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

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

August 5, 2005

George Moniz
Livermore Unified School District
685 E. Jack London Blvd.
Livermore, CA 94550

Subject: Fuel Leak Case No. RO0000188, Laidlaw Transit (Maintenance Yard), 2900 Ladd Avenue, Livermore, CA

Dear Mr. Moniz:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above referenced site. The most recent document that we have received for this site is a document entitled "Report on Groundwater Sampling for Monitoring Well MW-5," dated January 7, 2003 prepared on your behalf by Engeo Incorporated. ACEH has not received any more recent documents since receiving the January 7, 2003 report. The January 7, 2003 report presents the results from groundwater sampling of one monitoring well at the site, well MW-5. Laboratory analytical results from the sampling conducted in December 2002, indicate that groundwater from well MW-5 contains 72,000 micrograms per liter (µg/L) of total petroleum hydrocarbons as gasoline (TPHg), 8,500 µg/L of benzene, 11,000 µg/L of toluene, 1,600 µg/L of ethylbenzene, and 10,000 µg/L of xylenes. Sampling activities conducted prior to December 2002 have also detected elevated concentrations of petroleum hydrocarbons in soil and groundwater at the site. Based on the elevated concentrations of petroleum hydrocarbons present in soil and groundwater at the site, investigation and cleanup of this site are not complete. Therefore, you are required to conduct additional site investigation, groundwater monitoring, and cleanup in order to reach site closure.

The January 7, 2005 report did not indicate that groundwater monitoring at the site was being discontinued. Please note that Title 23 of the California Code of Regulations (23CCR), Section 2652(d), requires the owner or operator of a UST facility to submit reports to the regulatory agency overseeing the cleanup, every three months or more frequently as specified by the agency until the investigation and cleanup are complete. ACEH requests that you submit a Work Plan to complete site investigation and conduct groundwater monitoring. Therefore, please address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Filter Pack and Screen Intervals for Wells MW-2, MW-3, and MW-4.** The screen interval for existing well MW-2 extends from approximately 32 to 57 feet bgs. The screen interval for wells MW-3 and MW-4 extends from approximately 28 to 53 feet bgs. The Work Plan must include an assessment of whether the filter packs and screen intervals for these wells connect different water-bearing zones and may act as conduits for vertical contaminant

migration. The wells are to be properly abandoned if it is determined that the wells connect different water-bearing zones or vertical ambient flow is potentially occurring within the wells.

2. **Site Characterization.** The lateral and vertical extent of soil and groundwater contamination at the site has not been fully defined. Monitoring well MW-5 extends to a depth of 25 feet bgs and monitors shallow groundwater at the site. The remaining three wells are screened within lower stratigraphic intervals. Both shallow groundwater (currently monitored by well MW-5) and the deeper groundwater monitored by well MW-2, are contaminated. Detailed lithologic information is to be collected using soil borings, direct push sampling, and/or cone penetrometer to complete site characterization. The Work Plan requested below is to include plans to characterize chemical concentrations in groundwater within the shallow groundwater zone and deeper water-bearing zones. Please consider the use of depth discrete groundwater samples collected along transects to characterize the site prior to installation of monitoring wells. We request that you use detailed hydrogeologic cross sections to determine the appropriate locations and designs for monitoring wells/well clusters and piezometers that are needed to appropriately characterize the three-dimensional extent of soil and groundwater contamination at the site. To appropriately evaluate your site, your monitoring wells/well clusters will need to be screened in the permeable zones with screen lengths that match the stratigraphic sequence. Please include the above information in the Work Plan requested below.

3. **Well Survey**. ACEH requests that you locate all wells (monitoring and production wells: active, inactive, standby, decommissioned, abandoned and dewatering, drainage and cathodic protection wells) within 2,000 ft of the subject site. We recommend that you obtain well information from both Zone 7 Water Agency and the State of California Department of Water Resources, at a minimum. As part of your detailed well survey, please perform a background study of the historical land uses of the site and properties in the vicinity of the site. Use the results of your background study to determine the existence of unrecorded/unknown (abandoned) wells, which can act as pathways for migration of contamination at and/or from your site. Please review historical sources such as Sanborn maps, aerial photos, etc., when performing the background study. Include appropriate photographic prints, in stereo pairs, of historic aerial photos used as part of your study. We also request that you list by date all aerial photographs available for the site from the aerial survey company or library you use during your study. Please refer to the Regional Board's guidance for identification, location, and evaluation of potential deep well conduits when conducting your preferential pathway study. Please include the Well Survey in the Work Plan requested below.

4. **Conduit Study**. We request that you perform a conduit study that details the potential migration pathways and potential conduits (wells, utilities, pipelines, etc.) for horizontal and vertical migration that may be present in the vicinity of the site. The purpose of the conduit study is to locate and determine the probability of the dissolved plume encountering preferential pathways and conduits that could spread contamination. Of particular concern is the identification of abandoned wells and improperly destroyed wells that can act as vertical conduits to deeper water bearing zones in the vicinity of your site. Please include the Conduit Study in the Work Plan requested below.

5. **Site Conceptual Model.** The development of a Site Conceptual Model (SCM) for this site is encouraged in order to provide a framework for understanding the site conditions affecting

the fate and transport of contaminants in the subsurface. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors. The SCM is used to identify data gaps that are subsequently filled as the investigation proceeds. As the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened. Subsurface investigations continue until the SCM no longer changes as new data are collected. At this point, the SCM is said to be "validated." The validated SCM then forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

When performed properly, the process of developing, refining and ultimately validating the SCM effectively guides the scope of the entire site investigation. We have identified, based on our review of existing data, some key data gaps in this letter and have described several tasks that we believe will provide important new data to refine the SCM. We request that your consultant develop a SCM for this site, identify data gaps, and propose specific supplemental tasks for future investigations. There may need to be additional phases of investigations, each building on the results of the prior work, to validate the SCM. Characterizing the site in this way will improve the efficiency of the work and limit its overall cost.

The SCM approach is endorsed by both industry and the regulatory community. Technical guidance for developing SCMs is presented in API's Publication No. 4699 and EPA's Publication No. EPA 510-B-97-001 both referenced above; and "Guidelines for Investigation and Cleanup of MTBE and Other Ether-Based Oxygenates, Appendix C," prepared by the State Water Resources Control Board, dated March 27, 2000.

The SCM for this project would incorporate, but not be limited to, the following:

a) A concise narrative discussion of the regional geologic and hydrogeologic setting obtained from your background study. Include a list of technical references you reviewed, and copies (photocopies are sufficient) of regional geologic maps, groundwater contours, cross-sections, etc.

b) A concise discussion of the on-site and off-site geology, hydrogeology, release history, source zone, plume development and migration, attenuation mechanisms, preferential pathways, and potential threat to downgradient and above-ground receptors. Be sure to include the vapor pathway in your analysis. Maximize the use of large-scale graphics (e.g., maps, cross-sections, contour maps, etc.) and conceptual diagrams to illustrate key points. Include structural contour maps (top of unit) and isopach maps to describe the geology at your site.

c) Identification and listing of specific data gaps that require further investigation during subsequent phases of work.

d) Proposed activities to investigate and fill data gaps identified above.

e) The SCM shall include an analysis of the hydraulic flow system at and downgradient from the site. Include rose diagrams for groundwater gradients. The rose diagram shall be plotted on groundwater contour maps and updated in all future reports submitted for your site.

Include an analysis of vertical hydraulic gradients. Note that these likely change due to seasonal precipitation and pumping.

f) Temporal changes in the plume location and concentrations are also a key element of the SCM. In addition to providing a measure of the magnitude of the problem, these data are often useful to confirm details of the flow system inferred from the hydraulic head measurements. Include plots of the contaminant plumes on your maps, cross-sections, and diagrams.

g) Other contaminant release sites exist in the vicinity of your site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for your SCM. Include a summary of work and technical findings from nearby release sites and incorporate the findings from nearby site investigations into your SCM.

Please report the information discussed above in your initial SCM and include it in the Work Plan requested below. Include an update to your SCM in the Soil and Groundwater Investigation Report requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Jerry Wickham), according to the following schedule:

- **October 10, 2005** – Work Plan for Soil and Groundwater Investigation
- **December 1, 2005** – Quarterly Report for the Third Quarter 2005
- **March 1, 2006** - Quarterly Report for the Fourth Quarter 2005 Quarterly Report for the Third Quarter 2005
- **120 days following ACEH approval of Work Plan** – Soil and Groundwater Investigation Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please be aware that you may be eligible for reimbursement of the costs of investigation from the California Underground Storage Tank Cleanup Fund (Fund). In some cases, a deductible amount may apply. If you believe you meet the eligibility requirements, I strongly encourage you to call the Fund for an application.

However, please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

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

Sincerely,

Jerry Wickham, P.G.
Hazardous Materials Specialist

cc: Colleen Winey, QIC 80201
Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551

Danielle Stefani
Livermore-Pleasanton Fire Department

3560 Nevada Street
Pleasanton, CA 94566

Shawn Munger
Engeo Incorporated
2401 Crow Canyon Road, Suite 200
San Ramon, CA 94583-1545

Donna Drogos, ACEH
Jerry Wickham, ACEH
[redacted]

Chu, Eva, Env. Health

From: Chu, Eva, Env. Health
Sent: Friday, April 19, 2002 8:51 AM
To: 'Munger, Shawn'
Subject: 2900 Ladd Ave, Livermore

Hi Shawn,
I completed review of the most recent groundwater sampling report for the above referenced site. Comparing the hydrocarbon concentrations detected in MW-2 and MW-5, it came to mind that the deeper well can potentially act as a conduit to contaminate deeper water. I would like to see some cross-sections prepared for the site to check out my theory. If so, maybe we should decommission the deep wells and construct new wells and screen them from approximately 15 to 35 feet bgs. Please let me know your thoughts on this subject.

In addition, you may want to consider enhancing biodegradation at the site, such as air sparge, etc. And, for the next sampling event, please analyze for ether oxygenates, ethanol, EDB, and 1,2-DCA.

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RO0000188

December 11, 2001

Mr. George Muniz
Livermore Valley Joint USD
685 East Jack London Blvd
Livermore, CA 94550

RE: QMR and SCM for 2900 Ladd Avenue, Livermore, CA

Dear Mr. Muniz:

I have completed review of Engeo Inc.'s November 2001 *Report on Groundwater Sampling* prepared for the above referenced site. In October 2001, groundwater from well MW-5 was sampled and analyzed for TPHg, BTEX and MTBE constituents. Laboratory analytical results identified elevated concentrations of all analytes sought, with the exception of MTBE.

At this time, please continue with quarterly monitoring of well MW-5 and semi-annual monitoring of the remaining wells. Quarterly monitoring reports (QMRs) are due within 60 days upon completion of field activity.

It is also appropriate at this time to prepare a Site Conceptual Model (SCM) for the site. The SCM describes the release scenario, surrounding land use, geology, well locations, and the likely distribution of chemicals at the site, existing and projected water use patterns, among others. After the source area and pathways to receptors have been adequately characterized, an appropriate remedial alternative can be selected and implemented. Please refer to the RWQCB's *Final Draft Guidelines for Investigation and Cleanup for MTBE and Other Ether-Based Oxygenates.* That document can be downloaded from the RWQCB's website.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Shawn Munger

livusd14

ALAMEDA COUNTY
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FAX (510) 337-9335

RO0000188

November 26, 2001

Mr. Will Macedo
Livermore Valley Joint Unified school District
685 East Jack London Street
Livermore, CA 94550

RE: QMRs for 2900 Ladd Avenue, Livermore, CA

Dear Mr. Macedo:

This office is not in receipt quarterly groundwater monitoring reports since August 2000. Currently, the above referenced site should be on a quarterly monitoring schedule for well MW-5 and on a semi-annual basis for the other remaining wells. Please adhere to the above schedule until further notice. Reports of sampling which should have taken place in 4th quarter 2000 and 1st and 2nd quarters 2001 are due within 15 days of the date of this letter, **or by December 14, 2001**.

Title 23 of the California Code of Regulations (23CCR), Section 2652(d), requires the owner or operator of an UST facility to submit reports every three months, or at a more frequent interval as specified by the local agency or regional water board, until investigation and cleanup are complete. This is a formal request for technical reports pursuant to Title 23, CCR, Section 2722(c). Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by this agency.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Shawn Munger

livusd13

ALAMEDA COUNTY
HEALTH CARE SERVICES
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Alameda, CA 94502-6577
(510) 567-6700
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StID 3095

May 3, 2000

Mr. Will Macedo
Livermore Valley Joint Unified School District
685 East Jack London Street
Livermore, CA 94550

RE: Work Plan Approval for 2900 Ladd Avenue, Livermore, CA

Dear Mr. Macedo:

I have completed review of ENGEO's March 2000 *Work Plan for Ground-Water Monitoring Well Construction*, prepared for the above referenced site. The proposal to install a "shallow" groundwater monitoring well immediately downgradient of Well MW-2 is acceptable. Field work should commence within 60 days of the date of this letter, or **by August 7, 2000.** Please notify this office at least 72 hours prior to the start of field work.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Shawn Munger (engstaff@engeo.com)

livusd12

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

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9432

StID 3095

November 23, 1999

Mr. Dick Alford
Livermore USD
685 E Jack London Blvd
Livermore, CA 94550

RE: Additional Groundwater Monitoring Well for 2900 Ladd Avenue, Livermore, CA

Dear Mr. Alford:

In August 1992, when three underground storage tanks were removed from the maintenance yard located at the above referenced address, hydrocarbon-impacted soil was first identified at approximately twelve feet below ground surface (bgs). Groundwater monitoring wells were installed April 1993 and July 1994 to delineate the extent and severity the fuel release may have had on soil and groundwater quality beneath the site.

When these wells were installed, groundwater was encountered at approximately 35' to 45' bgs. Thus, Well MW-2 was screened from 32' to 57' bgs and Wells MW-3 and MW-4 were screened from 28' to 53' bgs. Since the wells were installed, groundwater has risen to approximately 20' bgs. Groundwater elevation is now 8' to 12' above the screened interval of the wells. Under such circumstances, groundwater samples collected from the wells could be diluted and, therefore, not representative of actual groundwater quality beneath the site.

At this time, an additional groundwater monitoring well should be installed in the vicinity of MW-2 and downgradient of the former tank complex. This well should be screened to intercept current groundwater elevation (from approximately 15' to 30'bgs). A workplan for the installation of the well is due within 60 days of the date of this letter, or **by January 25, 2000.**

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Shawn Munger (engstaff@engeo.com)

livusd11

- Groundwater ingestion pathway exceeded SSTL. However, this is not a complete pathway, right?

SCA
ENVIRONMENTAL, INC.

Engineering and Environmental Consultants

November 2, 1999

Mr. Shawn Munger
ENGEO, Inc.
2401 Crow Canyon Road, Suite 200
San Ramon, CA 94583

Fax: (925) 838-7425

Re: Summary of Updated RBCA Assessment
Bus Maintenance Yard
2900 Ladd Avenue, Livermore, CA
SCA Project No.: X-3829

Dear Mr. Munger:

This letter report summarizes the updated RBCA assessment performed on the subject property.

Background

SCA performed a RBCA assessment dated November 1, 1999. The assessment found on-site and off-site contaminants to be in exceedance of calculated clean-up levels.

Additional groundwater samples were collected on August 5, 1999 from on-site and off-site monitoring wells (MW-2, 3, and 4). The sample results were used to modify the Risk-based Corrective Action (RBCA) assessment model. No additional soil samples were collected since the last RBCA assessment in May 1999.

Methodology

The assessment calculations were performed by SCA using Groundwater Services, Inc. (GSI) Tier 2 RBCA modeling software.

The RBCA model was run separately for on-site and off-site assessments to calculate the site-specific target levels (SSTLs). For on-site assessment, two exposure pathways were considered (*Soil Leaching to Groundwater* and *Soil Volatilization to Indoor Air*). For off-site assessment, only the *Soil Leaching to Groundwater* exposure pathway was considered. Other exposure pathways were not considered in these two assessments.

The contaminants of concern (COC) in this assessment included benzene, toluene, ethylbenzene, and xylene (BTEX). The California toxicity slope factor (0.29) was used for benzene. The individual target risk used for Class A carcinogens was 10^{-5}.

Input data to the model include the last four sampling results for MW-2 (on-site), and the last two sampling results for MW-3 and 4 (off-site).

Results

The table below summarizes the assessment results for benzene.

	Groundwater		
	SSTL (ppm)	Actual (ppm)	Actual : SSTL
On-site	0.029	0.53	18.3
Off-site	0.029	0.016	0.55

For ethylbenzene, toluene, and xylene, all concentrations are below their respective SSTLs both on-site and off-site. Please refer to Attachments 2 and 3 for detailed modeling output data.

Conclusions

From the modified RBCA Assessment, it appears that the on-site groundwater benzene concentration still exceeds the calculated SSTL. In our professional opinion, the site does not appear to be a candidate for closure at this point in time, based on the data supplied to us and the risk assessment protocols used.

The off-site groundwater is below calculated SSTLs. The off-site groundwater may be a candidate for closure or No Further Action designation based upon decision by the regulatory agency.

Please feel free to contact me at (415) 703-8490 extension 411 with any questions or clarifications.

Sincerely,
SCA ENVIRONMENTAL, INC.

