

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY  
ALEX BRISCOE, Director



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

April 29, 2014

Ms. Jan Shipley (Sent via E-mail to: [JShipley@lvjUSD.k12.ca.us](mailto:JShipley@lvjUSD.k12.ca.us))

Livermore Unified School District

685 E. Jack London Blvd.

Livermore, CA 94550

Subject: Case Closure for Fuel Leak Case No. RO0000188 and GeoTracker Global ID T0600100844, Laidlaw Transit (Maintenance Yard), 2900 Ladd Avenue, Livermore, CA 94550

Dear Ms. Shipley:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25296.10[g]). 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. This case closure letter and the case closure summary can also be viewed on the State Water Resources Control Board's Geotracker website (<http://geotracker.swrcb.ca.gov>) and the Alameda County Environmental Health website (<http://www.acgov.org/aceh/index.htm>).

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

Sincerely,

Dilan Roe, P.E.

LOP and SCP Program Manager

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

Cc w/enc.:

Danielle Stefani, Livermore Pleasanton Fire Department, 3560 Nevada St, Pleasanton, CA 94566

(Sent via E-mail to: [dstefani@lpfire.org](mailto:dstefani@lpfire.org))

Colleen Winey (QIC 8021), Zone 7 Water Agency, 100 North Canyons Pkwy, Livermore, CA 94551

(Sent via E-mail to: [cwiney@zone7water.com](mailto:cwiney@zone7water.com))

City of Livermore Planning Division, 1052 South Livermore Avenue, Livermore, CA 94550 (Sent via E-mail to: [planning@cityoflivermore.net](mailto:planning@cityoflivermore.net))

Ms. Jan Shipley  
RO0000188  
April 29, 2014  
Page 2

Julia Siudyla, ACC Environmental Consultants, 7977 Capwell Drive, Oakland, CA 94621 (*Sent via E-mail to: [jsiudyla@accenv.com](mailto:jsiudyla@accenv.com)*)

Jerry Wickham, ACEH (*Sent via E-mail to: [jerry.wickham@acgov.org](mailto:jerry.wickham@acgov.org)*)

GeoTracker, eFile

ALAMEDA COUNTY  
**HEALTH CARE SERVICES**  
AGENCY

ALEX BRISCOE, Agency Director



DEPARTMENT OF ENVIRONMENTAL HEALTH  
OFFICE OF THE DIRECTOR  
1131 HARBOR BAY PARKWAY  
ALAMEDA, CA 94502  
(510) 567-6777  
FAX (510) 337-9135

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**REMEDIAL ACTION COMPLETION CERTIFICATION**

April 29, 2014

Ms. Jan Shipley (Sent via E-mail to: [JShipley@lvjUSD.k12.ca.us](mailto:JShipley@lvjUSD.k12.ca.us))  
Livermore Unified School District  
685 E. Jack London Blvd.  
Livermore, CA 94550

Subject: Case Closure for Fuel Leak Case No. RO0000188 and GeoTracker Global ID T0600100844, Laidlaw Transit (Maintenance Yard), 2900 Ladd Avenue, Livermore, CA 94550

Dear Ms. Shipley:

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 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

Please be aware that claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Ariu Levi", written over a horizontal line.

Ariu Levi  
Director

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

**I. AGENCY INFORMATION**

Date: September 30, 2013

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: Senior Hazardous Materials Specialist

**II. CASE INFORMATION**

Site Facility Name: Laidlaw Transit		
Site Facility Address: 2900 Ladd Avenue, Livermore, CA 94550		
RB Case No.: 01-0919	Local Case No.: StID 3095	LOP Case No.: RO0000188
URF Filing Date: 9/6/1990	Geotracker ID: T0600100844	APN: 098-0264-001-17
<b>Responsible Parties</b>	<b>Addresses</b>	<b>Phone Numbers</b>
Jan Shipley Livermore Valley Unified School District	685 East Jack London Blvd. Livermore, CA 94551-1855	(925) 606-3390

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
1	6,000	Unleaded gasoline	Removed	8/6/1992
2	6,000	Low leaded gasoline	Removed	8/6/1992
3	10,000	Diesel	Removed	8/6/1992
Piping			Removed	8/4/1992



### III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Unknown. Three holes were observed in the 6,000-gallon leaded gasoline tank; however, two of the holes appeared to be punctures caused by a drilling operation to collect soil and groundwater samples. The fuel had been removed prior to the drilling. The third hole in the tank was caused by backfilling of soil. Soil staining was evident around the fill pipe of the diesel tank and directly beneath the diesel and unleaded gasoline dispensers.		
Site characterization complete? Yes	Date Approved By Oversight Agency: ----	
Monitoring wells installed? Yes	Number: 6	Proper screened interval? ---
Highest GW Depth: 12 fbg	Lowest GW Depth: 57 fbg	Flow Direction: West northwest to northwest
Most Sensitive Current Use: Drinking water		

Summary of Production Wells in Vicinity: Two active municipal water supply wells are within ½ mile of site. The nearest municipal water supply well (California Water Service Well 12-01) is located approximately 1,400 feet south of the site. Based on the upgradient location and distance from the site, the well is not expected to be a receptor for the site. A second municipal water supply well is located approximately 2,500 feet west northwest of the site. Based on the distance from the site, the second municipal water supply well is also not expected to be a receptor for the site. Cal Water Service well CWS-17 was a municipal supply well located approximately 500 feet southeast of the site. Well CWS-17 was reported decommissioned in February 2013 and therefore, is not a receptor for the site.	
Are drinking water wells affected? No	Aquifer Name: Mocho II Subbasin of Livermore-Amador Valley Groundwater Basin
Is surface water affected? No	Nearest SW Name: Arroyo Mocho Creek is approximately 6,200 feet south of the site.
Off-Site Beneficial Use Impacts (Addresses/Locations): None identified.	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health and Livermore-Pleasanton Fire Department

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tanks	6,000 gallon leaded gasoline 10,000 gallon diesel 6,000 gallon unleaded gasoline	Transported to H & H Ship Service Company at 220 China Basin Street, San Francisco, CA 94107	8/6/1992
Piping	Approximately 60 feet	Disposal destination not reported	8/5/1992
Soil	40 yd <sup>3</sup>	Disposal destination not reported. Soil is from excavation activities that took place on August 5 and 27, 1992.	8/5 and 8/27/1992
Groundwater	---	--	---

**MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP**  
 (Please see Attachments 3 - 5 for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	2,700	300	92,000 <sup>1</sup>	25,000 <sup>1</sup>
TPH (Diesel)	120	120	<50	<50
TPH (Oil and Grease)	----	----	----	----
Benzene	9.8	2.3	12,000 <sup>2</sup>	3,100 <sup>2</sup>
Toluene	79	12	16,000 <sup>2</sup>	480 <sup>2</sup>
Ethylbenzene	38	4.8	1,700 <sup>2</sup>	2,400 <sup>2</sup>
Xylenes	220	31	11,000 <sup>2</sup>	4,800 <sup>2</sup>
Heavy Metals (Cd, Cr, Pb, Ni, Zn)	12 <sup>3</sup>	12 <sup>3</sup>	----	----
MTBE	<0.023 <sup>4</sup>	<0.023 <sup>4</sup>	20 <sup>5</sup>	20 <sup>5</sup>
Other (8240/8270)	----	----	----	----

- (1) The maximum concentration before cleanup is from a groundwater sample from well MW-5 on 09/21/2000; the maximum concentration after cleanup is from a groundwater sample collected from well MW-5 during the most recent groundwater monitoring event on 06/13/2013.
- (2) The maximum concentration before cleanup is from a grab groundwater sample collected from boring "A" on 06/30/1994; the maximum concentration after cleanup is from a groundwater sample collected from well MW-5 during the most recent groundwater monitoring event on 06/13/2013.
- (3) Total lead = 12 ppm; no other metals analyzed.
- (4) MTBE <0.023 ppm; EDB and EDC <0.005 pm; TBA, DIPE, TAME, ETBE, and ethanol not analyzed.
- (5) MTBE = 20 ppb; EDB, EDC, TBA, DIPE, TAME, ETBE, and ethanol not analyzed.

#### Site History and Description of Corrective Actions:

The site is currently part of the maintenance yard for the Livermore Valley Joint and Unified School District. Three former underground storage tanks (USTs) and dispensers that were removed in August 1992, were used in conjunction with the Maintenance Building. The former USTs and dispensers are bordered by a parking lot, sports fields, the Maintenance Building, and a hockey rink. Surrounding properties include residential and school properties. The Ladd School building is located approximately 235 feet southwest of the former USTs and dispensers. The Junction Avenue K-8 School buildings are located approximately 500 feet west of the former USTs and dispensers.

Depths to groundwater vary seasonally and have historically been measured between 12 and 57 fbg. A seasonal perched zone has been encountered typically at a depth of roughly 20 fbg in the area surrounding B-5/MW-2 and MW-5. Groundwater flows towards the west northwest to northwest.

In mid-1990, a leaded gasoline tank at the property failed a precision test. On July 25, 1990, an exploratory boring was angled beneath the tank to a depth of 17 vertical feet below ground surface (fbg). Soil samples collected from the boring contained 2,300 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) at 14 fbg and 1,500 ppm TPHg at 17 fbg. Xylenes were also detected at 220 ppm and 140 ppm in the 14 and 17 fbg samples, respectively. Groundwater was not encountered during the drilling event.

Three exploratory borings (B-1, B-2, and MW-1) were advanced on December 13, 1990, with one boring converted into a groundwater monitoring well. A total of nine soil samples and one groundwater sample were collected during this event. The south end of the empty 6,000 gallon leaded gasoline tank was punctured during drilling due to incorrect plotting of the UST. Three to four cubic yards of pea gravel backfill emptied into the punctured tank. Groundwater was first encountered at 57 fbg and rose approximately 10 feet after drilling. MW-1 was installed December 14, 1990 to the northwest of the USTs. Soil samples collected from the monitoring well boring contained 2,700 ppm TPHg, 8.1 ppm benzene, and 52 ppm xylenes at depths between 16 and 36 fbg. The groundwater sample contained 1,400 parts per billion (ppb) TPHg, 63 ppb benzene, 8.0 ppb ethylbenzene, 52 ppb toluene, and 590 ppb xylenes.

Three tanks were removed from 2900 Ladd Avenue on August 6, 1992. Upon removal, three holes were visible in the 6,000 gallon leaded gas tank. The holes were caused by previous boring and excavation activities when the tank was empty. Petroleum odor and elevated OVM readings were noted in native soil at the northern ends of the diesel and leaded gasoline tank. Soil staining was also noted around the fill pipe of the diesel tank. Soil samples were collected from native soil beneath the tanks, piping, and dispenser pumps. No groundwater was encountered during the excavation.

Six exploratory soil borings (B-3 through B-8) were advanced on April 9, 1993. Soil samples were collected at approximate five-foot intervals through the vadose zone. Soil boring B-5 was converted into monitoring well MW-2. The borings indicated that soil and groundwater northwest of the former USTs is impacted by petroleum hydrocarbons with the highest concentrations occurring from 18 to 35 fbg. Soil samples collected from B-4 at a depth of 26 fbg contained 2,300 ppm TPHg, 7.7 ppm benzene, 88 ppm toluene, 35 ppm ethylbenzene, and 210 ppm total xylenes. TPHd was detected at a concentration of 120 ppm in soil sample B6-2, collected to the west of the former diesel UST. The groundwater sample collected from the newly installed MW-2 contained 4,500 ppb TPHg, 340 ppb benzene, 110 ppb toluene, 8.0 ppb ethylbenzene, and 630 ppb total xylenes. TPHd was not detected in the groundwater sample. Groundwater elevations during the 1993 investigation were reported to be 15 feet higher (approximately 35 fbg) than during the 1992 site investigation. Soil lithology was observed to be sandy gravel interstratified with clayey to sandy silt. Significant contamination was encountered in the sandy gravel layer found between 20 and 32 fbg.

Site History and Description of Corrective Actions (continued):

In July 1994, additional site investigation including the installation of two additional monitoring wells (MW-3 and MW-4) was conducted. Grab groundwater samples from boring B10 and pilot test hole "A" contained TPHg and benzene at concentrations up to 70,000 ppb and 12,000 ppb, respectively. A perched groundwater zone was encountered at approximately 20 fbg in borings B-9, B-10, and MW-4. The highest concentrations of petroleum hydrocarbons in soil were detected in a soil sample collected at a depth of 20 feet from boring B-4.

One additional monitoring well (MW-5) was installed between June 28 and August 1, 2000. A groundwater sample collected from MW-5 contained 92,000 ppb TPHG, 9,900 ppb benzene, 15,000 ppb toluene, 540 ppb ethylbenzene, and 17,000 ppb total xylenes. MTBE was analyzed but not detected at concentrations above the reporting limit.

Between September 12 and 16, 2011, eight soil borings (ACC-1 through ACC-8) were advanced to a maximum depth of 65 fbg. Soil samples were collected for laboratory analysis at 5 to 10 foot intervals with additional samples collected at first encountered groundwater, lithologic changes, and zones exhibiting impact from petroleum hydrocarbons. Grab groundwater samples were collected from the first encountered groundwater in each boring. Petroleum hydrocarbons were detected in groundwater samples from ACC-3, ACC-4, and ACC-5. The grab groundwater sample from ACC-4 contained 14,000 ppb TPHg, 1,500 ppb benzene, 1,900 ppb toluene, 500 ppb ethylbenzene, and 4.5 ppb MTBE. In order to further define the vertical extent of contamination three cone penetrometer borings were completed adjacent to borings ACC-2, ACC4, and ACC-5. A membrane interface probe was used in the three CPT borings to collect continuous information on the vertical distribution of petroleum hydrocarbons.

Monitoring wells MW-2, MW-3, and MW-4 were decommissioned on April 9 and 10, 2013. On April 9, 2013, well MW-6A was installed approximately 20 feet southeast of the former USTs and product lines for use as a remediation well. A dual-phase extraction (DPE) pilot test was conducted from April 15 through April 17, 2013. Based on vapor readings from wells MW-5 and MW-6, approximately 11 gallons of hydrocarbons were removed during the 48-hour DPE pilot test.

Groundwater monitoring events have been conducted on 14 separate occasions since 1991. The concentrations of petroleum hydrocarbons in groundwater have decreased over time.

#### IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes

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, closure of this site appears to be consistent with the policies established by the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy which became effective on August 17, 2012.

Site Management Requirements: This fuel leak case has been evaluated for closure consistent with the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy (LTCP). Based on this evaluation, no site management requirements appear to be necessary.



Should corrective action be reviewed if land use changes? No		
Was a deed restriction or deed notification filed? No		Date Recorded: --
Monitoring Wells Decommissioned: No	Number Decommissioned: 4	Number Retained: 2
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: ----		

#### V. ADDITIONAL COMMENTS, DATA, ETC.

##### Considerations and/or Variances:

The site meets the general criteria for case closure under the LTCP.

The site appears to meet scenario 1 of the groundwater media-specific criteria for closure under the LTCP based on the following:

1. The plume is stable or decreasing in size.
2. The plume is less than 100 feet in length.
3. There is no free product.
4. No water supply wells or surface water bodies are within 250 feet of the plume boundary.

The site does not appear to meet any of the scenarios of the numerical media-specific criteria in the LTCP for petroleum vapor intrusion to indoor air for the following reasons:

1. No soil vapor sampling has been completed.
2. The concentration of benzene in groundwater exceeds 1,000 ppb.

Although the site does not meet scenarios 1 through 4 of the numerical media-specific criteria in the LTCP for petroleum vapor intrusion to indoor air, ACEH believes the site-specific conditions do not pose a significant risk of vapor intrusion to indoor air for the following reasons:

1. The residual contamination appears to be limited to depths below 13 fbg. There is a continuous zone with TPH concentrations below 100 ppm that provides a separation of more than 10 feet vertically between the residual contamination and the foundation of existing buildings and likely future buildings. Therefore, the site is considered to have a bioattenuation zone.
2. The depth to groundwater is typically greater than 20 fbg.
3. The age of the release is greater than 20 years.
4. Detections of benzene in groundwater at concentrations exceeding 1,000 ppb are limited to monitoring well MW-5.

The site appears to meet the media-specific criteria for direct contact and outdoor air exposure under the LTCP. The maximum concentrations of benzene and ethylbenzene detected in soil samples collected to date within the upper 10 feet are less than the media-specific criteria in Table 1 of the LTCP for direct contact and outdoor air exposure. Since the release at the site consisted primarily of gasoline, naphthalene concentrations are not likely to exceed the media-specific criteria in Table 1 of the LTCP.

##### Conclusion:

Alameda County Environmental Health staff believe that the site meets the conditions for case closure under the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy. Based upon the information available in our files to date, no further investigation or cleanup for the fuel leak case is necessary at this time.

**VI. LOCAL AGENCY REPRESENTATIVE DATA**

Prepared by: Jerry Wickham, P.G.	Title: Senior Hazardous Materials Specialist
Signature: <i>Jerry Wickham</i>	Date: 10/09/13
Approved by: Donna L. Drogos, P.E.	Title: Division Chief
Signature: <i>Donna L. Drogos</i>	Date: 10/9/13

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
Notification Date: 11/07/13	

**VIII. MONITORING WELL DECOMMISSIONING**

Date Requested by ACEH: 01/08/14	Date of Well Decommissioning Report: 04/18/14	
All Monitoring Wells Decommissioned: Yes	Number Decommissioned: 2	Number Retained: 0
Reason Wells Retained: NA		
Additional requirements for submittal of groundwater data from retained wells: None		
ACEH Concurrence - Signature: <i>Jerry Wickham</i>	Date: 04/29/14	

**Attachments:**


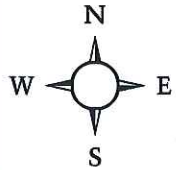
1. Site Maps (2 pp)
2. Site Plans (3 pp)
3. Chemical Concentration Maps and Cross Sections (6 pp)
4. Soil Analytical Data (3 pp)
5. Groundwater Analytical Data (4 pp)
6. Boring Logs (62 pp)

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.

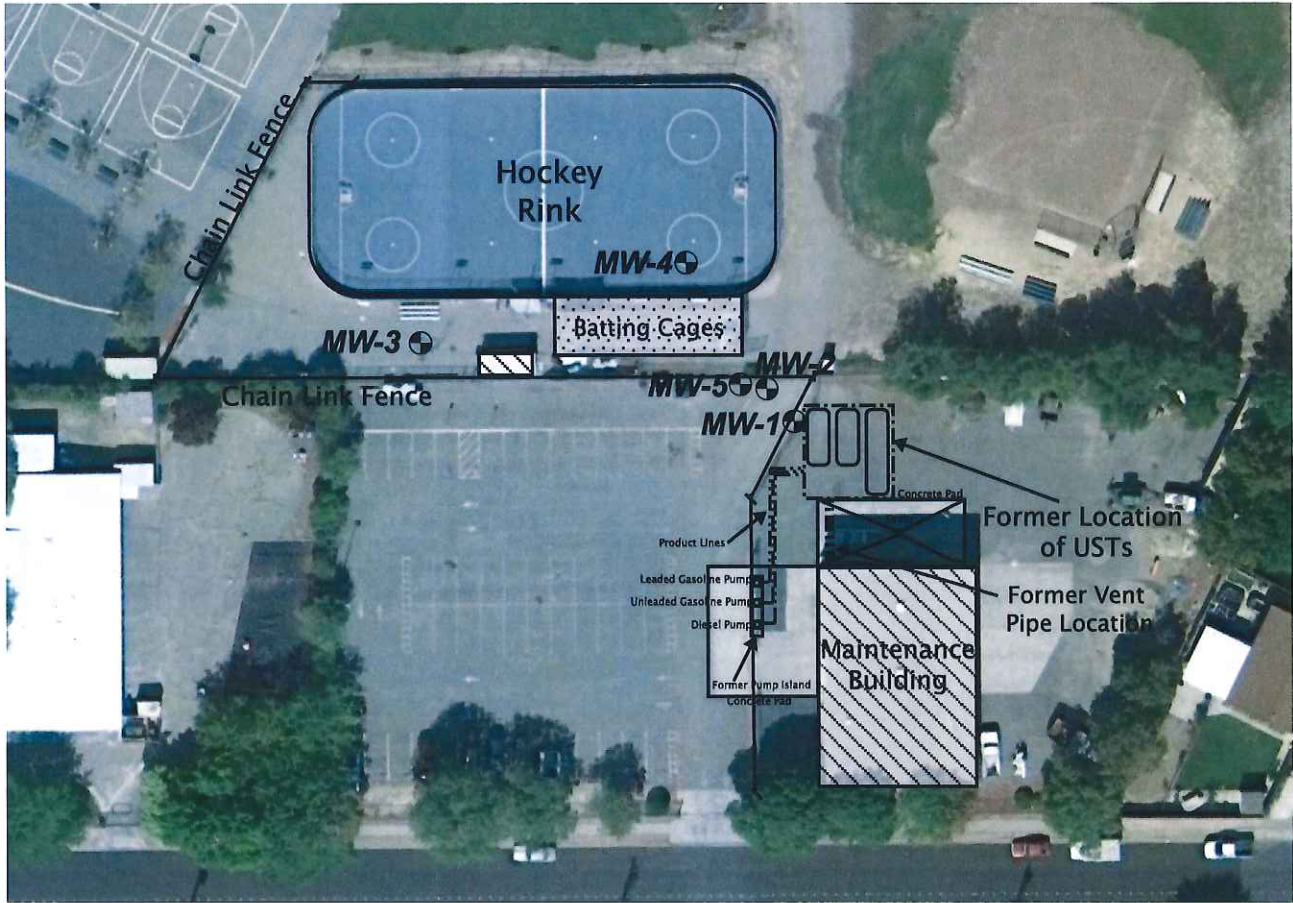




Source: Google Earth, 2011

Title <b>Site Location Map 2900 Ladd Avenue Livermore, California</b>	
Figure Number: 1	Scale: None
Project Number: 3054-103.01	Drawn By: JS
 An Employee Owned Company	Date: 4/7/11
	





