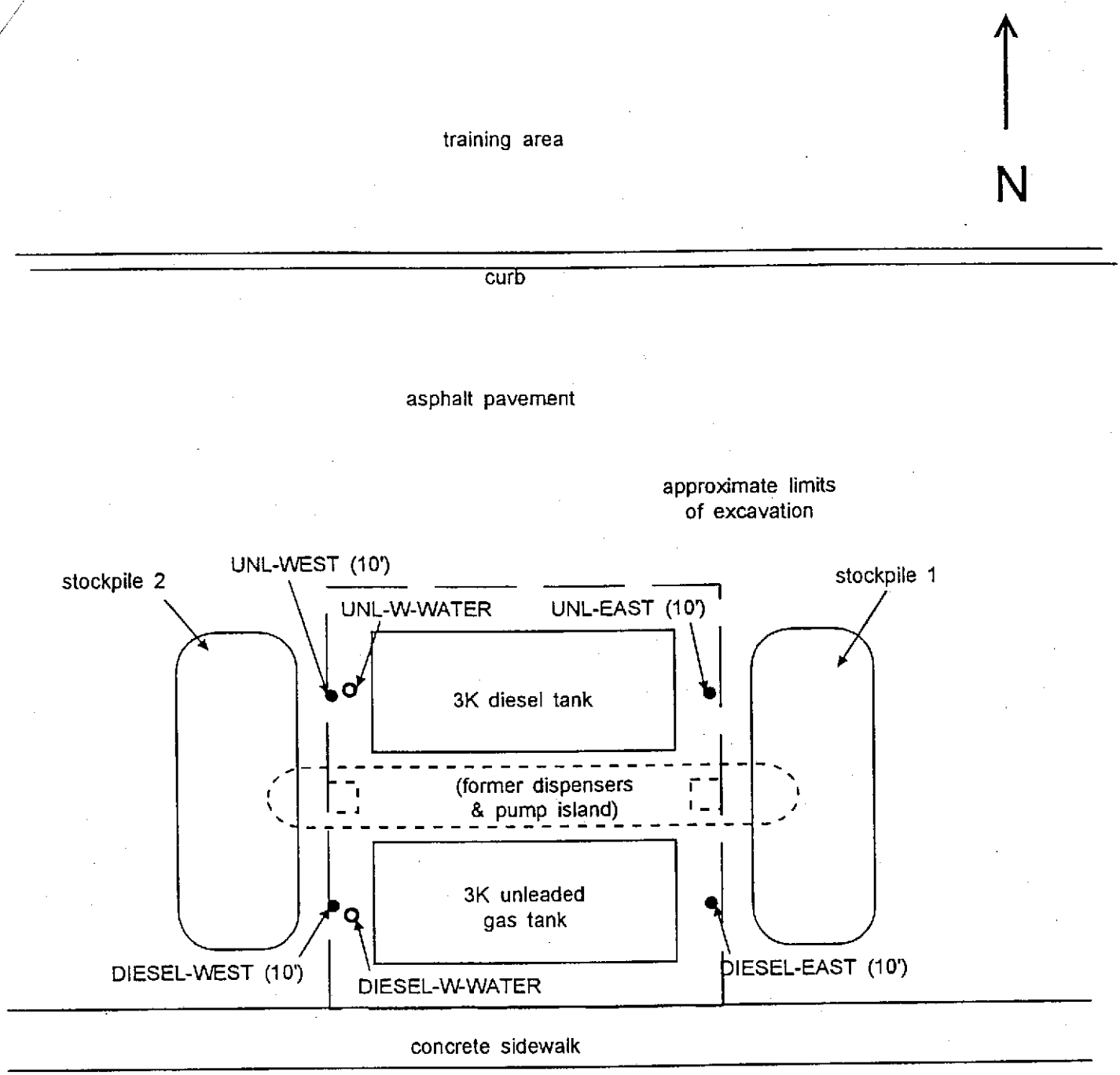
REFERENCE: USGS 7.5 MINUTE QUADRANGLE; ALTAMONT, CALIFORNIA; 1978

SECOR
57 Lafayette Circle, 2nd Floor
Lafayette, CA
PHONE: (925) 299-9300 FAX: (925) 299-9302

FOR:			FIGURE
P G & E - LIVERMORE TRAINING CENTER 7205 NATIONAL DRIVE LIVERMORE, CALIFORNIA		SITE LOCATION MAP	1
JOB NUMBER: 05OT 50212.00	DRAWN BY: S. SIMMONS	CHECKED BY:	APPROVED BY:	DATE: 6/20/05