Andy Hilliard, PE, CIH
Project Manager

Attachments:
1. Modeling input data for BTEX both on-site and off-site
2. Modeling output for BTEX on-site in groundwater
3. Modeling output for BTEX off-site in groundwater

cc/attachment: Eva Chu
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway,
Alameda, CA 94502

Data Input for RBCA Assessment

	Soil (ppm)						Groundwater (ppm)					
	Sample I.D.	Date	Benzene	Toluene	Ethylbenzene	Xylene	Sample I.D.	Date	Benzene	Toluene	Ethylbenzene	Xylene
On-site	B-6-1	8/6/92	<1	13	8.3	55	MW-2	8/5/99*	1.1*	0.37*	0.097*	0.24*
	B-7-1		1.2	16	9.7	58		4/29/97	0.64	0.24	0.083	0.2
	T1-1E		<0.005	<0.005	<0.005	<0.005		11/1/96	0.39	0.14	0.025	0.12
	T1-1W		<0.005	<0.005	<0.005	<0.005		12/29/95	0.0007	<0.0005	0.0019	0.0047
	T2-1N		<0.005	<0.005	<0.005	<0.005						
	T2-1S		<0.005	<0.005	<0.005	<0.005						
	T3-1N		<0.005	<0.005	<0.005	<0.005						
	T3-1S		<0.005	<0.005	<0.005	<0.005						
	T4-1N		2.1	4.2	2.4	160						
	T4-1S		<0.005	<0.005	<0.005	<0.005						
	PL-1		<0.005	<0.005	<0.005	<0.005						
	PL-2		<0.005	<0.005	<0.005	<0.005						
	DP-1		<0.005	<0.005	<0.005	<0.005						
	RULP-1		<0.005	<0.005	0.0074	0.013						
	RLP-1		<0.005	<0.005	<0.005	<0.005						
Off-site	B-9-1	7/1/94	0.074	0.008	0.011	0.059	MW-3	8/5/99*	<0.0005*	<0.0005*	<0.0005*	0.0007*
	B-9-2		4.2	23	10	70	MW-4		0.059*	<0.0005*	<0.0005*	<0.0005*
	B-9-3		0.12	0.013	ND	0.02	MW-3	4/29/97	0.0017	<0.0005	<0.0005	<0.0005
	B-10-1		0.5	0.57	0.11	0.62	MW-4		0.0026	<0.0005	<0.0005	<0.0005
	B-10-2		ND	ND	ND	ND						

Note:
No change in soil data
* = new data from 8/5/99

RBCA SITE ASSESSMENT — Tier 2 Worksheet 9.3

Site Name: Bus Maintenance Yard (on-site)
Site Location: 2900 Ladd Avenue, Livermore

Completed By: Henry Lee
Date Completed: 11/1/1999

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-5
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 3

SSTL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Groundwater Ingestion			Groundwater Volatilization to Indoor Air		Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	■ If yes	Only if "yes" left
71-43-2	Benzene	5.3E-1	NA	9.9E-2	NA	NA	NA	NA	NA	9.9E-2	■	5.0E+00
100-41-4	Ethylbenzene	5.2E-2	NA	1.0E+1	NA	NA	NA	NA	NA	1.0E+1	☐	<1
108-88-3	Toluene	1.9E-1	NA	2.0E+1	NA	NA	NA	NA	NA	2.0E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	1.4E-1	NA	>Sol	NA	NA	NA	NA	NA	>Sol	☐	<1

>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet Serial: 0
Version: 1.0.1

For benzene, California slope factor = 0.29
Hence, Applicable SSTL for benzene
$= (9.9 \times 10^{-2})(0.29)$
$= 2.87 \times 10^{-2}$ < representative conc. (5.3×10^{-1})
∴ SSTL exceeded.

ONSITE

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 9.3**

Site Name: Bus Maintenance Yard (off-site)
Site Location: 2900 Ladd Avenue, Livermore

Completed By: Henry Lee
Date Completed: 11/1/1999

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-5
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 3
Groundwater DAF Option: User-Specified

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Groundwater Ingestion			Groundwater Volatilization to Indoor Air		Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: 30 feet	Regulatory(MCL): 30 feet	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
71-43-2	Benzene	1.6E-2	NA	9.9E-2	NA	NA	NA	NA	NA	9.9E-2	☐	<1
100-41-4	Ethylbenzene	5.0E-4	NA	1.0E+1	NA	NA	NA	NA	NA	1.0E+1	☐	<1
108-88-3	Toluene	5.0E-4	NA	2.0E+1	NA	NA	NA	NA	NA	2.0E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	5.5E-4	NA	>Sol	NA	NA	NA	NA	NA	>Sol	☐	<1

>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet Serial: 0
Version: 1.0.1

For benzene, California slope factor = 0.29
Hence, Applicable SSTL for benzene
$= (9.9 \times 10^{-2})(0.29)$
$= 2.87 \times 10^{-2}$ > representative conc. (1.6×10^{-2})

OFF-SITE

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

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

StID 3095

August 28, 1998

Mr. Dick Alford
Livermore USD
685 E Jack London Blvd
Livermore, CA 94550

RE: Comments on RBCA for 2900 Ladd Ave, Livermore, CA

Dear Mr. Alford:

This office has completed review of SCA Environmental's February 1998 "Summary of Risk-Based Corrective Action Assessment" report prepared for the above referenced site. Based on the data supplied and the risk assessment protocols used, it appears that the subsurface benzene concentrations in soil exceeded the calculated site-specific target levels (SSTL), while the benzene levels in groundwater did not exceed the SSTL.

This office feels that the data input into the RBCA model can be modified so it better represent site conditions. The site should be subdivided into two parcels for the risk evaluation (onsite shall consist of the maintenance building/corporation yard, and offsite shall consist of the play field/school complex). The fence line will separate onsite from offsite scenarios. With this in mind, the following are our comments:

1. For representative onsite groundwater concentrations, use groundwater data from the last four sampling events from well MW-2. For offsite, use water data from wells MW-3 and MW-4, and borings A and B10.
2. For representative onsite soil concentrations, use soil data collected in the vadose zone (ie. from 20'bgs and above) from all onsite borings, soil samples collected in the tank pit and from piping trench and dispenser area. For offsite, use data from all offsite borings.
3. A target risk of 10^{-5} may be used.
4. The risk evaluation should be prepared for current (commercial) and future use scenarios. If a future use is unknown, then a risk management plan should be prepared.

A revised risk assessment should be submitted to this office for review. If you have any questions regarding input data which can be used for the risk assessment, or what information should be included in the risk management plan, I can be reached at (510) 567-6762.

Sincerely,

eva chu
Hazardous Materials Specialist

c: Shawn Munger
Engeo
2401 Crow Canyon Road, Suite 200
San Ramon, CA 94583

Stephen Svoboda
SCA Environmental, Inc
Four Embarcadero Center, Suite 480
San Francisco, CA 94111

livusd10

ENGEO
INCORPORATED
2401 Crow Canyon Road
Suite 200
San Ramon, CA 94583
(510) 838-1600
Fax (510) 838-7425

LETTER OF TRANSMITTAL

TO: Eva Chu **DATE:** July 10, 1998

FROM: Shawn Munger **PROJECT NO.:** 3174-F9

SUBJECT: LVJUSD Maintenance Yard – RBCA

CC:

REMARKS:

☐ Urgent ☒ For your review ☐ For your information ☐ Returning ☐ Copies at your request

Eva: Attached please find the SCA RBCA assessment for the subject property. SCA indicates the site is not a candidate for closure based on the following pathways: 1. Soil leaching to ground water and 2. Ground water ingestion. In our opinion these pathways should be discounted because **A**. The plume for the most part has been defined and appears stable and **B**. the shallow aquifer would not be considered a domestic water source.

Please provide review and comment.

Thanks for your help

SCA
Environmental, Inc.
Engineering and Environmental Consultants

Need list of all site specific parameters used in RBCA How were Representative Soil & GW conc. determined

April 9, 1998

Need Feb 4, 1998 Rpt.

Mr. Shawn Munger
Engeo Incorporated
2401 Crow Canyon Road
Suite 200
San Ramon, CA 94583

FAX: (510) 838-7425

Re: Summary of Risk-Based Corrective Action Assessment - Supplement
Livermore Valley Unified School District
Bus Maintenance Yard, 2900 Ladd Avenue
Livermore, CA
SCA Project No. F-2495

Dear Mr. Munger:

This supplement letter report summarizes the risk assessment performed of the subject property. The assessment was performed by SCA Environmental, Inc. (SCA) under contract to Engeo, Inc.

Please see SCA's letter report *Summary of Risk-Based Corrective Action Assessment*, dated February 4, 1998 for background and methodology information. This assessment incorporates the same assumptions, as those described in the previous SCA report, except for the following additions:

1. SCA calculated SSTL values utilizing the following modified parameters:

   - Input value for the depth to groundwater was 35.05 feet bgs.
   - Input value for the depth to hydrocarbon impacted soils was 20 feet bgs.

   These values reflect a more accurate data breakdown of the soil and groundwater monitoring reports provided by Engeo.

Results

Using the protocols listed above, a Tier 2 assessment was performed of soil sampling data.

a. The Tier 2 assessment established a site-specific target level (SSTL) for benzene in the subsurface soil of 6.96×10^{-4} mg/kg, (See Appendix A, *Subsurface Soil SSTL Values*, Tier 2 Worksheet 9.2).

b. The mean benzene level for subsurface soils at the site was 7.8×10^{-2} mg/kg, which is above the SSTL, based on the calculations performed. The ratio of benzene to the SSTL is approximately 110.

c. The Tier 2 assessment established a site-specific target level (SSTL) for benzene in the groundwater of 1.45×10^{-3} mg/L (See Appendix A, *Groundwater SSTL Values*, Tier 2 Worksheet 9.3).

d. The mean benzene level for groundwater at the site was 1.63×10^{-3} mg/L, which is just above the SSTL, based on the calculations performed. The ratio of benzene to the SSTL is approximately 1.1.

Please see SCA's *Summary of Risk-Based Corrective Action Assessment*, dated February 4, 1998 for all raw and supplementary data.

Conclusions

In our professional opinion the site does not appear to be a candidate for closure at this point in time, based upon the data supplied to us and the risk assessment protocols used.

Please feel free to contact me at (415) 397-9936 with any questions or clarifications.

Sincerely,
SCA ENVIRONMENTAL, INC.

Stephen Svoboda, CIH, CHMM
Senior Project Manager

Rev: AW

Appendix: A. Tier 2 Worksheet 9.2 *Subsurface Soil SSTL Values,*
B. Tier 2 Worksheet 9.3 *Groundwater SSTL Values,*

Appendix A
Tier 2 Worksheet 9.2
Subsurface Soil SSTL Values,

RBCA SITE ASSESSMENT | Tier 2 Worksheet 9.2

Site Name: Bus Maintenance Yard
Site Location: 2801/2900 Ladd Ave., Livermore, CA

Completed By: Stephen Svoboda
Date Completed: 1/18/1998

SUBSURFACE SOIL SSTL VALUES (> 0 FT BGS)

Target Risk (Class A & B) 1.0E-6 ■ MCL exposure limit?
Target Risk (Class C) 1.0E-5 ■ PEL exposure limit?
Target Hazard Quotient 1.0E+0
Calculation Option: 1

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site) (PEL)	Residential: (on-site)	Commercial: (on-site)(PEL)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	7.8E-2	NA	4.8E-3	2.4E-3	NA	1.7E+2	NA	>Res	2.4E-3	■	3.2E+01
100-41-4	Ethylbenzene	5.0E-1	NA	1.1E+1	7.5E-1	NA	>Res	NA	>Res	7.5E-1	☐	<1
108-88-3	Toluene	1.4E+0	NA	3.0E+1	1.5E+0	NA	>Res	NA	>Res	1.5E+0	☐	<1
1330-20-7	Xylene (mixed isomers)	3.4E+0	NA	>Res	2.5E+1	NA	>Res	NA	>Res	2.5E+1	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet Serial: G-413-VVX-646
Version: 1.0.1

using CA benzene level
$(2.4\times10^{-3})(0.29) = 6.96\times10^{-4}$

Is 0 ppm I for a 10^{-6} site? — Subsurface soils
Why are they using RBCA?

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.3

Site Name: Bus Maintenance Yard
Site Location: 2801/2900 Ladd Ave., Livermore, CA

Completed By: Stephen Svoboda
Date Completed: 1/18/1998

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

■ MCL exposure limit?
■ PEL exposure limit?

Calculation Option: 1

SSTL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Groundwater Ingestion			X Groundwater Volatilization to Indoor Air		X Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site) (PEL)	Residential (on-site)	Commercial: (on-site) (PEL)	(mg/L	"■" If yes	Only If "yes" left
71-43-2	Benzene	1.6E-3	NA	9.9E-3	5.0E-3	NA	5.9E+2	NA	>Sol	5.0E-3	■	<1
100-41-4	Ethylbenzene	8.6E-4	NA	1.0E+1	7.0E-1	NA	>Sol	NA	>Sol	7.0E-1	☐	<1
108-88-3	Toluene	1.4E-3	NA	2.0E+1	1.0E+0	NA	>Sol	NA	>Sol	1.0E+0	☐	<1
1330-20-7	Xylene (mixed isomers)	1.8E-3	NA	>Sol	1.0E+1	NA	>Sol	NA	>Sol	1.0E+1	☐	<1

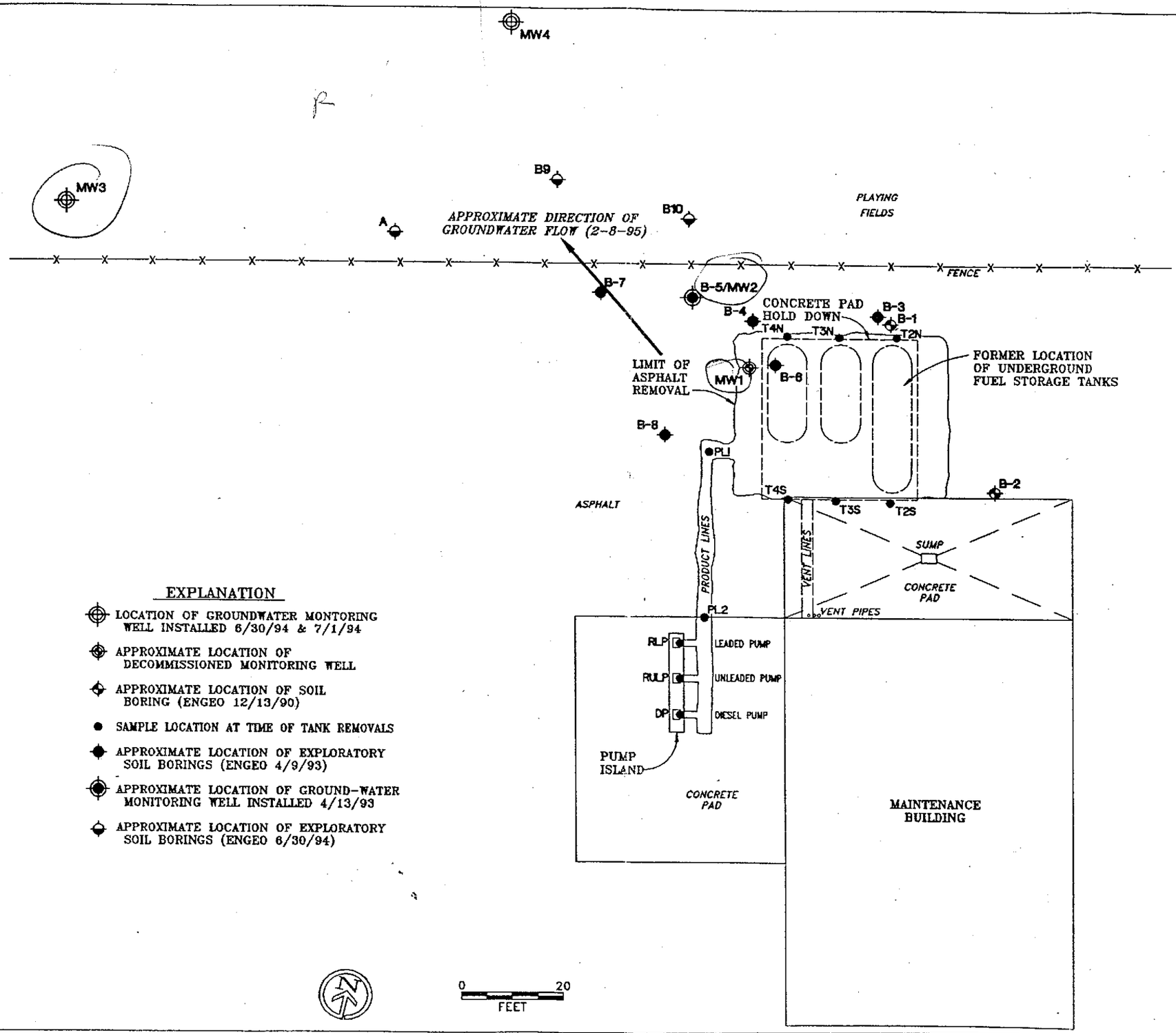
>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-413-VVX-646

using CA benzene (evcl

$(5.0\times10^{-3})(0.29) = 1.45\times10^{-3}$



GROUND WATER MONITORING WELL LOCATIONS
L.V.J.U.S.D. MAINTENANCE YARD
2900 LADD AVENUE
LIVERMORE, CALIFORNIA

JOB NO.: 3174-F7
DATE: JULY 1994
DRAWN BY:
CHECKED BY:

FIGURE NO. 1

ENGEO INCORPORATED

TABLE I
Soil Sample Laboratory Analyses Summary

(Concentrations reported in parts per million)

SAMPLE NO.	DEPTH	TPH (GAS)	BENZENE	E.BENZENE	TOLUENE	XYLENE
B-1-2	16 FT.	1.1	.180	.0053	.036	.032
1-3	21 FT.	1.5	.160	.0081	.071	.051
1-5	31 FT.	ND	.013	ND	ND	ND
1-11	44 FT.	ND	.004	ND	ND	ND
2-2	16 FT	ND	.016	ND	.0026	ND
MW1-2	16 FT.	970	8.1	13	27	77
MW1-4	26 FT.	1000	ND	10	27	53
MW1-6	36 FT.	2700	ND	10	27	53
MW1-8	46 FT.	ND	.011	ND	.004	.0099

well was destroyed at tank removal UST removal

Ground-Water Sample MW-1 Laboratory Analyses Summary

(Concentrations reported in parts per billion)

TPH (GAS)	BENZENE	E.BENZENE	TOLUENE	XYLENE
1400 *(NA)*	63 *(1.0)*	8.0 *(680)*	52 *(100)*	590 *(1750)*

(1.0) - State Department of Health Services MCL or AAL

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

August 13, 1992 ChromaLab File No.: 0892044

ENGEO, INC.