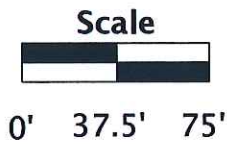
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**2900 Ladd Avenue**  
**Livermore, California**

Figure Number: 2

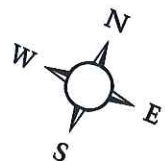
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Project Number: 3054-103.01

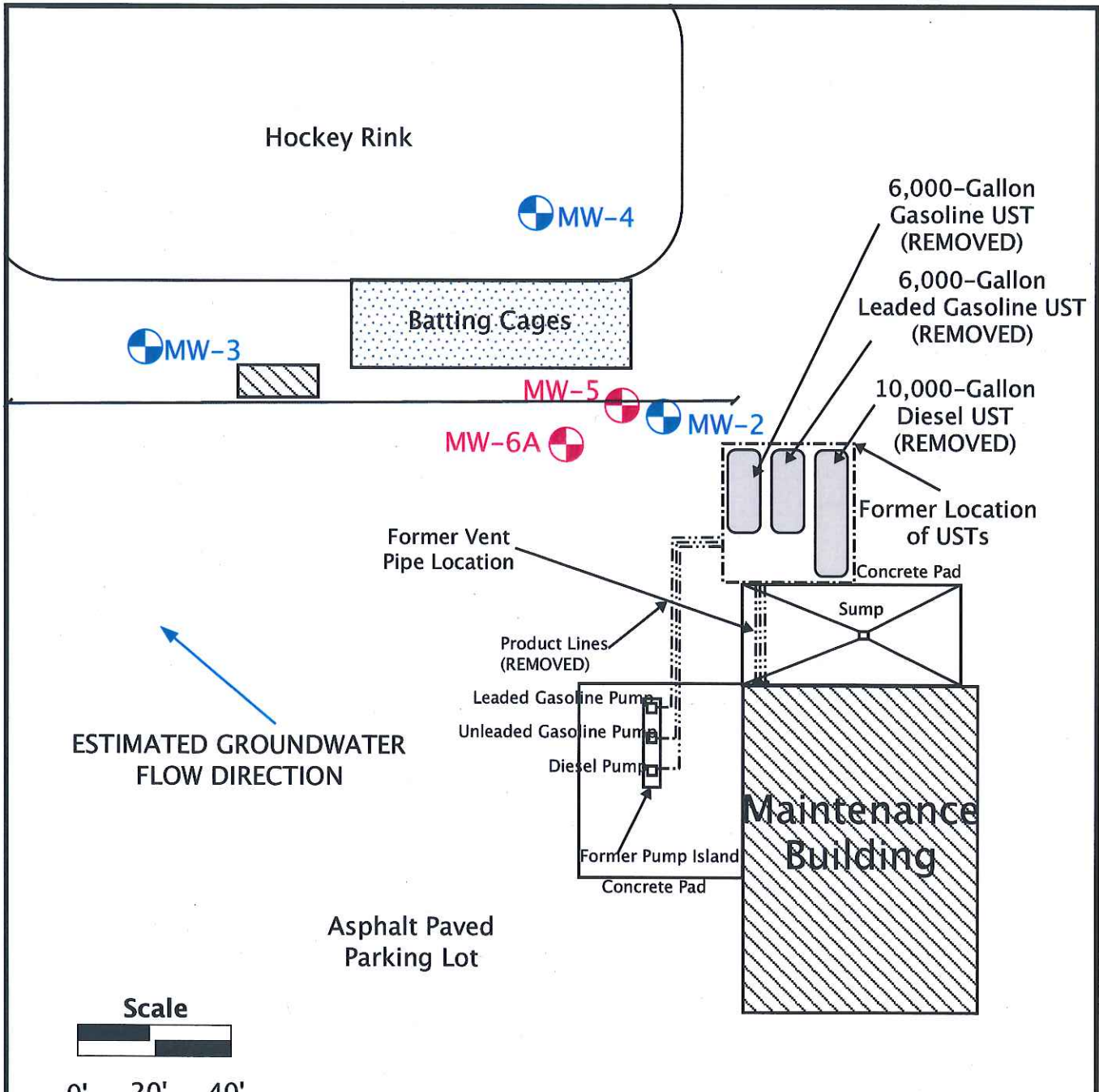
Date: 4/6/11



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**Former & Existing Wells**  
**2900 Ladd Avenue**  
**Livermore, California**

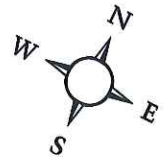
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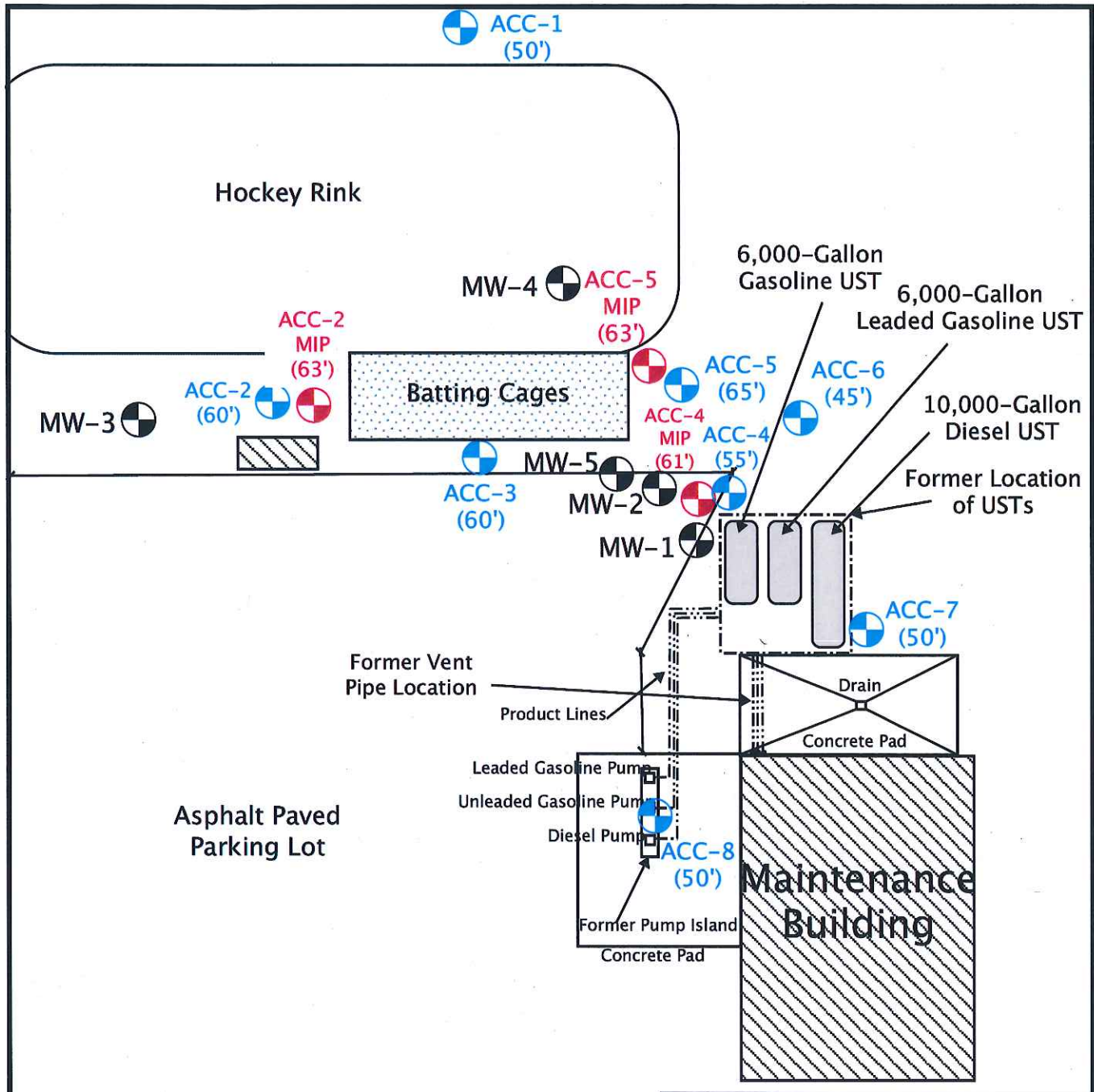
Project Number: 3054-103.03

Drawn By: IS

Date: 7/8/13




Former Groundwater Monitoring Well  
 Existing Well





Ladd Avenue

Title **2011 Sample Locations**  
**2900 Ladd Avenue**  
**Livermore, California**

 Soil Boring Locations  
 MIP Cone Penetrometer Locations  
 Existing MW Locations



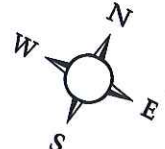
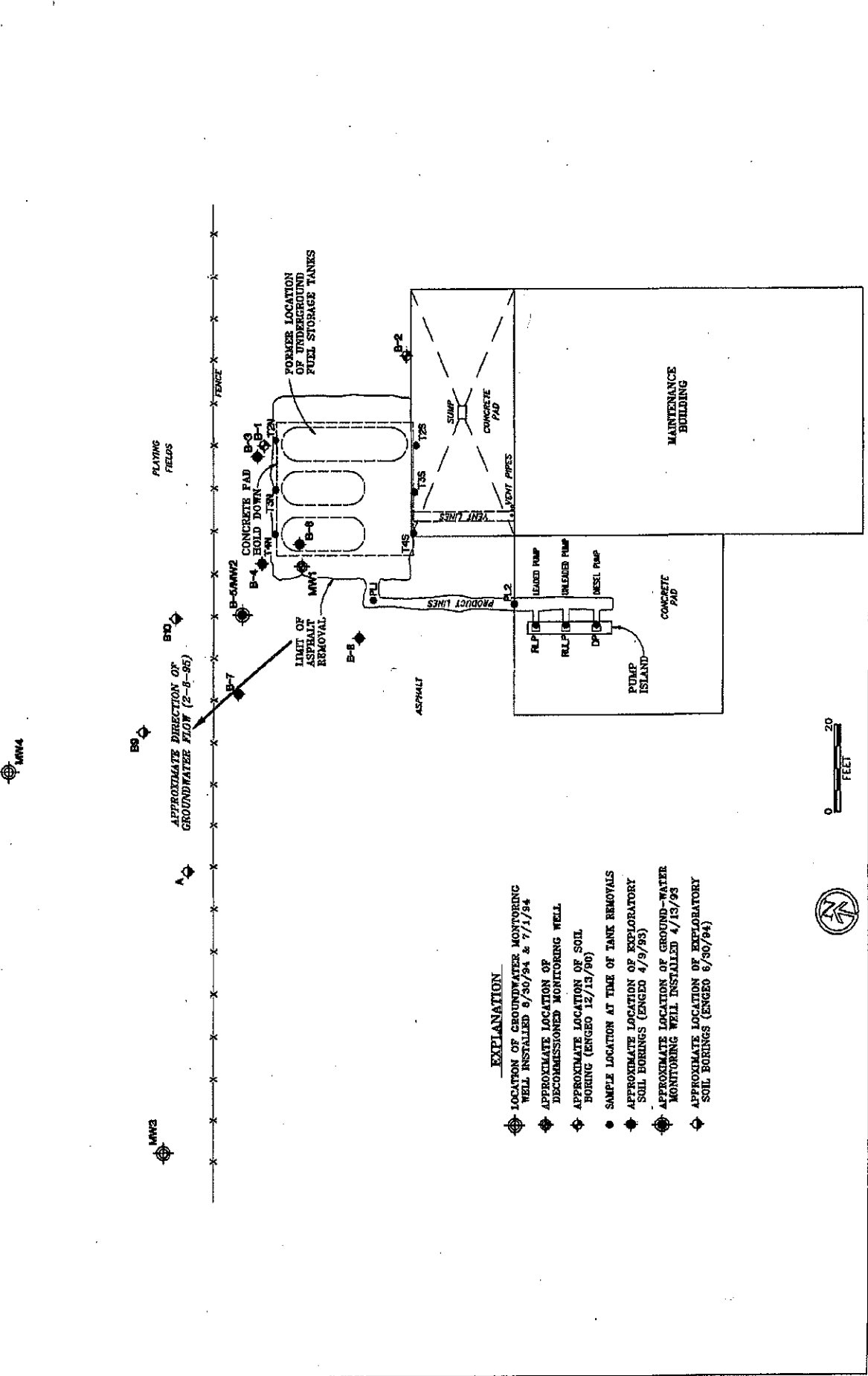
**Scale**  
  
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Figure Number: 4	Scale: None
Project Number: 3054-103.01	Drawn By: JS/GS
 An Employee Owned Company	

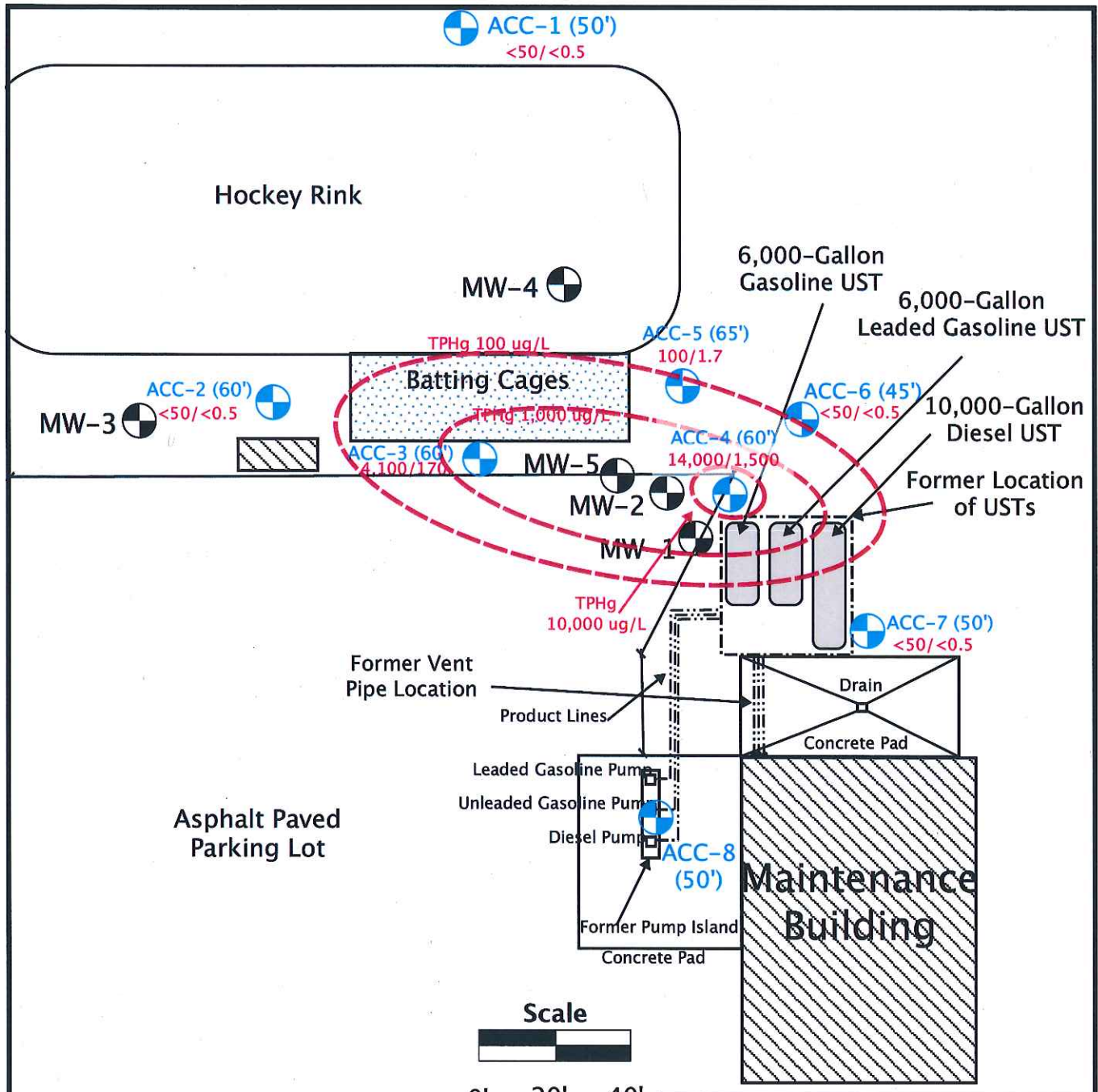




**EXPLANATION**

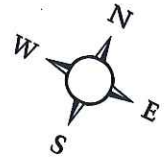
- ◆ LOCATION OF GROUNDWATER MONITORING WELL INSTALLED 6/30/84 & 7/1/84
- ◆ APPROXIMATE LOCATION OF DECOMMISSIONED MONITORING WELL
- ◆ APPROXIMATE LOCATION OF SOIL BORING (ENGED 12/15/90)
- SAMPLE LOCATION AT TIME OF TANK REMOVALS
- ◆ APPROXIMATE LOCATION OF EXPLORATORY SOIL BORINGS (ENGED 4/9/83)
- ◆ APPROXIMATE LOCATION OF GROUND-WATER MONITORING WELL INSTALLED 4/15/93
- ◆ APPROXIMATE LOCATION OF EXPLORATORY SOIL BORINGS (ENGED 6/30/84)





Title **TPHg & Benzene Iso Concentration Map**  
 2900 Ladd Avenue  
 Livermore, California

Figure Number: 6	Scale: None
Project Number: 3054-103.01	Drawn By: JS/GS
Date: 9/12-16/11	



**Ladd Avenue**

**---** Approximate TPHg Concentrations in GW

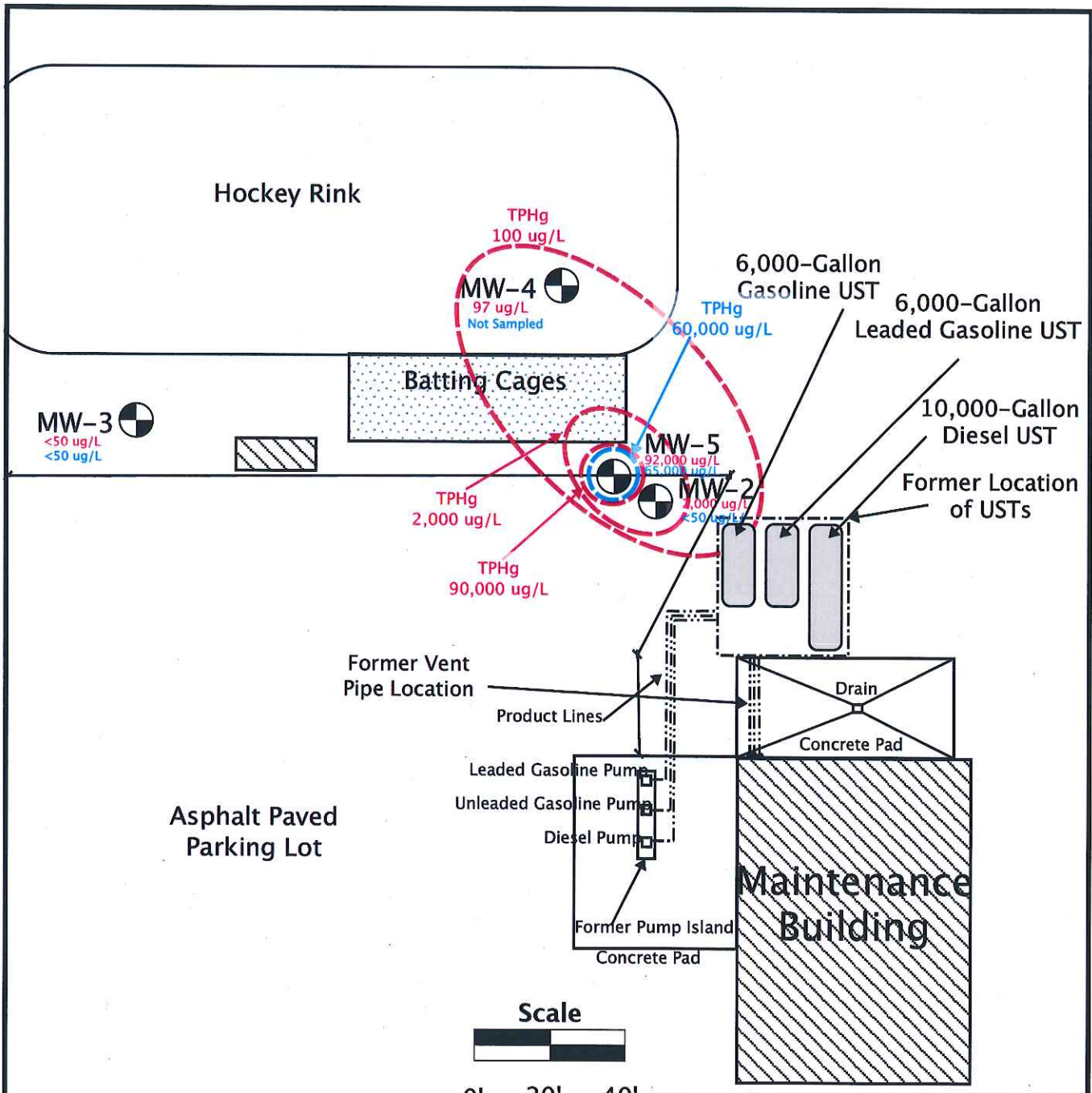
**+** Soil Boring Locations

**⊗** Existing MW Locations

**ACC-1 (50')** Boring ID and Completed Depth

**<50/<0.5** = TPHg and Benzene Concentrations in ug/L





Ladd Avenue

Title **TPHg Iso Concentration Map  
2000/2011 Comparison  
2900 Ladd Avenue  
Livermore, California**

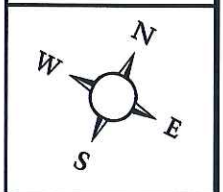
- Approximate TPHg Concentrations in GW 2000
- Approximate TPHg Concentrations in GW 2011
- Existing MW Locations