FILEPATH:R:\Cad_Files\Projects\Office\005\05OT5021200\05OT5021200-1SLM.dwg|ssimmons|Jun 30, 2005 at 10:09|Layout: Mode

ATTACHMENT 1



LEGEND

● soil sample (depth)

samples collected on 12/3 and 12/4/03

o water sample (depth)

APPROXIMATE SCALE

0 10

1" = 10'

P. G. & E. - Stockton 7205 National Drive Livermore, California	Figure No: 1	Date: December 4, 2003 Drawn By: JG/Geo-Logic

Site Plan

ATTACHMENT 2

Table 1
Grab Groundwater Sample Analytical Results
Pacific Gas & Electric Company
Livermore Training Center
7205 National Drive, Livermore, CA

Sample ID	Sample Date	EPA Method 8015M		EPA Method 8260B								
		TPHg	DRO	Benzene	Toluene	Ethylbenzene	Xylenes	TBA	MTBE	DIPE	ETBE	TAME
B1-W	6/3/2005	<50	**52**	<0.5	<0.5	<0.5	<1.0	<5.0	<0.5	<1.0	<0.5	<0.5
B3-W	6/3/2005	<50	**130**	<0.5	<0.5	<0.5	<1.0	<5.0	**0.60**	<1.0	<0.5	<0.5
B4-GW	6/9/2006	<50	<100	<0.5	<0.5	<0.5	<1.5	<10	<0.5	<0.5	<5.0	<5.0
B5-GW	6/9/2006	<50	<100	<0.5	<0.5	<0.5	<1.5	<10	<0.5	<0.5	<5.0	<5.0
ESL	**Groundwater - DW[1]**	**100**	**100**	**1.0**	**40**	**30**	**20**	**12**	**5.0**	NE	NE	NE
	Groundwater - NDW[2]	**500**	**640**	**46**	**130**	**290**	**100**	**18,000**	**1,800**	NE	NE	NE
		(gasoline's)	(middle distillates)									

Notes:
All analytical results reported in micrograms per liter (µg/L)
< Indicates analyte was not detected at or above specified reporting limit
TPHg = Total petroleum hydrocarbons as gasoline
DRO = Diesel range organics (carbon chain length C10 to C28)
TBA = Tert-butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = Tert-amyl methyl ether
ESL = Environmental screening levels for groundwater (San Francisco Bay Area Regional Water Quality Control Board - Interim Final, February 2005).
DW[1] - Screening level for groundwater which is an existing or potential source of drinking water (ESL Summary Table F-1a)
NDW[2] - Screening level for groundwater which is not an existing or potential source of drinking water
NE = Not established

SECOR
International Incorporated

Logged By:	Date Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
B. Robitaille	**6/3/05**	**Gregg Drilling**	**Livermore Training Center 7205 National Dr., Livemore, CA**	**Continuous Sampler Geoprobe**	**B-1**

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	2	**NA**	▽ **28 First encountered** ▼ **21 Stabilized**	**28.0**	**NA**	**NA**

Boring Abandonment	Depth, (ft.)	Sample Interval	Description	PID Readings (PPM)	Sample ID
			Asphalt / Baserock		
			CLAY (CL), very dark gray (10YR-3/1) to dark brown (7.5YR-3/2), moderately hard, moderately plastic, trace fine- to medium-grained sand, dry	1.0	
	5		CLAYEY SAND (SC), yellowish brown (10YR-5/4), fine- to medium-grained sand, dense, dry	1.0	
			Grades with increasing medium-grained sand, slightly moist		
			Grades with abundant caliche in vertical fractures	0.4	B1-10'
	10			1.1	
			Grades with trace fine- to coarse-grained gravel	1.1	
Cement Grout			SAND (SW), yellowish brown (10YR-5/5), fine-grained sand with trace coarse-grained sand, dense, dry		
	15		SAND (SP), dark yellowish brown (10YR-4/6), fine-grained to coarse-grained sand, trace fine- to medium-grained gravel, loose	1.4	
			CLAYEY SAND (SC), yellowish brown (10YR-5/5), fine-grained sand, abundant caliche, very dense, dry	0.8	B1-20'
	20				
			SANDY SILT (SM), yellowish brown (10YR-5/5), fine-grained sand, moderately soft, trace clay, dry to moist	1.0	
	25				
			CLAYEY SAND (SC), yellowish brown (10YR-5/4), fine-grained sand, moderately dense, moist to wet, grades decreasing clay at 28 feet	1.1	B1-28'
			TOTAL DEPTH OF BOREHOLE = 28 FEET BELOW GROUND SURFACE		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