Attn: Eric Harrell

RE: Thirteen soil samples for Gas/BTEX and Diesel analyses

Project Name: LVJUSD **UST REMOVAL**
Project Number: N2-3174-F4
Date Sampled: Aug. 6, 1992 Date Submitted: Aug. 6, 1992
Date Extracted: Aug. 10-11, 1992 Date Analyzed: Aug. 11-12, 1992

RESULTS:

Soil

Sample I.D.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
T1-1E	N.D.	----	N.D.	N.D.	N.D.	N.D.
T1-1W	N.D.	----	N.D.	N.D.	N.D.	N.D.
T2-1N	N.D.	37	N.D.	N.D.	N.D.	N.D.
T2-1S	----	N.D.	N.D.	N.D.	N.D.	N.D.
T3-1N	N.D.	----	N.D.	N.D.	N.D.	N.D.
T3-1S	N.D.	----	N.D.	N.D.	N.D.	N.D.
T4-1N @ 12' bgs	1200	----	2100	4200	2400	160000
T4-1S	N.D.	----	N.D.	N.D.	N.D.	N.D.
PL-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
PL-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DP-1	----	46	N.D.	N.D.	N.D.	N.D.
RULP-1	3.0	----	N.D.	N.D.	7.4	13
RLP-1	N.D.	----	N.D.	N.D.	N.D.	N.D.
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	95%	101%	84%	115%	105%	107%
DUP.SPIKE REC.	----	94%	82%	111%	103%	103%
METHOD OF ANALYSIS	5030/ 8015	3550/ 8015	8020	8020	8020	8020

ChromaLab, Inc.

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

2239 Omega Road, #1 • San Ramon, California 94583
510/831-1788 • Facsimile 510/831-8798
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Laboratory (1094)

ORIGINALS

5 DAYS TURNAROUND

April 23, 1993 Chr 93201

ENGEO, INC. Attn. Eric Harrell

RE: Eighteen soil samples for Gasoline and BTEX analysis

Project Name: LVJUSD Project Number: 3174-F6
Date Sampled: April 9-12, 1993 Date Submitted: April 19, 1993
Date Analyzed: April 21, 1993

RESULTS:

Sample I.D.	Gasoline (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
B4-2 - 21'	800	1900 *	22000	8100	56000
B4-3	2300	7700	88000	35000	210000
B4-4	31	51	640	350	2400
B5-2 - 20.5'	730	2800 *	21000	6700	4100
B5-3	24	52	620	330	2200
B5-4	1.1	230	8.3	N.D.	130
B5-5	N.D.	N.D.	N.D.	N.D.	N.D.
B6-1 - 21'	860	N.D.*	13000	8300	55000
B6-2	530	1900	17000	7300	44000
B6-3	1200	4100	39000	15000	100000
B6-4	410	N.D.***	4500	3500	22000
B7-1 - 16'	670	1200 *	16000	9700	58000
B7-2 - 21'	46	190 *	1300	550	3600
B7-3	480	Do not use N.D.**	6700	4000	25000
B7-4	65	84	1300	750	4800
B8-2 - 21'	18	1600 *	3100	330	2200
B8-3	N.D.	80	77	11	73
B8-4	N.D.	50	20	5.0	37
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	90%	100%	98%	97%	98%
DUP SPIKE RECOVERY	----	100%	108%	105%	104%
DETECTION LIMIT	1.0	5.0	5.0	5.0	5.0
METHOD OF ANALYSIS	5030/8015	8020	8020	8020	8020

* Detection Limit = 1000 µg/Kg due to dilution needed.
**Detection Limit = 500 µg/Kg due to dilution needed.
***Detection Limit = 250 ug/kg due to dilution needed.

ChromaLab, Inc.

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

2239 Omega Road,#1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157

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 20'	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**

Soil Analysis - mg/kg

		TPH-G	B	T	E	X
MW-3	10-40'	ND	ND	ND	ND	ND
MW-4	15' &	26	.21	.75	.21	1.4
	20'	44	.25	.70	.28	2.3
	10, 25-45'	ND	ND	ND	ND	ND
B-9	15'	ND	.074	.008	.051	.059
	20'	640	4.2	23	10	70
	25'	ND	.12	.013	ND	.020
3174-F7 B-10 July 9, 1994	15' &	3	.50	.57	.11	.62
	19'	ND	9ND	ND	ND	ND

① Can do 10^{-5} risk ✓
② Include grab water samples from soil Bring (onsite) into calc. of representative conc. If samples were <20' bgs - identify MW near this location
③ Use soil conc from samples collected ≤(above) 20' bgs
④ Should MW-2 only be used for GW data for ONSITE volat from GW to indoor air?

No need. Heat Samples at 20' & 40' bgs Since GW was at ~20' the Wells MW-2, MW-4 can be used if necessary

SCA
Environmental, Inc.
Engineering and Environmental Consultants

February 4, 1998

Mr. Shawn Munger
Engeo Incorporated
2401 Crow Canyon Road
Suite 200
San Ramon, CA 94583

FAX: (510) 838-7425

Re: Summary of Risk-Based Corrective Action Assessment
Livermore Valley Unified School District
Bus Maintenance Yard, 2900 Ladd Avenue
Livermore, CA
SCA Project No. F-2495

Dear Mr. Munger:

This letter report summarizes the risk assessment performed of the subject property. The assessment was performed by SCA Environmental, Inc. (SCA) under contract to Engeo, Inc.

Background

Initial soil sampling was conducted by Engeo, Inc. in September, 1991 to assess the existence of contamination due to leaking underground storage tanks at the site. Results for benzene ranged from Non-Detect to 8.1 mg/kg. All three underground storage tanks were removed from the site in August 1992, according to Engeo, Inc. report dated August 31, 1992. Subsequent soil sampling at the site revealed the presence of benzene in soil in concentrations ranging from Non-Detect to 7.7 mg/kg. Initial groundwater sampling results (conducted in April 1993) indicated benzene levels in groundwater ranging from Non-Detect to 340 parts per billion (ppb). Subsequent benzene levels (sample results between April 1993 and April 1997) ranged from Non-Detect to 2,500 ppb.

Proposed uses for the property include commercial development. In order to assess this potential use, the site owner, Livermore Valley Unified School District, requested a site-specific evaluation of risk to human health and the environment from exposure to the subsurface soil contamination left in place, specifically to the benzene in soil.

Methodology

The assessment calculations were performed by SCA using Groundwater Services, Inc. (GSI) Tier II® software.

The assessment focused on both the *Soil Volatilization to Indoor Air* pathway and the *Soil Leaching to Groundwater* pathway, for a commercial scenario. Other pathways were not considered in this assessment.

Surface soils were expected to have minimal concentrations of the analytes of concern, given the lag time since the USTs were removed and any surface impact from product may have occurred. The surface soils are expected to be altered by the planned commercial renovation, including excavations for foundations, landscaped, paved, terraced, etc. Based on SCA's experience at similar sites, this pathway would not pose a significant exposure to workers or residents, under this scenario. The net effect was that *Soil Volatilization to Outdoor Air* was not anticipated to be a significant exposure pathway and was not evaluated.

Note that California toxicity slope factors for benzene were used.

This assessment incorporates a number of assumptions, summarized as follows:

1. For each soil sample location, all sample results (April 1993) for benzene were used for calculation purposes.

2. A 95% Upper Confidence Limit was not used for sample results; the software-calculated mean of the average sample result for each location was used instead (see Appendix B, *Raw Data*, for a summary of values used). is this OK

3. The Individual Target Risk for Class A carcinogens was set at 10^{-6}, (which was the default value established in ASTM standard E1739-95). use 10^{-5}

4. Groundwater sample results for each of the three wells (April 29, 1997) were used in the Tier 2 Assessment. use last 4 qtrs. but include grab water samples from soil borings located onsite.

Results

Using the protocols listed above, a Tier 2 assessment was performed of soil sampling data from April, 1993 and of the last round of groundwater sampling data collected on April 29, 1997.

a. The Tier 2 assessment established a site-specific target level (SSTL) for benzene in the subsurface soil of 6.96×10^{-4} mg/kg, (See Appendix A, *Subsurface Soil SSTL Values*, Tier 2 Worksheet 9.2).

b. The mean benzene level for subsurface soils at the site was 1.2×10^{-2} mg/kg, which is above the SSTL, based on the calculations performed. The ratio of benzene to the SSTL is approximately 5.0.

c. The Tier 2 assessment established a site-specific target level (SSTL) for benzene in the groundwater of 1.45×10^{-3} mg/L (See Appendix A, *Groundwater SSTL Values*, Tier 2 Worksheet 9.3).

d. The mean benzene level for groundwater at the site was 4.3×10^{-4} mg/L, which is below the SSTL, based on the calculations performed. The ratio of the SSTL to benzene is approximately 3.4.

Conclusions

In our professional opinion the site does not appear to be a candidate for closure at this point in time, based upon the data supplied to us and the risk assessment protocols used.

Please feel free to contact me at (415) 397-9936 with any questions or clarifications.

Sincerely,
SCA ENVIRONMENTAL, INC.

Stephen Svoboda, CIH, CHMM
Senior Project Manager

Rev:_____

Appendix:
A. Tier 2 Worksheet 9.2 *Subsurface Soil SSTL Values,*
B. Tier 2 Worksheet 9.3 *Groundwater SSTL Values,*
C. Raw Data
D. Supplementary Data

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.2

Site Name: Bus Maintenance Yard
Site Location: 2801/2900 Ladd Ave., Livermore, CA

Completed By: Stephen Svoboda
Date Completed: 1/16/1998

SUBSURFACE SOIL SSTL VALUES (> 0 FT BGS)

Target Risk (Class A & B): 1.0E-6
Target Risk (Class C): 1.0E-5
Target Hazard Quotient: 1.0E+0

■ MCL exposure limit?
■ PEL exposure limit?

Calculation Option: 1

SSTL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL) (on-site)	Residential: (on-site)	Commercial: (on-site) (PEL)	Residential: (on-site)	Commercial: (on-site)(PEL)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	1.2E-2	NA	4.8E-3	2.4E-3	NA	1.3E+2	NA	>Res	2.4E-3	■	5.0E+00
100-41-4	Ethylbenzene	1.4E-2	NA	1.1E+1	7.5E-1	NA	>Res	NA	>Res	7.5E-1	☐	<1
108-88-3	Toluene	6.1E-2	NA	3.0E+1	1.5E+0	NA	>Res	NA	>Res	1.5E+0	☐	<1
1330-20-7	Xylene (mixed isomers)	5.4E-2	NA	>Res	2.5E+1	NA	>Res	NA	>Res	2.5E+1	☐	<1

>Res Indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-413-VVX-646

using CA benzene level:

$(2.4 \times 10^{-3})(0.29) = 6.96 \times 10^{-4}$

RBCA SITE ASSESSMENT — Tier 2 Worksheet 9.3

Site Name: Bus Maintenance Yard
Site Location: 2801/2900 Ladd Ave., Livermore, CA

Completed By: Stephen Svoboda
Date Completed: 2/4/1998

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

■ MCL exposure limit?
■ PEL exposure limit?

Calculation Option: 1

SSTL Results For Complete Exposure Pathways ("x" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Groundwater Ingestion			X Groundwater Volatilization to Indoor Air		X Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site) (PEL)	Residential (on-site)	Commercial: (on-site) (PEL)	(mg/L	"■" if yes	Only if "yes" left
71-43-2	Benzene	4.3E-4	2.9E-3	NA	5.0E-3	2.6E-2	NA	1.3E+1	NA	5.0E-3	☐	<1
100-41-4	Ethylbenzene	3.3E-4	3.7E+0	NA	7.0E-1	8.4E+1	NA	>Sol	NA	7.0E-1	☐	<1
108-88-3	Toluene	3.4E-4	7.3E+0	NA	1.0E+0	3.6E+1	NA	>Sol	NA	1.0E+0	☐	<1
1330-20-7	Xylene (mixed isomers)	3.4E-4	7.3E+1	NA	1.0E+1	>Sol	NA	>Sol	NA	1.0E+1	☐	<1

>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-413-VVX-646

using CA benzene level
$(5.0 \times 10^{-3})(0.29) = 1.45 \times 10^{-3}$

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

April 23, 1993 ChromaLab File No.: 0493201

ENGEO, INC. Attn: Eric Harrell

RE: Eighteen soil samples for Gasoline and BTEX analysis

Project Name: LVJUSD Project Number: 3174-F6
Date Sampled: April 9-12, 1993 Date Submitted: April 19, 1993
Date Analyzed: April 21, 1993

RESULTS:

Sample I.D.	Gasoline (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
B4-2	800	1900	22000	8100	56000
B4-3	2300	7700	88000	35000	210000
B4-4	31	51	640	350	2400
B5-2	730	2800	21000	6700	4100
B5-3	24	52	620	330	2200
B5-4	1.1	230	8.3	N.D.	130
B5-5	N.D.	N.D.	N.D.	N.D.	N.D.
B6-1	860	N.D.*	13000	8300	55000
B6-2	530	1900	17000	7300	44000
B6-3	1200	4100	39000	15000	100000
B6-4	410	N.D.***	4500	3500	22000
B7-1	670	1200	16000	9700	58000
B7-2	46	190	1300	550	3600
B7-3	480	N.D.**	6700	4000	25000
B7-4	65	84	1300	750	4800
B8-2	18	1600	3100	330	2200
B8-3	N.D.	80	77	11	73
B8-4	N.D.	50	20	5.0	37
		22814			
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	90%	100%	98%	97%	98%
DUP SPIKE RECOVERY	----	100%	108%	105%	104%
DETECTION LIMIT	1.0	5.0	5.0	5.0	5.0
METHOD OF ANALYSIS	5030/8015	8020	8020	8020	8020

* Detection Limit = 1000 µg/Kg due to dilution needed.
**Detection Limit = 500 µg/Kg due to dilution needed.
***Detection Limit = 250 ug/kg due to dilution needed.

ChromaLab, Inc.

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

Avg benzene conc = 22814 / 18 = 1267

2239 Omega Road, #1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157

Laboratory Analysis

The ground-water samples were tested for total petroleum hydrocarbons as gasoline TPH (g); benzene, toluene, ethyl benzene and xylenes (BTEX); and methyl t-butyl ether (MTBE). A copy of the laboratory test report is provided as an attachment. Table I provides a summary of the laboratory test results.

TABLE I
Laboratory Analysis Summary
(Concentrations reported in parts per billion)

	DTW	Elevation	TPHg	B	T	E	X	MTBE
MW2								
4/20/93	30.81	100.00	4,500	340	110	8.0	630	NT
5/12/94	31.12	100.00	7,000	520	220	35	410	NT
2/8/95	28.04	100.00	170	8.9	4.5	2.1	17	NT
5/23/95	17.77	100.00	<50	<0.5	<0.5	<0.5	<0.5	NT
9/20/95	25.55	100.00	8,400	2,500	1,200	180	940	NT
12/29/95	20.91	100.00	640	0.7	<0.5	1.9	4.7	NT
11/01/96	22.63	100.00	1600	390	140	25	120	NT
4/29/97	20.39	100.00	4900	640	240	83	200	<250
MW3								
7/12/94	38.76	98.85	<50	<0.5	<0.5	<0.5	<0.5	NT
2/8/95	27.08	98.85	<50	<0.5	<0.5	<0.5	<0.5	NT
5/23/95	17.28	98.85	<50	<0.5	<0.5	<0.5	<0.5	NT
9/20/95	25.06	98.85	<50	1.4	<0.5	<0.5	<0.5	NT
12/29/95	20.25	98.85	50	1.8	<0.5	<0.5	<0.5	NT
11/01/96	22.22	98.85	<50	<0.5	<0.5	<0.5	<0.5	NT
4/29/97	20.05	98.85	<50	1.7	<0.5	<0.5	<0.5	<5.0
MW4								
7/12/94	39.50	99.22	<50	<0.5	<0.5	<0.5	<0.5	NT
2/8/95	27.66	99.22	<50	<0.5	<0.5	<0.5	<0.5	NT
5/23/95	17.68	99.22	60	<0.5	<0.5	<0.5	<0.5	NT
9/20/95	25.81	99.22	<50	<0.5	<0.5	<0.5	<0.5	NT
12/29/95	20.90	99.22	<50	<0.5	<0.5	<0.5	<0.5	NT
11/01/96	22.84	99.22	<50	2.7	<0.5	<0.5	<0.5	NT
4/29/97	20.57	99.22	<50	2.6	<0.5	<0.5	<0.5	9.2

Please write out

DTW: Depth to water (ft.)
Elevation: Relative casing elevation (ft.)
NT: Not Tested

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: Bus Maintenance Yard Job Identification:
Site Location: 2801/2900 Ladd Ave., Livermore Date Completed: 1/18/98
Completed By: Stephen Svoboda

Software: GSI RBCA Spreadsheet
Version: 1.0.1

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined.