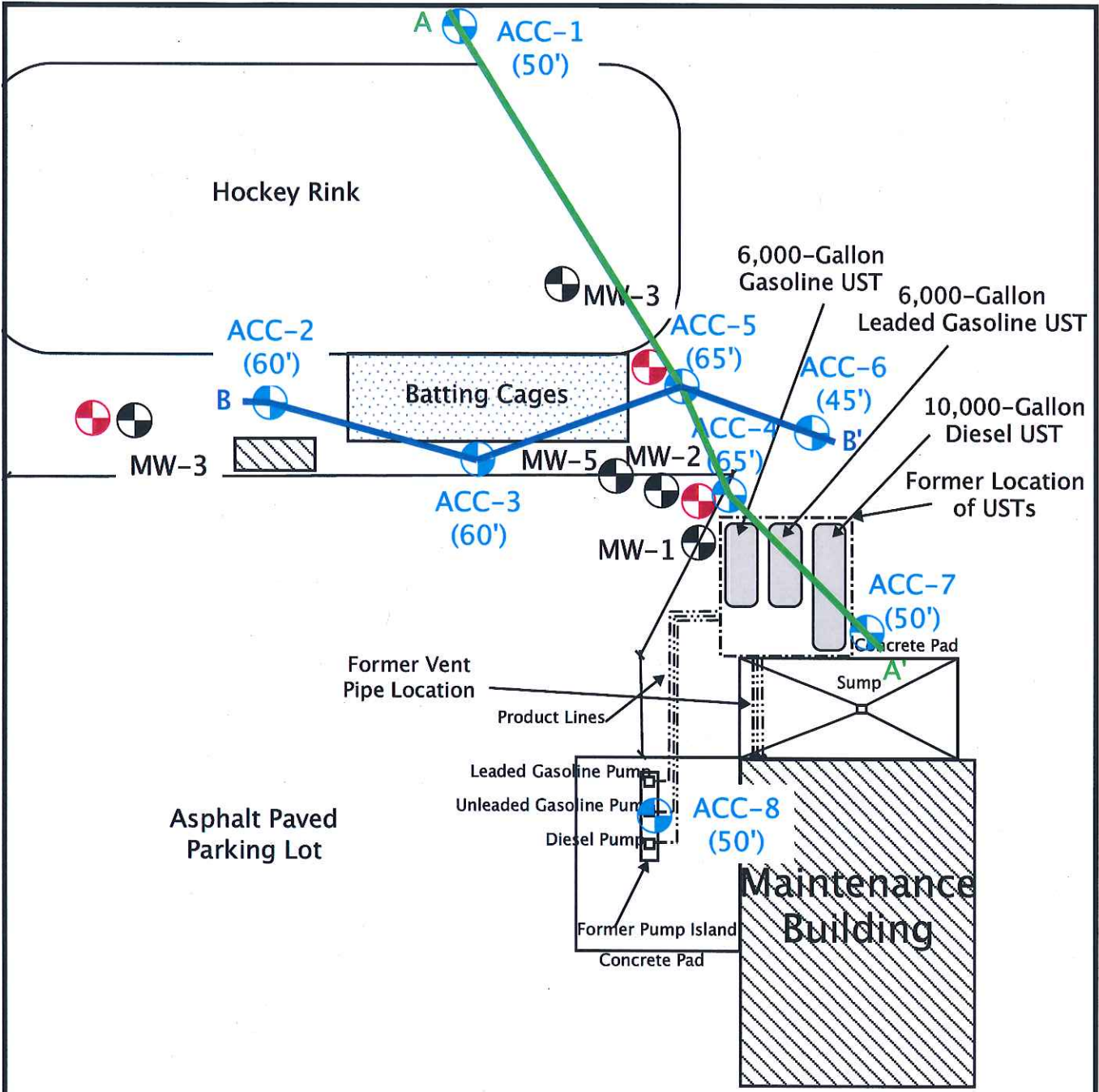
Figure Number: 10  
Scale: None  
Project Number: 3054-103.01  
Drawn By: JS/GS

Date: 9/12-16/11

**ACC-1** Boring ID and Completed Depth (50')  
<50 ug/L = TPHg Concentrations 2000  
<50 ug/L = TPHg Concentrations 2011

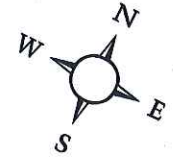
**A·C·C**  
**ENVIRONMENTAL**  
**CONSULTANTS**  
 An Employee Owned Company



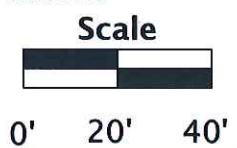


Title **Cross Section Overview Map**  
**2900 Ladd Avenue**  
**Livermore, California**

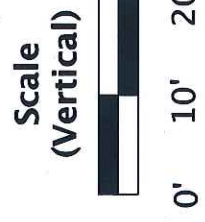
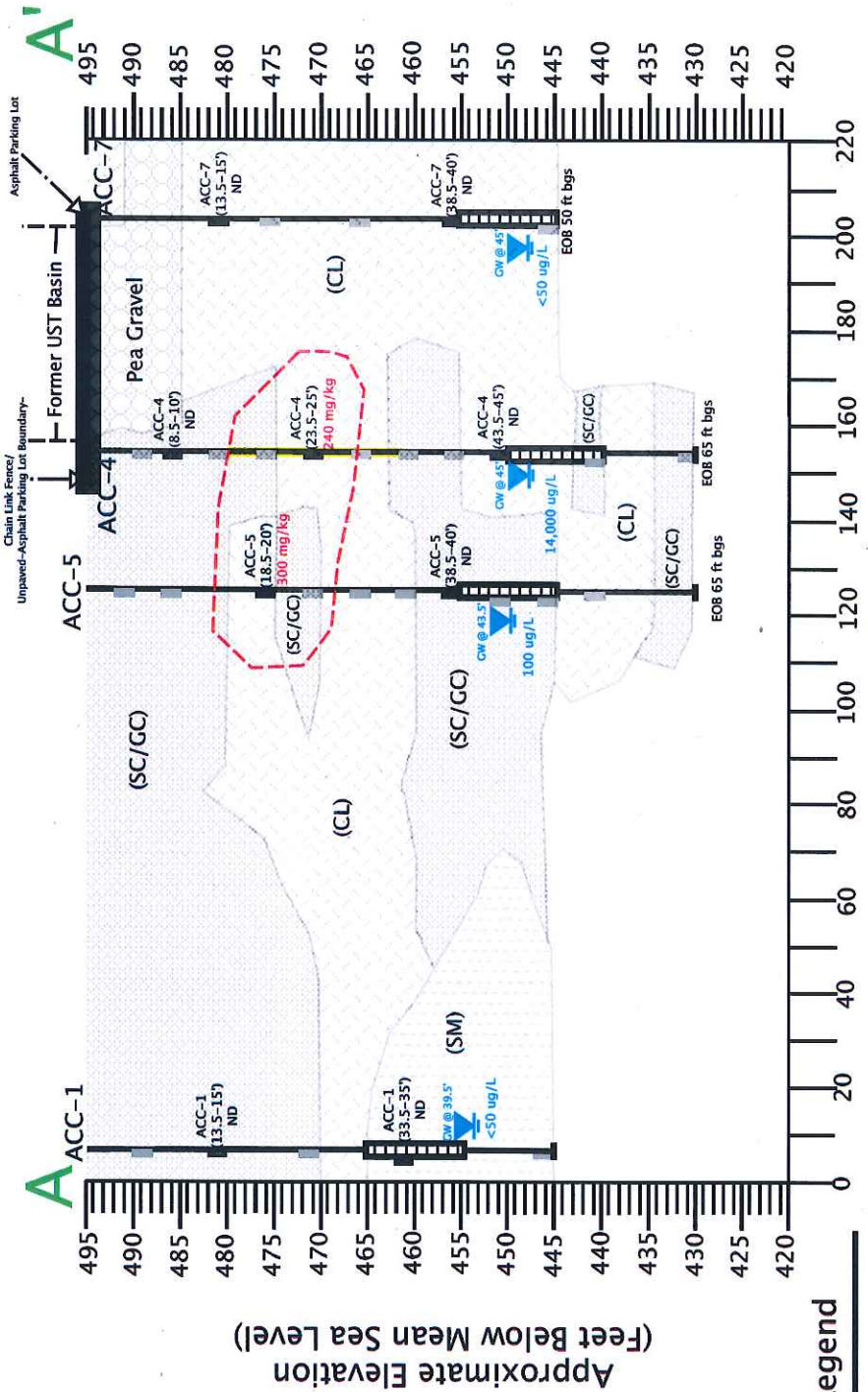
Figure Number: 7	Scale: None
Project Number: 3054-103.01	Drawn By: JS/GS
Date: 9/22/11	



- Soil Boring Locations
- Proposed Cone Penetrometer Locations
- Existing MW Locations





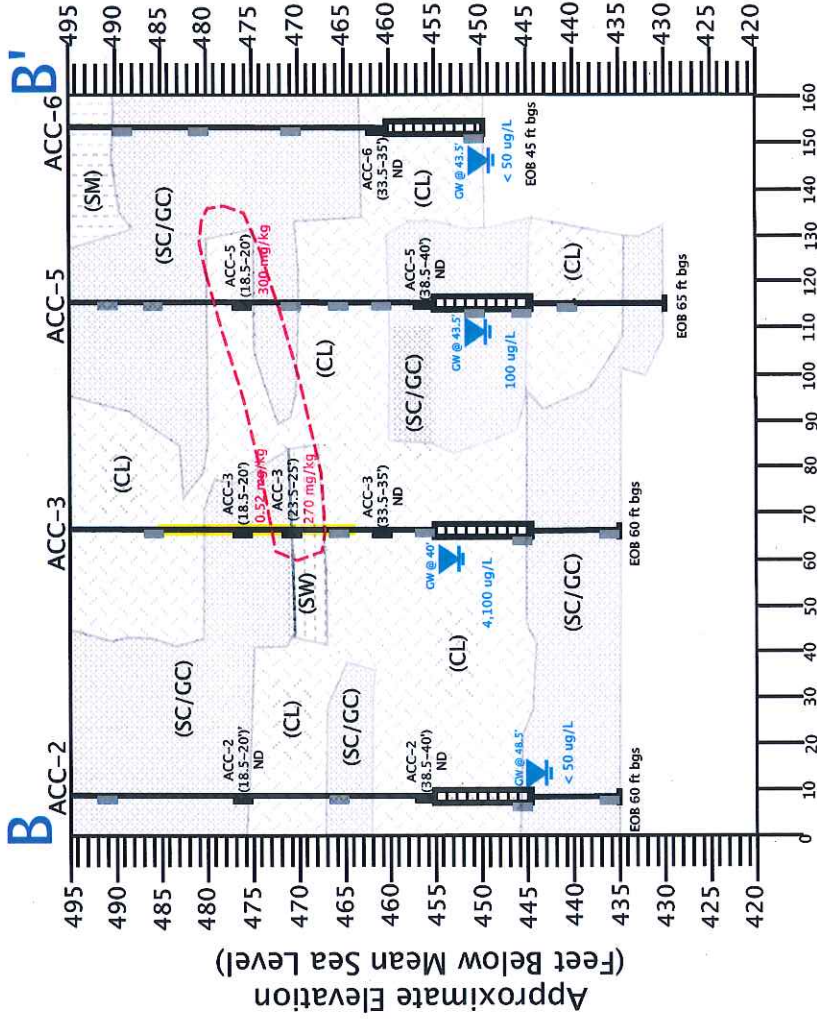


- Legend**
- (SC/GC) Clayey sands, sand clay mixtures, plastic fines/Clayey gravels, poorly graded gravel-sand silt mixtures
  - (SM) Silty sands, sand silt mixtures, non plastic fines
  - Pea Gravel
  - (CL) Inorganic clays of low-medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

- Depth to water during drilling
- Approximate 100 mg/kg extent of TPHg in soil
- Level of TPHg in soil
- Level of TPHg in groundwater
- Soil sample collected
- Soil sample collected and submitted for analysis
- Odor noted on boring logs
- Screened interval of temporary monitoring well
- Bottom of boring

Title 2011 Geologic Cross Section A-A'	
2900 Ladd Avenue Livermore, California	
Figure Number: 8	Scale: None
Project Number: 6470-034.01	Drawn By: JS
A-A'	

An Employee Owned Company



**Legend**

- (SW) Well graded sands, gravelly sands, little or no fines
- (SM) Silty sands, sand silt mixtures, non plastic fines
- (CL) Inorganic clays of low-medium plasticity, gravely clays, sandy clays, silty clays, lean clays
- (SC/GC) Silty Sands, poorly graded sand-silt mixtures

- Soil sample collected
- Soil sample collected and submitted for analysis
- Odor noted on boring logs
- Screened interval of temporary monitoring well
- Bottom of boring

**Distance (feet)**

Scale Horiz. 1"=40'



0' 20' 30'



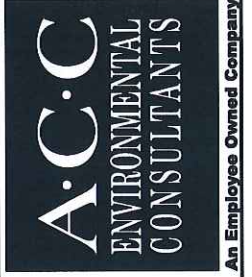
Scale  
Vert. 1"=20'

Title **2011 Geologic Cross Section B-B'**  
**2900 Ladd Avenue**  
**Livermore, California**

Figure Number: 9 Scale: None

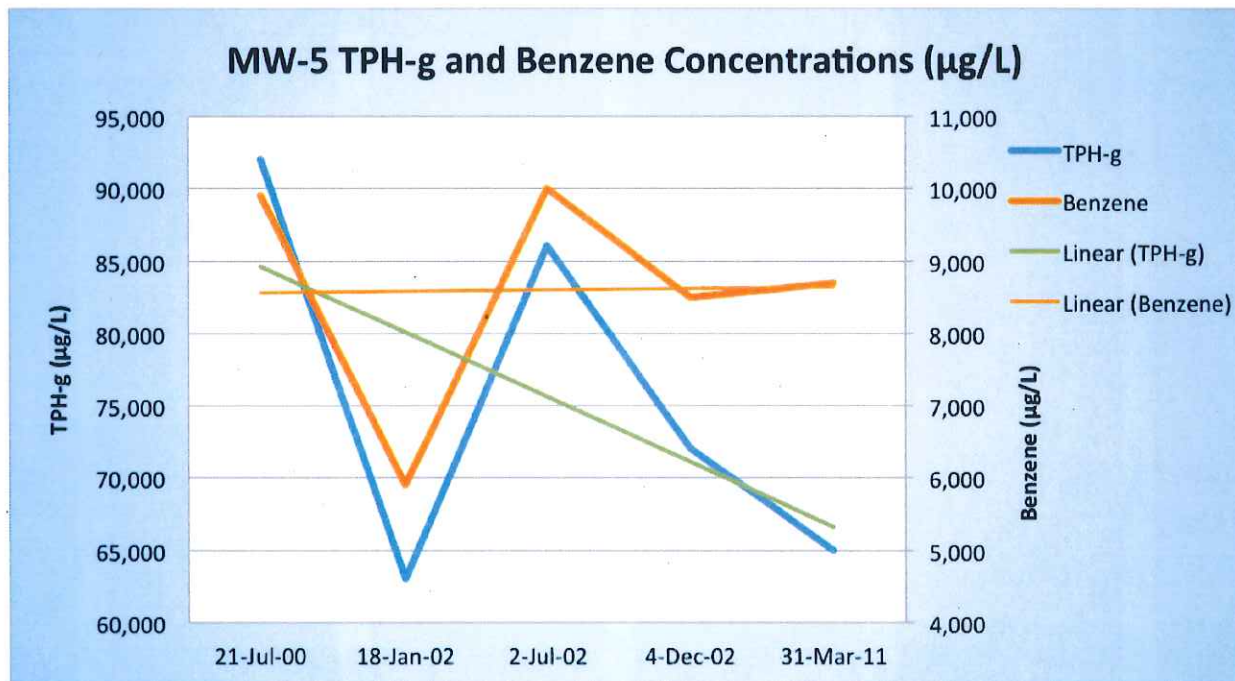
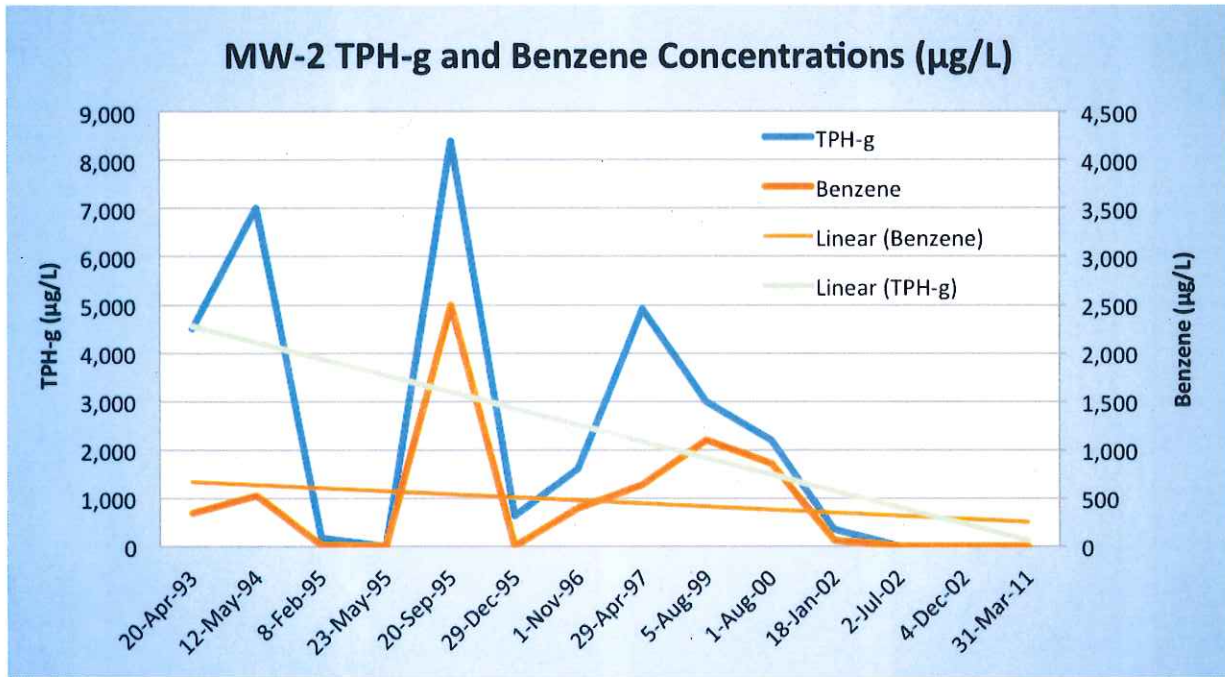
Project Number: 6470-034.01 Drawn By: JS

Date: 4/7/11



**B-B'**







**TABLE 1**  
**Soil Analytical Summary Table**  
**2900 Ladd Avenue**  
**Livermore, California**  
**ACC Project Number: 3054-103.01**