LIVERMORE TRAINING CENTER - LOGS.GPJ LOG OF BH-REDLANDS-REV1

Project No. **05OT.50212.00**
Date **06/03/05**

Log of Boring: B-1

ATTACHMENT 5

SECOR
International Incorporated

Logged By:	Date Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
B. Robitaille	**6/3/05**	**Gregg Drilling**	**Livermore Training Center 7205 National Dr., Livemore, CA**	**Continuous Sampler Geoprobe**	**B-2**

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	2	**NA**	**First encountered Stabilized**	**24.0**	**NA**	**NA**

Boring	Depth, (ft.)	Sample Interval	Description	PID Readings (PPM)	Sample ID
Cement grout	5		Asphalt / Baserock		
			CLAY (CL), very dark gray (10YR-3/1) to dark brown (7.5YR-3/2), moderately hard, moderately plastic, trace fine- to medium-grained sand, dry	0.4	
			CLAYEY SAND (SC), yellowish brown (10YR-5/4), very fine- to medium-grained sand, dense, dry	0.8	
	10				B2-10'
	15		Grades with coarse sand, trace gravel	0.8	
			SAND (SW), yellowish brown (10YR-5/5), fine-grained sand with trace coarse-grained sand, dense, dry		
			SAND (SP), dark yellowish brown (10YR-4/6), fine-grained to coarse-grained sand, trace fine- to medium-grained gravel, loose	1.4	
			CLAYEY SAND (SC), yellowish brown (10YR-5/5), fine-grained sand, abundant caliche, very dense, dry to slightly moist		
	20				B2-20'
			SANDY SILT (SM), yellowish brown (10YR-5/5), fine-grained sand, moderately soft, trace clay, dry	1.4	B2-23'
			No recovery 23 - 24 feet; refusal at 24 feet		
	25		TOTAL DEPTH OF BOREHOLE = 24 FEET BELOW GROUND SURFACE		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

LIVERMORE TRAINING CENTER - LOGS.GPJ LOG OF BH-REDLANDS-REV1

Project No. **05OT.50212.00**
Date **06/03/05**

Log of Boring: B-2

Approved by _____

SECOR
International Incorporated

Logged By:	Date Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
B. Robitaille	**6/3/05**	**Gregg Drilling**	**Livermore Training Center 7205 National Dr., Livemore, CA**	**Continuous Sampler Geoprobe**	**B-3**

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	2	**NA**	▽ **28 First encountered** ▼ **24 Stabilized**	**32.0**	**NA**	**NA**

Boring	Depth, (ft.)	Sample Interval	Description	PID Readings (PPM)	Sample ID
			Asphalt / Baserock		
			SILTY CLAY (CL), very dark gray (10YR-3/1) to dark brown (7.5YR-3/2), trace fine- to coarse-grained sand, moderately hard, moderately plastic, dry	2.0	
	5		CLAYEY SAND (SC), yellowish brown (10YR-5/4), fine- to medium-grained sand, dense, dry	1.8	
			Grades with increasing medium-grained sand		
	10		Grades with abundant caliche in vertical fractures	2.4	B3-10'
			Grades with coarse-graned sand	1.0	
	15		SAND (SW), yellowish brown (10YR-5/5), fine- to coarse-grained sand, dense, dry	0.8	
Cement grout			SAND (SP), dark yellowish brown (10YR-4/6), fine- to coarse-grained sand, minor fine-grained gravel, loose, dry	1.0	
	20		CLAYEY SAND (SC), yellowish brown (10YR-5/5), fine- to medium-grained sand, abundant caliche, very dense, dry	0.4	B3-20'
			SANDY SILT (SM), yellowish brown (10YR-5/5), fine-grained sand, moderately soft, dry to moist	1.0 3.4	B3-24.5'
	25		No recovery 28 to 32 feet		
	30		TOTAL DEPTH OF BOREHOLE = 32 FEET BELOW GROUND SURFACE		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

LIVERMORE TRAINING CENTER - LOGS.GPJ LOG OF BH-REDLANDS-REVI

Project No. **05OT.50212.00**
Date **06/03/05**

Log of Boring: B-3

Approved by _____

PROJECT: **PG&E Livermore Training Center**
LOCATION: **7205 National Drive**
PROJECT NUMBER: **05OT.50212.01**