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (L/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm^2-yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)?	***FALSE***				
gwMCL?	Use MCL as exposure limit in groundwater?	TRUE				

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Outdoor Air Pathways:				
SS.v	Volatiles and Particulates from Surface Soils	FALSE	TRUE	FALSE
S.v	Volatilization from Subsurface Soils	FALSE	TRUE	
GW.v	Volatilization from Groundwater	FALSE	TRUE	
Indoor Air Pathways:				
S.b	Vapors from Subsurface Soils	FALSE	TRUE	
GW.b	Vapors from Groundwater	FALSE	TRUE	
Soil Pathways:				
SS.d	Direct Ingestion and Dermal Contact	FALSE	TRUE	TRUE
Groundwater Pathways:				
GW.I	Groundwater Ingestion	FALSE	TRUE	
S.l	Leaching to Groundwater from all Soils	FALSE	TRUE	

Matrix of Receptor Distance and Location On- or Off-Site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		TRUE		TRUE
S	Inhalation receptor (cm)		TRUE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	1.0E-06	
TRc	Target Risk (class C carcinogens)	1.0E-05	
THQ	Target Hazard Quotient	1.0E+00	
Opt	Calculation Option (1, 2, or 3)	1	
Tier	RBCA Tier	2	

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm^2)	2.2E+06	1.0E+06
W	Length of affect. soil parallel to wind (cm)	1.5E+03	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm	1.5E+03	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)		
Pe	Particulate areal emission rate (g/cm^2/s)	6.9E-14	

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	
Ugw.tr	Groundwater seepage velocity (cm/yr)	
Ks	Saturated hydraulic conductivity(cm/s)	
grad	Groundwater gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
phi.eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
BIO?	Is bioattenuation considered?	FALSE
BC	Biodegradation Capacity (mg/L)	

Soil	Definition (Units)	Value	capillary	vadose	foundation
hc	Capillary zone thickness (cm)	5.0E+00			
hv	Vadose zone thickness (cm)	***6.1E+02***			
rho	Soil density (g/cm^3)	1.7			
foc	Fraction of organic carbon in vadose zone	0.01			
phi	Soil porosity in vadose zone	0.38			
Lgw	Depth to groundwater (cm)	***5.1E+02***			
Ls	Depth to top of affected subsurface soil (cm)	***4.6E+02***			
Lsubs	Thickness of affected subsurface soils (cm)	***7.6E+02***			
pH	Soil/groundwater pH	6.5			
phi.w	Volumetric water content		0.342	0.12	0.12
phi.a	Volumetric air content		0.038	0.26	0.26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	0.01	

Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersivity (cm)		
ay	Transverse dispersivity (cm)		
az	Vertical dispersivity (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		

10/4/96 verbal OK

ENGEO
INCORPORATED
2401 Crow Canyon Road
Suite 200
San Ramon, CA 94583
(510) 838-1600
Fax (510) 838-7425

FACSIMILE TRANSMITTAL

DATE: *October 4, 1996* ENGEO PROJECT NO: *3174-F9*

TO: COMPANY: *Alameda County Environmental Health Services*

ATTENTION: Eva Chu

FAX NO.: *337 - 9335*

FROM: *Brian Flaherty*

SUBJECT: *2900 Ladd Avenue, Livermore*

COMMENTS: *We are currently planning to collect samples from the ground water monitoring wells on the site. No samples have been collected since January of this year. I've prepared the attached proposal for the District's and your review. Please give me a call to discuss the risk assessment criteria and the schedule for the completion of the assessment. Thanks for your patience.*

☒ A copy will also be sent via: ☒ U.S. Mail ☐ Fed Ex ☐ Other
☐ This is the only copy you will receive.

cc:

Name Fax No.

TOTAL PAGES TRANSMITTED INCLUDING THIS PAGE: *3*

ENGEO INCORPORATED

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
MATERIALS TESTING

Project No.
3174-F9

October 1, 1996

Mr. Dick Alford
Livermore Unified School District
685 E. Jack London Boulevard
Livermore, CA 94550

Subject: 2900 Ladd Avenue
Livermore, California

PROPOSED GROUND-WATER MONITORING WELL SAMPLING PROGRAM

Reference: Alameda County Health Services, Risk Assessment; Letter to Livermore Unified School District, 2900 Ladd Avenue, Livermore, California; June 12, 1996.

Dear Mr. Alford:

ENGEO is pleased to provide a proposed scope of work to comply with the recommendations contained in the referenced Alameda County letter. Prior to preparing the risk assessment, we recommend the District undertake two additional ground water sampling episodes in October 1996 and April 1997. This sampling would allow for an additional winter cycle and show the levels of hydrocarbons when the ground water level is presumably deeper in October and shallower in April after the winter rains.

It is our opinion that the Regional Water Quality Control Board is continuing to refine the necessary parameters for their Risk Based Corrective Action (RBCA) program. We understand that this issue may be more clear in early 1997. Consequently, we recommend that the additional sampling with laboratory testing of the ground water for petroleum hydrocarbons as gasoline and for BTEX. Our office will also begin to work with Alameda County Environmental Health Services Department to establish the parameters of the risk assessment for the subject site. A preliminary assessment can be provided to your office after the October sampling event which would allow you to begin to discuss the steps necessary to achieve a case closure from the County.

MTBE

A fee estimate for the ground water sampling and laboratory testing will be provided to your office in a separate document. Fees for the preliminary risk assessment will also be included.

We look forward to working with your office to provide the documentation to achieve site closure. If you have any questions regarding our proposed scope of work please do not hesitate to contact our office.

Very truly yours,

ENGEO INCORPORATED

Brian Flaherty
Vice President

bf/lb:gwms

cc: 1 - Alameda County Health Services Department, Ms. Eva Chu

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

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510)

StID 3095

June 12, 1996

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

RE: Risk Assessment at 2900 Ladd Ave, Livermore, CA

Dear Mr. Alford:

On April 4, 1995 this Agency requested that a workplan be submitted to evaluate the extent of contamination in the perched water zone at 15 to 21' bgs. However, in light of the recent recommendations resulting from the Lawrence Livermore National Laboratory's study and from the RWQCB's January 5, 1996 Interim Guidance on Required Cleanup at Low-Risk Fuel Sites (see attachment), it may not be necessary to proceed with additional monitoring well installation at the above referenced site.

Rather, it may be more appropriate at this time to prepare a risk assessment for residual hydrocarbons in soil and groundwater which may impact human health and/or the environment. Results from the risk assessment will determine cleanup goals for the site. In addition, there are sufficient groundwater data collected where the sampling frequency may be reduced to a semi-annual basis.

Please provide a brief workplan detailing work intended for this site within 30 days of the date of this letter, or **by July 13, 1996.** If you have questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

attachment

c: Brian Flaherty, ENGEO, 2401 Crow Canyon Rd, #200, San Ramon 94583-1545
files (livusd9)

ALAMEDA COUNTY HAZARDOUS MATERIALS DIVISION

02/02/96

UNDERGROUND STORAGE TANK CLEANUP SITE

AGENCY#: 10000 SOURCE OF FUNDS: F-FEDERAL INSPECTOR: EC
StID: 3095 SUBSTANCE: 12035 -Waste Oil
SITE NAME: Laidlaw Transit DATE REPORTED : 06/15/90
ADDRESS : 2900 Ladd Ave DATE CONFIRMED: -0-
CITY/ZIP : Livermore, CA 94550 MULTIPLE RP's : N

CASE TYPE: G CONTRACT STATUS: 4 PRIOR:2B5 EMERGENCY RESPONSE: -0-

RP SEARCH	: S			DATE END:	03/23/92
PRELIM ASSESSMENT	: U	DATE BEGIN:	12/13/90	DATE END:	-0-
REMEDIAL INVESTIG	: -	DATE BEGIN:	-0-	DATE END:	-0-
REMEDIAL ACTION	: -	DATE BEGIN:	-0-	DATE END:	-0-
POST REMED MONITOR:	-	DATE BEGIN:	-0-	DATE END:	-0-

TYPE ENFORCEMENT ACTION TAKEN: 1 DATE OF ENFORC. ACTION: 03/23/92

UNDERGROUND STORAGE TANK CLEANUP SITE - SCREEN #2

LUFT FIELD MANUAL CONSIDERATION: 3HSCW CASE CLOSED: - on: -0-

DT EXC START: 08/06/92 REMEDIAL ACTIONS TAKEN: -0-

RP #1: CONTACT: Michael White RP COST: -0-
RP COMPANY NAME: Livermore U. S. D. Ph: -0-
ADDRESS: 685 E. Jack London Blvd
CITY/STATE: Livermore, C A 94550

ΔKeMENT:

Listing of all activities since 1991 for StID # 3095
as of 02/02/96

ActivDat	Insp	ACT	Activ	StID	ActCostF	aComment
Act91_4						
Act92_1						
03/18/92	EC	200	0.5	3095	$20.52	notification letter
03/24/92	EC	200	0.3	3095	$12.31	cert letter
04/02/92	TP	212	0.2	3095	$11.08	w/ Dick Alford
Act92_2						
05/20/92	TP	215	0.1	3095	$5.53	assign priority
Act92_3						
06/10/92	TP	215	0.1	3095	$5.53	-0-
06/17/92	EC	215	0.2	3095	$8.21	discuss case with Ravi
06/25/92	EC	215	0.5	3095	$20.51	review case. left msg for Mr.
06/26/92	EC	212	0.3	3095	$12.31	conversation with Dick Alford
06/26/92	EC	212	0.4	3095	$16.41	Eric Harrel of ENGEO called to
Act92_4						
07/01/92	EC	215	0.3	3095	$12.54	Review "closure" plan. Inadeq
07/06/92	EC	212	0.4	3095	$16.72	send forms A and B to Eric Har
07/07/92	SS	215	0.7	3095	$31.09	review UST closure plan w/ EC
07/07/92	EC	700	0.6	3095	$25.08	training with scott on how to
07/08/92	EC	212	0.4	3095	$16.72	Spoke with Biran Flagherty abo
07/17/92	EC	215	1.	3095	$41.81	approve plans for tank closure
08/06/92	EC	210	6.	3095	$265.41	tank pull and observed soil sampling
08/18/92	EC	212	0.4	3095	$16.72	spoke with Eric Harrell. Told him to excavate pump island and sample with OVM until N.D.
08/24/92	EC	212	0.4	3095	$16.72	spoke with Eric Harrell. Reviewed fax of results of stockpile. one pile with 24ppm diesel. told him to turn once more and resample.
Act92_5						
09/29/92	EC	215	1.	3095	$41.81	review tank closure report Aug 31, 1992
09/30/92	EC	212	0.2	3095	$8.36	Spoke with Dick Alford. Informed him I rec'd closure report and letter will be coming asking for PSA
10/06/92	EC	215	2.5	3095	$104.52	letter for SWI
10/06/92	SS	215	0.3	3095	$13.90	review regulations / corresp for EC
12/07/92	EC	215	1.1	3095	$46.92	review workplan with comments. Left mst for B. Flagherty and D. Alford to call.
12/07/92	SH	215	0.4	3095	$18.53	discuss site w/ EC, further work required
12/11/92	EC	215	0.8	3095	$34.12	Start of letter with comments on workplan. Told B. Flagherty of concerns.
12/14/92	EC	215	0.5	3095	$21.33	complete letter
Act93_1						
01/08/93	EC	212	0.1	3095	$4.27	left msg for B. Flaherty if addendum for WP has been put together for cleanup
01/13/93	EC	212	0.2	3095	$8.53	B. Flagherty says addendum coming soon.
01/20/93	EC	215	0.5	3095	$21.33	review addendum to WP. Spoke with B. Blaherty about add'l wells in future. Need written approval of WP sent to D. Alford.
01/21/93	EC	215	0.5	3095	$21.33	letter to approve WP
03/16/93	EC	215	0.1	3095	$4.48	left msg for Brian to callon update of field actvities shich

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

RAFAT A. SHAHID, Assistant Agency Director

ALAMEDA COUNTY CC4580
DEPT. OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL PROTECTION DIV.
1131 HARBOR BAY PKWY., #250
ALAMEDA CA 94502-6577

StID 3095

April 4, 1995

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

RE: Perched Water Investigation at 2900 Ladd Ave, Livermore

Dear Mr. Alford:

I have completed review of ENGEO's July 1994 Report on Ground Water Monitoring Well Installation for the above referenced site. Two monitoring wells, MW-3 and MW-4, and three soil borings B-9, B-10, and "A" were advanced to delineate the extent of soil and groundwater contamination northwest of the former tank pit.

Data collected to date suggests there is perched water at a depth of approximately 15 to 21', and the first encountered significant aquifer is at 28' below ground surface (current seasonal high). Grab water samples collected from the perched water exhibited up to 70,000 ppb TPH-G, and 12,000 ppb benzene. Wells MW-3 and MW-4 will monitor whether the contaminants in the perched zone will migrate vertically to impact groundwater.

At this time, additional investigations are required to determine the extent of contamination in the perched zone. A workplan proposal for this investigation is due to this office within 60 days of the date of this letter, or **by June 5, 1995.** Information gathered by this work will be used to determine an appropriate course of action to remediate the site, if deemed necessary.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 241 Crow Canyon Rd, Suite 200, San Ramon, CA 94583
files

livusd8

See if Will Maidel is new contact at school.

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

RAFAT A. SHAHID, Assistant Agency Director

ALAMEDA COUNTY CC4580
DEPT. OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL PROTECTION DIV.
1131 HARBOR BAY PKWY., #250
ALAMEDA CA 94502-6577

StID 3095

March 17, 1995

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

RE: QMR for 2900 Ladd Ave, Livermore 94550

Dear Mr. Alford:

I have completed review of Engeo's Report on Groundwater Sampling for the above referenced site. At this time, a quarterly monitoring schedule should be implemented for the site. Technical summary reports documenting each well sampling and monitoring episode are also due quarterly. This schedule shall continue until further notice. The next sampling event should be in May 1995.

We are not in reciept of a report documenting the installation of wells MW-3 and MW-4, and the advancement of additional borings to delineate the extent of soil and groundwater contamination. A copy of this report should be sent to this office within 15 days of the date of this letter.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 241 Crow Canyon Rd, Suite 200,
San Ramon, CA 94583
files

livusd7

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

June 21, 1994

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

Subject: Workplan Approval for 2900 Ladd Ave, Livermore 94550

Dear Mr. Alford:

I have completed review of ENGEO's May 1994 Revised Workplan for Additional Subsurface Investigation for the above referenced site. The proposal to advance four additional borings to delineate the soil and groundwater contamination at the site is acceptable. It is recommended that the boring proposed through the former tank pit be moved south, near boring T3S, but outside the concrete pad. I understand that field work will commence on June 30, 1994.

If you have any questions, I can be reached at (510) 271-4530.

Sincerely,

eva chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 241 Crow Canyon Rd, Suite 200,
San Ramon, CA 94583
files

livusd6

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

April 8, 1994

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

Subject: SWI for 2900 Ladd Ave., Livermore, CA 94550

Dear Mr. Alford:

On July 30, 1993, this agency requested a workplan proposal to delineate the extent of soil and groundwater contamination at the above referenced site. To date, we are not in receipt of the required report.

Please submit a proposal for the next phase of the investigation to this office **by May 8, 1994.** I would like to see field work completed during the summer months, so there will be minimal impact to the adjacent school facility when classes resume in September.

Also, a quarterly monitoring/sampling schedule should be established for the site. The next round of sampling should commence no later than May 1994. Subsequent reports are to be submitted quarterly until this site qualifies for RWQCB "sign off." All reports and proposals must be submitted under seal of a California Registered Geologist, Certified Engineering Geologist, or Registered Civil Engineer.

If you have any questions, I can be reached at (510) 271-4530.

eva chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 241 Crow Canyon Rd, Suite 200, San Ramon, CA 94583
files

livusd5

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

July 30, 1993

Mr. Dick Alford
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

Subject: SWI Report for 2900 Ladd Ave., Livermore 94550

Dear Mr. Alford:

I have completed review of ENGEO's Report on Soil and Ground Water Investigation, dated July 8, 1993, for the above referenced site. Work performed included the advancement of six soil borings, of which one was converted into a groundwater monitoring well. Soil and water analyses indicate the extent of soil contamination has not yet been delineated and groundwater is impacted. At this time, the investigation needs to be expanded, possibly with more soil borings on- and off-site, to determine the extent of soil contamination. Additional monitoring wells are also needed, to verify groundwater flow direction, as well as to define the zero edge of the contaminant plume.

Please submit an amended workplan showing proposed monitoring well and soil boring locations to this office **within 30 days of the date of this letter.** If you have any questions, I can be contacted at (510) 271-4530.

Sincerely,

Eva Chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 241 Crow Canyon Rd., Suite 200, San Ramon, CA 94583
files

livusd4

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

January 22, 1993

Dick Alford
Livermore Valley USD
685 E. Jack London Blvd
Livermore, CA 94550

Subject: Approval of Workplan to Address Subsurface Contamination at 2900 Ladd Ave., Livermore 94550

Dear Mr. Alford:

I have reviewed the Addendum to Work Plan, dated January 6, 1993, prepared by Engeo Inc. for the above referenced site. The workplan is acceptable and field work should begin within 45 days of the date of this letter, weather permitting. Please notify this office 48 hours prior to start of field activities. If you have any questions or comments on the content of this letter, please contact me at (510) 271-4530.

Sincerely,

Eva Chu
Hazardous Materials Specialist

cc: Brian Flaherty, ENGEO, 2401 Crow Canyon Rd., Suite 200, San Ramon, CA 94583-1545
[redacted] Howell/files

livusd3

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

December 15, 1992

Brian Flaherty
ENGEO
2401 Crow Canyon Rd., Suite 200
San Ramon, CA 94583-1545

Subject: Comments on Work Plan to Address Subsurface Contamination at [redacted] Ladd Ave., Livermore

Dear Mr. Flaherty:

I have reviewed the work plan dated November 3, 1992, for soil and groundwater investigation to determine the extent of contamination resulting from the unauthorized release of petroleum hydrocarbons from the underground storage tanks (USTs) at the above referenced site and have the following comments:

1. If the concrete slab in the former UST pit is not removed, the extent of soil contamination, if any, under the slab needs to be determined. This could be with a soil boring through the concrete slab.

2. The initial groundwater sample from MW-1 show groundwater to be impacted by petroleum hydrocarbons. A replacement well, to be located within 10' of the UST pit, in the verified downgradient, could be installed with a 4" casing to facilitate remediation of groundwater, if necessary.

3. When soil boring B-1 was advanced in December 1990, soil analysis show soil contaminated with up to 180 ppb benzene at 16' depth. The extent of soil contamination beyond this boring should be determined.

4. In addition to TPH-G and BTEX, all soil and groundwater samples should be analyzed for TPH-D.

An addendum to the November 1992 workplan should be submitted **within 21 days**, addressing the above concerns . Field work should commence within 60 days upon approval of the workplan.

If you have any questions or comments on the content of this letter, I can be reached at (510) 271-4530.

Sincerely,

Eva Chu
Hazardous Materials Specialist

cc: Eddy So, RWQCB
Dick Alford, 685 E. Jack London Blvd., Livermore 94550
Edgar Howell/files

livusd2

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

StID 3095

October 8, 1992

Michael White
Livermore USD
685 E. Jack London Blvd
Livermore, CA 94550

Subject: SWI for 2900 Ladd Ave, Livermore, CA 94550

Dear Mr. White:

This office has reviewed the Underground Storage Tank (UST) Closure Report, dated August 31, 1992, prepared by ENGEO Incorporated. When a regular gasoline UST failed a precision test in 1990, a limited subsurface investigation was undertaken. A soil boring advanced adjacent to this UST exhibited up to 2,700 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G) and 8.1 ppm as benzene. This boring was converted to a groundwater monitoring well. Water analysis exhibited 63 parts per billion (ppb) benzene. Clearly, an unauthorized release of petroleum hydrocarbons has occurred at this site, impacting soil and groundwater. This UST was drained and left in place.