Boring / Sample ID	Sampling Depth / Interval - Feet Below Ground Surface (bgs)	Sampling Date	Matrix	Constituents & Concentrations mg/kg							
				TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead
6A-5'	5	4.11.13	soil	ND<1.0	ND<10	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	-
6A-10'	10	4.11.13	soil	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	-
6A-15'	15	4.11.13	soil	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	-
6A-20'	20	4.11.13	soil	ND<1.0	ND<2.5	0.018	0.0053	0.014	0.013	ND<0.05	-
6A-25'	25	4.11.13	soil	ND<1.0	ND<1.0	0.10	0.020	0.020	0.029	ND<0.05	-
ACC1 (13.5-15')	13.5-15	12-Sep-11	Soil (mg/kg)	<0.240	NT	<0.0049	<0.0049	<0.0049	<0.0098	<0.0049	NT
ACC1 (33.5-35')	33.5-35	12-Sep-11	Soil (mg/kg)	<0.130	NT	<0.0027	<0.0027	<0.0027	<0.0053	<0.0027	NT
ACC2 (18.5-20')	18.5-20	13-Sep-11	Soil (mg/kg)	<0.120	NT	<0.0024	<0.0024	<0.0024	<0.0048	<0.0024	NT
ACC2 (38.5-40')	38.5-40	13-Sep-11	Soil (mg/kg)	<0.120	NT	<0.0024	<0.0024	<0.0024	<0.0048	<0.0024	NT
ACC3 (8.5-10')	8.5-10	14-Sep-11	Soil (mg/kg)	<0.120	NT	<0.0023	<0.0023	<0.0023	<0.0048	<0.0023	NT
ACC3 (18.5-20')	18.5-20	14-Sep-11	Soil (mg/kg)	0.52	NT	0.046	0.0047	0.027	0.097	<0.0021	NT
ACC3 (23.5-25')	23.5-25	14-Sep-11	Soil (mg/kg)	270	NT	<2	2.7	<2	31	<2	NT
ACC3 (33.5-35')	33.5-35	14-Sep-11	Soil (mg/kg)	<0.110	NT	<0.0023	0.0024	<0.0023	0.0074	<0.0023	NT
ACC4 (8.5-10')	8.5-10	14-Sep-11	Soil (mg/kg)	<0.110	NT	<0.0022	<0.0022	<0.0022	<0.0045	<0.0022	NT
ACC4 (23.5-25')	23.5-25	14-Sep-11	Soil (mg/kg)	240	NT	2.3	12	2.8	24	<2.3	NT
ACC4 (43.5-45')	43.5-45	14-Sep-11	Soil (mg/kg)	0.58	NT	0.02	0.051	0.001	0.058	<0.0047	NT
ACC5 (18.5-20')	18.5-20	15-Sep-11	Soil (mg/kg)	300	NT	1.2	8.7	4.8	30	<1.1	NT
ACC5 (38.5-40')	38.5-40	15-Sep-11	Soil (mg/kg)	<0.098	NT	<0.002	<0.002	<0.002	<0.0039	<0.002	NT
ACC6 (33.5-35')	33.5-35	15-Sep-11	Soil (mg/kg)	<0.094	NT	<0.0019	<0.0019	<0.0019	<0.0038	<0.0019	NT
ACC7 (13.5-15')	13.5-15	16-Sep-11	Soil (mg/kg)	<0.110	NT	<0.0023	<0.0023	<0.0023	<0.0045	<0.0023	NT
ACC7 (38.5-40')	38.5-40	16-Sep-11	Soil (mg/kg)	<0.120	NT	<0.0024	<0.0024	<0.0024	<0.0048	<0.0024	NT
ACC8 (5-6.5')	5-6.5	16-Sep-11	Soil (mg/kg)	<0.110	NT	<0.0022	<0.0022	<0.0022	<0.0044	<0.0022	NT
ACC8 (43.5-45')	43.5-45	16-Sep-11	Soil (mg/kg)	<0.120	NT	<0.0023	<0.0023	<0.0023	<0.0047	<0.0023	NT
B1-2	16	13-Dec-90	Soil (mg/kg)	1.1	NT	0.18	0.036	0.0053	0.032	NT	NT
B1-3	21	13-Dec-90	Soil (mg/kg)	1.5	NT	0.16	0.071	0.0081	0.051	NT	NT
B1-5	31	13-Dec-90	Soil (mg/kg)	ND	NT	0.013	ND	ND	ND	NT	NT
B1-11	44	13-Dec-90	Soil (mg/kg)	ND	NT	0.004	ND	ND	ND	NT	NT
B2-2	16	13-Dec-90	Soil (mg/kg)	ND	NT	0.016	0.0026	ND	ND	NT	NT
MW1-2	16	13-Dec-90	Soil (mg/kg)	970	NT	8.1	27	13	27	NT	NT
MW1-4	26	13-Dec-90	Soil (mg/kg)	1,000	NT	ND	27	10	53	NT	NT
MW1-6	36	13-Dec-90	Soil (mg/kg)	2,700	NT	ND	27	10	53	NT	NT
MW1-8	46	13-Dec-90	Soil (mg/kg)	ND	NT	0.001	0.004	ND	0.0099	NT	NT
EB-1, No. 2	14	25-Jul-90	Soil (mg/kg)	2,300	NT	9.8	79	38	220	NT	NT
EB-1, No. 3	17	25-Jul-90	Soil (mg/kg)	1,500	NT	7.3	54	22	140	NT	NT
T2-1N	11.5	6-Aug-92	Soil (mg/kg)	ND	37	ND	ND	ND	ND	NT	NT
T2-1S	12	6-Aug-92	Soil (mg/kg)	NT	ND	ND	ND	ND	ND	NT	NT
T3-1N	11.5	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
T3-1S	12	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
T4-1N	11.5	6-Aug-92	Soil (mg/kg)	1,200	NT	2.1	4.2	2.4	160	NT	12
T4-1S	12	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	8.2
PL-1	4	6-Aug-92	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
PL-2	4	6-Aug-92	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
DP-1	3.75	6-Aug-92	Soil (mg/kg)	NT	46	ND	ND	ND	ND	NT	NT
RULP-1	3.5	6-Aug-92	Soil (mg/kg)	3	NT	ND	ND	0.0074	0.013	NT	12
RLP-1	3.75	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
**ESLs - Groundwater is a current source of drinking water	Residential Land Use	Shallow Soil (<3 m)	Soil (mg/kg)	83	83	0.044	2.9	2.30	2.26	0.023	200
		Deep Soil (>3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
	Commercial / Industrial Land Use	Shallow Soil (<3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
		Deep Soil (>3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
PRG's	Residential	Soil (mg/kg)	NA	NA	1.1	5,000	5.4	630	43	400	
	Commercial	Soil (mg/kg)	NA	NA	5.4	46,000	27	2,700	220	800	
California Human Health Screening Levels (CHHSLs)	Residential	Soil (mg/kg)	NA	NA	NA	NA	NA	NA	NA	80	
	Commercial	Soil (mg/kg)	NA	NA	NA	NA	NA	NA	NA	320	



**TABLE 1**  
**Soil Analytical Summary Table**  
**2900 Ladd Avenue**  
**Livermore, California**  
**ACC Project Number: 3054-103.01**

Boring / Sample ID	Sampling Depth / Interval - Feet Below Ground Surface (bgs)	Sampling Date	Matrix	Constituents & Concentrations mg/kg							
				TPH <sub>g</sub>	TPH <sub>d</sub>	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead
B4-2	21	9-Apr-93	Soil (mg/kg)	800	9.1	1.9	22	8.1	56	NT	NT
B4-3	26	9-Apr-93	Soil (mg/kg)	2,300	ND	7.7	88	35	210	NT	NT
B4-4	30.5	9-Apr-93	Soil (mg/kg)	31	ND	0.051	0.64	3.5	2.4	NT	NT
B5-2	20.5	9-Apr-93	Soil (mg/kg)	790	ND	2.8	21	6.7	4.1	NT	NT
B5-3	25.5	9-Apr-93	Soil (mg/kg)	24	ND	0.052	0.62	3.3	2.2	NT	NT
B5-4	36	9-Apr-93	Soil (mg/kg)	1.1	ND	0.23	0.0083	ND	0.13	NT	NT
B5-5	41	9-Apr-93	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
B6-1	15.5	9-Apr-93	Soil (mg/kg)	860	46	ND	13	83	55	NT	NT
B6-2	21	9-Apr-93	Soil (mg/kg)	530	120	1.9	17	73	44	NT	NT
B6-3	26	9-Apr-93	Soil (mg/kg)	1,200	ND	4.1	39	150	100	NT	NT
B6-4	31	9-Apr-93	Soil (mg/kg)	410	ND	ND	4.5	35	22	NT	NT
B7-1	16	9-Apr-93	Soil (mg/kg)	670	ND	1.2	16	97	58	NT	NT
B7-2	21	9-Apr-93	Soil (mg/kg)	46	ND	0.19	1.3	6	3.6	NT	NT
B7-3	26	9-Apr-93	Soil (mg/kg)	480	ND	ND	6.7	40	25	NT	NT
B7-4	31	9-Apr-93	Soil (mg/kg)	65	ND	8.4	1.3	7.5	4.8	NT	NT
B8-2	21	9-Apr-93	Soil (mg/kg)	18	ND	1.6	3.1	3.3	2.2	NT	NT
B8-3	26	9-Apr-93	Soil (mg/kg)	ND	ND	0.08	0.77	0.11	0.73	NT	NT
B8-4	30.5	9-Apr-93	Soil (mg/kg)	ND	ND	0.05	0.20	0.005	0.37	NT	NT
MW3-1	10	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-2	15	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-3	20	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-4	25	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-5	30	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-6	35	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-7	40	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-1	10	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-2	15	1-Jul-94	Soil (mg/kg)	26	NT	0.21	0.75	0.21	1.4	NT	NT
MW4-3	20	1-Jul-94	Soil (mg/kg)	44	NT	0.25	0.70	0.28	2.3	NT	NT
MW4-4	25	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-5	30	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-6	35	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-7	40	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-8	45	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
B9-1	15	1-Jul-94	Soil (mg/kg)	ND	NT	0.074	0.008	0.011	0.059	NT	NT
B9-2	20	1-Jul-94	Soil (mg/kg)	640	NT	4.2	23	10	70	NT	NT
B9-3	25	1-Jul-94	Soil (mg/kg)	ND	NT	0.12	0.013	ND	0.02	NT	NT
B10-1	14	1-Jul-94	Soil (mg/kg)	3	NT	0.5	0.57	0.11	0.62	NT	NT
B10-2	18	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW5-4	22	28-Jun-00	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	ND	NT
**ESLs - Groundwater is a current source of drinking water	Residential Land Use	Shallow Soil (< 3 m)	Soil (mg/kg)	83	83	0.044	2.9	2.30	2.26	0.023	200
		Deep Soil (> 3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
	Commercial / Industrial Land Use	Shallow Soil (< 3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
		Deep Soil (> 3 m)	Soil (mg/kg)	83	83	0.044	2.9	3.27	2.26	0.023	750
PRG's	Residential	Soil (mg/kg)	NA	NA	1.1	5,000	5.4	630	43	400	
	Commercial	Soil (mg/kg)	NA	NA	5.4	46,000	27	2,700	220	800	
California Human Health Screening Levels (CHHSLs)	Residential	Soil (mg/kg)	NA	NA	NA	NA	NA	NA	NA	80	
	Commercial	Soil (mg/kg)	NA	NA	NA	NA	NA	NA	NA	320	

**Notes**

\*\*ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where Groundwater IS a Current Source of Drinking Water

PRG's = EPA Region 9 Preliminary Remediation Goal (April 2009)

CHHSLs = California Human Health Screening Levels for Soil, Cal EPA (January 2005) (Lead Revision September 2009)

NT: Not Tested; NM: Not Measured; NS: Not Sampled

\* - No Data

**Shaded/Bolded Values Exceed Their Respective Criteria**

# CHROMALAB, INC.

5 DAYS TURNAROUND

Environmental Laboratory (1094)

August 11, 1992

ChromaLab File No.: 0892044

ENGEO, INC.

Attn: Eric Harrell

RE: Five soil samples for Total Lead analysis

Project Name: LVJUSD UST REMOVAL

Project Number: N2-3174-FA

Date Sampled: Aug. 6, 1992

Date Submitted: Aug. 6, 1992

Date Extracted: Aug. 11, 1992

Date Analyzed: Aug. 11, 1992

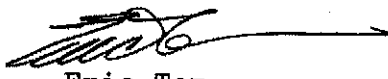
## RESULTS:

<u>Sample I.D.</u>	<u>Lead (mg/Kg)</u>
RLP-1	12
T1-1E	8.0
T1-1W	7.6
T4-1N	12
T4-1S	8.2

BLANK	N.D.
SPIKE RECOVERY	90%
DUPLICATE SPIKE RECOVERY	89%
DETECTION LIMIT	2.5
METHOD OF ANALYSIS	3050/7420

ChromaLab, Inc.

  
Jack Kelly  
Analytical Chemist

  
Eric Tam  
Laboratory Director



**TABLE 2**  
**Groundwater Analytical Summary Table**  
**2900 Ladd Ave**  
**Livermore, CA**  
**ACC Project Number: 3054-103.01**

Boring / Well ID	Sampling Date	Matrix	DTW (in feet)	Constituents and Concentrations (µg/L)					
				TEPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
ACC-1	12-Sep-11	Water	39.5	<50	<0.50	<0.50	<0.50	<1.0	<0.50
ACC-2	13-Sep-11	Water	48.5	<50	<0.50	<0.50	<0.50	<1.0	<0.50
ACC-3	14-Sep-11	Water	39	4,100	170	260	100	1,000	20
ACC-4	14-Sep-11	Water	41.15	14,000	1,500	1,900	500	2,500	4.5
ACC-5	15-Sep-11	Water	43.5	100	1.7	8.9	4.4	19	<0.50
ACC-6	15-Sep-11	Water	43.5	<50	<0.50	<0.50	<0.50	<1.0	<0.50
ACC-7	16-Sep-11	Water	42.6	<50	<0.50	<0.50	<0.50	<1.0	<0.50
ACC-8	16-Sep-11	Water	46.8	<50	<0.50	<0.50	<0.50	<1.0	<0.50
MW-2	20-Apr-93	Water	30.81	4,500	340	110	8	630	NT
	12-May-94	Water	31.12	7,000	520	220	35	410	NT
	8-Feb-95	Water	28.04	170	8.9	4.5	2.1	17	NT
	23-May-95	Water	17.77	<50	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.55	8,400	2,500	1,200	180	940	NT
	29-Dec-95	Water	20.91	640	0.7	<0.5	1.9	4.7	NT
	1-Nov-96	Water	22.63	1,600	390	140	25	120	NT
	29-Apr-97	Water	20.39	4,900	640	240	83	200	<250
	5-Aug-99	Water	26.18	3,000	1,100	370	97	240	<25
	1-Aug-00	Water	23.96	2,200	850	240	74	240	<50
	18-Jan-02	Water	30.85	350	62	0.85	0.82	2.5	<5
	2-Jul-02	Water	33.45	--	--	--	--	--	--
4-Dec-02	Water	36.21	--	--	--	--	--	--	
31-Mar-11	Water	--	--	<50	<0.5	<0.5	<0.5	<1	<0.5
MW-3	12-Jul-94	Water	38.76	<50	<0.5	<0.5	<0.5	<0.5	NT
	8-Feb-95	Water	27.08	<50	<0.5	<0.5	<0.5	<0.5	NT
	23-May-95	Water	17.28	<50	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.06	<50	1.4	<0.5	<0.5	<0.5	NT
	29-Dec-95	Water	20.25	50	1.8	<0.5	<0.5	<0.5	NT
	1-Nov-96	Water	22.22	<50	<0.5	<0.5	<0.5	<0.5	NT
	29-Apr-97	Water	20.05	<50	1.7	<0.5	<0.5	<0.5	<5
	5-Aug-99	Water	26.07	<50	<0.5	<0.5	<0.5	<0.5	<5
	20-Jul-00	Water	23.35	<50	1.4	3.6	<0.5	3.9	<5
	18-Jan-02	Water	30.5	<50	<.5	<0.5	<0.5	<0.5	<5
2-Jul-02	Water	33.53	--	--	--	--	--	--	
**ESLs	Groundwater is a Current or Potential Source of Drinking Water	Water		100	1	40	30	20	5
PRG's	MCLs	Water		NA	5	1,000	7,000	10,000	NA

**TABLE 2**  
**Groundwater Analytical Summary Table**  
**2900 Ladd Ave**  
**Livermore, CA**  
**ACC Project Number: 3054-103.01**

Boring / Well ID	Sampling Date	Matrix	DTW (In feet)	Constituents and Concentrations (µg/L)					
				TEPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-3	4-Dec-02	Water	36.35	--	--	--	--	--	--
	31-Mar-11	Water	--	<50	<0.5	<0.5	<0.5	<1	<0.5
MW-4	12-Jul-94	Water	39.5	<50	<0.5	<0.5	<0.5	<0.5	NT
	8-Feb-95	Water	27.66	<50	<0.5	<0.5	<0.5	<0.5	NT
	23-May-95	Water	17.68	60	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.81	<50	<0.5	<0.5	<0.5	<0.5	NT
	29-Dec-95	Water	20.9	<50	<0.5	<0.5	<0.5	<0.5	NT
	1-Nov-96	Water	22.84	<50	<b>2.7</b>	<0.5	<0.5	<0.5	NT
	29-Apr-97	Water	20.57	<50	<b>2.6</b>	<0.5	<0.5	<0.5	<b>9.2</b>
	5-Aug-99	Water	26.64	<b>120</b>	<b>59.0</b>	<0.5	<0.5	<0.5	<b>19.0</b>
	20-Jul-00	Water	23.91	97	<b>21.0</b>	6.8	0.66	4.6	<b>11.0</b>
	18-Jan-02	Water	NM	NS	NS	NS	NS	NS	NS
2-Jul-02	Water	--	--	--	--	--	--	--	
MW-5	21-Jul-00	Water	20.19	<b>92,000</b>	<b>9,900</b>	<b>15,000</b>	<b>540</b>	<b>17,000</b>	<1,300
	18-Jan-02	Water	23.61	<b>63,000</b>	<b>5,900</b>	<b>10,000</b>	<b>1,900</b>	<b>15,000</b>	<1,300
	2-Jul-02	Water	24.29	<b>86,000</b>	<b>10,000</b>	<b>14,000</b>	<b>2,100</b>	<b>15,000</b>	<1,300
	4-Dec-02	Water	24.35	<b>72,000</b>	<b>8,500</b>	<b>11,000</b>	<b>1,600</b>	<b>10,000</b>	<1,300
	31-Mar-11	Water	--	<b>65,000</b>	<b>8,700</b>	<b>8,700</b>	<b>2,800</b>	<b>16,000</b>	<500
	6.13.13	water	23.31	<b>25,000</b>	<b>3,100</b>	<b>480</b>	<b>2,400</b>	<b>4,800</b>	ND<50
MW-6A	4.12.13	water	23.28	<b>1,800</b>	<b>230</b>	<b>66</b>	<b>81</b>	<b>140</b>	ND<30
	6.13.13	water	26.35	PURGED DRY (APPROX 200 ml), NO RECHARGE AFTER 24 HRS					
**ESLs	Groundwater is a Current or Potential Source of Drinking Water	Water		100	1	40	30	20	5
PRG's	MCLs	Water		NA	5	1,000	7,000	10,000	NA

**Notes**

\*\*ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008)

where Groundwater IS a Current or Potential Source of Drinking Water

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

<sup>1</sup>Metals analysis for these samples was run on unfiltered groundwater.

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

\*-- No Data

**Shaded/Bolded Values Exceed Their Respective Criteria**



Ground-water samples were collected for laboratory testing using a Voss Technologies dedicated polyethylene bailer. The samples were decanted with zero head space into 40-milliliter volatile organic analysis vials (VOA). Following collection, the samples were cooled in an ice chest until delivery under documented chain-of-custody to NET Pacific, in Santa Rosa, California. Sample collection, preservation, chain-of-custody procedures and equipment decontamination were performed in accordance with ENGEO's standard quality assurance/quality control procedures.

Chain-of-custody documents and the ground water sampling information form are included as an attachment to this report.

#### Laboratory Analysis

Laboratory analysis was performed in accordance with the test methods specified in the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* (August 1990). The sample was analyzed for total volatile petroleum hydrocarbons as gasoline (EPA 8015/5030) and benzene, toluene, xylene and ethylbenzene (EPA 602).

Table I shows the results of the most recent sampling event, along with results from the December 1990 ground-water sampling event.

SAMPLING DATE	TVPH	BENZ	TOLN	EBENZ	XYLN
12/19/90	1,400	63	52	8.0	590
9/5/91	ND	ND	ND	ND	ND

ND: Non-Detectable

D. Laboratory Testing

The soil and ground-water samples selected for laboratory testing will be analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline (EPA Test Methods 8015/5030 and 8020) and for benzene, toluene, xylene and ethyl benzene (BTEX) (EPA 602). The laboratory testing was performed in accordance with test methods specified in the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites (August, 1990). Copies of the laboratory test results are included in the Appendix. Table I provides a summary of the laboratory test results.

TABLE I - *water samples*  
Laboratory Analysis Summary  
(Concentrations reported in parts per billion)

NUMBER	DATE	TPHg	B	T	E	X
MW3	7/12/94	<50	<0.5	<0.5	<0.5	<0.5
MW4	7/12/94	<50	<0.5	<0.5	<0.5	<0.5
HP B10 25'	7/01/94	56,000	5,700	13,000	ND	13,000
HP "A" 44'	6/30/94	70,000	12,000	16,000	1,700	11,000

DATE: 07/25/90

LOGGED BY: MC

ELEVATION: --

WATER LEVEL: None encountered  
Mobile Drill B-53, 8" Hollow Stem Auger  
EQUIPMENT: (Drilled at a 30° angle from vertical)

# LOG DESIGNATION EB-1

JOB: P90150  
FIGURE: 3

DEPTH, FEET	NOMINAL (1) DIAMETER, IN.	BLOWS / FOOT (2)	MOISTURE %	DRY DENSITY, PCF	SAMPLES	U.S.C.S.	SOIL OR ROCK DESCRIPTION	NOTES
						PMT	3" Asphaltic Concrete over 8" Aggregate Base	
						CL	SILTY CLAY: Redish medium brown, very moist, slightly gravelly, no odor	OVM* = 0
5						GC	CLAYEY GRAVEL: Medium brown, damp, medium to coarse-grained	OVM = 0
	2.0	-	-	-	1		CLAYEY SANDY GRAVEL: Light brown, very moist, slight hydrocarbon odor	OVM = 37
10								OVM = 37
	2.0	-	-	-	2		Strong gasoline odor, sample wet with product	OVM = 512
15								
	2.0	-	-	-	3		as above	OVM = 738
20								Boring Terminated At 20'
25							OVM: Denotes Organic Vapor Meter	

THE LOGS SHOW SUBSURFACE CONDITIONS AT THE DATES AND LOCATIONS INDICATED, AND IT IS NOT WARRANTED THAT THEY ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

- (1) SAMPLER INSIDE DIAM.
- (2) 140lb HAMMER - 30 INCH DROP.
- (P) HYDRAULICALLY PUSHED

**BSK**  
& Associates

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)  (parts per million)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER			
0			Dry GRAVEL, base rock.				
			Reddish brown, damp, sandy SILT.				
			Changes to silty GRAVEL, little sand.				
			Brown, silty SAND with some fine to medium gravel, damp/dry.				
5			Light brown, damp, silty SAND (fine to coarse) with some gravel.				
			Increase in gravel (gravel layer).				
10			Brown, damp, silty, fine to coarse SAND and fine to medium GRAVEL.			20	
			Increase in clay content.				
			Brown, moist, clayey, fine to coarse SAND with some fine to medium gravel.				
15	9-1		Brown, wet, fine to coarse SAND with fine to medium GRAVEL, little clay, little silt, slight odor.			19	
			Brown, wet, clayey SAND with fine to medium gravel.			50	
20	9-2		Brown, wet, fine to coarse SAND with fine to medium GRAVEL, slight odor.			66	
			Increase in clay content.			23	
			Clayey fine to coarse SAND, some fine to medium gravel.				
25	9-3		Brown, slightly clayey fine to coarse SAND with fine to medium GRAVEL.			12	
			Bottom of boring at approximately 26.5 feet.				