WELL / PROBEHOLE / BOREHOLE NO: **B-4** PAGE 1 OF 1

SECOR

DRILLING: STARTED **6/9/06** COMPLETED: **6/9/06**
INSTALLATION: STARTED **6/9/06** COMPLETED: **6/9/06**
DRILLING COMPANY: **Gregg Drilling**
DRILLING EQUIPMENT: **Geoprobe**
DRILLING METHOD: **Direct Push**
SAMPLING EQUIPMENT: **2" x 4' Macrocore**

NORTHING (ft):
EASTING (ft):
LATITUDE:
LONGITUDE:
GROUND ELEV (ft):
TOC ELEV (ft):
INITIAL DTW (ft): **26** **6/9/06**
BOREHOLE DEPTH (ft): **32.0**
STATIC DTW (ft): **NE**
WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---**
BOREHOLE DIAMETER (in): **2**
LOGGED BY: **J. Dowd**
CHECKED BY: **N. Doran**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
			Asphalt / baserock						
		CH	**FAT CLAY**; CH; dark brown; hard; moist						
5		SM	**SILTY SAND**; SM; yellowish brown; loose; dry		B-4@ 5-5'			0	5
		SC	**CLAYEY SAND**; SC; yellowish brown; medium dense; dry						
10		CL	**SANDY CLAY**; CL; yellowish brown; stiff; dry		B-4@ 10-10'			0.1	10
15		SC	**CLAYEY SAND**; SC; yellowish brown; dense; dry		B-4@ 15-15'			0.1	15
		SP	**SAND**; SP; yellowish brown; loose; dry						
20		CL	**LEAN CLAY WITH LITTLE SAND** CL; yellowish brown; hard; dry		B-4@ 20-20'			0	20
25		CL	**LEAN CLAY WITH SAND** CL; yellowish brown; hard; moist		B-4@ 25-25'			0.1	25
		SP	**SAND WITH SILT**; SP; yellowish brown; medium dense; wet		B4-GW				▽
30									30
			Hole terminated at 32 feet.						
35									35

GEO FORM 304 PG&E LIVERMORE 2006 LOGS.GPJ SECOR INTL.GDT 7/17/06

PROJECT: **PG&E Livermore Training Center**
LOCATION: **7205 National Drive**
PROJECT NUMBER: **05OT.50212.01**

WELL / PROBEHOLE / BOREHOLE NO: **B-5** PAGE 1 OF 1

SECOR

DRILLING: STARTED **6/9/06** COMPLETED: **6/9/06**
INSTALLATION: STARTED **6/9/06** COMPLETED: **6/9/06**
DRILLING COMPANY: **Gregg Drilling**
DRILLING EQUIPMENT: **Geoprobe**
DRILLING METHOD: **Direct Push**
SAMPLING EQUIPMENT: **2" x 4' Macrocore**

NORTHING (ft):
EASTING (ft):
LATITUDE:
LONGITUDE:
GROUND ELEV (ft):
TOC ELEV (ft):
INITIAL DTW (ft): **26** **6/9/06**
BOREHOLE DEPTH (ft): **28.0**
STATIC DTW (ft): **NE**
WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---**
BOREHOLE DIAMETER (in): **2**
LOGGED BY: **J. Dowd**
CHECKED BY: **N. Doran**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)
			Asphalt / baserock						
		CH	**FAT CLAY**; CH; dark brown; hard; moist						
		SM	**SILTY SAND**; SM; yellowish brown; loose; dry						5
5		SC	**CLAYEY SAND**; SC; yellowish brown; dense; dry		B-5@ 6-6'			0	
		CL	**SANDY CLAY LITTLE SILT**; CL; yellowish brown; hard; dry						10
10					B-5@ 12-12'			0.1	
		SP	**SAND SOME GRAVEL**; SP; yellowish brown; loose; dry						15
15		CL	**LEAN CLAY SOME SAND**; CL; yellowish brown; hard; dry						
					B-5@ 18-18'			0.1	
20		ML	**SILT SOME SAND**; ML; yellowish brown; stiff; dry						20
		CL	**LEAN CLAY LITTLE SAND**; CL; yellowish brown; hard; dry		B-5@ 24-24'			0.1	
25		SC	**CLAYEY SAND**; SC; yellowish brown; loose; wet	■	B5-GW				25 ▽
			Hole terminated at 28 feet.						
30									30
35									35

GEO FORM 304 PG&E LIVERMORE 2006 LOGS.GPJ SECOR INTL.GDT 7/17/06