In August 1992, the decommissioned UST, with 2 other USTs and their product lines were removed. Based on the soil and groundwater sampling from the 1990 investigation and the recent tank removal, additional subsurface investigation is required at this time to determine the extent and severity of soil and groundwater contamination.

This phase of the investigation shall be in the form of a Soil and Water Investigation (SWI), pursuant to Section 2725 of Article 11, Title 23, California Code of Regulations (CCR). The information gathered by this phase will be used to determine an appropriate course of action to remediate the site, if deemed necessary. All work must be conducted in accordance with the RWQCB Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks, the State Water Resources Control Board LUFT Field Manual, and Article 11 of Title 23, CCR. The major elements of such an investigation are summarized in the attached Appendix A.

The SWI proposal is due **within 45 days** of the date of this letter. Once the proposal is approved, field work should commence within 60 days. A report must be submitted within 45 days after the completion of this phase of work at the site. All reports and proposals must be submitted under seal of a California Registered Geologist, Certified Engineering Geologist, or Registered Civil Engineer.

Michael White
2900 Ladd Ave., Livermore
October 8, 1992

Please be advised that this is a formal request for technical reports pursuant to California Water Code Section 13267(b). Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by either this agency or the RWQCB. Copies of all proposals and reports must also be sent to Mr. Eddy So of the RWQCB.

If you have any questions about the content of this letter, please contact me at (510) 271-4530.

Sincerely,

Eva Chu
Hazardous Materials Specialist

enclosure

cc: Eddy So, RWQCB
Danielle Stefani, Livermore Fire Department
Edgar Howell/files

livusd

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 E. JACK LONDON BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

November 3, 1992

Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Ms. Eva Chu

WORK PLAN TO ADDRESS SUBSURFACE CONTAMINATION

Gentlemen:

We are pleased to present our proposal to undertake an investigation of the soil and ground water contamination associated with a leaking underground fuel storage tank at the Transportation Facility, 2900 Ladd Avenue in Livermore, California. This proposal describes the anticipated tasks necessary to address the soil and ground water contamination from the underground leaded gasoline storage tank. This document was prepared to satisfy the "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks".

We are available at your convenience to discuss the scope of our proposal. Please do not hesitate to contact our office if you have any questions. We appreciate the opportunity to respond to your proposal request.

Very truly yours,

D Agosti 447-9500
Dick Alford x320

cc: 1-Mr. Eddy So, c/o RWQCB

6063200

white -env.health
yellow -facility
pink -files

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

Hazardous Materials Inspection Form

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

II,III

Site ID # ____ Site Name Livermore USD Today's Date 8/6/92

Site Address 2900 Ladd

City Livermore Zip 94550 Phone ____

____ MAX AMT stored > 500 lbs, 55 gal., 200 cft.?

Inspection Categories:
____ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
____ II. Business Plans, Acute Hazardous Materials
X III. Underground Tanks Closure

* Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

II.A BUSINESS PLANS (Title 19)

___	1. Immediate Reporting	2703
___	2. Bus. Plan Stds.	25503(b)
___	3. RR Cars > 30 days	25503.7
___	4. Inventory Information	25504(a)
___	5. Inventory Complete	2730
___	6. Emergency Response	25504(b)
___	7. Training	25504(c)
___	8. Deficiency	25505(a)
___	9. Modification	25505(b)

II.B ACUTELY HAZ. MATLS

___	10. Registration Form Filed	25533(a)
___	11. Form Complete	25533(b)
___	12. RMPP Contents	25534(c)
___	13. Implement Sch. Req'd? (Y/N)	___
___	14. OffSite Conseq. Assess.	25524(c)
___	15. Probable Risk Assessment	25534(d)
___	16. Persons Responsible	25534(g)
___	17. Certification	25534(f)
___	18. Exemption Request? (Y/N)	25536(b)
___	19. Trade Secret Requested?	25538

III. UNDERGROUND TANKS (Title 23)

General

___	1. Permit Application	25284 (H&S)
___	2. Pipeline Leak Detection	25292 (H&S)
___	3. Records Maintenance	2712
___	4. Release Report	2651
___	5. Closure Plans	2670

Monitoring for Existing Tanks

___ 6. Method
1) Monthly Test
2) Daily Vadose
Semi-annual gndwater
One time soils
3) Daily Vadose
One time soils
Annual tank test
4) Monthly Gndwater
One time soils
5) Daily Inventory
Annual tank testing
Cont pipe leak det
Vadose/gndwater mon.
6) Daily Inventory
Annual tank testing
Cont pipe leak det
7) Weekly Tank Gauge
Annual tank tsting
8) Annual Tank Testing
Daily Inventory
9) Other ____

___	7. Precis Tank Test Date: ____	2643
___	8. Inventory Rec.	2644
___	9. Soil Testing.	2646
___	10. Ground Water.	2647

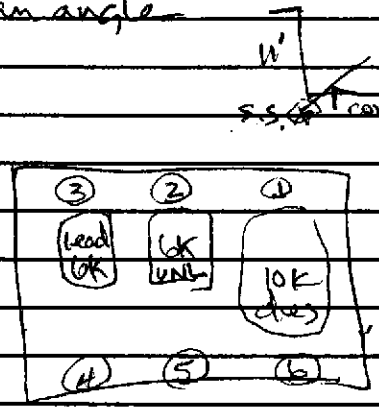
New Tanks

___	11. Monitor Plan	2632
___	12. Access. Secure	2634
___	13. Plans Submit Date: ____	2711
___	14. As Built Date: ____	2635

Rev 6/88

Comments:

UST pit bottom is concrete slab where USTs were tied down.
Soil samples were taken at end of slab at an angle.



Soil sample.
① strong odor; sample taken at 11½'
② No obvious odor at 12½'
③ strong gasoline odor at 12'
④ No obvious odor at 11½'
⑤ No obvious odor "
⑥ No obvious odor "

II, III

Contact: ____

Title: ____ Inspector: eva chu

Signature: Eric Harrell Signature: [signature]

white -env.health
yellow -facility
pink -files

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

Hazardous Materials Inspection Form

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

II,III

Site ID # ____ Site Name Livermore USD Today's Date 8/6/97

Site Address 2801 Ladd

City Livermore Zip 94 Phone ____

____ MAX AMT stored > 500 lbs, 55 gal., 200 cft.?

Inspection Categories:
____ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
____ II. Business Plans, Acute Hazardous Materials
X III. Underground Tanks Closure

* Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

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II.B ACUTELY HAZ. MAT'LS

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Annual tank testing
Cont pipe leak det
Vadose/gndwater mon.
6) Daily Inventory
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Cont pipe leak det
7) Weekly Tank Gauge
Annual tank tstng
8) Annual Tank Testing
Daily Inventory
9) Other ____

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___	8. Inventory Rec.	2644
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New Tanks

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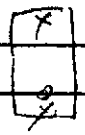
___	14. As Built Date: ____	2635

Rev 6/88

Comments:
Rust on tank surfaces, some pitting
Fill hole at end of fill end
UST pit at 10' depth



2 Soil samples taken about 2' in native soil
No obvious odor

In order to reuse soil / pea gravel as backfill:
Sample 1 discreet / 20 cy for soil
" 1 discreet / 50 cy for pea gravel

Contact Health Dep - 271-4530 - w/ lab analyses of backfill soil samples prior to backfilling

Present - Eric Harrell; Daniella Stefani, Munter + Fahey

II, III

Contact: ____

Title: ____

Signature: Eric Harrell

Inspector: Eva Chu

Signature: Eva Chu

white -env.health
yellow -facility
pink -files

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

Hazardous Materials Inspection Form

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320
Eva: 271-4530

II, III

Site ID # ____ Site Name Livermore USD Today's Date 8/6/92

Site Address 2900 Ladd

City Livermore Zip 94550 Phone ____

____ MAX AMT stored > 500 lbs, 55 gal., 200 cft.?

Inspection Categories:
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III. UNDERGROUND TANKS (Title 23)

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New Tanks

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___	14. As Built Date: ____	2635

Rev 6/88

Comments:

2900 Ladd

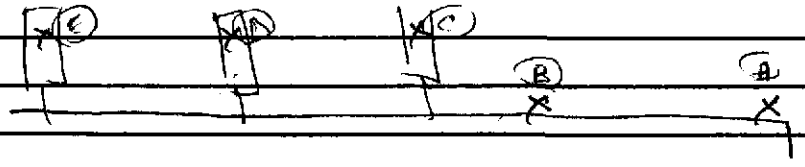
3 UST's of fiberglass - Westerly most tank was broken - had fail tank test in 1990 and decommissioned 9/95 6000 gal

Middle - 6000# reg unleaded. - tank appears intact w/o holes - some staining on exterior

Easterly tank - 10K diesel appears intact w/o holes some staining of exterior

Pit is mostly pea gravel backfill - slight staining of pea gravel at fill ends (North end) of middle + east tanks

Diesel Unleaded Leaded



Soil samples taken under dispensers + in trenches

A No obvious odor
B No obvious odor
C gasoline odor
D strong gasoline odor
E gasoline odor

II, III

Contact: ____

Title: ____

Signature: Eric Harnett

Inspector: Eva Chu

Signature: Eva Chu

3UST pit - left end broke leak in end 8/6/92
Fiberglass
16317049-8

2900 Ladd 03216211255-8 8/6/92
soil sample taken at end of concrete slab

2801 Ladd 03216211255-8 8/6/92
2K lead gas steel
Pin hole at fill end

2801 Ladd 16317049-8 8/6/92
2K lead gas steel

ENGEO
INCORPORATED
2401 Crow Canyon Road
Suite 200
San Ramon, CA 94583
(510) 838-1600

FACSIMILE (TELECOPIER) TRANSMITTAL

DATE: August 24, 1992 ENGEO JOB NO.: N2-3174-F4

TO: COMPANY: Alameda County

ATTENTION: Ms. Eva Chu

TELECOPIER NO.: 1-510-569-4757

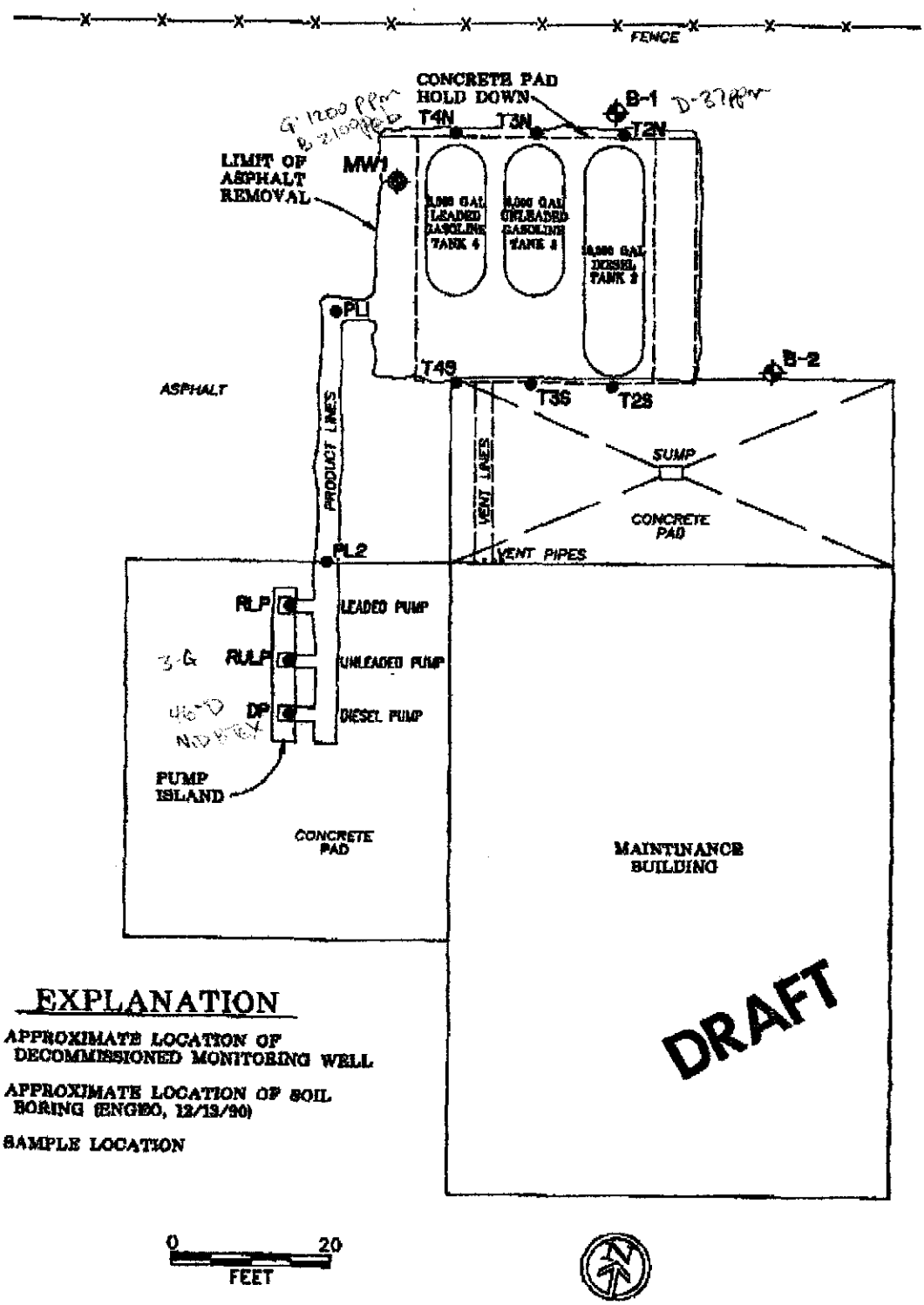
FROM: ERIC HARRELL

SUBJECT: Laboratory Analysis from Stockpile Samples

COMMENTS: I would like to talk with you about the results.

TOTAL PAGES TRANSMITTED INCLUDING THIS PAGE: 3

ENGEO INCORPORATED
2401 CROW CANYON ROAD, SUITE 200
SAN RAMON, CA 94583-1545



ENGEO INCORPORATED	SITE PLAN WITH SAMPLING LOCATIONS L.V.J.U.S.D. MAINTENANCE YARD 2900 LAKE AVENUE LIVERMORE, CALIFORNIA	JOB NO.: NS-3174-F4 DATE: AUGUST 1992 DRAWN BY: CRT CHECKED BY:	FIGURE NO. 3

Laboratory Analysis 2900 Ladd Avenue (Concentration in milligrams/kilogram (ppm))		
Sample Number	Sample Location	Diesel
S-2	Gravel beneath diesel tank	3.5
S-3	Gravel beneath unleaded gasoline tank	ND
S-4	Gravel beneath leaded gasoline tank	24
S-5	Gravel stockpile west of excavation	ND
S-6	Gravel stockpile east of excavation	4.8
S-7	Gravel/soil stockpile east of pump island	ND

Gasoline and BTXE were not detected in the soil samples submitted for laboratory analysis. from 2801 or 2900 Ladd Avenue. The soil stockpile at 2801 Ladd Avenue will be used to backfill the existing excavation.

DRAFT

ENGEO INCORPORATED
2401 CROW CANYON ROAD, SUITE 200
SAN RAMON, CA 94583-1545

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS DIVISION
80 SWAN WAY, ROOM 200
OAKLAND, CA 94621
PHONE NO. 510/271-4320

Plans approved - Note concerns in RED
ec 7/17/92

ACCEPTED

DEPARTMENT OF ENVIRONMENTAL HEALTH
[illegible]
[illegible]
[illegible]

These plans have been reviewed and found to be acceptable and essentially meet the requirements of State and local health laws. Changes to your plans indicated by this Department are to assure compliance with State and local laws. The project proposed herein is now released for issuance of any required building permits for construction.

One copy of these accepted plans must be on the job and available to all contractors and craftsmen involved with the removal.

Any changes or alterations of these plans and specifications must be submitted to this Department and to the Fire and Building Inspection Department to determine if such changes meet the requirements of State and local laws.

Notify this Department at least 48 hours prior to the following required inspections:

_____ Removal of Tank and Piping

_____ Sampling

_____ Final Inspection

Issuance of a permit to operate is dependent on compliance with accepted plans and all applicable laws and regulations.

THERE IS A FINANCIAL PENALTY FOR NOT OBTAINING THESE INSPECTIONS.

UNDERGROUND TANK CLOSURE PLAN

* * * Complete according to attached instructions * * *

1. Business Name LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

   Business Owner MR. Mike White.

2. Site Address 2801 and 2900 Ladd Avenue

   City LIVERMORE Zip 94550 Phone 447-9500

3. Mailing Address 685 LAS Positas Boulevard

   City Livermore Zip 94550 Phone 447-9500

4. Land Owner Livermore Valley Joint Unified School District

   Address 685 Las Positas Blvd City, State Livermore, CA Zip 94550

5. Generator name under which tank will be manifested

   Mr. Dick Alford

   EPA I.D. No. under which tank will be manifested

   2801 Ladd : CAC 000865504
   2900 Ladd : CAC 000865512

   EPA I.D. No. has been requested 6-26-92.

rev 3/92

6. Contractor Mint● and Fahy Construction Company, Inc.

Address 411 North Buchanan Circle

City Pacheco Phone 510-674-8800

License Type* A - HAZ ID# 477315 H

*Effective January 1, 1992, Business and Professional Code Section 7058.7 requires prime contractors to also hold Hazardous Waste Certification issued by the State Contractors License Board. Indicate that the certificate has been received, in addition, to holding the appropriate contractors license type.