OVM 3174B 3/22/95


**ENGEO**  
INCORPORATED

2900 LADD AVENUE  
LIVERMORE, CALIFORNIA

BORING NO.: B9  
DATE: March 1995  
JOB NO.: 3174-F7

FIGURE  
NO.  
**4**



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)		
0			Light reddish brown, damp, fine to medium sandy SILT with fine to medium gravel. Increase in gravel.				
5			Light brown, sandy SILT with fine to medium gravel.				
10			Fine to coarse SAND and fine to medium GRAVEL. Increase in moisture. Brown, slightly clayey, damp, fine to coarse SAND and fine to medium GRAVEL.				
15	10-1		Brown, moist, clayey fine to coarse SAND with fine to medium GRAVEL, moist to wet. Mottled yellow-brown/gray-brown, moist, fine sandy SILT to silty fine SAND, moist (odor).			104	
20	10-2		Fine sandy SILT, little fine gravel. Brown moist to wet, fine interbeds of wet fine to coarse SAND with silt (moist).			22	
20			Bottom of boring at approximately 20 feet.				
25							
30							






OVM 317AB 3/22/95

**ENGEO**  
INCORPORATED


2900 LADD AVENUE  
LIVERMORE, CALIFORNIA

BORING NO.: B10  
DATE: March 1995  
JOB NO.: 3174-F7







FIGURE  
NO.  
**5**

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)		
0			Brown, silty LOAM				
5			Light brown, dry, sandy GRAVEL.		3		
15			Brown, clayey GRAVEL, moist/wet.		14		
25			Brown clayey GRAVEL, some fine to coarse sand, wet, slight hydrocarbon odor.  Decrease in gravel.				
30			Wet, clayey, fine to medium GRAVEL with sand, hydrocarbon odor.		24		
<b>ENGEO</b> INCORPORATED			2900 LADD AVENUE LIVERMORE, CALIFORNIA		BORING NO.: PJA		FIGURE NO. <b>6</b>
					DATE: March 1995		
					JOB NO.: 3174-F7		

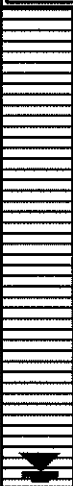



OVM 3174B 5/22/95

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)		
30			Decrease in gravel clayey  Wet, odorous, clayey GRAVEL, gravelly CLAY.		58		
35			Stiffer, sandy CLAY, wet, brown, odor.				
40			Brown, stiff, wet silty CLAY, little fine to medium gravel.		37		
45			Hydropunch samples collected from 44'-45'.		9		
			Bottom of boring at approximately 45 feet.				
50							
55							
60							
<b>ENGEO</b> INCORPORATED			2900 LADD AVENUE LIVERMORE, CALIFORNIA		BORING NO.: PHA		FIGURE NO. <b>6</b>
					DATE: March 1995		
					JOB NO.: 3174-F7		

OVM 3174B 3/22/95

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/12/2011 BORING: ACC-1
10 YR 4/3 - Brown	0			0 2 4	GC - Clayey gravel with fine/medium grained sand. Dry, no odors, no staining.
10 YR 3/4 - Dark, Yellowish Brown	0	ACC-1 (5-6.5')		6 8 10 12	GC - Clayey gravel with fine/medium grained sand. Dry, no odors, no staining. BC: 16-18-22
10 YR 3/4 - Dark, Yellowish Brown	0	ACC-1 (13.5-15')		14 16 18 20 22	GC - Clayey gravel with fine grained sand. Moist, no odors, no staining. BC: 9-20-25
10 YR 3/2 - Very Dark Grayish Brown	0	ACC-1 (23.5-25')		24 26 28	CL - Clay with medium to large grained sand and gravel. Moist to wet, no odors, no staining.
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01	Date: 9/12/2011	EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis



Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/12/2011 BORING: ACC-1
10 YR 4/4 - Dark Yellowish Brown	0	ACC-1 (33.5-35')	[Solid Black]	30 32 34 36 38	 SM - Silty sand, fine to medium grained. No odor, no staining. BC: 3-6-7 Temp. Well Screened 30-40' bgs.  GW at 39.5' bgs. Clear.
10 YR 4/4 - Dark Yellowish Brown	0			40 42 44	SM - Silty sand, fine to medium grained. No odor, no staining.
10 YR 3/4 - Dark, Yellowish Brown	0	ACC-1 (48.5-50')	[Diagonal Hatching]	46 48	CL - Silty clay with trace sand. Wet, no odors, no staining. BC: 9-23-51
				50 52 54 56 58	EOB at 50' bgs. Siltstone/Bedrock Refusal.
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01	Date: 9/12/2011	EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis




Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/12/2011 - 9/13/2011 BORING: ACC-2 (near MW-3)
10 YR 3/3 - Dark Brown	0			0	Asphalt
10 YR 3/4 (8') - Dark, Yellowish Brown	0	ACC-2 (5-6.5')	[Solid Black]	2 4 6 8 10 12	SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining
10 YR 3/4 - Dark, Yellowish Brown	0	No Recovery No Sample	[Hatched]	14 16 18	SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining
10 YR 3/4 - Dark, Yellowish Brown	0	ACC-2 (18.5-20')	[Solid Black]	20 22 24 26 28	CL - Clay with sand and gravel, fine/larger. No odor, no staining. BC: 3-8-12
10 YR 3/4 - Dark Yellowish Brown	0	ACC-2 (28.5-30')	[Hatched]		SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining. BC: 18-23-27
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01	EOB: End of Boring BC: Blow Counts ▼ Static Groundwater	
			Date: 9/12-9/13/2011	▼ Groundwater Encountered During Drilling. [Hatched] Sample not submitted for analysis	

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft) EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/12/2011 - 9/13/2011 BORING: ACC-2 (near MW-3)
			30	SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining
10 YR 4/6 - Dark, yellowish brown	0	ACC-2 (38.5-40')	38	CL - Clay with fine silts and fine sands. Dark yellowish brown. Moist, no odor, no staining.
10 YR 4/6 - Dark, yellowish brown	0	ACC-2 (48.5-50')	48	Groundwater at 48.5' slightly turbid. SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining
10 YR 4/6 - Dark, yellowish brown	0	ACC-2 (58.5-60')	58	SC- Fine to medium grained sands and gravels with clay, dark brown, moist, no odor, no staining



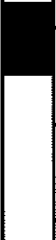




ACC Environmental Consultants, Inc.  
 7977 Capwell Drive, Suite 100  
 Oakland, California 94621  
 (510)638-8400 FAX: (510)638-8404







Project Number  
 3054-103.01










Date:  
 9/12 - 9/13/2011

EOB: End of Boring    BC: Blow Counts  
 Static Groundwater  
 Groundwater Encountered During Drilling.  
 Sample not submitted for analysis







Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/13/2011 BORING: ACC-3 (near Batting Cage)
10 YR 3/2 - Very dark, greyish brown	0	ACC-3 (8.5-10')		0 2 4 6 8 10 12 14 16 18	Asphalt CL - Clay with fine sand and gravels.. Fine/medium sand and gravels. Moist, no odors, no staining. SC - Clay with fine sands and gravels but more sand and gravel than clays. Large gravel. BC:34-31-19
10 YR 4/2 - Dark, greyish brown	331 731 PPB	ACC-3 (18.5-20')		20 22	SC - Fine to medium grained sand and gravel with clay. Slight gas odor. BC: 14-12-15
10 YR 4/2 - Dark, greyish brown	28 PPM 458 PPB	ACC-3 (23.5-25')		24 26	SC - Fine to medium grained sand and gravel with clay. Gasoline odor. Moist/Wet odor. BC: 6-15-21
10 YR 3/3 - Dark brown	16 PPM	ACC-3 (28.5-30')		28	SW - Sand with trace clay, fine/medium. Gas odor, greyish staining. BC: 8-21-22
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01 Date: 9/13/2011	EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	




Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/13/2011 BORING: ACC-3 (near Batting Cage)
10 YR 4/6 - Dark, yellowish brown	1000 PPB	ACC-3 (33.5-35')	30 32 34 36	 <p>CL - Clay with sand and gravel. No odor, no staining. BC: 10-12-8</p>
10 YR 4/6 - Dark, yellowish brown	0	ACC-3 (38.5-40') & Water	38 40 42 44 46	 <p>CL - Clay with very fine sand, wet. No odor, no staining. BC: 4-4-6 Groundwater at 40' bgs, equilibrated 39' bgs, turbid.</p>
10 YR 4/4 - Dark, yellowish brown	0	ACC-3 (48.5-50')	48 50 52 54 56	 <p>GC - Coarse sand and large gravel with clay. Wet, no odors, no staining. BC: 8-14-21</p>
10 YR 4/4 - Dark, yellowish brown	5 PPB	ACC-3 (58.5-60')	58	<p>GC - Coarse sand and large gravel with clay. Wet, no odors, no staining. BC: 10-12-23 EOB</p>
<b>ACC Environmental Consultants, Inc.</b> 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			<b>Project Number</b> 3054-103.01  <b>Date:</b> 9/13/2011	<b>EOB:</b> End of Boring <b>BC:</b> Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/14/2011 BORING: ACC-4 (near MW-2/MW-5)
				0	Asphalt
10 YR 3/2 - Very dark, greyish brown	0			2	SC/GC - Clayey sand to clayey gravel. Dry, no odors, no staining. BC: 5/50", 50/5", 50/5" Sampler full of gravel, no soil recovery.
No sample tubes, full of rocks, no soil recovery.	0	ACC-4 (5-6.5')		6	
10 YR 4/4 - Dark, Yellowish Brown	0	ACC-4 (8.5-10')		10	SC/GC - Clayey sand, fine to med grained to clayey gravel. Moist, no odor, no staining. BC: 19-21-25
10 YR 4/4 - Dark, Yellowish Brown with grey staining	800 PPM 1281 PPM 927 PPM	ACC-4 (13.5-15')		14	SC/GC - Clayey sand, fine to med grained to clayey gravel. Moist, strong gasoline odor. High PID. BC: 11-12-19
				16	
10 YR 5/2 - Greyish brown	33-42 PPM	ACC-4 (18.5-20')		20	SC/GC - Clayey sand, fine to med grained to clayey gravel. Slight gas odor, grey staining. BC: 12-14-18
10 YR 5/3 - Brown	9762 PPB to 15 PPM	ACC-4 (23.5-25')		24	CL - Clay with fine/medium sands and gravel. Moist/wet, gas odor. BC: 9-21-22
				26	
10 YR 5/3 - Brown	54 PPM	ACC-4 (28.5-30')		28	CL - Clay, brown with fine sands and gravel. Moist/wet, gas odor. BC: 17-18-39
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01		EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis
			Date: 9/14/2011		



Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/14/2011 BORING: ACC-4 (near MW-2/MW-5)
				30	CL - Clay with sand and gravel, fine-coarse. Moist, no odor, slight PID, no staining. BC: 5-8-12
				32	
10 YR 4/6 - Dark, yellowish brown	1926 to 2433 PPB	ACC-4 (33.5-35')		34	SC/GC - Clayey sand, fine to med grained to clayey gravel. Moist, no odor, slight PID, no staining. BC: 5-8-12
				36	
				38	CL - Clay with silty sand and gravel, brown, wet no odor, no staining.
10 YR 4/6 - Dark, yellowish brown	635 to 1143 PPB	ACC-4 (38.5-40')		40	
				42	CL grading to SC/GC - sand and gravel increases
				44	Groundwater equilibrated at 41.15' Groundwater at 43.5' ACC-4 Water Sample
	592 PPB	ACC-4 (43.5-45')		46	SC/GC - Clayey sand, fine to med grained to clayey gravel. Moist, no odor, slight PID, no staining.
				48	
				50	
				52	
				54	CL - Clay with silty sand and gravel. Wet, no odor, no staining. BC: 9-20-20
10 YR 5/3 - Brown	130 PPB 1916 PPB	ACC-4 (53.5-55')		56	
				58	



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Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	<b>EQUIPMENT: Hollow Stem Auger</b> <b>OPERATED BY: Gregg Drilling &amp; Testing</b> <b>LOGGED BY: Julia Siudyla &amp; Gwen Santos</b> <b>LOCATION: 2900 Ladd Avenue, Livermore</b> <b>WORK DATE: 9/14/2011</b> <b>BORING: ACC-4 (near MW-2/MW-5)</b>
				60	
				62	
	566 PPB	ACC-4 (63.5-65')		64	GC - Coarse Gravel - Grey/Brown with silty clay. BC: 8-14-24
				66	EOB
				68	
				70	
				72	
				74	
				76	
				78	
				80	
				82	
				84	
				86	
				88	

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Project Number  
3054-103.01









Date:  
9/14/2011

EOB: End of Boring    BC: Blow Counts

 Static Groundwater

 Groundwater Encountered During Drilling.

 Sample not submitted for analysis




Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/15/2011 BORING: ACC-5
10 YR 4/2 - Dark Greyish Brown	0			0 2 4	Dirt/Gravel, Driveway SC - Clayey sand (fine to medium grained) with gravels. Dry, no odors, no PID no staining. BC: 50/5"
10 YR 4/3 - Brown	0	ACC-5 (5-6.5')		6 8	SC - Clayey sand (fine to medium grained) with gravels. Dry, no odors, no PID no staining.
10 YR 4/2 - Dark Greyish Brown	0	ACC-5 (8.5-10')		10 12 14 16 18	SC - Clayey sand (fine to medium grained) with gravels. Moist, no odor, no PID, no staining. BC:17-21-23
10 YR 5/3 - Brown	499 PPM  29 PPM 3 PPM  48 PPM	ACC-5 (18.5-20')	  	20 22 24 26 28	CL - Clay with sand and gravel, fine to coarse. Moist, gas odor, greyish staining.  SC - Clayey sand (fine to medium grained) with gravels. Moist, no odor, no staining. BC: 4-12-22
10 YR 5/4 - Yellowish Brown	1 PPM	ACC-5 (28.5-30')			CL - Clay with fine sand and coarse gravel. Moist, slight gas odor, no staining.
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01  Date: 9/15/2011	EOB: End of Boring BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	







Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/15/2011 BORING: ACC-5
			30	
			32	
10 YR 4/6 - Dark, yellowish brown	7 PPM to 46 PPB	ACC-5 (33.5-35')	34	CL - Clay with silty sand, fines. Moist, slight gas odor, no staining. BC: 3-5-7
			36	
			38	
10 YR 4/3 Brown	0.3 to 3 PPM	ACC-5 (38.5-40')	40	SC/GC - Clayey sand (fine to medium grained) to clayey medium to coarse gravels. Moist to wet, no odor, no PID, no staining. BC: 14-17-19 Groundwater at 43.5' bgs
			42	
10 YR 4/3 Brown	0	ACC-5 (43.5-45')	44	SC/GC - Clayey sand (fine to medium grained) to clayey medium to coarse gravels. Wet, no odor, no PID, no staining.
			46	
			48	
10 YR 4/3 Brown	0	ACC-5 (48.5-50')	50	CL - Clay with sand and gravel. Wet. BC: 15-23-31
			52	
10 YR - 5/4 Yellowish Brown	0	ACC-5 (53.5-55')	54	
			56	
			58	
				No sample at 60' bgs.



Well Screen




<p>ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404</p>	<p>Project Number 3054-103.01</p> <p>Date: 9/15/2011</p>	<p>EOB: End of Boring    BC: Blow Counts</p> <p>▼ Static Groundwater</p> <p>⚡ Groundwater Encountered During Drilling.</p> <p>▨ Sample not submitted for analysis</p>
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







Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	<b>EQUIPMENT: Hollow Stem Auger</b> <b>OPERATED BY: Gregg Drilling &amp; Testing</b> <b>LOGGED BY: Julia Siudyla &amp; Gwen Santos</b> <b>LOCATION: 2900 Ladd Avenue, Livermore</b> <b>WORK DATE: 9/15/2011</b> <b>BORING: ACC-5</b>
				60	SC/GC - Clayey sand (fine to medium grained) with medium to coarse gravels. Wet, no odor, no PID, no staining.
		ACC-5 (63.5-65')		64	
				66	No recovery, no sample. 65' bgs EOB
				68	
				70	
				72	
				74	
				76	
				78	
				80	
				82	
				84	
				86	
				88	
<b>ACC Environmental Consultants, Inc.</b> 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404	<b>Project Number</b> 3054-103.01	<b>EOB: End of Boring</b> <b>BC: Blow Counts</b>  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	<b>Date:</b> 9/15/2011		



Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/16/2011 BORING: ACC-6
				0	
10 YR 3/4 - Very dark, greyish brown	0	ACC-6 (5-6.5')		2 4 6 8 10 12	SM - Very fine silty sands, likely fill materials with trace coarse gravels. Very dry.  GC - Clay gravel with sands fine to coarse. Dry. BC: 50/5"
10 YR 4/3 - Brown	0	ACC-6 (13.5-15')		14 16 18 20 22	GC - Clay gravel with sands fine to coarse. Moist, no odor, no staining.
10 YR 4/4 - Dark yellowish brown	0	ACC-6 (23.5-25')		24 26 28	GC - Clay gravel with sands fine to coarse No odor, no staining. BC: 17-32-33
<b>ACC Environmental Consultants, Inc.</b> 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			<b>Project Number</b> 3054-103.01	<b>EOB:</b> End of Boring <b>BC:</b> Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	
			<b>Date:</b> 9/16/2011		

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/16/2011 BORING: ACC-6
10 YR 4/4 - Dark yellowish brown	0	ACC-6 (33.5-35')		30 32 34 36 38 40 42 44	 <p>CL - Clay with fine silty sand. Moist, plastic, no odor, no staining. BC: 6-10-16</p> <p>Groundwater at 43.5' bgs.</p> <p>BC: 16-22-39</p>
				46 48 50 52 54 56 58	EOB

ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404	Project Number 3054-103.01 <hr/> Date: 9/16/2011	EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis
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Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/16/2011 BORING: ACC-7
10 YR 3/2 - Very Dark Greyish Brown	0	No Sample Pea Gravel		0 2 4 6 8 10 12	Asphalt CL - Clay with fine-coarse sand and gravel (fill). Moist. Pea Gravel (fill) BC: 2-3-3
10 YR 4/3 - Brown	0	ACC-7 (13.5-15')		14 16 18	CL - Clay with fine to coarse sand and gravels. Moist, no odors, no staining. BC: 16-18-21
10 YR 3/4 - Brown	0.08 PPM to	ACC-7 (18.5-20')		20 22 24 26 28	CL - Clay with fine to coarse sands and lots of gravels. Moist. BC: 20, 50/5"
10 YR 5/4 - Yellowish Brown	0.11 PPM	ACC-7 (28.5-30')			CL - Clay with sands and gravel. Moist. BC: 16-18-22
ACC Environmental Consultants, Inc. 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			Project Number 3054-103.01 Date: 9/16/2011	EOB: End of Boring    BC: Blow Counts  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	









Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/16/2011 BORING: ACC-7
	0			30	
10 YR 5/3 - Brown	0.87 PPM to 2 PPM	ACC-7 (38.5-40')		32 34 36 38 40 42 44 46 48	CL - Clay with silty fine to medium grained sands. Moist, plastic, no odor, no staining. BC: 6-8-13  Groundwater at 45' bgs, equilibrated at 42.6' bgs.
10 YR 5/3 - Brown	0	ACC-7 (48.5-50')		50	CL - Clay with sand and gravel. BC: 14-18-23
				52 54 56 58	EOB



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3054-103.01









Date:  
9/16/2011

EOB: End of Boring    BC: Blow Counts  
 Static Groundwater  
 Groundwater Encountered During Drilling.  
 Sample not submitted for analysis

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/15/2011 BORING: ACC-8
10 YR 3/2 - Very Dark Greyish Brown	0			0 2 4	Asphalt CL - Clay, brown, trace fine sand, small amounts of gravel. Moist, no odor, no staining.
10 YR 3/2 - Very Dark Greyish Brown	0	ACC-8 (5-6.5')	■	6 8 10 12	CL - Clay, brown, trace fine sand and gravel. No odor, no staining. BC: 2-8-12
10 YR 4/3 - Brown	0	ACC-8 (13.5-15')	▨	14 16 18 20 22	CL - Clay with fine to coarse sands and gravels. Moist, no odors, no staining. BC: 42, 50/4"
10 YR 4/3 - Brown	0	ACC-8 (23.5-25')	▨	24 26 28	GC - Clayey gravel with fine to coarse sands. Moist-wet. BC: 18-13
<b>ACC Environmental Consultants, Inc.</b> 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510)638-8400 FAX: (510)638-8404			<b>Project Number</b> 3054-103.01  <b>Date:</b> 9/15/2011	<b>EOB: End of Boring</b> <b>BC: Blow Counts</b>  Static Groundwater  Groundwater Encountered During Drilling.  Sample not submitted for analysis	

Additional Observations	PID (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	EQUIPMENT: Hollow Stem Auger OPERATED BY: Gregg Drilling & Testing LOGGED BY: Julia Siudyla & Gwen Santos LOCATION: 2900 Ladd Avenue, Livermore WORK DATE: 9/15/2011 BORING: ACC-8
10 YR 4/4 - Dark Yellowish Brown	0	ACC-8 (33.5-35')		30 32 34 36 38 40 42	CL - Clay with silty sand, fine gravel. Moist to wet, no odor, no PID.
10 YR 4/4 - Dark Yellowish Brown	0	ACC-8 (43.5-45')		44 46 48	CL- Clay with very fine sand, and trace gravel. No odor, no staining.  Groundwater at 48.5' bgs, equilibrated at 46.8' bgs.
				50 52 54 56 58	EOB

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Date: 9/15/2011		

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990	N S.P.T. BLOWS/FT	qu UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.		
0			ASPHALT				
			PEA GRAVEL.				
			Reddish-brown silty CLAY, some gravels. (CL)		0		
5			Brown clayey GRAVEL, medium to coarse. (GC) Coarser gravel.		0		
10	1-1		Brown sandy clayey GRAVEL, moist, very dense, slight odor. (GC)	50/5"	30		
15	1-2		Strong petroleum odor at 14 feet.	22*	410		
20	1-3		Medium dense, strong petroleum hydrocarbon odor.	30*	532		
25	1-4		Light brown sandy gravelly CLAY, moist, very stiff, odor. (CL)	28*	180	102	
30					75	50	

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Livermore Valley Unified School District  
Livermore, California

BORING NO.: 1  
DATE: September 1991  
JOB NO: N1-3174-F1

FIGURE NO.




DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990		N S.P.T. BLOWS/FT	qu UNCOM. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet				DRY UNIT WEIGHT	MOIST. CONTENT
			DESCRIPTION				*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.
38	1-5		Moist, harder, slight odor. (CL)	33*	50			
						57		
35	1-6		Reddish-brown sandy silty CLAY, with gravels, moist, stiff. (CL)	9*	30			
	1-7		Lense of red clay at 38.5 feet.	9*				
40	1-8		Brown sandy silty CLAY with some gravels, very moist, hard, odor. (CL)	36*	2			
	1-9			50/5"	30			
	1-10		Brown sandy gravelly CLAY, very moist, hard, odor. (CL)	50/5"	18			
	1-11			46*	20			
45								
50	1-12		Mottled brown sandy gravelly CLAY, very moist, hard. (CL)	63*	5			
						0		
55	1-13		Brown silty CLAY with some gravel, very moist, hard. (CL) Approximate water level at time of drilling	50/6"*	0			
60								

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Livermore Valley Unified School District  
Livermore, California

BORING NO.: 1  
DATE: September 1991  
JOB NO: N1-3174-F1

FIGURE NO.

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990	N S.P.T. BLOWS/FT	qu UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.		
68	1-14		Brown gravelly silty CLAY, saturated, hard. (CL)	57	0		
66			Bottom of boring at approximately 61.5 feet.				
70							
75							
80							
85							
90							
<b>ENGEQ</b> INCORPORATED			Livermore Valley Unified School District  Livermore, California	BORING NO.: 1		FIGURE NO.	
				DATE: September 1991			
				JOB NO: N1-3174-F1			

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990	N S.P.T. BLOWS/FT	qu UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT	MOIST. CONTENT
			DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.
0		ASPHALT					
		PEA GRAVEL.			0		
0		Brown clayey GRAVEL, coarse, moist, dense. (GC)			0		
18	2-1		48*		0		
15	2-2	Brown silty CLAY with gravel, brown moist, hard, very slight odor. (CL)	51*		4		
20	2-3	Brown sandy silty CLAY with minor gravels, moist, hard. (CL)	34*		1		
25	2-4	Brown silty CLAY (CL), with some gravels, moist, hard. (CL)	50*		1		
30							
<b>ENGEO</b> INCORPORATED			Livermore Valley Unified School District  Livermore, California	BORING NO.: 2 DATE: September 1991 JOB NO: N1-3174-F1	FIGURE NO.		

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990	N S.P.T. BLOWS/FT	qu UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.			
30	2-5		Brown silty gravelly CLAY, moist, very stiff. (CL)	48*	0		
35			Brown silty CLAY with minor gravels, moist, very stiff. (CL)				
40	2-6		Light brown silty sandy CLAY, moist, very stiff. (CL)	22*	0		
45			Brown silty sandy CLAY, some gravel, moist, very stiff. (CL)				
50	2-7		Water encountered at approximately 57 feet. Bottom of boring at approximately 57 feet.	22*	0		
55							
60							

**ENGEO**  
INCORPORATED

Livermore Valley Unified School District  
Livermore, California

BORING NO.: 2  
DATE: September 1991  
JOB NO: N1-3174-F1

FIGURE  
NO.



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990	N S.P.T. BLOWS/FT	QU UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.
DESCRIPTION							
0			ASPHALT				
			PEA GRAVEL.		0		
5			Brown clayey GRAVEL, coarse, moist, dense. (GC)		0		
10	2-1		Brown silty CLAY with gravel, brown moist, hard, very light color. (CL)	48*	0		
15	2-2		Brown sandy silty CLAY with minor gravels, moist, hard. (CL)	51*	4		
20	2-3		Brown silty CLAY (CL), with some gravels, moist, hard. (CL)	34*	1		
25	2-4		Brown silty CLAY (CL), with some gravels, moist, hard. (CL)	50*	1		
30							

**ENGEO**  
INCORPORATED








Livermore Valley Unified School District  
Livermore, California

BORING NO. 2-1  
DATE: September 1991  
JOB NO: N1-3174-F1

FIGURE NO.

16 bags  
N.D. TRAG

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990		N S.P.T. BLOWS/FT	qu UNCON. COMP. STRENGTH (TSF)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet				DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
			DESCRIPTION		*MODIFIED FOR 3" O.D. SAMPLER	*FIELD PENET. APPROX.		
38	2-5		Brown silty gravelly CLAY, moist, very stiff. (CL)		48*	0		
35			Brown silty CLAY with minor gravels, moist, very stiff. (CL)					
40			Light brown silty sandy CLAY, moist, very stiff. (CL)					
45	2-6		Brown silty sandy CLAY, some gravel, moist, very stiff. (CL)		22*	0		
50			Water encountered at approximately 57 feet. Bottom of boring at approximately 57 feet.					
55	2-7		Water encountered at approximately 57 feet. Bottom of boring at approximately 57 feet.		22*	0		
60			Water encountered at approximately 57 feet. Bottom of boring at approximately 57 feet.					
<b>ENGEO</b> INCORPORATED			Livermore Valley Unified School District Livermore, California		BORING NO.: 2 DATE: September 1991 JOB NO: N1-3174-F1		FIGURE NO.	

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.O. (10.0ev)  (parts per million)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER			
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish-brown gravelly CLAY, moist. (CL)				
5			10YR 4/4 Dark yellowish brown clayey GRAVEL. (GC)		2.3		
10	3-1		10YR 5/4 Yellowish brown clayey sandy GRAVEL. Gravel to 4 inches.		3.0		
15	3-2		10YR 5/4 Yellowish brown silty SAND with some clay, slightly to medium plasticity. (SM/SC)  Increasing gravel.		3.0		
20	3-3		10YR 6/5 Pale brown clayey sandy GRAVEL, very moist. (GC)		20.5		
25	3-4				3.8		
30					4.6		

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Unified School District  
Livermore, California

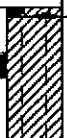



BORING NO.: B-3

DATE: July 1993









JOB NO.: 3174-F8


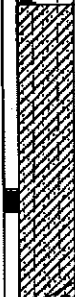


FIGURE  
NO.

**3**

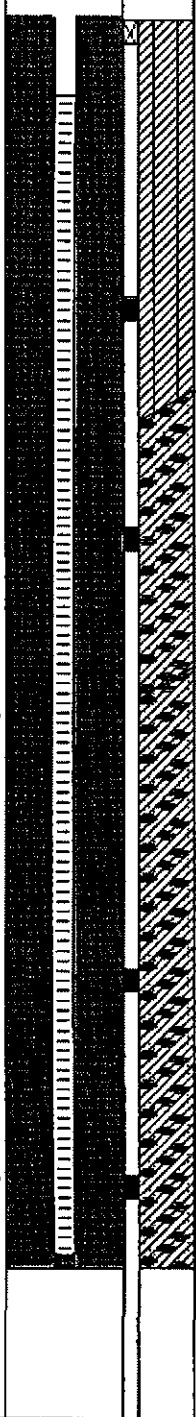
DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
33	3-5		10YR 5/4 Yellowish brown silty CLAY, moist, medium plasticity. (CL)		2.7		
			▼ Water level 4/13/93.				
35	3-6		Mottled 10YR 5/8 yellowish brown and 10YR 5/3 brown clayey SAND, wet, moisture on grains. (CL)		3.8		
40	3-7		10YR 5/4 Yellowish brown clayey SILT, wet, trace rounded gravel, moisture on grains. ▼ Water level three hours after drilling.		4.0		
45	3-8		▼ Water level at time of drilling. 10YR 5/6 Yellowish brown clayey sandy GRAVEL, wet. (CG)		1.1		
			Bottom of boring at approximately 46.5 feet.				
50							
55							
60							
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California	BORING NO.: B-3	FIGURE NO.		<b>3</b>
				DATE: July 1993			
				JOB NO.: 3174-F6			



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0ev)  (parts per million)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT  (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER				
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish brown gravelly CLAY with some sand moist. (CL) Increasing gravel.		10.8		
5			10Y 5/4 Yellowish brown sandy GRAVEL with some clay, slightly moist. (GC)		5.6		
10			Increasing moisture				
15	4-1		Very moist.		478		
20	4-2				478		
25	4-3		Harder drilling.		401		
30			10YR 5/4 Yellowish brown sandy GRAVEL, damp. (GW)				
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California	BORING NO.: 3-4/	DATE: July 1993	FIGURE NO. <b>4</b>	
				JOB NO.: 3174-F6			


DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1994	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			*MODIFIED FOR 3" O.D. SAMPLER	DRY UNIT WEIGHT (PCF)
			DESCRIPTION				
30	4-4		Easier drilling. Mottled 10YR 5/8 Yellowish brown and 10YR 6/3 pale brown clayey SILT, trace fine sand, very moist, slight plasticity. (SM) Water level on 4/12/93.		579		
35	4-5		Increasing sand. 10YR 5/6 Yellowish brown clayey silty SAND with rounded gravels, very moist. (SC)		181		
40	4-6				40		
45	4-7		Water level at time of drilling.		23		
50							
55							
60							
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California		BORING NO.: B-4 DATE: July 1993 JOB NO.: 3174-P8		FIGURE NO. <b>4</b>









DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOWS/FT	OUM READING P.I.D. (10.0eU)	IN PLACE	
			SURFACE ELEVATION: Approx. feet MSL			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
0			ASPHALT/BASE ROCK.				
			10YR 4/6 Dark yellowish brown silty CLAY with some gravel, moist, medium plasticity. (CL) Increasing gravel.				
5			10YR 3/3 Dark brown clayey GRAVEL with gravels to 4 inches, moist. (GC) Very coarse gravel.		1.5		
10					2.7		
			Water level at time of drilling.				
15			10YR 6/4 Light yellowish brown sandy GRAVEL with trace fines, wet. (GP) 5-1		584		
20			10YR 5/4 Dark yellowish brown clayey sandy GRAVEL, wet. (CG) 5-2		693		
25			10YR 5/4 Dark yellowish brown gravelly SAND with little silt and clay, very moist. (SC) 5-3		659		
			Increasing clay.				
30			No sample recovery.				
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Livermore, California		WELL NO.: B-5 DATE: July 1993 JOB NO.: 3174-F6	FIGURE NO. <b>5</b>	

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOWS/FT	QUM READING P.I.D. (10.0eV)	IN PLACE		
			SURFACE ELEVATION: Approx. feet MSL			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT	
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)				
30			Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown silty CLAY, moist. (CL) Increasing silt. ▼ Water level on 4/12/93		297			
35			5-4 Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown clayey SILT. (SM) Increasing sand; trace gravel.		119			
40			2.5Y 5/4 Light olive-brown clayey sandy GRAVEL, moist. (G) 5-5		125			
45			10YR 5/4 Yellowish brown clayey sandy GRAVEL, wet. 5-6					
50			5-7		11			
55			5-8					
56			Bottom of boring at approximately 57 feet.					
			<b>ENGEO</b> INCORPORATED		Livermore Valley Joint Livermore, California		WELL NO.: B-5 DATE: July 1993 JOB NO.: 3174-F6	FIGURE NO. <b>5</b>



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
			DESCRIPTION	*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)		
0			ASPHALT/BASE ROCK				
			PEA GRAVEL. (FILL)				
5							
10							
15	6-1		CONCRETE.			603	
		10YR 4/6 Dark yellowish brown clayey GRAVEL, moist. (GC)					
20	6-2	10YR 5/4 Yellowish-brown clayey GRAVEL, wet. (GC)			598		
25	6-3	10YR yellowish brown silty CLAY, very moist, medium plasticity. (CL)			478		
30		10YR 5/6 Yellowish brown silty SAND and GRAVEL, moist. (GM)					
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California	BORING NO.: B-6	FIGURE NO.		
				DATE: July 1993	6		
				JOB NO.: 3174-F6			

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0ev)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT	MOIST. CONTENT
			DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)
38	6-4				522		
35	6-5		Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown clayey SILT with fine sand, very moist. (SM)		151		
40			Bottom of boring at approximately 36.5 feet.				
45							
50							
55							
60							
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California	BORING NO.: B-8		FIGURE NO.	
				DATE: July 1993		6	
				JOB NO.: 3174-F6			



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0ev)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
0			ASPHALT/BASE ROCK				
			10YR 4/2 Very dark grayish-brown sandy gravelly CLAY, slightly moist, medium plasticity. (CL)		5.4		
5			10YR 4/3 Brown clayey SAND, damp. (CL)				
			10YR 4/4 Dark yellowish brown sandy clayey GRAVEL, moist. (CG)		2.3		
10			10YR 5/3 Brown silty SAND with gravel, trace clay, wet. (SM)		2.3		
15	7-1				733		
20	7-2		Mottled 10YR 5/4 yellowish brown and 10YR 6/3 pale brown clayey SILT, very moist, wet. (SM)		742		
25	7-3		10YR 5/6 Yellowish brown clayey sandy GRAVEL, very moist. (CG)		623		
30							









**ENGEO**  
INCORPORATED

Livermore Valley Joint  
Unified School District  
Livermore, California

BORING NO.: 5-7  
DATE: July 1993  
JOB NO.: 3174-F6

FIGURE  
NO.  
**7**

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OMV READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			*MODIFIED FOR 3" O.D. SAMPLER	DRY UNIT WEIGHT (PCF)
DESCRIPTION							
30	7-4				707		
35	7-5		Mottled 10YR 5/8 yellowish brown silty CLAY/clayey SILT, very moist, medium plasticity. (CL)		280		
40			Bottom of boring at approximately 36.5 feet.				
45							
50							
55							
60							
<b>ENGEO</b> INCORPORATED			Livermore Valley Joint Unified School District Livermore, California		BORING NO.: 8-7 DATE: July 1993 JOB NO.: 3174-F8		FIGURE NO. <b>7</b>

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish-brown gravelly CLAY, moist. (CL)		10.0		
5			10YR 5/4 Dark yellowish brown clayey GRAVEL, slightly moist. (GC)		7.0		
10					5.4		
15	8-1		Wet.		14.1		
20	8-2		Mottled 10YR 6/6 brownish yellow and 10YR 6/3 pale brown clayey SILT, moist, low plasticity. (ML)		534		
25	8-3		10YR 5/4 Yellowish brown clayey GRAVEL, wet. (GC)		137		
30							



**ENGEO**  
INCORPORATED

Livermore Valley Joint  
Unified School District  
Livermore, California

BORING NO.: B-8  
DATE: July 1993  
JOB NO.: 3174-F6

FIGURE  
NO.  
**8**



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1993	N S.P.T. BLOW/FT	OVM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. feet msl			*MODIFIED FOR 3" O.D. SAMPLER	DRY UNIT WEIGHT (PCF)
DESCRIPTION							
30	8-4				20		
35	8-5		Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown silty CLAY, moist. (CL)				
			Bottom of boring at approximately 35.5 feet.				
40							
45							
50							
55							
60							

**ENGEO**  
INCORPORATED

Livermore Valley Joint  
Unified School District  
Livermore, California

BORING NO.: B-8  
DATE: July 1993  
JOB NO.: 3174-F8

FIGURE  
NO.  
**8**

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 14, 1990	N S.P.T. BLOWS/FT	OUM READING P.I.D. (10.0eV)	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
0			ASPHALT cover.				
			Brown silty CLAY, dry. (CL)		0		
			PEA GRAVEL.				
5							
10							
15			MW1-1 Brown clayey GRAVEL, medium to coarse, moist, medium dense, odor. (GC)	7*	0		
20			MW1-2 Very dense, strong odor.	50/5"	542		
25			MW1-3	34*	540		
30			MW1-4 Brown gravelly sandy CLAY, moist, hard, strong petroleum hydrocarbon odor. (CL)	15*	400		
35			Brown silty sandy CLAY, moist, hard, strong odor. (CL)		602		
38							
<b>ENGEO</b> INCORPORATED			Livermore Valley Unified School District Livermore, California		WELL NO.: MW1	FIGURE NO.	
					DATE: September 1991		
					JOB NO.: N1-3174-F1		



DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 14, 1990	N S.P.T. BLOWS/FT	OUM READING P.I.D. (10.0 <u>u</u> )	IN PLACE	
			SURFACE ELEVATION: Approx. 490.0 feet			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
30			MW1-5 Brown gravelly sandy CLAY, moist, hard, odor. (CL)	44*	250		
					100		
35			MW1-6 Mottled brown silty CLAY some sand and gravels, moist, very stiff, odor. (CL)	27*	153		
			Brown sandy silty CLAY, moist, very stiff, odor. (CL)		300		
40			MW1-7	30*	413		
			Brown silty CLAY, minor sand and gravel, moist, very stiff, odor. (CL)		100		
45			MW1-8 Brown gravelly CLAY, moist, hard, odor. (CL)	42*	38		
			Brown silty CLAY, minor gravel, moist, hard, odor. (CL)		6		
50			MW1-9 Brown sandy gravelly CLAY, moist, hard, slight ∇ odor. (CL)	50*	2		
			Approximate water level at the time of drilling.				
55							
60							

**ENGEO**  
INCORPORATED

Livermore Valley Unified School District  
Livermore, California

WELL NO.: MW1  
DATE: September 1991  
JOB NO.: N1-3174-F1

FIGURE  
NO.

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 14, 1990	N S.P.T. BLOWS/FT	OUM READING P.I.D. (10.0mV)	IN PLACE	
			SURFACE ELEVATION: Approx. 498.0 feet			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT  % DRY WEIGHT
DESCRIPTION			*MODIFIED FOR 3" O.D. SAMPLER	(parts per million)			
69					0		
65			Yellow-brown clayey gravelly SAND, saturated. (SP) Running sands at approximately 63.5 feet.			0	
70			Bottom of boring at approximately 67 feet. NOTE: After removal of augers from hole, water measured at approximately 46 feet.				
75							
80							
85							
90							
95							

**ENGEO**  
INCORPORATED

Livermore Valley Unified School District  
Livermore, California

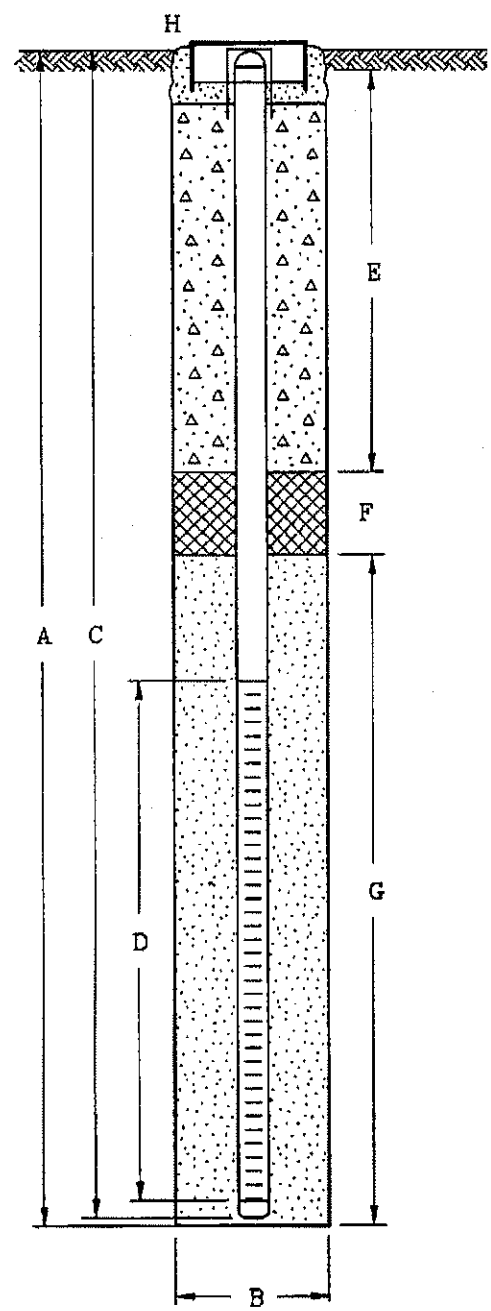
WELL NO.: MW1  
DATE: September 1991  
JOB NO.: N1-3174-F1

FIGURE  
NO.

BORING/WELL NO. MW1

## MONITORING WELL DETAIL

PROJECT NUMBER N90-3174-F1 DATE OF INSTALLATION December 14, 1990  
PROJECT NAME Livermore Vllly Sch. Dist. TOP OF CASING ELEV. ±489.5  
COUNTY Alameda GROUND SURFACE ELEV. ±490  
WELL PERMIT NO. 90702 DATUM MSL



### EXPLORATORY BORING

A. TOTAL DEPTH 67 FT.  
B. DIAMETER 6 IN.  
DRILLING METHOD Hollow stem augers

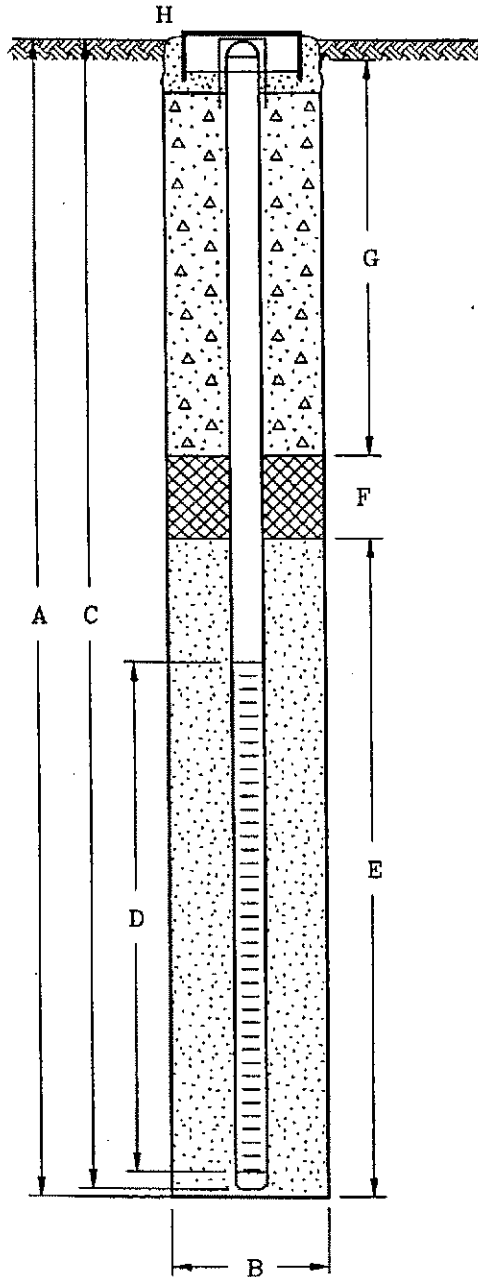
### WELL CONSTRUCTION

C. CASING LENGTH 67 FT.  
MATERIAL Sch 40 PVC  
DIAMETER 2 IN.  
D. SLOTTED INTERVAL LENGTH 25 FT.  
SLOTTED INTERVAL FROM 42 TO 67 FT.  
SLOT SIZE .020 IN.  
E. GROUT INTERVAL 0 TO 38 FT.  
GROUT MATERIAL neat cement  
F. FILTER PACK SEAL 38 TO 40 FT.  
SEAL MATERIAL Bentonite  
G. FILTER PACK INTERVAL 40 TO 67 FT.  
FILTER MATERIAL #2 sand  
H. Christy box (flush with surface)  
and locking well cap.