7. Consultant Engeo Incorporated

Address 2401 Crow Canyon Road Suite 200

City San Ramon Phone 510-838-1600

8. Contact Person for Investigation

Name ERIC HARRELL Title Staff Environmental Geologist

Phone 510-838-1600

9. Number of tanks being closed under this plan 4

Length of piping being removed under this plan Approx. 60 feet

Total number of tanks at facility 4

10. State Registered Hazardous Waste Transporters/Facilities (see instructions).

** Underground tanks are hazardous waste and must be handled ** as hazardous waste

a) Product/Residual Sludge/Rinsate Transporter

Name Waste Oil Recovery EPA I.D. No. CAD000626515

Hauler License No. 0843 License Exp. Date 7/31/93

Address 6401 Leona Street

City Oakland State CA Zip 94605

b) Product/Residual Sludge/Rinsate Disposal Site

Name Waste Oil Recovery EPA I.D. No. CAD000626515

Address 6401 Leona Street

City Oakland State CA Zip 94605

c) Tank and Piping Transporter

Name Erickson Inc EPA I.D. No. CAD094666392

Hauler License No. 0019 License Exp. Date 5-31-93

Address 255 Parr Boulevard

City Richmond State CA Zip 94801

d) Tank and Piping Disposal Site

Name Erickson EPA I.D. No. CAD094666392

Address 255 Parr Boulevard

City Richmond State CA Zip 94801

11. Experienced Sample Collector

Name Eric Harrell

Company Engeo Incorporated

Address 2401 Crow Canyon Road, Suite 200

City San Ramon State CA Zip 94583 Phone 510-838-1600

12. Laboratory

Name Chromalab Incorporated

Address 2239 Omega Road, Suite 1

City San Ramon State CA Zip 94583

State Certification No. 1094

13. Have tanks or pipes leaked in the past? Yes [X] No [ ]

If yes, describe. We understand that a 6,000 gallon unleaded gasoline tank failed a precision test conducted in 1990. A subsequent subsurface investigation exposed petroleum hydrocarbons in the soil and groundwater beneath the tank.

14. Describe methods to be used for rendering tank inert

1. Tank will be pumped to remove remaining product.
2. Dry ice will be used to lower the O_2 content of the tank. (15 lbs CO_2 / 1000 gal capacity), or per local fire department requirements

Before tanks are pumped out and inerted, all associated piping must be flushed out into the tanks. All accessible associated piping must then be removed. Inaccessible piping must be plugged.

The Bay Area Air Quality Management District (771-6000), along with local Fire and Building Departments, must also be contacted for tank removal permits. Fire departments typically require the use of explosion proof combustible gas meters to verify tank inertness. **It is the contractor's responsibility to bring a working combustible gas meter on site to verify tank inertness.**

15. Tank History and Sampling Information

Tank		Material to be sampled (tank contents, soil, ground-water, etc.)	Location and Depth of Samples
Capacity (GAL)	Use History (see instructions)		
	Installed/Last Used Contents		
2,000	Unknown/4-92 Regular Gasoline	Soil *	2- beneath the UST a maximum of two feet beneath the native soil/backfill interface.
6,000	Unknown/11-90 Regular Gasoline	Soil	2- See description above
6,000	unknown/4-92 Low-Lead Gasoline	Soil	2- See description above
10,000	unknown/6-92 Diesel	Soil * Kaf ground water if encountered	2- See description above

One soil sample must be collected for every 20 feet of piping that is removed. A ground water sample must be collected should any ground water be present in the excavation.

Excavated/Stockpiled Soil	
Stockpiled Soil Volume (Estimated) Unknown	Sampling Plan One four-liner-composite will be recovered for every 50 cubic yards of soil/backfill excavated. - if excavated soil is to be reused onsite, one(1) discrete soil per every 200 c.y. required; ND results

Stockpiled soil must be placed on bermed plastic and must be completely covered by plastic sheeting.

16. Chemical methods and associated detection limits to be used for analyzing samples

The Tri-Regional Board recommended minimum verification analyses and practical quantitation reporting limits should be followed. See attached Table 2.

Contaminant Sought	EPA, DHS, or Other Sample Preparation Method Number	EPA, DHS, or Other Analysis Method Number	Method Detection Limit
Gasoline	5030	8015/DHS method	1.0 ppm
BTEX	5030	8020	0.005 ppm
Diesel	3550	8015/DHS method	1.0 ppm
Lead (Total)	AA	6010	

17. Submit Site Health and Safety Plan (See Instructions)

18. Submit Worker's Compensation Certificate copy

Name of Insurer State Compensation Insurance Fund
Contractor is obtaining Workers Comprnsation Cererti fico Copy.

19. Submit Plot Plan (See Instructions)

20. Enclose Deposit (See Instructions)

21. Report any leaks or contamination to this office within 5 days of discovery. The report shall be made on an Underground Storage Tank Unauthorized Leak/Contamination Site Report form. (See Instructions)

22. Submit a closure report to this office within 60 days of the tank removal. This report must contain all the information listed in item 22 of the instructions.

I declare that to the best of my knowledge and belief the statements and information provided above are correct and true.

I understand that information in addition to that provided above may be needed in order to obtain an approval from the Department of Environmental Health and that no work is to begin on this project until this plan is approved.

I understand that any changes in design, materials or equipment will void this plan if prior approval is not obtained.

I understand that all work performed during this project will be done in compliance with all applicable OSHA (Occupational Safety and Health Administration) requirements concerning personnel health and safety. I understand that site and worker safety are solely the responsibility of the property owner or his agent and that this responsibility is not shared nor assumed by the County of Alameda.

Once I have received my stamped, accepted closure plan, I will contact the project Hazardous Materials Specialist at least three working days in advance of site work to schedule the required inspections.

Signature of Contractor

Name (please type) Matthew W. Minter

Signature Matthew W. Minter

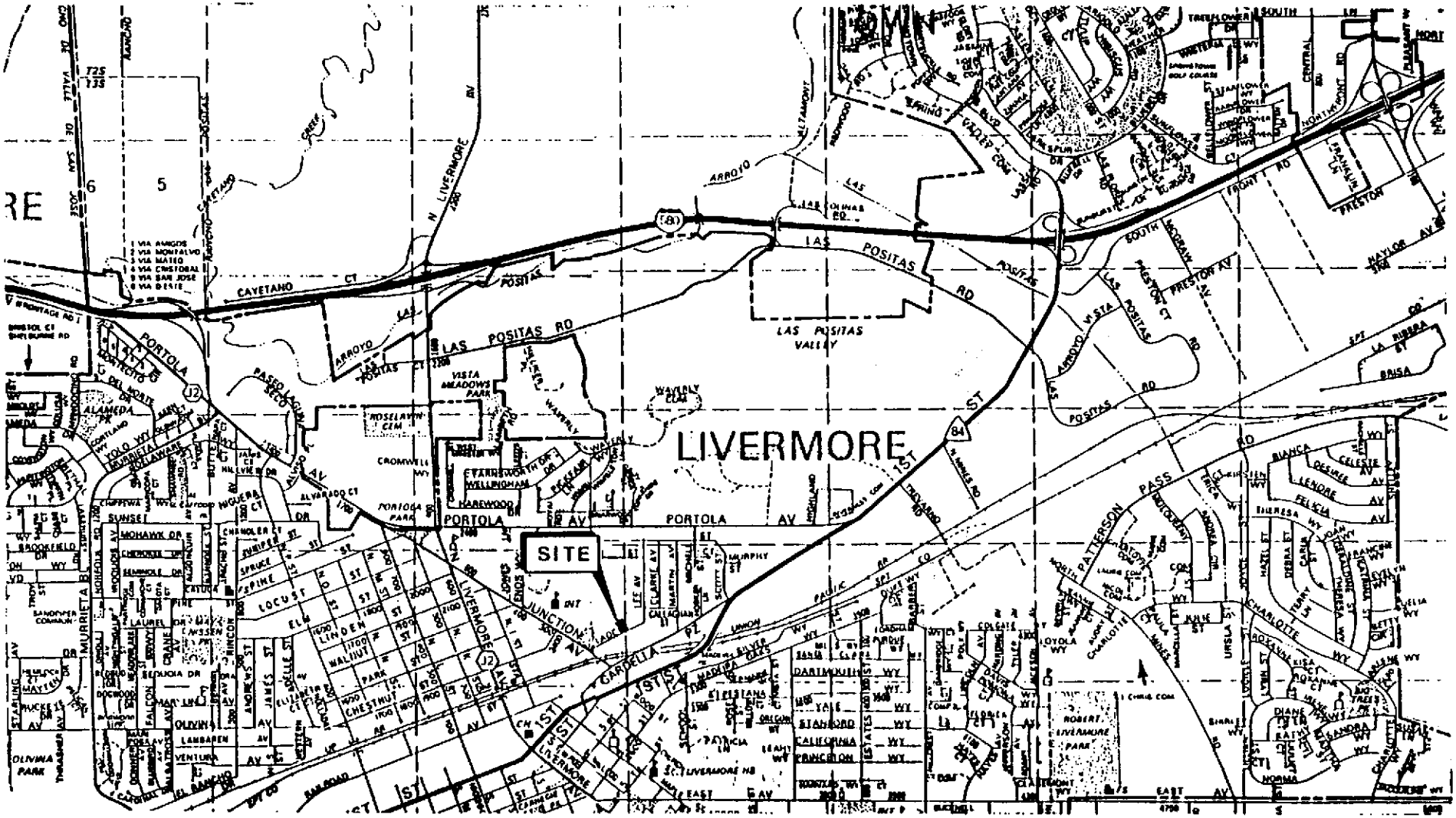
Date June 29, 1992

Signature of Site Owner or Operator

Name (please type) DICK ALFORD

Signature Dick Alford

Date 6/26/92



ENGEO INCORPORATED

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

SITE LOCATION

BUS MAINTENANCE YARD, 2908 LADD AVENUE

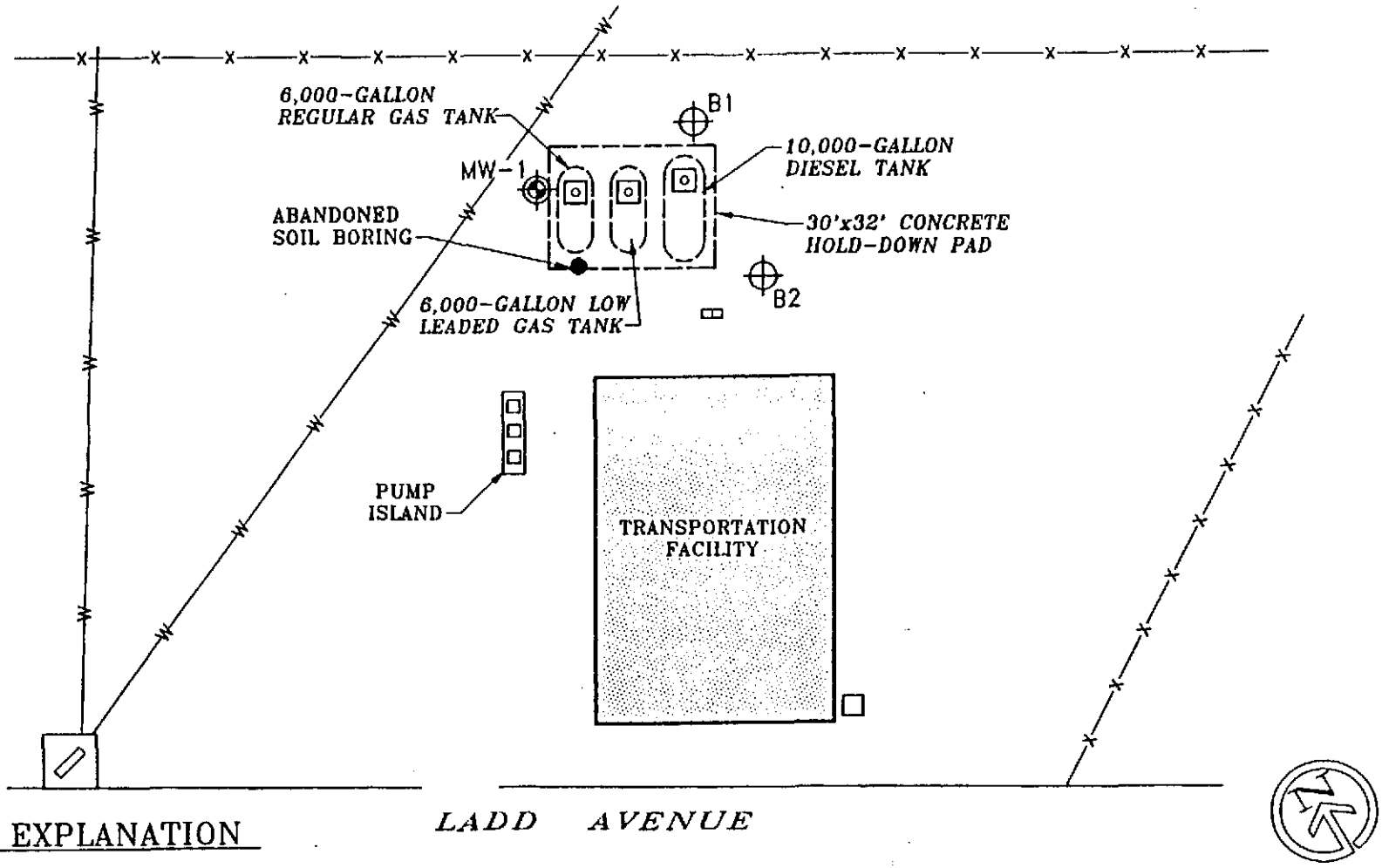
LIVERMORE, CALIFORNIA

SCALE: 1"=2200'

DATE: MARCH 1991

JOB NO. N1-3174-F1

FIGURE NO. **1**



EXPLANATION

MW-1 — APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL

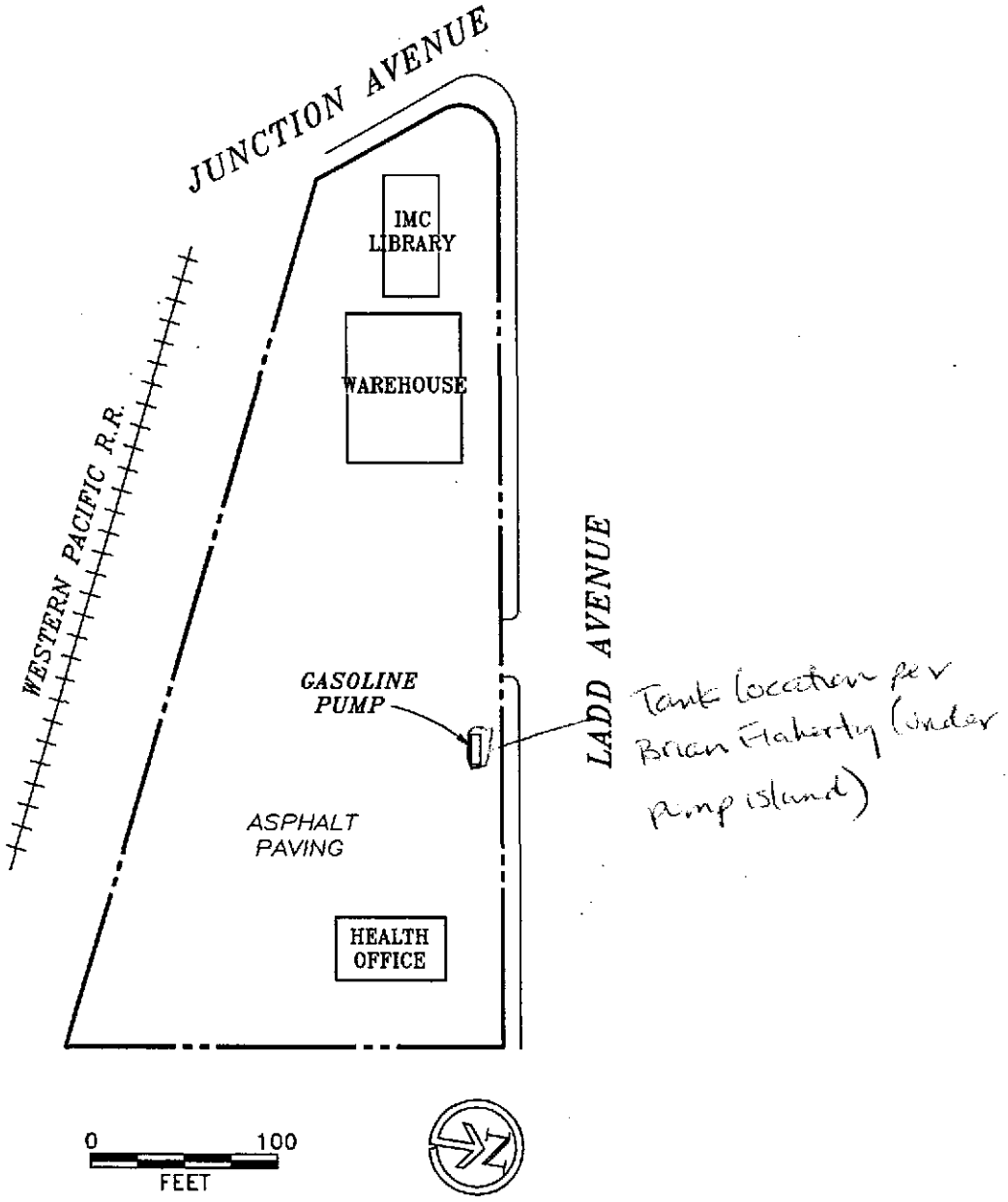
B1 — APPROXIMATE LOCATION OF SOIL BORING

ENGEO INCORPORATED
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXISTING UNDERGROUND GASOLINE STORAGE TANKS
BUS MAINTENANCE YARD, 2900 LADD AVENUE
LIVERMORE, CALIFORNIA

SCALE: 1" = Approx. 30'
DATE: APRIL 1992
JOB NO. N2-3174-F3

FIGURE NO. 2



ENGEO INCORPORATED	LOCATION OF 2000 GALLON GASOLINE STORAGE TANK 2801 LADD AVENUE LIVERMORE, CALIFORNIA	JOB NO.: N2-3174-F3 SCALE: AS SHOWN DATE: APRIL 1992	FIGURE NO. 3

POLICY NUMBER: #CCP147089
Minter & Fahy

COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED — OWNERS, LESSEES OR CONTRACTORS (FORM B)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization: LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT, OFFICERS, AGENTS & EMPLOYEES

685 E. Jack London Blvd.
Livermore, CA 94550

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.

STATE COMPENSATION INSURANCE FUND

P.O. BOX 807, SAN FRANCISCO, CA 94101-0807

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

JUNE 23, 1992

POLICY NUMBER: 1243626 - 92
CERTIFICATE EXPIRES: 4-18-93

LIVERMORE VALLEY - JOINT UNIFIED SCHOOL DIST
685 E - JACK LONDON BLVD.
LIVERMORE CA 94550

This is to certify that we have issued a valid Workers' Compensation insurance policy in a form approved by the California Insurance Commissioner to the employer named below for the policy period indicated.

This policy is not subject to cancellation by the Fund except upon ten days' advance written notice to the employer.

We will also give you TEN days' advance notice should this policy be cancelled prior to its normal expiration.

This certificate of insurance is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of any contract or other document with respect to which this certificate of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

John A. Klatt

PRESIDENT

EMPLOYER

MINTER & FAHY CONSTRUCTION INC.
411 N. BUCHANAN CIR #2
PACHECO CA 94553

92 JUL -1 AM 8:31

ACORD. CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY): 6/23/92

PRODUCER
River Valley Ins. Assoc.
3841 N. Freeway Blvd.
P.O. Box 340127
Sacramento, CA 95834-0127

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
Minter & Fahy Construction Co.,Inc.
411 North Buckanan Circle, #2
Pacheco, CA 94553

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A: Golden Eagle Insurance
COMPANY LETTER B:
COMPANY LETTER C:
COMPANY LETTER D:
COMPANY LETTER E:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY X COMPREHENSIVE FORM PREMISES/OPERATIONS UNDERGROUND EXPLOSION & COLLAPSE HAZARD PRODUCTS/COMPLETED OPER. CONTRACTUAL INDEPENDENT CONTRACTORS BROAD FORM PROPERTY DAMAGE PERSONAL INJURY	CCP 147089	7/9/91	7/9/92	BODILY INJURY OCC. BODILY INJURY AGG. PROPERTY DAMAGE OCC. PROPERTY DAMAGE AGG. BI & PD COMBINED OCC. BI & PD COMBINED AGG. PERSONAL INJURY AGG.	$ $ $ $ $ 1,000,000 $ 1,000,000 $
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS (Priv. Pass.) ALL OWNED AUTOS (Other Than Priv. Pass.) X HIRED AUTOS X NON-OWNED AUTOS GARAGE LIABILITY X SPECIFICALLY DESCRIBED VEHICLES	CCP 147089	7/9/91	7/9/92	BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE BODILY INJURY & PROPERTY DAMAGE COMBINED	$ $ $ $ 1,000,000
	EXCESS LIABILITY UMBRELLA FORM OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	$ $
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY LIMITS EACH ACCIDENT DISEASE—POLICY LIMIT DISEASE—EACH EMPLOYEE	 $ $ $
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS
FORM #CG 20 10 11 85 ATTACHED.

CERTIFICATE HOLDER

Livermore Valley Joint Unified
School District
685 E. Jack London Blvd
Livermore, CA 94550

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

DATE: 3-9-92

TO : **Local Oversight Program**

FROM: Kevin

SUBJ: **Transfer of Elligible Oversight Case**

Site name: Livermore Valley Unified School Dist.

Address: 2900 Ladd Ave City Livermore Zip 94550

Closure plan attached? Y (N) DepRef remaining $[redacted]

DepRef Project # 2069 STID #(if any) 3095

Number of Tanks: 3 removed? Y (N) Date of removal unkn

Leak Report filed? Y (N) Date of Discovery 1990

Samples received? (Y) N Contamination: Soil and Groundwater

Petroleum (Y) N Types: Avgas Jet ~~leaded~~ ~~unleaded~~ ~~Diesel~~
fuel oil (waste oil) kerosene ~~solvents~~

Monitoring wells on site GW 4 to 6 Monitoring schedule? (Y) N

Briefly describe the following:

Preliminary Assessment Contamination present

Remedial Action None in file

Post Remedial Action Monitoring N/A

Enforcement Action

Comments: Was not able to determine the current status of tank suspected of leaking. No Closure packet in file.

Livermore USD RP.1
Michael White
685 E. Jack London
Blvd
Livermore 94550

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

Hazardous Materials Division Inspection Form

Site ID# _____ Site Name Livermore Valley Joint School Dist Today's Date 9/29/91
Bus maintenance Yard
Site Address 2900 Ladd Avenue EPA ID# _____
City Livermore Zip 94550 Phone _____

MAX Amt. Stored > 500lbs/55g/200cf? Y N
Hazardous Waste generated per month? _____

Inspection Categories:
- ✓ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
- ___ II. Business Plans, Acute Hazardous Materials
- ✓ III. Underground Tanks

The marked items represent violations of the Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

I.A GENERATOR (Title 22)

	1. Waste ID	* 66471
	2. EPA ID	66472
	3. > 90 days	66508
	4. Label dates	66508
	5. Biennial	66493
Manifest	6. Records	66492
	7. Correct	66484
	8. Copy sent	66492
	9. Exception	66484
	10. Copies Rec'd	66492
Misc.	11. Treatment	66371
	12. On-site Disp. (H.S.&C.)	26189.5
	13. Ex Haz. Waste	66570
Prevention	14. Communications	67121
	15. Aisle Space	67124
	16. Local Authority	67126
	17. Maintenance	67120
	18. Training	67105
Contin. gency	19. Prepared	67140
	20. Name List	67141
	21. Copies	67141
	22. Emg. Coord. Trng.	67144
Containers, Tanks	23. Condition	67241
	24. Compatibility	67242
	25. Maintenance	67243
	26. Inspection	67244
	27. Buffer Zone	67246
	28. Tank Inspection	67259
	29. Containment	67245
	30. Safe Storage	67261
	31. Freeboard	67257

I.B TRANSPORTER (Title 22)

	32. Applic./Insurance	66428
	33. Comp. Cert./CHP Insp.	66448
	34. Containers	66465
Manifest	35. Vehicles	66465
	36. EPA ID #s	66531
	37. Correct	66541
	38. HW Delivery	66543
	39. Records	66544
Con'rs	40. Name/ Covers	66545
	41. Recyclables	66800

Rev 6/88

Comments:

Facility used to be used for school bus maintenance. Now closed.

3 USTs on site, one known leaker (gas). One well on-site, data from well reported to vary.

All tanks to be removed within six months.

walked perimeter of yard w/ Danielle Stefani of LFD to assess complaints of waste oil dumping. One small localized area of discoloration observed along fenceline, but no evidence of routine or continuous dumping was found.

There are some hazardous materials (oils) within building and at least on waste oil drum outside of building. Pick-up is expected within a week. I requested a final walk through of the building to verify that all materials have been removed during tank removal. My request was assented to.

Contact: _____

Title: _____ Inspector: _____

Signature: _____ Signature: _____

ENGEO
INCORPORATED
GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS

In Reply
Please Refer to:
N1-3174-F1

September 6, 1991

Alameda County Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Mr. Gil Wistar

Subject: Livermore Valley Joint Unified School District
Bus Maintenance Yard
2900 Ladd Avenue
Livermore, California

Gentlemen:

Attached please find the Soil and Ground-Water Study which was undertaken at the Livermore Valley Unified School District(LVUSD) maintenance yard at 2900 Ladd Drive in Livermore, California. The purpose of the study was to determine if the ground water beneath the underground fuel storage tanks had been affected by leaks from the tanks or underground piping.

We understand that the LVUSD is presently planning to drain and remove the tanks. We have recommended that the District develop a work plan for the installation of two to three ground-water monitoring wells to further characterize the extent of the ground-water impact at the site. The installation of the wells could be undertaken after the removal of the underground storage tanks and the underground piping systems have been removed. We anticipate that some soil contamination will be encountered beneath the underground tanks and some soil excavation beneath the tanks will be required.

A ground-water sample has recently been collected from well MW-1 for laboratory testing for total petroleum hydrocarbons and BTEX. The results of this testing will be forwarded to your office when available.

If you have any questions regarding the work performed or the findings of the study please to do hesitate to contact our office.

Very truly yours,

ENGEO INCORPORATED

Brian Flaherty

ree
cc: 1 - Addressee

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

December 10, 1990

Mr. Gil Wistar
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621

Dear Mr. Wistar:

Enclosed is a copy of the work plan to study soil and ground-water contamination at 2900 Ladd Avenue in Livermore.

If you have any comments or questions, please call.

Sincerely,

R. F. D'Ambra
Director of Facilities Management

sg
Enclosure

c: Lester Feldman, San Francisco Bay RWQCB
(with enclosure)

90 DEC 12 AM 2:19

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

90 NOV 26 AM 11:09

November 21, 1990

Mr. Gil Wistar
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621

Dear Mr. Wistar:

The Livermore School District has accepted the proposal of Engeo, Incorporated for the preparation of a preliminary assessment of contamination associated with a leak in an underground tank at the Transportation Facility at 2900 Ladd Avenue.

I previously telefaxed you a copy of Engeo's work plan which you accepted as satisfactory. Accordingly, I have directed Engeo to proceed with the work as outlined in their plan. I will also send a copy of the work plan to Lester Feldman at the San Francisco Bay Regional Water Quality Control Board.

Sincerely,

R. F. D'Ambra

R. F. D'Ambra
Director of Facilities Management

sg
cc: Lester Feldman, San Francisco Bay RWQCB

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

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621
(415)

November 19, 1990

Mr. Rudy D'Ambra
Livermore Valley Joint Unified School Dist.
685 Las Positas Blvd.
Livermore, CA 94550

Re: **ENGEO, Inc. proposal to address soil and groundwater contamination at 2900 Ladd Ave., Livermore**

Dear Mr. D'Ambra:

As I indicated in our conversation on Friday, we have reviewed the above proposal for the installation of soil borings and a groundwater monitoring well at the Laidlaw Transit yard, and find it acceptable. It is apparently your intention to award the contract to ENGEO on the strength of their proposal; if this occurs, we will need a formal copy of the work plan mailed here for the files, along with a schedule for implementation of specific tasks. Please also submit copies of all project documentation to the Regional Water Control Board in Oakland.

Additionally, we require a deposit of $400 to be submitted with the work plan. A check should be made out to Alameda County. Authorized by Sec. 3-141.6 of the Alameda County Ordinance Code, these funds will cover our oversight of the project, and will be drawn upon at an hourly rate.

If you have any questions about this letter, please contact me at 271-4320.

Sincerely,

Gilbert M. Wistar

Gil Wistar
Hazardous Materials Specialist

cc: Lester Feldman, RWQCB
Rafat A. Shahid, Asst. Agency Director, Environmental Health
files

NOV 15 '90 09:52 LVJUSD P.1

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-95[illegible]
Fax Telephone: (415) 447-2218

OK - need $400 deposit

FAX TRANSMITTAL SHEET

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: Gil Wistar

Company: Alameda County Department:

From: R.F. D'Ambra Department: Facilities Management

Phone: 447-9500 x 236 Date Sent: 11-15-90

NUMBER OF PAGES TRANSMITTED INCLUDING THIS ONE: 8

Additional Comments: Per our conversation

NOV 15 '90 9:56 4483786 P.01

ENGEO
INCORPORATED

GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS

In Reply
Please Refer to:
N90-3174-F1

November 8, 1990

Livermore Valley Joint Unified School District
Education Center
685 Las Positas Boulevard
Livermore, CA 94550

Attention: Mr. R. F. D'Avolio

PROPOSAL TO ADDRESS SOIL CONTAMINATION

Gentlemen:

We are pleased to present our proposal to undertake an investigation of the soil and possible ground-water contamination associated with a leaking underground fuel storage tank at the Transportation facility, 2000 Loyal Avenue in Livermore, California. This proposal describes the anticipated tasks necessary to address the soil and/or potential ground water contamination from the underground regular unleaded gasoline tank. This document was prepared to satisfy the "Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks."

We are available at your convenience to discuss the scope of our proposal. Please do not hesitate to contact our office if you have any questions. We appreciate the opportunity to respond to your proposal request.

Very truly yours,

ENGEO INCORPORATED

Brian Flaherty
CEG 1256

INTRODUCTION

This work plan was prepared to address the soil and ground water contamination associated with a leaking underground unleaded gasoline storage tank at 2900 Ladd Avenue in Livermore, California. We have reviewed the BAS & Associates report which was provided to our office. The purpose of our work will be to evaluate the vertical and lateral extent of the petroleum hydrocarbon contamination in the vadose zone soils, at the top of the ground water table and in the groundwater below the tank complex.

Scope of Work

The proposed scope of services includes:

1. Installation of a ground water monitoring well adjacent to the leaking underground tank.

2. Drilling and logging of four (4) exploratory soil borings around the underground tank complex to determine the extent of the lateral soil contamination. An Organic Vapor Meter (OVM) will be used during the drilling of the borings to monitor for the presence of volatile organics associated with the leakage.

3. Collection of soil samples from each of the borings for laboratory testing. Samples will be analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and volatile aromatic compounds (BTXE). Collection of a ground water sample from the monitoring well with the water sample analyzed for TPH as gasoline and BTXE.

4. Analyses of the soil vapor readings and the laboratory test results. The test results and exploratory soil boring information will be studied to develop an areal and vertical representation of the soil contaminant plume.

5. Preparation of a report documenting the findings with recommendations for further study, if necessary. This could include the installation of two additional ground-water monitoring wells(s). The scope of this phase of work could be amended after a review of the laboratory test results for the soil and ground samples.

SITE HISTORY

From our review of the [illegible] report, dated August 10, 1990 it appears that one of the existing underground fuel tanks has leaked. Soil samples were collected from beneath a 1000 gallon regular unleaded gasoline tank. Laboratory testing of the soils beneath the tank reported total petroleum hydrocarbons (TPH as gasoline) in concentrations of 2300 ppm at 14 feet and 1500 ppm at 17 feet. These gasoline concentrations exceeded the State Action level of 100 ppm for gasoline. The detected concentrations of the aromatic volatile hydrocarbons of benzene, toluene, ethylbenzene, and xylenes (BTEX) also exceeded the State Action levels.

It is our understanding that the leaking tank has been drained and the Health Department will allow the tank to remain in place at this time. The petroleum hydrocarbon contamination is on the order of 17 feet below the ground surface with the local ground water level approximately 40 feet below the ground surface. There is insufficient information available at this time to determine if the local ground water has been impacted by the leaking fuel tank.

Consequently, we recommend the installation of one ground water monitoring well immediately adjacent to the leaking underground fuel tank. In addition, exploratory soil borings are proposed around the tanks. Soil samples would be collected at five foot intervals down to the top of the saturated zone. The soils at the top of the ground water table will be analyzed for Total Petroleum Hydrocarbons as gasoline and for BTEX.

It is our opinion that since the ground water may be as low as 20 feet below the known hydrocarbon contamination, that as a first phase of study it be determined whether there is a need for additional ground water monitoring wells. Analysis of the soil data may also aid in determining the boring locations for the monitoring wells with regard to determining the magnitude of the contamination beneath the site.

The drill cuttings will be stockpiled covered with plastic in a separate stockpile. These soils would be scheduled for aeration or bioremediation after a review of the laboratory test results. The boreholes will be backfilled in accordance with the Zone 7 Water District guidelines.

C. Ground Water Monitoring Wells

We presently recommend that one ground water monitoring well be installed on the subject property. The approximate location for the well would be immediately adjacent to the existing tank. The purpose of the well is to determine if the ground water beneath the tank has been impacted and to what extent the water is contaminated. If we find that the ground water contamination is at levels which exceed the State Action levels than at least two additional wells would be required to determine the direction of the ground water gradient and the possible lateral extent of the contaminants.

If the ground water has been negatively impacted or no ground water contamination is detected, then the additional wells may not be warranted at this time and periodic monitoring of the well could be recommended. Prior to drilling, we will obtain a monitoring well permit from the Alameda County Flood Control and Water Conservation District, Zone 7.

The boring for the well will be advanced to a depth of approximately 50 feet (10 to 15 feet below the first encounter of the ground water table) using a hollow stem auger. Soil samples will be collected at regular intervals and preserved for laboratory testing as previously described. The soil cuttings will be stored and disposed following the guidelines discussed above.

The monitoring well will consist of 2-inch diameter PVC casing with flush joints, installed down through the hollow stem auger. The well will be constructed with 10 to 15 feet of screened casing (0.020-inch slot size) and an appropriate length of solid PVC well casing (Schedule 40 PVC). The bottom of the PVC screen and boring will be backfilled with No. 3 Monterey sand to approximately at least 2 feet above the screened section. A 12 to 24-inch layer of bentonite pellets will be placed on top of the sand and the remainder will be backfilled with a cement bentonite seal. The well will be completed in a locking, traffic-rated box. The top of the well casing will be secured with a locking watertight cap.

After the cement bentonite grout has set for at least 24 to 48 hours, the well will be developed using a surge block and pumping to produce clear less turbid water prior to

sampling. We anticipate that ten to twenty well volumes of water will be removed from the well during the development process.

The purged water would be stored on the site in Department of Transportation approved drums until the results of the laboratory testing are available. At that time the water will be disposed of in an appropriate manner and the drums will be removed from the site.

Twenty-four hours after development, we will measure the depth to the top of the groundwater table and check for the presence of free product. Prior to the collection of groundwater samples for laboratory testing, four to ten well volumes of water will be removed from the well. The groundwater samples will be collected using a clean polyethylene dedicated bailer. Samples will be decanted into clean 40-milliliter volatile organic analysis vials (VOA). The samples will be stored in an ice chest until delivery under a documented chain-of-custody to a state-certified testing laboratory.

Sample collection, preservation, chain-of-custody procedures and equipment decontamination will be performed in accordance with ENGEO's standard quality assurance/quality control procedures.

D. Laboratory Testing

The laboratory testing will be performed in accordance with the methods specified in the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites (August, 1990).

The soil samples selected for laboratory testing will be analyzed for Total Volatile and Extractable Petroleum Hydrocarbons (TPH) as gasoline and for benzene, toluene, xylene and ethylbenzene (BTXE) (EPA Test Method 8015, 5030 and 8020).

The groundwater samples collected from the monitoring wells will be analyzed for Total Volatile Hydrocarbons and for volatile aromatic compounds (BTEX) according to the DHS recommended procedures.

E. Analysis of Data

We will review the data from the exploratory boring logs, the PID readings, and the laboratory test results. A determination will be made regarding the vertical and lateral

extent of the hydrocarbon contamination in the soils. The potential for ground water contamination beneath the subject site will also be examined. The presence of petroleum hydrocarbons in the shallow native soils will be studied to evaluate the extent of the contamination plume in the soils. The data collected from the map of the ground-water table and from the ground-water monitoring well sample will be studied to learn if the ground water beneath the site has been impacted by the leakage from the tank. The potential for the diffusion migration of the gasoline constituents will be evaluated. A determination could be made at this time regarding the need for the installation of additional ground water monitoring wells.

E. Report Preparation

Upon the completion of the soil investigation and laboratory testing Engeo will prepare a report documenting our field activities and presenting our results. The report will be prepared under the direct supervision of and will be signed by a registered engineering geologist. The report will contain an analysis of the data collected and conclusions relative to the following items:

- The vertical and lateral extent of petroleum hydrocarbons in soils adjacent to the tank site(s).
- An evaluation of the extent of petroleum hydrocarbons in the saturated zone at the top of the ground water table.
- An assessment of the potential threat for ground water contamination and the need for additional ground water monitoring wells.

If it is determined that the ground water has been contaminated by the hydrocarbon leakage, then to locate and install permanent ground water monitoring well(s) could be recommended for installation adjacent to the tank excavations. It is possible that the single monitoring well drilled immediately adjacent to the tanking area would be sufficient to adequately define the extent of the ground water contamination at this time.

ENGEO INCORPORATED

COST ESTIMATE
CHARACTERIZATION OF SOIL AND GROUND WATER CONTAMINATION
TRANSPORTATION FACILITY, LIVERMORE, CALIFORNIA

I. Literature research of local soils, geology and hydrogeology. Review of available literature regarding nearby remediation and water supply wells

$800.00

II. Exploratory Drilling Services

Includes the drilling of four to six exploratory test borings in the area of the soil contamination with logging of soil cuttings and PID readings and collection of soil samples for laboratory testing

$2,200.00

III. Laboratory Testing

Laboratory testing of a total of ten (10) soil samples from the exploratory test borings (collection of sample from the vadose zone soils and one sample from the deepest zone above the ground water table in each borehole. The specific number of soil samples to be tested will be determined in the field using the PID screening. The samples will be analyzed for TPH as gasoline and BTXE.

$900.00-$1,320.00

IV. Installation and laboratory testing of a ground water monitoring well

Costs for drilling/installing, logging, developing and sampling of an estimated 30 foot deep ground water monitoring well located immediately adjacent to the existing tanks. Includes costs for sampling and laboratory testing of the well for TPH as gasoline and BTXE.

$6,500.00

V. Analysis of Data with Report Preparation

Review and evaluation of boring logs, PID readings and laboratory test results. An estimate of the vertical and lateral extent of the petroleum hydrocarbon contamination in the vadose soils, at the top of the ground water table and in the local ground water beneath the site. The report will incorporate our findings and include recommendations regarding the need for additional ground water monitoring wells.

$1,500.00

ESTIMATE TOTAL $11,900.00 - $12,320.00

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

TO: Gil Wistar

FROM: R. F. D'AMBRA

DIRECTOR OF FACILITIES MANAGMENT

DATE: 11/1/90

90

I'm enclosing for your information letters requesting proposals from 3 environmental engineering companies for preparing a work plan.

Rudy D'Ambra

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

November 1, 1990

Clayton Environmental
Attn: Mr. Robert Sutay
1252 Quarry Lane
P.O. Box 9019
Pleasanton, California 94566

Dear Mr. Sutay:

Enclosed is a guideline list of requirements for an initial subsurface investigation related to an underground tank leak at our Transportation facility, 2900 Ladd Avenue, Livermore, California. I am also enclosing a soil boring and testing report recently prepared by BSK.

You are requested to prepare a proposal for the work outlined. Please contact me for additional qualifying information prior to preparing your proposal.

Time is of the essence. Please be prepared to submit your proposal by Friday, November 9, 1990.

Sincerely,

R. F. D'Ambra
Director of Facilities Management

sg

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

November 1, 1990

Engeo Company
Attn: Mr. Brian Flaherty
2280 Diamond Boulevard, Suite 200
Concord, California 94520-5719

Dear Mr. Flaherty:

Enclosed is a guideline list of requirements for an initial subsurface investigation related to an underground tank leak at our Transportation facility, 2900 Ladd Avenue, Livermore, California. I am also enclosing a soil boring and testing report recently prepared by BSK.

You are requested to prepare a proposal for the work outlined. Please contact me for additional qualifying information prior to preparing your proposal.

Time is of the essence. Please be prepared to submit your proposal by Friday, November 9, 1990.

Sincerely,

R. F. D'Ambra

R. F. D'Ambra
Director of Facilities Management

sg

LIVERMORE VALLEY JOINT UNIFIED SCHOOL DISTRICT

EDUCATION CENTER
685 LAS POSITAS BOULEVARD • LIVERMORE, CALIFORNIA 94550 • TELEPHONE 447-9500

November 1, 1990

BSK
Attn: Mr. Alex Eskandari
5729 P Sonoma Drive
Pleasanton, California 94566

Dear Mr. Eskandari:

Enclosed is a guideline list of requirements for an initial subsurface investigation related to an underground tank leak at our Transportation facility, 2900 Ladd Avenue, Livermore, California. I am also enclosing * a soil boring and testing report recently prepared by BSK.

You are requested to prepare a proposal for the work outlined. Please contact me for additional qualifying information prior to preparing your proposal.

Time is of the essence. Please be prepared to submit your proposal by Friday, November 9, 1990.

Sincerely,

R. F. D'Ambra

R. F. D'Ambra
Director of Facilities Management

sg

* Not included since you should have one in your file.

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

5 J 95
EC

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621
(415)

October 26, 1990

Mr. Rudy D'Ambra
Livermore Valley Joint Unified School District
685 Las Positas Blvd.
Livermore, CA 94550

RE: **Report from BSK & Associates on subsurface conditions at the bus maintenance yard, 2900 Ladd Ave., Livermore**

Dear Mr. D'Ambra:

As we discussed on the phone several weeks ago, this office has reviewed the report documenting the results of a soil boring beneath a 6,000-gallon gasoline tank that has been out of use since approximately 1986, when it failed a routine precision test. This report suggests that a significant quantity of gasoline, as well as some diesel (due to the high proportion of xylene to the other volatile components), have been released into the subsurface environment. Mr. Alex Eskandari, the author of the report, indicated over the phone that the soil beneath the gasoline tank was "saturated" with product. According to guidelines established by the state Department of Health Services, soil containing above 1,000 mg/kg of gasoline can be classified as a hazardous waste; one of the soil samples collected from the subsurface had a gasoline concentration of 2,300 mg/kg.

Clearly, there has been an unauthorized release of hydrocarbons at this facility. As a result, the LVJUSD must take the following steps: 1) file an Unauthorized Release Report with us immediately, to document the contamination; and 2) conduct a preliminary assessment to determine the scope of the problem. Normally in this situation we would require the removal of the leaky tank (which I understand has been emptied) prior to the initiation of a subsurface investigation. However, because the current tenant of the site, Laidlaw Transit, will not be moving to its new facility until mid-1991 and will require the use of two of the three underground tanks until that time, we are willing to let the full tank removal program be postponed until mid-1991. (This presumes that the leaky tank will remain out of use, and the other two tanks are monitored according to state law and show no leaks or other inventory losses.) In any case, LVJUSD must now begin the preliminary assessment process, as outlined below.

In the first place, the preliminary assessment should be designed to provide all of the information in the format shown in the attachment at the end of this letter, which is based on Regional Water Quality Control Board (RWQCB) guidelines. LVJUSD must be prepared to install

one monitoring well, if the direction of groundwater flow in the immediate vicinity of the contaminated pit can be verified, and three wells if this is not possible.

This office will be the lead agency overseeing environmental investigation and cleanup activities at the site. The RWQCB is currently unable to manage the large number of fuel leak cases within Alameda County, and has therefore delegated this authority to our office. However, you need to keep the Water Board apprised of all actions taken to characterize and remediate contamination at this site, because the Board retains the ultimate responsibility for ensuring protection of waters of the state.

Please submit a work plan to this office by **December 7, 1990.** Copies of the proposal should also be sent to the RWQCB (attention: Lester Feldman). Because we are overseeing this site under the designated authority of the Water Board, this letter constitutes a formal request for technical reports, per Sec. 13267(b) of the California Water Code. Failure to respond in a timely manner could result in civil liabilities under the Water Code of up to $1,000 per day. Other violations of California law may also be cited.

If you have any questions about this letter or about site investigation requirements established by the RWQCB, please contact me at 271-4320.

Sincerely,

Gilbert M. Wistar

Gil Wistar
Hazardous Materials Specialist

enclosure

cc: Randy Griffith, Livermore Fire Department
Howard Hatayama, DOHS
Lester Feldman, San Francisco Bay RWQCB
Gil Jensen, District Attorney, Alameda County Consumer and Environmental Protection Division
Rafat Shahid, Asst. Agency Director, Environmental Health
files

Elg

ST 3095

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY ☐ YES ☐ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED ? ☐ YES ☐ NO

REPORT DATE (M M D D Y Y) | CASE #

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 25180.7 OF THE HEALTH AND SAFETY CODE.
SIGNED: Gilbert M. Wistar DATE: 9/6/90

REPORTED BY

NAME OF INDIVIDUAL FILING REPORT: R. F. D'AMBRA
PHONE: (415) 447-9500
SIGNATURE: R F D'Ambra

REPRESENTING ☐ OWNER/OPERATOR ☐ REGIONAL BOARD ☒ LOCAL AGENCY ☐ OTHER
COMPANY OR AGENCY NAME: LIVERMORE SCHOOL DISTRICT
ADDRESS: 685 LAS POSITAS BOULEVARD (STREET) LIVERMORE (CITY) CALIFORNIA (STATE) 94550 (ZIP)

RESPONSIBLE PARTY

NAME: LIVERMORE SCHOOL DISTRICT ☐ UNKNOWN
CONTACT PERSON: R. F. D'AMBRA
PHONE: (415) 447-9500
ADDRESS: SAME (STREET) (CITY) (STATE) (ZIP)

FACILITY

FACILITY NAME (IF APPLICABLE): TRANSPORTATION GARAGE
OPERATOR: LAVTA
PHONE: (415)455-5414
ADDRESS: 2900 LADD AVENUE (STREET) LIVERMORE (CITY) ALAMEDA (COUNTY) 94550 (ZIP)
CROSS STREET: LEE AVENUE

IMPLEMENTING AGENCIES

LOCAL AGENCY AGENCY NAME: LIVERMORE VALLEY JOINT UNIFIED SCHOOL Dist.
CONTACT PERSON: R. F. D'AMBRA
PHONE: (415) 447-9500
REGIONAL BOARD: OAKLAND
CONTACT PERSON: LESTER FELDMAN
PHONE: ( )

SUBSTANCES INVOLVED

(1) NAME: GASOLINE
QUANTITY LOST (GALLONS): ☒ UNKNOWN
(2) ☐ UNKNOWN

DISCOVERY/ABATEMENT

DATE DISCOVERED: 07 (M) 25 (D) 90 (Y)
HOW DISCOVERED: ☐ INVENTORY CONTROL ☒ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK TEST ☐ TANK REMOVAL ☐ OTHER
DATE DISCHARGE BEGAN (M M D D Y Y) ☒ UNKNOWN
HAS DISCHARGE BEEN STOPPED ? ☒ YES ☐ NO IF YES, DATE (M M D D Y Y)
METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY)
☒ REMOVE CONTENTS ☐ REPLACE TANK ☐ CLOSE TANK ☐ REPAIR TANK ☐ REPAIR PIPING ☐ CHANGE PROCEDURE ☐ OTHER

SOURCE/CAUSE

SOURCE OF DISCHARGE: ☒ TANK LEAK ☐ UNKNOWN ☐ PIPING LEAK ☐ OTHER
CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ SPILL ☐ CORROSION ☒ UNKNOWN ☐ OTHER

CASE TYPE

CHECK ONE ONLY
☐ UNDETERMINED ☒ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CURRENT STATUS

CHECK ONE ONLY
☐ NO ACTION TAKEN ☐ PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED ☐ POLLUTION CHARACTERIZATION
☐ LEAK BEING CONFIRMED ☐ PRELIMINARY SITE ASSESSMENT UNDERWAY ☐ POST CLEANUP MONITORING IN PROGRESS
☐ REMEDIATION PLAN ☐ CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) ☐ CLEANUP UNDERWAY

REMEDIAL ACTION

CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (CD) ☐ EXCAVATE & DISPOSE (ED) ☐ REMOVE FREE PRODUCT (FP) ☐ ENHANCED BIO DEGRADATION (IT)
☐ CONTAINMENT BARRIER (CB) ☐ EXCAVATE & TREAT (ET) ☐ PUMP & TREAT GROUNDWATER (GT) ☐ REPLACE SUPPLY (RS)
☐ VACUUM EXTRACT (VE) ☐ NO ACTION REQUIRED (NA) ☐ TREATMENT AT HOOKUP (HU) ☐ VENT SOIL (VS)
☐ OTHER (OT)

COMMENTS

Contamination found in soil boring drilled near inactive underground tank; site assessment to take place.

HSC 05 (11/89)

INSTRUCTIONS

EMERGENCY
Indicate whether emergency response personnel and equipment were involved at any time. If so, a Hazardous Material Incident Report should be filed with the State Office of Emergency Services (OES) at 2800 Meadowview Road, Sacramento, CA 95832. Copies of the OES report form may be obtained at your local underground storage tank permitting agency. Indicate whether the OES report has been filed as of the date of this report.

LOCAL AGENCY ONLY
To avoid duplicate notification pursuant to Health and Safety code Section 25180.7, a designated government employee should sign and date the form in this block. A signature here does not mean that the leak has been determined to pose a significant threat to human health or safety, only that notification procedures have been followed if required.

REPORTED BY
Enter your name, telephone number, and address. Indicate which party you represent and provide company or agency name.

RESPONSIBLE PARTY
Enter name, telephone number, contact person, and address of the party responsible for the leak. The responsible party would normally be the tank owner.

SITE LOCATION
Enter information regarding the tank facility. At a minimum, you must provide the facility name and full address.

IMPLEMENTING AGENCIES
Enter names of the local agency and Regional Water Quality Control Board involved.

SUBSTANCES INVOLVED
Enter the name and quantity lost of the hazardous substance involved. Room is provided for information on two substances if appropriate. If more than two substances leaked, list the two of most concern for cleanup.

DISCOVERY/ABATEMENT
Provide information regarding the discovery and abatement of the leak.

SOURCE/CAUSE
Indicate source(s) of leak. Check box(es) indicating cause of leak.

CASE TYPE
Indicate the case type category for this leak. Check one box only. Case type is based on the most sensitive resource affected. For example, if both soil and ground water have been affected, case type will be "Ground Water". Indicate "Drinking Water" only if one or more municipal or domestic water wells have actually been affected. A "Ground Water" designation does not imply that the affected water cannot be, or is not, used for drinking water, but only that water wells have not yet been affected. It is understood that case type may change upon further investigation.

CURRENT STATUS
Indicate the category which best describes the current status of the case. Check one box only. The response should be relative to the case type. For example, if case type is "Ground Water", then "Current Status" should refer to the status of the ground water investigation or cleanup, as opposed to that of soil. Descriptions of options follow:

No Action Taken - No action has been taken by responsible party beyond initial report of leak.
Leak Being Confirmed - Leak suspected at site, but has not been confirmed.
Preliminary Site Assessment Workplan Submitted - workplan/proposal requested of/submitted by responsible party to determine whether ground water has been, or will be, impacted as a result of the release.
Preliminary Site Assessment Underway - implementation of workplan.
Pollution Characterization - responsible party is in the process of fully defining the extent of contamination in soil and ground water and assessing impacts on surface and/or ground water.
Remediation Plan - remediation plan submitted evaluating long term remediation options. Proposal and implementation schedule for appropriate remediation options also submitted.
Cleanup Underway - implementation of remediation plan.
Post Cleanup Monitoring in Progress - periodic ground water or other monitoring at site, as necessary, to verify and/or evaluate effectiveness of remedial activities.
Case Closed - regional board and local agency in concurrence that no further work is necessary at the site.

IMPORTANT: THE INFORMATION PROVIDED ON THIS FORM IS INTENDED FOR GENERAL STATISTICAL PURPOSES ONLY AND IS NOT TO BE CONSTRUED AS REPRESENTING THE OFFICIAL POSITION OF ANY GOVERNMENTAL AGENCY

REMEDIAL ACTION
Indicate which action have been used to cleanup or remediate the leak. Descriptions of options follow:

Cap Site - install horizontal impermeable layer to reduce rainfall infiltration.
Containment Barrier - install vertical dike to block horizontal movement of contaminant.
Excavate and Dispose - remove contaminated soil and dispose in approved site.
Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming).
Remove Free Product - remove floating product from water table.
Pump and Treat Groundwater - generally employed to remove dissolved contaminants.
Enhanced Biodegradation - use of any available technology to promote bacterial decomposition of contaminants.
Replace Supply - provide alternative water supply to affected parties.
Treatment at Hookup - install water treatment devices at each dwelling or other place of use.
Vacuum Extract - use pumps or blowers to draw air through soil.
Vent Soil - bore holes in soil to allow volatilization of contaminants.
No Action Required - incident is minor, requiring no remedial action.

COMMENTS - Use this space to elaborate on any aspects of the incident.

SIGNATURE - Sign the form in the space provided.

DISTRIBUTION
If the form is completed by the tank owner or his agent, retain the last copy and forward the remaining copies intact to your local tank permitting agency for distribution.
1. Original - Local Tank Permitting Agency
2. State Water Resources Control Board, Division of Loans and Grants, Underground Storage Tank Program, P.O. Box 944212, Sacramento, CA 94244-2120
3. Regional Water Quality Control Board
4. County Board of Supervisors or designee to receive Proposition 65 notifications.
5. Owner/responsible party.