**ENGEO**  
INCORPORATED

## MONITORING WELL DETAIL

PROJECT NUMBER 3174-F6 DATE OF INSTALLATION April 13, 1993  
 PROJECT NAME L.V.J.U.S.D. Maintenance Yard TOP OF CASING ELEV. \_\_\_\_\_  
 COUNTY Alameda GROUND SURFACE ELEV. \_\_\_\_\_  
 WELL PERMIT NO. #93167 DATUM \_\_\_\_\_



### EXPLORATORY BORING

A. TOTAL DEPTH 57 FT.  
 B. DIAMETER 7.25 IN.  
 DRILLING METHOD Hollow Stem Auger

### WELL CONSTRUCTION

C. CASING LENGTH 30 FT.  
 MATERIAL schedule 40 PVC  
 DIAMETER 2.0 IN.  
 D. SLOTTED INTERVAL LENGTH 25 FT.  
 SLOTTED INTERVAL FROM 32 TO 57 FT.  
 SLOT SIZE 0.020 IN.  
 E. FILTER PACK INTERVAL 30 TO 57 FT.  
 FILTER MATERIAL No. 3 Monterey Sand  
 F. FILTER PACK SEAL 28 TO 30 FT.  
 SEAL MATERIAL Bentonite Pellets  
 G. GROUT INTERVAL 1.0 TO 28 FT.  
 GROUT MATERIAL Type I/II Portland Cement  
 H. Flush Mount Cristy Box



DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV)  (ppm)	N S.P.T. BLOWS/FT  *MODIFIED FOR 3" O.D. SAMPLER	
			SURFACE ELEVATION: Approx. feet MSL				
			DESCRIPTION				
0			Loose layer of GRAVEL, light brown (fill)?	Type III Portland Cement			
			Brown, sandy SILT with some gravel, damp. Increase in gravel at 3 feet. Fine to coarse GRAVEL with little sand and silt.				
5			Some fine to coarse GRAVEL, angular to subrounded, little fine to coarse sand, damp, trace of clay.				
			Increase in clay, fine gravel, increase in moisture.				
10	MW3-1		Brown/reddish brown, moist, fine to coarse SAND and fine to coarse GRAVEL.	Bentonite seal  0.01 in. slotted 2 in. PVC pipe with #3 Monterey sand			
			Increase in moisture.				
15	MW3-2		Red brown/brown, moist, clayey SILT to silty CLAY, stiff.				
			More gravelly at 19 to 20 feet.				
20	MW3-3		Poor recovery, <del>moist</del> fine to coarse sand and gravel.				
			Brown, moist, fine to coarse SAND with lenses of silty clay, trace 10 to 15% gravel, no obvious odor.				
25	MW3-4		Brown, <del>we</del> fine to coarse SAND with fine to medium GRAVEL, little clay.				
			Clay content varies.				
30							


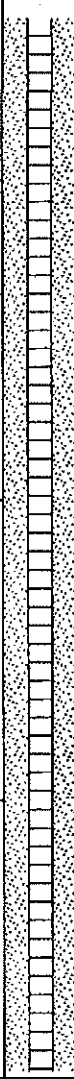





WELL 3 3174B 3/22/95

**ENGEIO**  
INCORPORATED

2900 LADD AVENUE  
LIVERMORE, CALIFORNIA

WELL NO.: MW3  
DATE: March 1995  
JOB NO.: 3174-F7

FIGURE NO.  
2

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV)  (ppm)	N S.P.T. BLOWS/FT  *MODIFIED FOR 3" O.D. SAMPLER
			SURFACE ELEVATION: Approx. feet MSL			
30	MW3-5		Brown/reddish brown, fine to coarse SAND with fine to medium GRAVEL, lenses of fine to medium sand, wet, trace little clay.			
			▽ Water level at time of drilling.			
35	MW3-6		Increase in fines, brown fine to coarse SAND with silt, little clay trace of gravel, interbedded with lenses of fine to coarse sand. Brown, stiff, silty CLAY with fine to coarse sand, little gravel, moist. Wet, clayey sand.			
40	MW3-7		Yellow-brown, stiff, sandy SILT, little fine to medium gravel, lenses of stiff silt with fine to medium sand. Becomes more CLAYEY. No odors Increase in gravel at 43 to 44 feet.			
45			Brown, wet, silty CLAY with little fine to coarse sand, trace of fine gravel.			
50			Brown, wet, fine to coarse SAND with fine to medium GRAVEL. Wet.			
			Wet, fine to coarse SAND and fine to medium GRAVEL.			
			Bottom of boring at approximately 53 feet.			
55						
60						

WELLS 3174B 3/22/95

**ENGEO**  
INCORPORATED

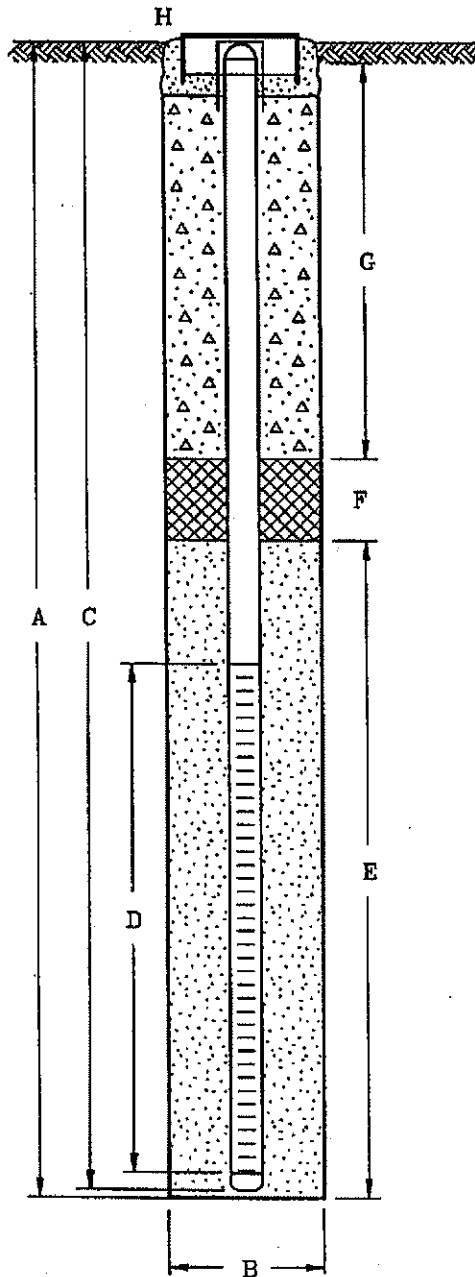
2900 LADD AVENUE  
LIVERMORE, CALIFORNIA

WELL NO.: MW3  
DATE: March 1995  
JOB NO.: 3174-F7

FIGURE NO.  
**2**

**MONITORING WELL DETAIL**

PROJECT NUMBER 3174-F7 DATE OF INSTALLATION July 1, 1994  
 PROJECT NAME 2900 Ladd Avenue TOP OF CASING ELEV. \_\_\_\_\_  
 COUNTY Alameda GROUND SURFACE ELEV. \_\_\_\_\_  
 WELL PERMIT NO. 94371 DATUM \_\_\_\_\_

**EXPLORATORY BORING**

A. TOTAL DEPTH 53 FT.  
 B. DIAMETER 7.25 IN.  
 DRILLING METHOD Hollow Stem Auger

**WELL CONSTRUCTION**

C. CASING LENGTH 53 FT.  
 MATERIAL Schedule 40 PVC  
 DIAMETER 2 IN.  
 D. SLOTTED INTERVAL LENGTH 25 FT.  
 SLOTTED INTERVAL FROM 28 TO 53 FT.  
 SLOT SIZE 0.020 IN.  
 E. FILTER PACK INTERVAL 26 TO 53 FT.  
 FILTER MATERIAL No. 3 Monterey Sand  
 F. FILTER PACK SEAL 24 TO 26 FT.  
 SEAL MATERIAL Bentonite Pellets  
 G. GROUT INTERVAL 0 TO 24 FT.  
 GROUT MATERIAL Type I/II Portland Cement  
 H. Flush Mount Cristie Box

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: June 30, 1994	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV)  (ppm)	N S.P.T. BLOWS/FT  *MODIFIED FOR 3" O.D. SAMPLER	
			SURFACE ELEVATION: Approx. feet MSL				
			DESCRIPTION				
0			Dark brown, moist, clayey LOAM.  Increase in gravel.  Brown/dark brown, moist, silty CLAY with gravel, some sand.	Type I/II Portland Cement			
5			Clayey SAND with fine to medium gravel, brown, moist. Moist clayey SAND and GRAVEL, brown.				
10	MW4-1		Brown, wet SAND and GRAVEL, trace of clay, angular gravels.  Brown, wet, SAND and GRAVEL, little silt and clay.				
15	MW4-2		Brown, wet, SAND and GRAVEL, trace of clay.				
20	MW4-3		Brown, wet, fine to coarse SAND and fine to coarse GRAVEL, little clay, slight odor.  Increase in clay content, wet.	Bentonite seal	310	268	
25	MW4-4		Brown/yellow brown, clayey fine to coarse SAND, moist.  Brown, moist/wet, fine to coarse SAND with some clay, little fine to medium gravel.				
30				0.01 in slotted 2 in. PVC pipe with #3 Monterey sand	90		
<b>ENGEO</b> INCORPORATED			2900 LADD AVENUE LIVERMORE, CALIFORNIA		WELL NO.: MW4 DATE: March 1995 JOB NO.: 3174-F7		FIGURE NO. <b>3</b>

WELL 3 3174B 3/22/95

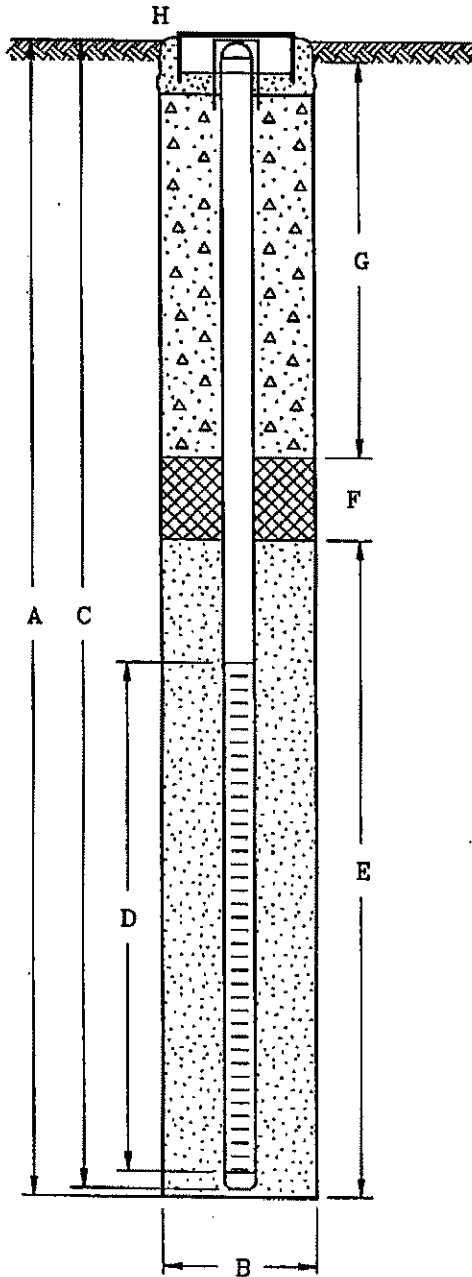
DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: June 30, 1994	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV)  (ppm)	N S.P.T. BLOWS/FT  *MODIFIED FOR 3" O.D. SAMPLER	
			SURFACE ELEVATION: Approx. feet MSL				DESCRIPTION
30	MW4-5		Brown SAND and GRAVEL (large angular gravel fragments in liner).		116		
			Yellow-brown, moist sandy CLAY, fine to coarse sand, trace of gravel. Clay increase with fine to coarse sand and a trace of fine gravel.				
35	MW4-6		Yellow-brown/brown, moist clayey SILT, no odor.			34	
			Increase in gravel.				
40	MW4-7		Moist, brown, hard, fine to coarse SAND and GRAVEL, trace of clay and silt.			14	
			Brown, moist, fine to coarse sandy CLAY with fine to medium gravel.				
45	MW4-8		Brown, moist, fine to coarse SAND and fine to coarse GRAVEL. Water at time of drilling.				
			Brown, wet, fine to coarse SAND with little fine to medium gravel.				
50			Clayey fine to coarse SAND with GRAVEL, wet.				
			Bottom of boring at approximately 53 feet.				
55							
60							

WELLS 3174B 3/22/95

<b>ENGEIO</b> INCORPORATED	2900 LADD AVENUE LIVERMORE, CALIFORNIA	WELL NO.: MW4	FIGURE NO. <b>3</b>
		DATE: March 1995	
		JOB NO.: 3174-F7	

# MONITORING WELL DETAIL

PROJECT NUMBER 3174-F7 DATE OF INSTALLATION June 30, 1994  
 PROJECT NAME 2900 Ladd Avenue TOP OF CASING ELEV. \_\_\_\_\_  
 COUNTY Alameda GROUND SURFACE ELEV. \_\_\_\_\_  
 WELL PERMIT NO. 94371 DATUM \_\_\_\_\_



## EXPLORATORY BORING

A. TOTAL DEPTH 53 FT.  
 B. DIAMETER 7.25 IN.  
 DRILLING METHOD Hollow Stem Auger

## WELL CONSTRUCTION

C. CASING LENGTH 53 FT.  
 MATERIAL Schedule 40 PVC  
 DIAMETER 2 IN.  
 D. SLOTTED INTERVAL LENGTH 25 FT.  
 SLOTTED INTERVAL FROM 28 TO 53 FT.  
 SLOT SIZE 0.020 IN.  
 E. FILTER PACK INTERVAL 26 TO 53 FT.  
 FILTER MATERIAL No. 3 Monterey Sand  
 F. FILTER PACK SEAL 24 TO 26 FT.  
 SEAL MATERIAL Bentonite Pellets  
 G. GROUT INTERVAL 0 TO 24 FT.  
 GROUT MATERIAL Type I/II Portland Cement  
 H. Flush Mount Cristie Box





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BORING/WELL NO. MW-5

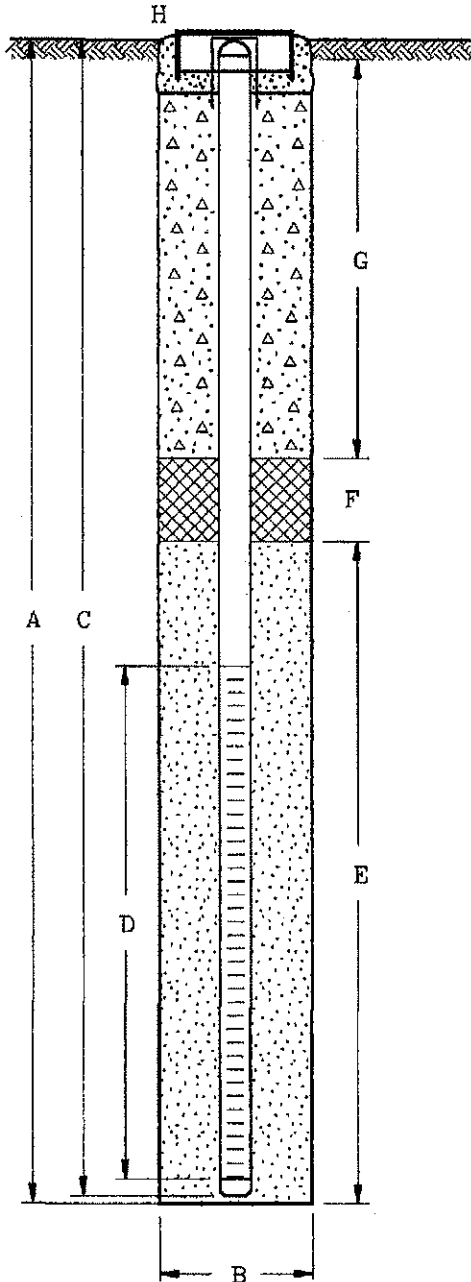
# MONITORING WELL DETAIL

PROJECT NUMBER 3174.3.050.02 DATE OF INSTALLATION 5/28/2000

PROJECT NAME LVJUSD MAINTENENCE YARD TOP OF CASING ELEV. \_\_\_\_\_

COUNTY ALAMEDA GROUND SURFACE ELEV. 482 FT. (APPROX)

WELL PERMIT NO. 20102 DATUM \_\_\_\_\_



## EXPLORATORY BORING

A. TOTAL DEPTH 25 FT.

B. DIAMETER 8 IN.

DRILLING METHOD

CONTINUOUS FLIGHT HOLLOW STEM AUGER

## WELL CONSTRUCTION

C. CASING LENGTH 24.5 FT.

MATERIAL SCH 40 PVC

DIAMETER 2 IN.

D. SLOTTED INTERVAL LENGTH 10 FT.

SLOTTED INTERVAL FROM 15 TO 25 FT.

SLOT SIZE 0.010 IN.

E. FILTER PACK INTERVAL 14 TO 25 FT.

FILTER MATERIAL MONTEREY #2/16 SAND

F. FILTER PACK SEAL 13 TO 14 FT.

SEAL MATERIAL BENTONITE CHIPS

G. GROUT INTERVAL 0.5 TO 13 FT.

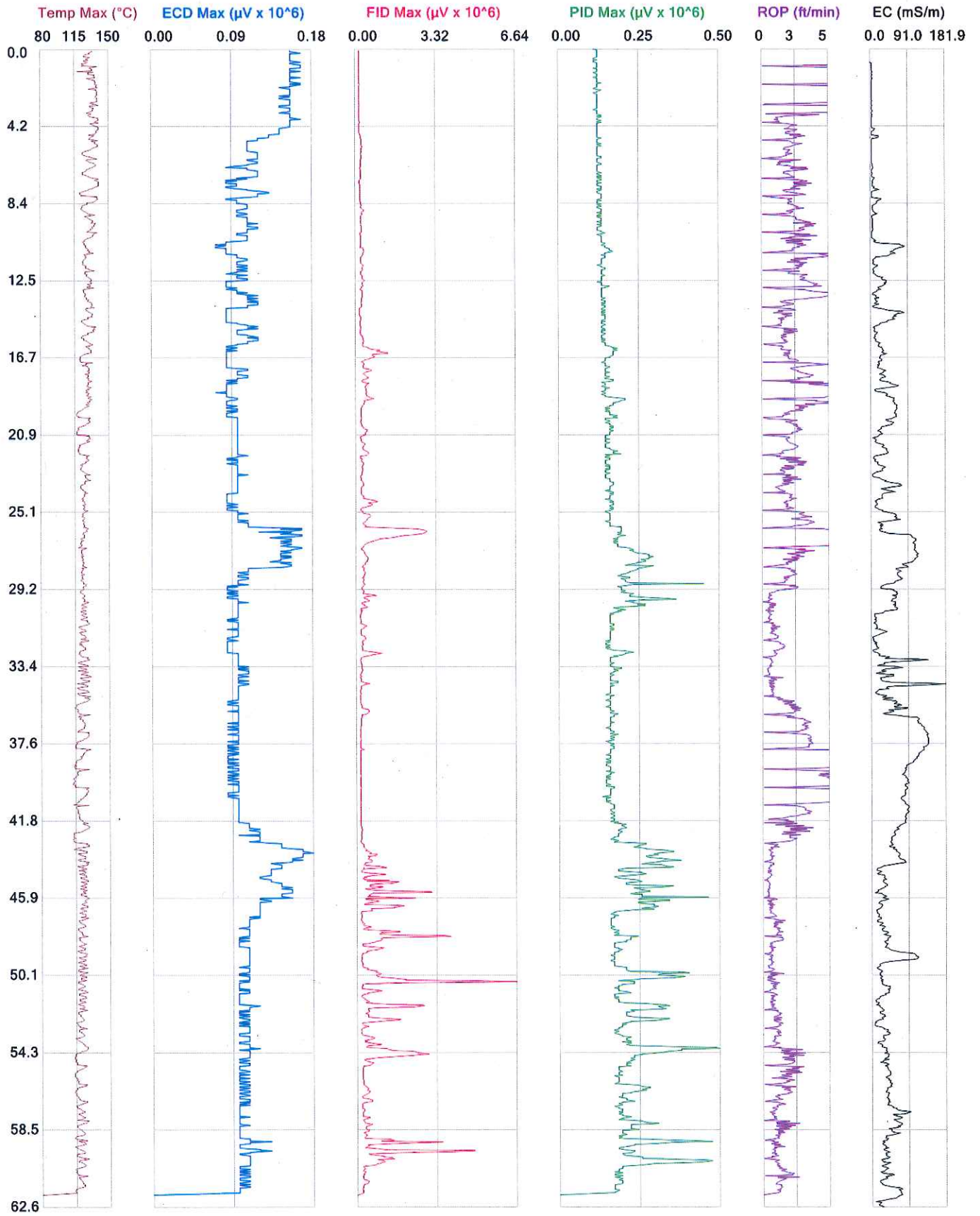
GROUT MATERIAL NEET CEMENT

H. 12" DIAMETER FLUSH MOUNT MONUMENT

**ENGEO**  
INCORPORATED

ADDITIONAL OBSERVATIONS & WELL CONSTRUCTION	PID (ppm)	SAMPLE ID	SAMPLE LOCATION	FEET BELOW GROUND SURFACE	EQUIPMENT: 8" HOLLOW STEM AUGER OPERATED BY: GREGG DRILLING LOGGED BY: IAN SUTHERLAND LOCATION: 2900 LADD AVENUE WORK DATE: 4.11.13 BORING: MW-6A	
<p>2" PVC WELL</p> <p>CONCRETE</p> <p>BENTONITE SEAL</p> <p>MONTEREY SAND</p> <p>0.010" SCREENED PVC</p> <p>STATIC 23.28' 4.11.13</p> <p>GROUND WATER ENCOUNTERED 2.6'</p>				0	ASPHALT & BASE MATERIAL	
				2	GM GRAVEL-SAND-SILT MIXTURE, ~85% coarse gravel, very fine grain sand & silt fines, dry, very dark greyish-brown (10YR3/2), unconsolidated, no plasticity.	
		0.0	6A-5'		4	
					6	
					8	(INCREASED SILT/CLAY CONTENT)
		0.0	6A-10'		10	CL SILTY-CLAY WITH GRAVEL, ~40% gravel, dark reddish-brown (5YR3/3), slight moisture, cohesive, low plasticity, gravel content decreases with depth, plasticity increases with depth.
					12	
		0.0	6A-15'		14	
					16	
					18	(INCREASED SAND CONTENT)
	3.8	6A-20'		20	ML SILT WITH SAND, grayish-brown (2.5Y5/2), moist, slight cohesiveness, low plasticity, moisture increases with depth, slight hydrocarbon odor from 20-25 ft bgs.	
				22		
	2.6	6A-25'		24		
				26		
				28	END OF BORING (27 FT BGS)	

<b>ACC ENVIRONMENTAL CONSULTANTS, INC.</b> 7977 CAPWELL DRIVE, SUITE 100 OAKLAND, CALIFORNIA 94621 (510) 638-8400 FAX: (510) 638-8404	PROJECT # 3054-103.04 <hr/> DATE: 4.19.13.	NOTES: FREE GROUNDWATER ENCOUNTERED AT APPROXIMATELY 25 FT BGS. BORING LOG BASED ON DRILL CUTTINGS AND SAMPLES COLLECTED IN SPLIT SPOON SAMPLER
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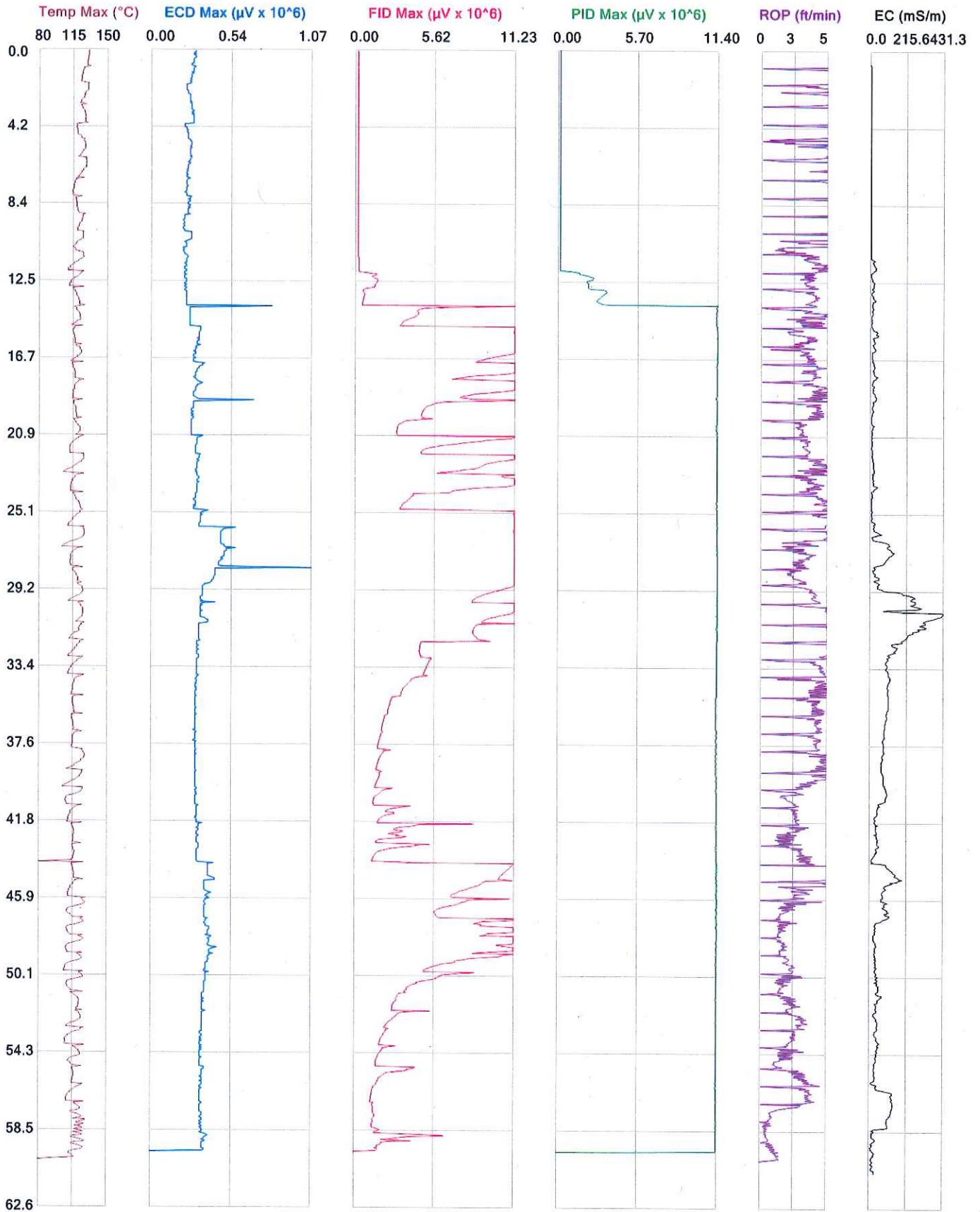


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 Project ID: Livermore MIP

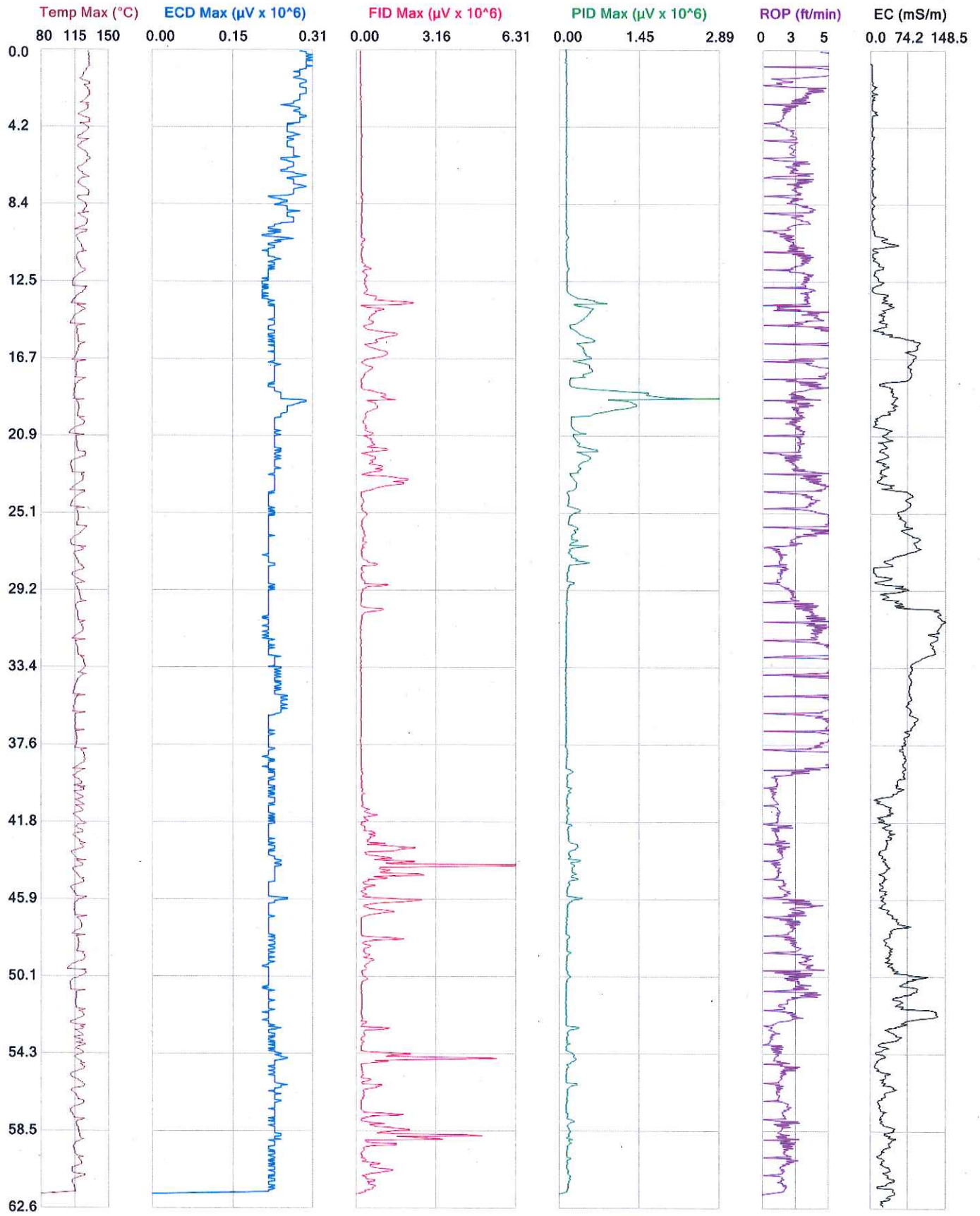




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 Project ID: Livermore MIP

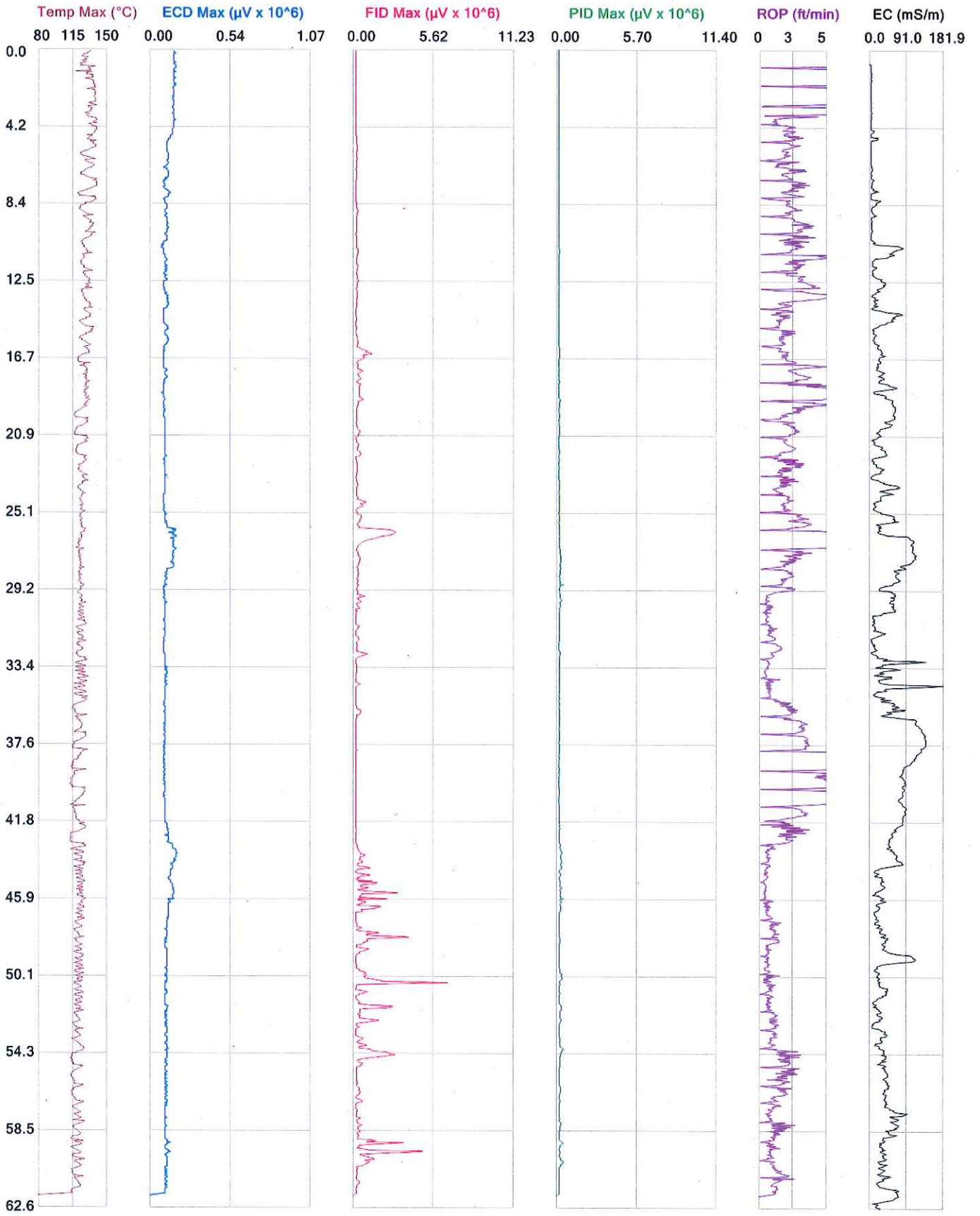


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Location:



Client: ACC Environmental Consultants  
Project ID: Livermore MIP

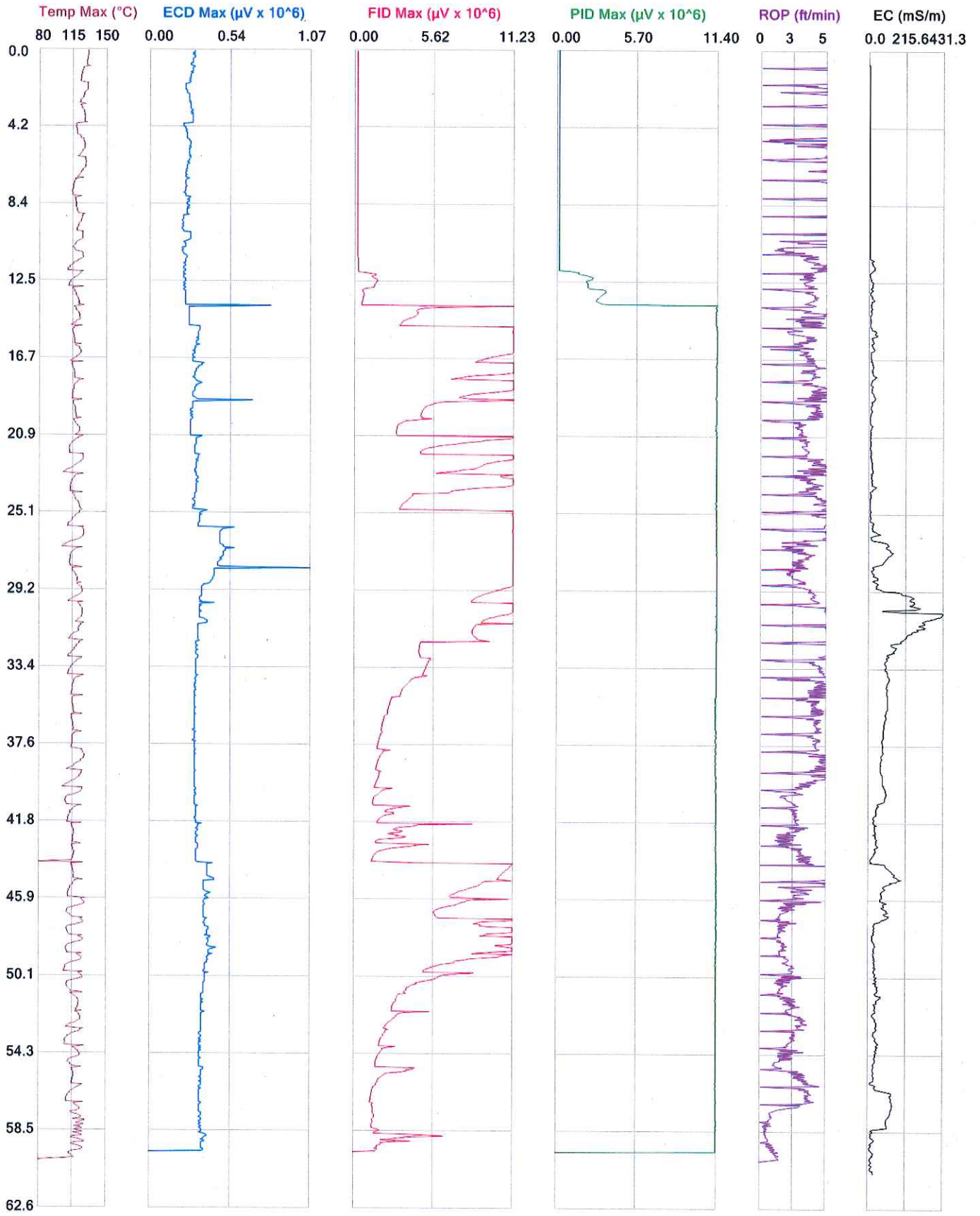




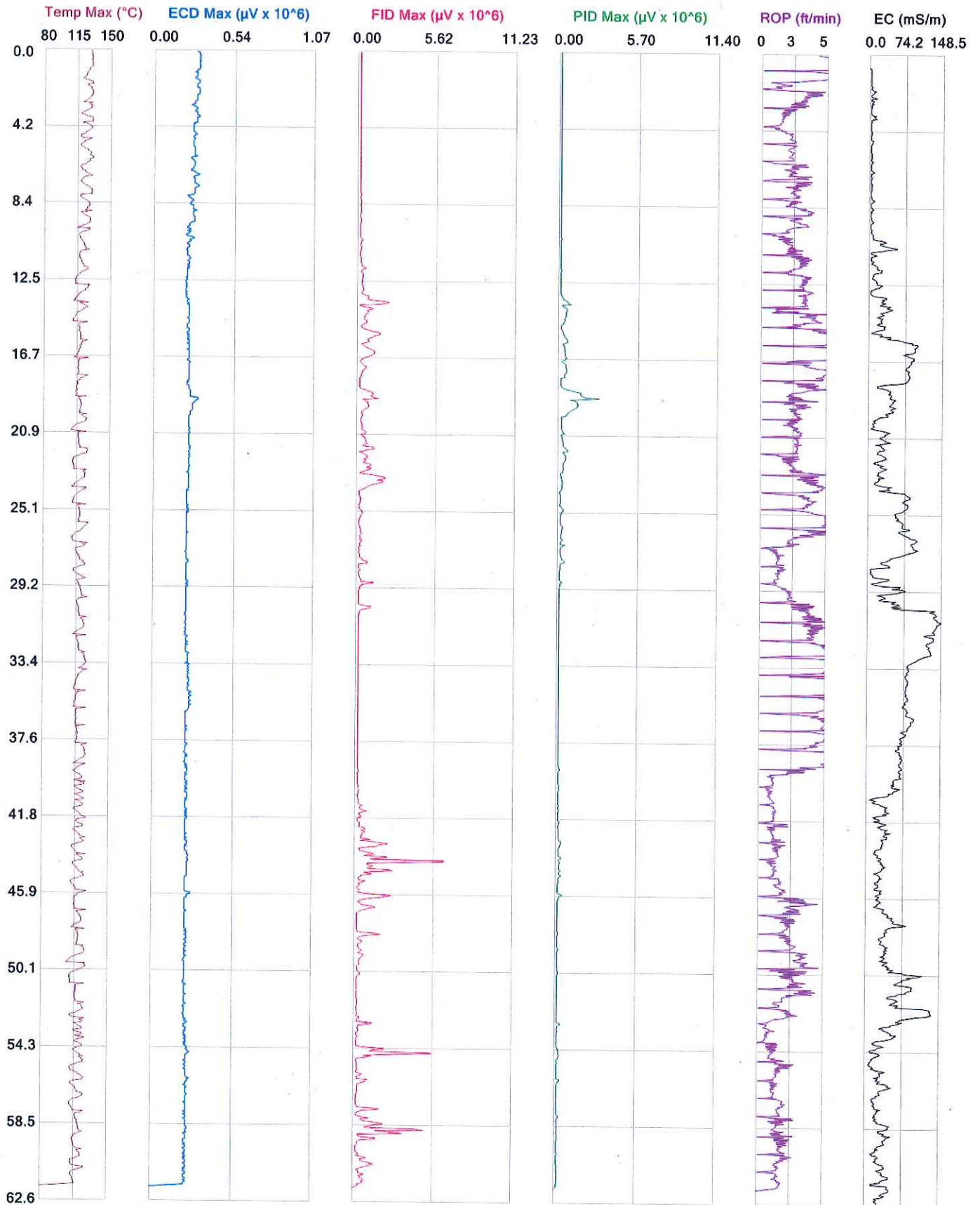
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Location:



Client: ACC Environmental Consultants  
 Project ID: Livermore MIP



Client: ACC Environmental Consultants	File: ACC4MIP
Project ID: Livermore MIP	Date: 11/22/2011
	Location:



Client: ACC Environmental Consultants  
 Project ID: Livermore MIP

File: ACC5MIP
Date: 11/22/2011
Location: