

**PRELIMINARY SITE ASSESSMENT
INSTALLATION
OF
GROUNDWATER MONITORING WELLS**

**Livermore Gas and Mini Mart
160 Holmes Street
Livermore, California**

Prepared For:

Manwel and Samira Shuwayhat

ETIC Project TMMNWT3

September 22, 2000

Costas (408) 241-1798

(408) 316-4507 cell

- where is new tank pit
in same pit
- Consider vapor extract.
from former tank pit
area, - Do HP to
determine extent of
plume.
- Maybe vapor extraction
not viable - were excavated
to cap pinger for new USTs.
Maybe not much NPB in
cap pinger at this time

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PRELIMINARY SITE ASSESSMENT**Livermore Gas and Mini Mart
160 Holmes Street
Livermore, California****1.0 INTRODUCTION**

This report presents the results of a Preliminary Site Assessment (PSA) of the Livermore Gas and Mini Mart (LGMM), 160 Holmes Street Livermore, California. The work was requested by Ms. Eva Chu of the Alameda County Environmental Health Services (ACEHS) on 7/26/99 and 11/4/99. The ACEHS directives are attached in Appendix A. The work was performed on behalf of Manwel and Samira Shuwayhat, the responsible parties associated with the site.

The objectives of the investigation were three fold: 1) to delineate the onsite extent of soil and groundwater contamination and 2) to determine the local gradient and 3) to collect data needed to implement a follow up soil and groundwater investigation using geoprobe technology to further delineate the extent of hydrocarbon impact to the site and adjacent properties.

The property is an old gas station that has been recently upgraded; it is located on the corner of First and Holmes Streets (the property is bound by First, Second and Holmes Streets). The site location and adjacent streets are presented on the Site Vicinity Map (Figure 1). The locations of the groundwater monitoring wells are presented on the Site Plan (Figure 2).

2.0 PAST WORK ON SITE

On 2/26/99, a boring was advanced in the northern section of the property, about 10 feet from the edge of First Street sidewalk, to log soil and determine depth to groundwater. A groundwater grab sample was collected and analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), benzene, toluene, ethyl-benzene, total xylenes (BTEX) and methyl tertiary butyl ether (MtBE). The sample was found to be impacted by petroleum hydrocarbons (TPHg: 100,000 ug/l, Benzene: 6,100 ug/l, MtBE: 60,000). The results were communicated to the Livermore-Pleasanton Fire Department (LPFD) and a UST unauthorized release report was generated.

On 4/5/99, three gasoline and one diesel USTs, associated dispensers and piping were removed, manifested and disposed, under permit by the LPFD. The pit was over excavated and samples were collected from native soil beneath the USTs; sample analysis indicated the presence of petroleum hydrocarbons in soil. Total Petroleum

Hydrocarbons as diesel (TPHd) was detected at low levels (61 mg/kg) in the soil stockpile but not beneath the diesel tank; TPHg concentrations ranged from not detectable to 80 mg/kg in all samples; MtBE concentrations ranged from 24 to 110 mg/kg.

On 5/20/99 samples were collected beneath the dispenser islands. TPHg was found beneath the east dispenser island in varying concentrations ranging from 32 mg/kg to 6,500 mg/kg; TPHd beneath the diesel dispenser was detected at 1300 mg/kg; no MtBE was detected beneath the dispenser islands.

3.0 METHODS AND PROCEDURES

ETIC Engineering, Inc. (ETIC) obtained a well installation permit (20112) from the Zone 7 Water Agency. A copy of the well permit is presented in Appendix A. The locations of the wells were marked by ETIC and cleared for the presence of underground utilities by Underground Services Alert (USA Dig Alert # 206815) approximately one week prior to the initiation of work at the site.

3.1 Soil Boring Installation and Sample Collection

On July 26, 2000, soil borings were drilled to an approximate depth of 30-feet below ground surface (bgs) using a truck-mounted, nominal 8-inch outer diameter, continuous flight, hollow stem auger drilling equipment. Soil samples were collected, for possible chemical analysis, at five-foot intervals beginning at 3.5-feet bgs to total depth. One soil sample was collected from the capillary fringe zone (19-20.5 feet bgs) of each well. The first boring drilled (later converted to well MW3) was sampled continuously from 10-foot bgs to 21-feet bgs; first water was encountered at 20.5-feet bgs.

Soil samples were obtained using Standard Penetration sampling techniques. A 2½ inch outside diameter, modified California split-barrel sampler, lined with clean 2-inch outside diameter brass sleeves, was used to collect the soil samples. The sampler was driven into undisturbed soil ahead of the augers by dropping a 130-pound (lb) hammer for a vertical distance of 36-inches. The sampler was decontaminated prior to each use, by washing in tri-sodium phosphate solution, then followed with a triple fresh water rinse.

Upon retrieval from the sampler, excess soil was trimmed from the ends of the sleeve and tight-fitting plastic end caps attached. The sample sleeves were labeled, then placed in a pre-cooled container to minimize the loss of volatile constituents. Minimum information on the labels includes Project name & number, the date and time of sampling, sample identification and the identity of the sampler. Soil samples from depths of 15 and 19 feet bgs were listed on a Chain of Custody (COC) document and subsequently transported to Chromalab Inc., a State of California CLEP laboratory for the requisite analyses. At the request of Ms. Chu of the ACEHS, one soil sample was collected from MW3 at a depth of 15 feet bgs, for engineering analysis to determine total organic carbon, grain density, moisture content and porosity.

3.5 Groundwater Sampling and Analysis

Following purging on 8/11/00, the wells were sampled for TPHg, BTEX and MtBE using EPA Method 8015/8020 and TPHd using EPA Method 8015M.

The groundwater sample containers (40 ml VOA and 1-liter amber bottles) were labeled, then placed in a pre-cooled container to minimize the loss of volatile constituents. Minimum information on the labels included the project name, number, date and time of sampling, sample identification and the identity of the sampler.

Sample data was entered on a COC document that accompanied the samples while onsite and during transport to Chromalab Inc. a State of California CLEP laboratory, for the requisite analysis.

4.1 Analytical Results

This section of the report presents the analytical results for soil and groundwater samples collected during the initial sampling event, following the groundwater monitoring well installation.

4.1 Soil Samples

Soil samples were collected from each boring at depths of 15 feet bgs and from the capillary zone immediately above the groundwater (19-20 feet bgs). Samples were analyzed for TPHg, BTEX and MtBE. No significant levels of TPHg BTEX or MtBE impact was found except immediately above the groundwater (20 feet bgs) in well MW1, where TPHg was detected at 800 mg/kg.

Soil sample analytical results are shown on Figure 3 and tabulated on Table 2. Copies of the COC document and laboratory analytical results are presented in Appendix C.

Total Organic Carbon (TOC) analysis was performed on the 10-foot soil sample from well MW3 by Advanced Technologies using EPA Method 9060. No organic carbon was detected at instrument detection limits of 30 mg/kg.

Soil specific gravity, dry density and porosity analysis was performed by Cooper Testing Labs on a shallow (12.5-foot bgs) and a deeper soil sample (17-foot bgs) from well MW2. The specific gravity for the 12.5' soil sample was 2.82 and its porosity was 37.8%; specific gravity for the 17' soil sample was 2.75 and its porosity was 32.1%.

Copies of the COC documentation and laboratory analytical results by Cooper Testing Labs and Advanced Technologies are presented in Appendix D.

4.2 Groundwater Samples

Groundwater samples were analyzed for TPHd, TPHg, BTEX and MtBE. Significant levels of both TPHd and TPHg were detected in water samples from all three wells. TPHd was detected at levels of 57,000 $\mu\text{g/L}$, 1,900 $\mu\text{g/L}$ and 260 $\mu\text{g/L}$, in wells MW1, MW2 and MW3 respectively. TPHg was detected at levels of 170,000 $\mu\text{g/L}$, 4,500 $\mu\text{g/L}$ and 59 $\mu\text{g/L}$ in wells MW1, MW2 and MW3 respectively. MtBE was detected in MW1 and MW2 at 320,000 $\mu\text{g/L}$ and 3,000 $\mu\text{g/L}$.

No free product was noted in any of the wells at the time of development and sampling, however the levels of hydrocarbons detected in MW1 suggest that some free product or sheen may be present in the vicinity of that well.

Groundwater sample analytical results are shown on Figure 4 and tabulated on Table 3. Copies of the COC document and laboratory analyticals are presented in Appendix F.

5.0 GROUNDWATER GRADIENT

Following installation of the groundwater monitoring wells, the elevations of the wells were surveyed by Nelson Surveying, Livermore California. The survey results were used in determining the elevation of the groundwater and in developing the local gradient.

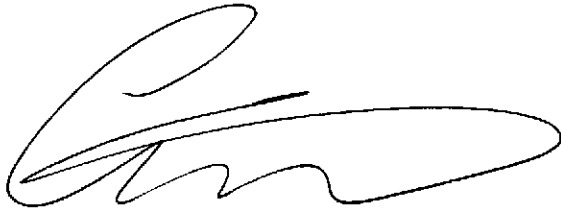
Based on the well survey and DTW measurements taken on August 11, the groundwater direction of flow is ~~east~~ west towards Holmes Street. The gradient at the site, is approximately 0.0045 ft/ft. The groundwater gradient and direction are presented on Figure 5.

6.0 RECOMMENDATIONS

Based on the data obtained during the installation of wells MW1, MW2 and MW3, ETIC recommends the following:

- 1) Monitor groundwater quality parameters in the newly installed monitoring wells on a quarterly basis. The next quarterly groundwater-monitoring event is tentatively scheduled for November 13, 2000, within a 10-day window of opportunity.
- 2) Proceed with offsite downgradient investigation of soil and groundwater. The use of direct push technology (geoprobos) is suggested.
- 3) Present a copy of this report to Ms. Eva Chu, Alameda County Environmental Health Service
- 4) Present a copy of the boring logs and well completion details to Wyman Hong, Zone 7 Water Agency.

If you have any questions please contact the undersigned at 408-244-7202.



Costas Orountiotis
Program Manager



Robert F. Flory, R.G.
License No 5825
Expires 10/31/02

ETIC Engineering, Inc

TABLE 1 - Well Construction Detail

Livermore Gas and Minimart, 160 Holmes, Livermore, California

Well Number	Date Installed	Total Depth (feet bgs)	Borehole Diameter (inches)	Casing Diameter (inches)	Slot (inch)	Interval					DTW 8/11/00 (feet)
						Screen (feet)	Blank (feet)	Sand Pack (feet)	Bentonite (feet)	Cement Grout (feet)	
MW-1	07/26/00	30	8	2	0.01	30-15	15-0.5	30-13	13-11	11-1.0	20.49
MW-2	07/26/00	30	8	2	0.01	30-15	15-0.5	30-13	13-11	11-1.0	20.35
MW-3	07/26/00	30	8	2	0.01	30-15	15-0.5	30-13	13-11	11-1.0	20.97

Notes: bgs Below ground surface
 DTW Depth to water

ETIC Engineering, Inc

TABLE 2 - Soil Analytical Results

Livermore Gas and Minimart, 160 Holmes, Livermore, California

Well No.	Sampling Date	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl- Benzene (mg/Kg)	Xylene (mg/Kg)	MtBE (mg/Kg)
MW-1-15	07/26/00	< 10	< 0.62	< 0.62	< 0.62	< 0.62	0.93
MW-1-19	07/26/00	800	< 6.2	36	18	100	21
MW-2-15	07/26/00	< 1.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MW-2-20	07/26/00	1.1	0.0092	0.013	0.053	0.13	0.11
MW-3-15	07/26/00	< 1.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MW-3-20	07/26/00	< 1.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

ETIC Engineering, Inc

TABLE 3 - Groundwater Analytical Results

Livermore Gas and Minimart, 160 Holmes, Livermore, California

Well No.	Sampling Date	GWE (feet)	TPHd (µg/L)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- Benzene (µg/L)	Xylene (µg/L)	MtBE (µg/L)
MW1	08/11/00		57,000	170,000	6,400	7,600	4,200	9,700	320,000
MW2	08/11/00		1,900	4,500	220	52	160	170	3,000
MW3	08/11/00		260	59	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0

Notes: GWE Groundwater Elevation (relative to mean sea level)

TPHg Total Petroleum Hydrocarbons as gasoline

µg/L Micrograms per liter

MtBE Methyl tertiary butyl ether

NM Not measured

NA Not Analyzed

ETIC Engineering, Inc

TABLE 4 - Depth to Groundwater

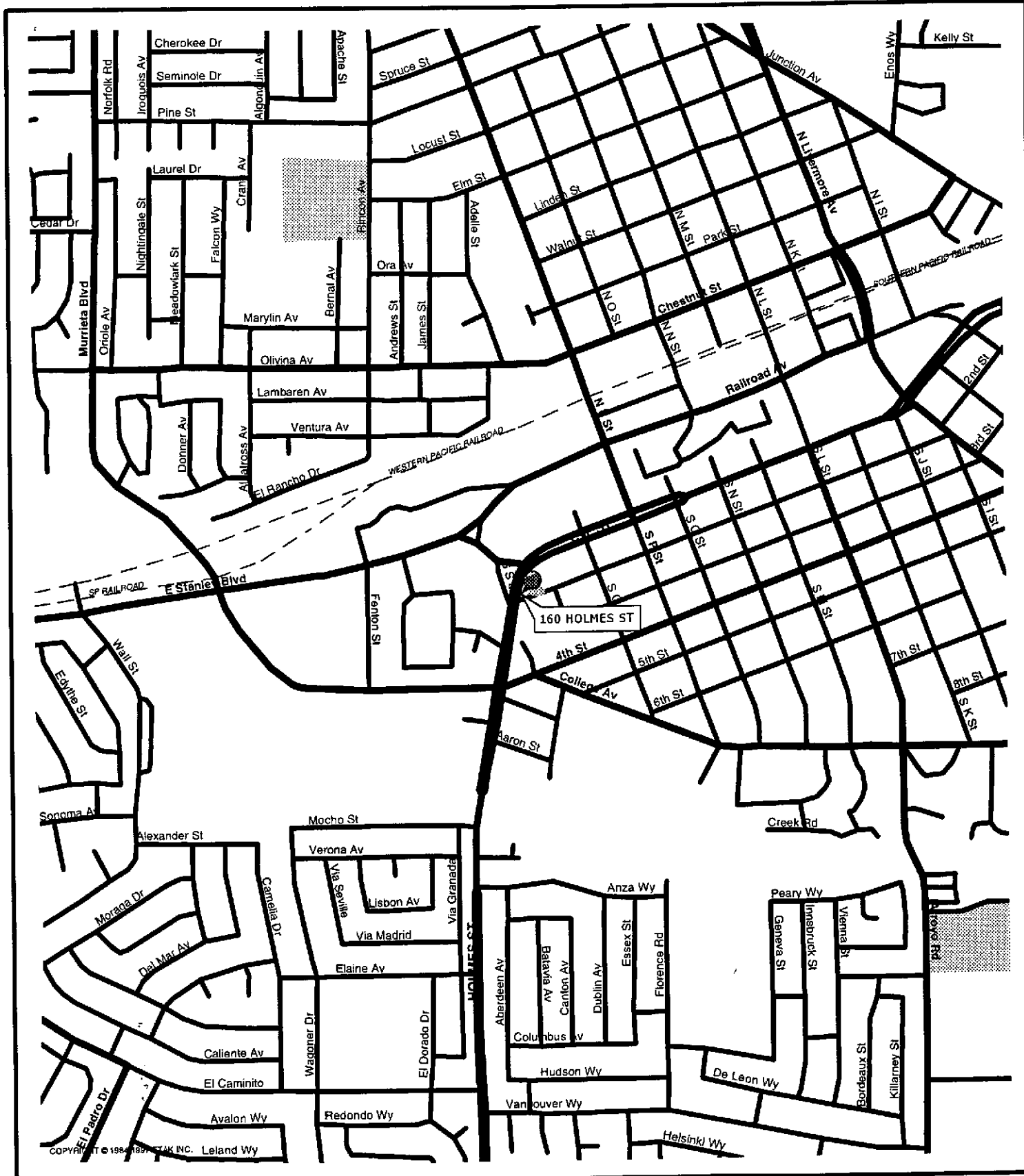
Livermore Gas and Minimart, 160 Holmes, Livermore, California

Well	Sampling Date	Casing Elevation (feet MSL)	Depth to water (feet bgs)	GW Elevation (feet MSL)	Change in GW Elevation (feet)
MW1	8/11/00	465.04	20.49	444.55	NC
MW2	8/11/00	464.96	20.35	444.61	NC
MW3	8/11/00	465.86	20.97	444.89	NC

Notes:

DTW	Depth to water
MSL	Mean sea level
bgs	Below ground surface
NC	Not calculated

FIGURES



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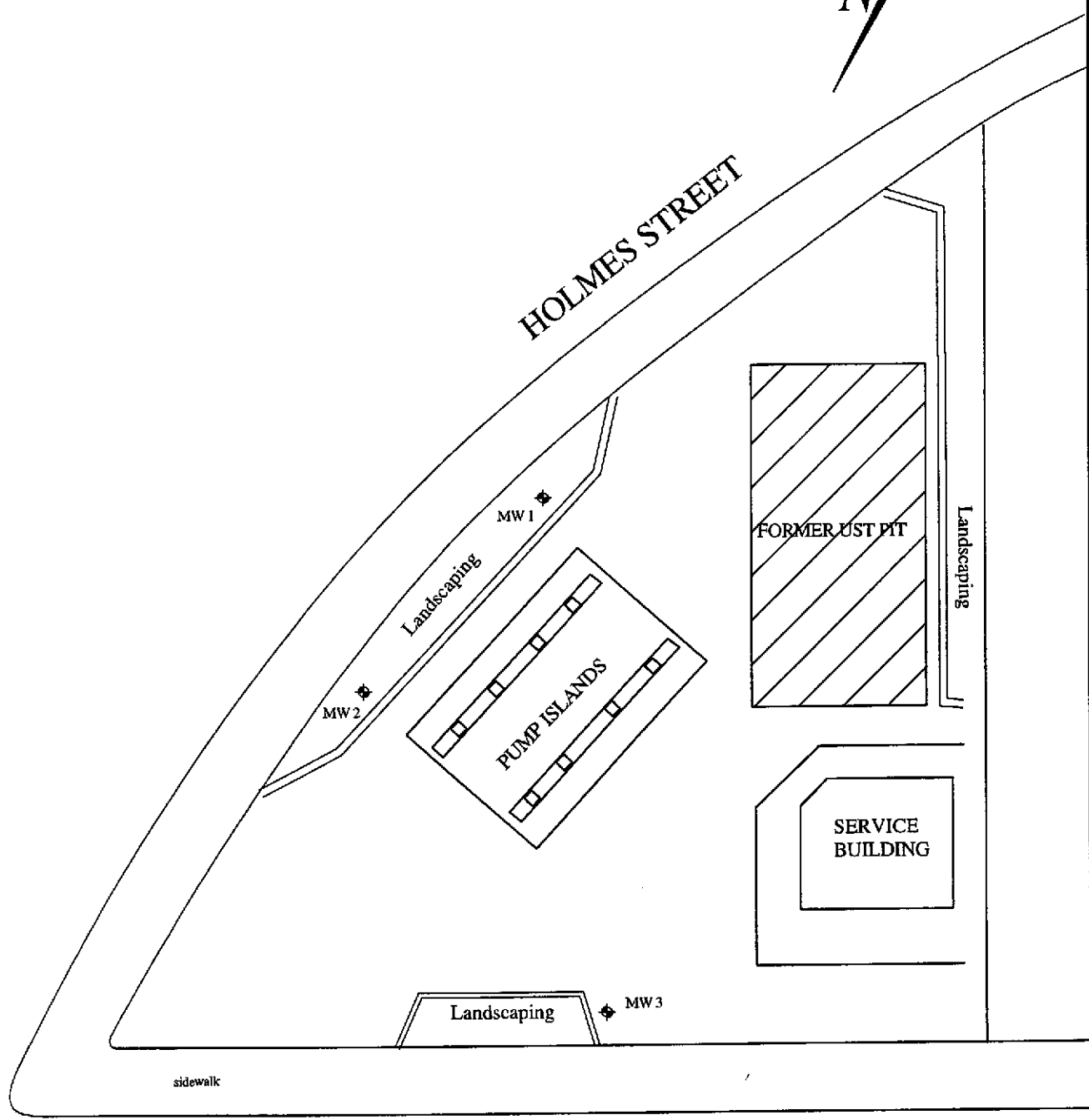
ETIC
Engineering Inc

SITE VICINITY MAP
Livermore Gas and Minimart
160 Homes Street, Livermore, CA

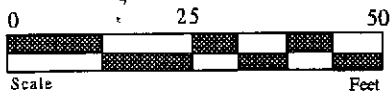
Figure No.
1
Project
TMMNW T3 3

LEGEND:

◆ Groundwater Monitoring Well



SECOND STREET




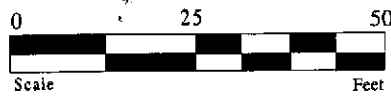
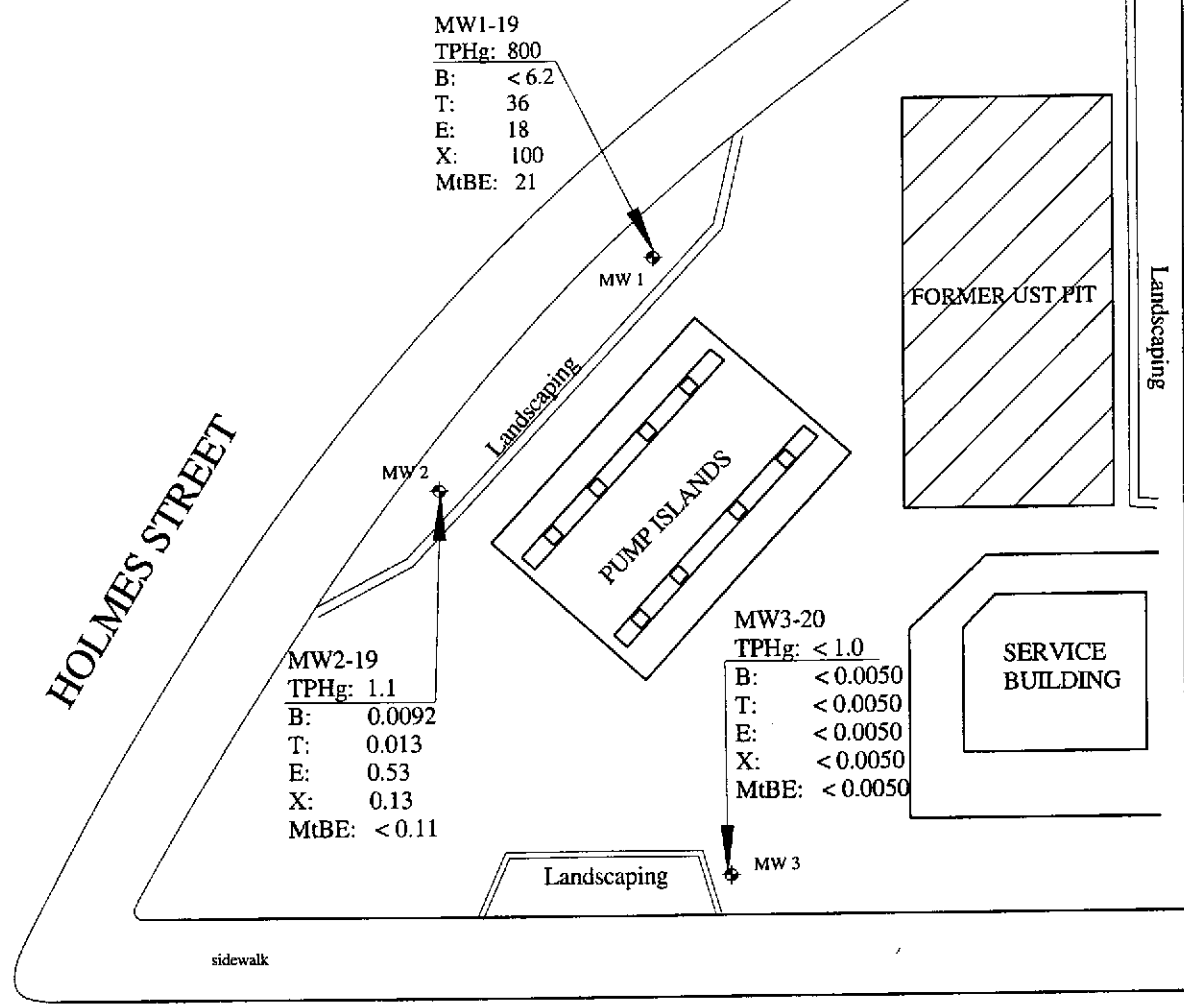
ETIC
Engineering Inc

Site Plan
Livermore Gas and Minimart
160 Homes Street, Livermore, CA

Figure No.
2
Project No.
TMMNW T3 3

LEGEND:

-  Groundwater Monitoring Well
- TPHg: Total Petroleum Hydrocarbons as Gasoline
- B: Benzene
- T: Toluene
- E: Ethyl Benzene
- X: Total Xylenes
- MtBE: Methyl Tertiary Butyl Ether
- all concentrations in mg/kg
- Sampled: 07/26/00




SECOND STREET

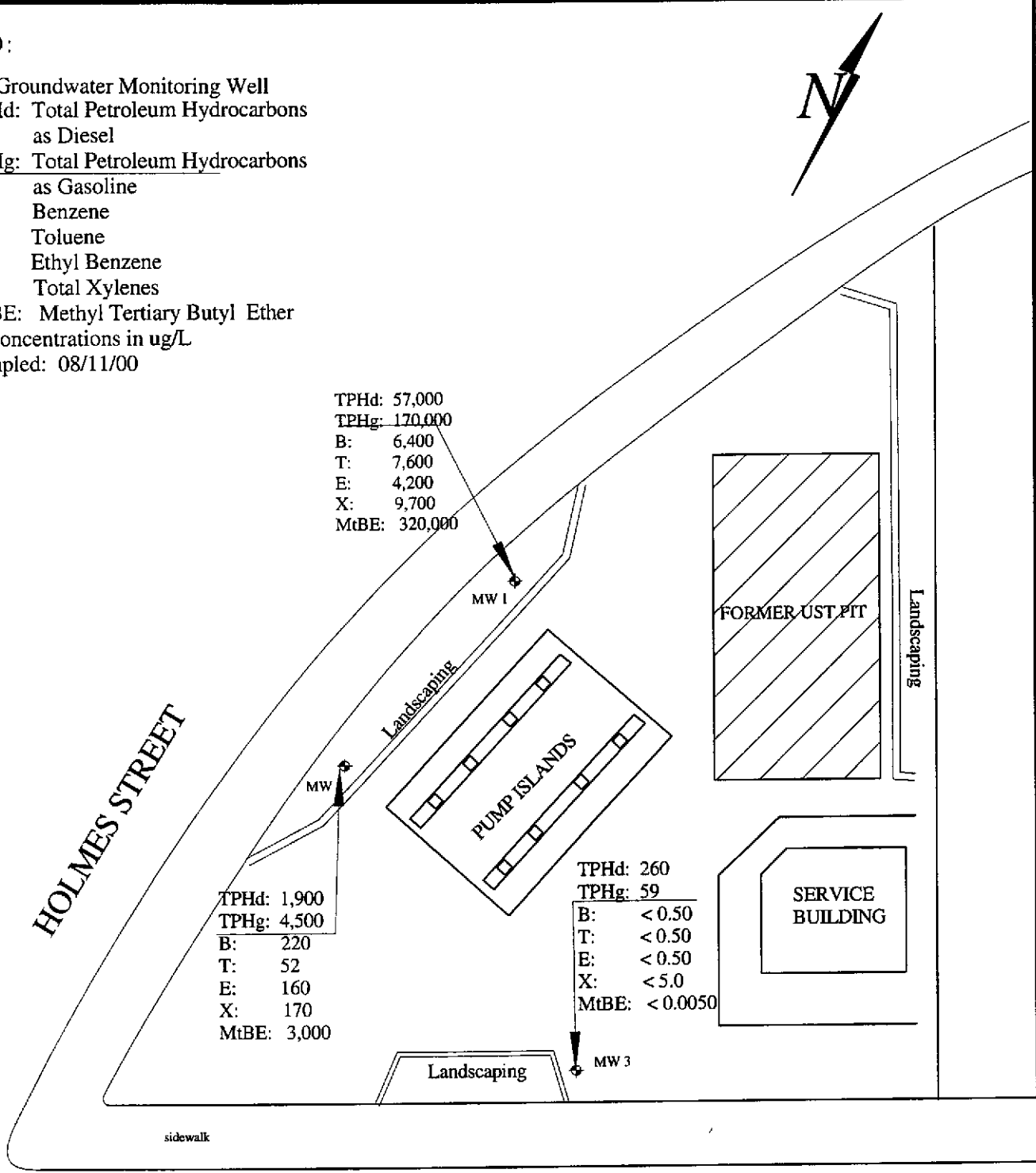
ETIC
 Engineering Inc

Soil Contaminant Levels
 Livermore Gas and Minimart
 160 Homes Street, Livermore, CA

Figure No.
 3
 Project No.
 TMMNW T3 3

LEGEND:

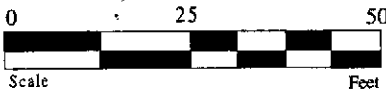
-  Groundwater Monitoring Well
- TPHd: Total Petroleum Hydrocarbons as Diesel
- TPHg: Total Petroleum Hydrocarbons as Gasoline
- B: Benzene
- T: Toluene
- E: Ethyl Benzene
- X: Total Xylenes
- MtBE: Methyl Tertiary Butyl Ether
- all concentrations in ug/L
- Sampled: 08/11/00



TPHd: 57,000
 TPHg: 170,000
 B: 6,400
 T: 7,600
 E: 4,200
 X: 9,700
 MtBE: 320,000

TPHd: 1,900
 TPHg: 4,500
 B: 220
 T: 52
 E: 160
 X: 170
 MtBE: 3,000

TPHd: 260
 TPHg: 59
 B: < 0.50
 T: < 0.50
 E: < 0.50
 X: < 5.0
 MtBE: < 0.0050



SECOND STREET

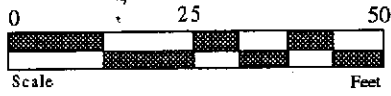
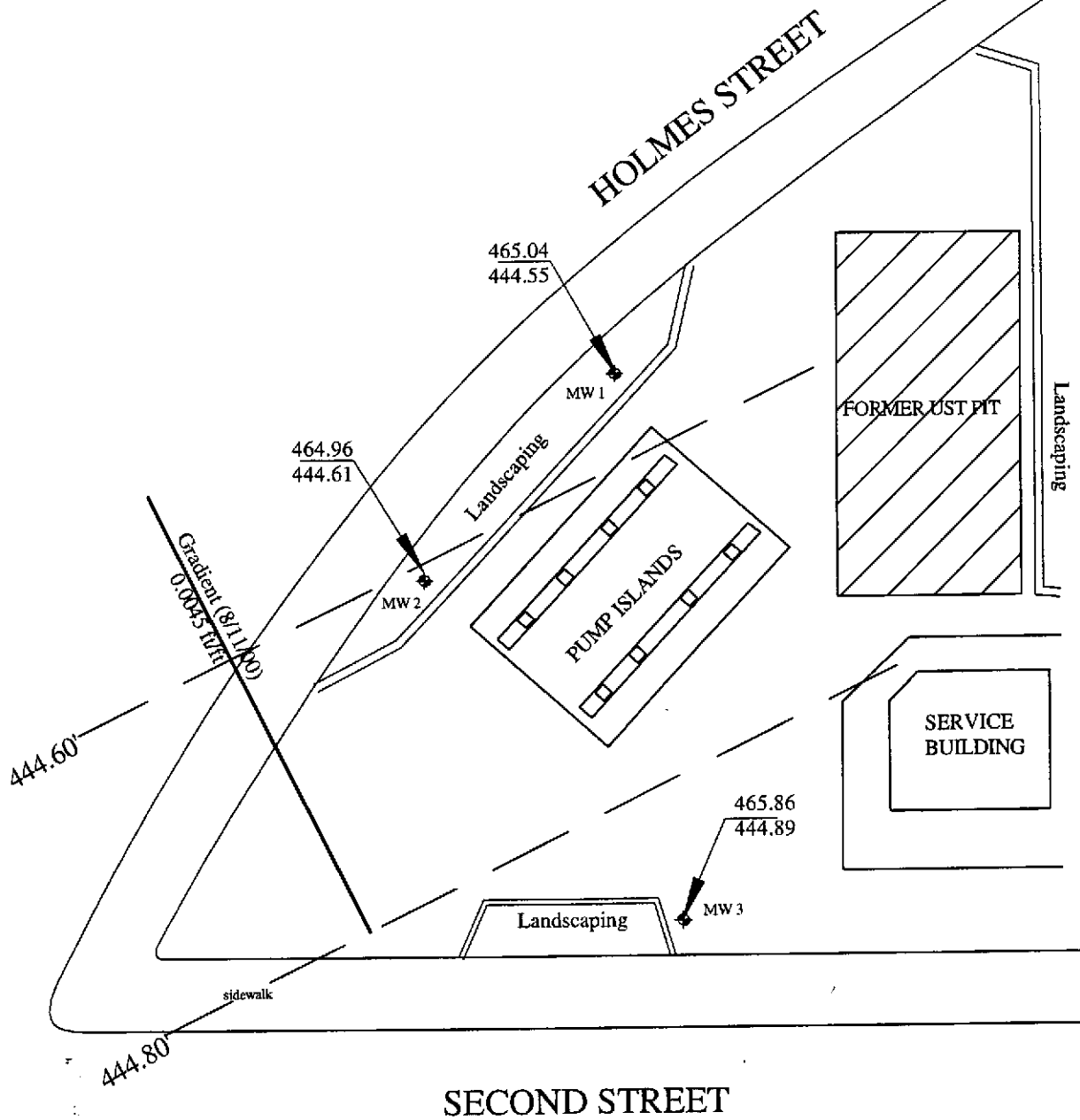
ETIC
 Engineering Inc

Groundwater Contaminant Levels
 Livermore Gas and Minimart
 160 Homes Street, Livermore, CA

Figure No.
 4
 Project No.
 TMMNW T3 3

LEGEND:

◆ Groundwater Monitoring Well



Groundwater Gradient (8/11/00)
Livermore Gas and Minimart
160 Homes Street, Livermore, CA

Figure No.
5
Project No.
TMMNW T3 3

ETIC
Engineering Inc

APPENDIX A

**Well Construction Permit
ACEHS Directives**



July 6, 2000

Mr. Robert Flory
ETIC Environmental Engineers
3275 Stevens Creek Boulevard, Suite 315
San Jose, CA 95117

Dear Mr. Flory:

Enclosed is drilling permit 20112 for a monitoring well construction project at 160 Holmes Street in Livermore for Manwell Shuwayhat. Also enclosed are current drilling permits for your files.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact me at extension 235 or Matt Katen at extension 234.

Sincerely,

Wyman Hong
Water Resources Technician II

Enc.



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127

VOICE (925) 484-2600 X235
FAX (925) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 160 Holmes Street
Livermore, CA

California Coordinates Source _____ ft. Accuracy _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Marwell Shuwayhat
Address 54 Wolfe Canyon Roo Phone _____
City Kentfield, CA Zip 94904

APPLICANT
Name ETIC Engineering
Ste 315 Fax 408-244-7277
Address 3275 Stevens Creek Blvd. Phone 408-244-7202
City San Jose, CA Zip 95117

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring X Well Destruction

PROPOSED WATER SUPPLY WELL USE
New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other:GW_Monitoring X

DRILLING METHOD:
Mud Rotary Air Rotary Auger X
Cable Other

DRILLER'S LICENSE NO. C-57 484288

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum _____
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 15 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum _____
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE July 17, 2000 ESTIMATED
COMPLETION DATE No later than Aug 1, 2000

I hereby agree to comply with all requirements of this permit and Alameda
County Ordinance No. 73-68.

APPLICANT'S
SIGNATURE [Signature] Date 6/28/00

PERMIT NUMBER 20112
WELL NUMBER 3S/2E 17C28 to 17C30
APN 097 0082 007 07

PERMIT CONDITIONS

Circled Permit Requirements Apply

- (A) GENERAL
 1. A permit application should be submitted so as to arrive at Zone 7 office five days prior to proposed starting date.
 2. Submit to Zone 7 within 60 days after completion of permit work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
 3. Permit is void if project not begun within 90 days of approval date.
- B. WATER SUPPLY WELLS
 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
 3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
 4. A sample port is required on the discharge pipe near the wellhead.
- (C) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
- D. GEOTECHNICAL. Backfill bore hole with compacted cuttings heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.
- E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.
- F. WELL DESTRUCTION. See attached.
- G. SPECIAL CONDITIONS

Approved [Signature] Date 7/6/00
Wyman Hong

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 100
Alameda, CA 94502-6577
(510) 567-8700
(510) 567-9335 (FAX)

StID 4130

July 26, 1999

Mr. Manwel Shuwayhat
Livermore Gas and Mini Mart
54 Wolfe Canyon Road
Kentfield, C A 94904

RE: PSA for 160 Holmes Street, Livermore, CA

Dear Mr. Shuwayhat:

I have completed review of ETIC's July 1999 reports documenting the removal of four underground storage tanks (in February 1999) at the above referenced address. Soil samples collected from the tank excavation contained up to 6,500 parts per million total petroleum hydrocarbons as gasoline (TPHg) and 110 ppm Methyl-Tert-Butyl-Ether (MTBE). In addition, a grab water sample collected from a soil boring advanced next to the former USTs contained 100 ppm TPHg and 60ppm MTBE. Clearly an unauthorized release of fuel products has occurred at the site.

At this time, additional investigations are required to delineate the extent and severity of soil and groundwater contamination at the site. Such an investigation shall be in the form of a **Preliminary Site Assessment**, or PSA. The information gathered by the PSA will be used to determine an appropriate course of action to remediate the site, if deemed necessary. The PSA must be conducted in accordance with the RWQCB Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks, and Article 11 of Title 23, California Code of Regulations. The major elements of such an investigation are summarized in the attached Appendix A.

In order to proceed with this site investigation, you should obtain the professional services of a reputable environmental consultant. Your responsibility is to have the consultant submit for review a proposal outlining planned activities for the delineation of soil and groundwater contamination at the site.

The PSA proposal is due **within 60 days** of the date of this letter, or **by September 27, 1999**. 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. 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.

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES

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

StID 4130

November 24, 1999

Mr. Manwel Shuwayhat
Livermore Gas and Mini Mart
54 Wolfe Canyon road
Kentfield, CA 94904

SECOND NOTICE OF VIOLATION

Dear Mr. Shuwayhat:

On July 26, 1999, the Alameda County Department of Environmental Health, Hazardous Materials Division, sent you a letter requesting a workplan detailing the work to be performed to determine the extent of soil and groundwater contamination at **160 Holmes Street, Livermore, CA**. As of the date of this letter, however, we have not received any communication from you on this matter. Therefore, this letter constitutes a **Second Notice** that you are in violation of specific laws and that the technical report is due.

According to Section 25298 of the California Health and Safety Code, underground storage tank closure is incomplete until the responsible party characterizes and remediates the contamination resulting from product discharge. Therefore, you, as the responsible party are in violation of this section of the Code, for which Section 25299 specifies civil penalties of up to \$5,000, for each day of violation, upon conviction. Also, failure to furnish technical reports regarding documented or potential groundwater contamination violates Section 13267(b) of the California Water Code. The Regional Water Quality Control Board (RWQCB) can impose civil penalties of up to \$1,000 per day that such a violation continues.

You are required to submit the technical report for the site to this office **within 30 days** from the date of this letter or by **December 27, 1999**. Failure to respond may result in **referral of this case to the RWQCB or Alameda County District Attorney to consider for enforcement action**. Modification of required tasks or extensions of stated deadlines must be confirmed in writing by either this agency or the RWQCB.

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

eva chu
Hazardous Materials Specialist

holmes3

APPENDIX B
Boring Logs
Well Construction Diagrams

LOG OF SOIL BORING:

MW1

COORDINATES:

ELEVATION RIM: 465.68' MSL

ELEVATION TOP OF CASING: 465.04' MSL

CLIENT Livermore Gas and Mini Mart		SITE NUMBER TMMNW T3 3		LOCATION 160 Holmes St Livermore, CA	
DRILLING AND SAMPLING METHODS 8" HOLLOW STEM AUGERS					
WATER LEVEL	19.67	20.49		DRILLING	
TIME	1400	0900		START TIME	FINISH TIME
DATE	7/26/00	8/11/00		1220	1330
REFERENCE	TOC	TOC		DATE	DATE
				7/26/00	7/26/00

INCHES			WELL DETAIL	DEPTH (feet)	GRAPHIC LOG	SURFACE CONDITIONS	
DRIVEN	RECOVER	BLOWS/6" SAMPLER				DESCRIPTION BY: R. F. Flory	
				0	CL	Black sandy loam	
				1	CL	SANDY SILTY CLAY, dark brown, occasional gravel, slightly moist, moderately firm	
				2			
18	18	10		3		SANDY GRAVEL, brown-grayish brown-yellowish brown, locally clayey, matrix supported, 2" max clasts, dry, firm	
		10		4			
		8		5			
				6	GP		
				7			
18	16	12		8	SW	SILTY SAND, brown, gravelly, slightly moist, firm	
		40		9			
		50/5'		10	GP	SANDY GRAVEL, grayish brown-yellowish brown, locally clayey, matrix supported, 2" max clasts, dry, firm	
				11			
				12			
				13	CL	SANDY SILTY CLAY, yellow brown, moist, moderately firm	
18	18	9		14		grading downward into CLAYEY SILT	
		9		15	ML	CLAYEY SILT, yellow brown - light olive mottling, slightly moist moderately firm, slight DIESEL? ODOR becoming increasingly light olive, increasing ODOR downward	
		9		16			
				17	CL	SILTY CLAY, light olive, slightly moist, moderately firm, DIESEL? ODOR	
				18			
18	17.5	9		19	GC	SANDY CLAYEY GRAVEL, grayish brown, matrix supported, 1 1/2" max clasts, moist, firm	
		9	20		Wet @ 19.5'		
		9					

Continued on page 2

RECOVER				CLIENT Livermore Gas and Mini Mart		LOCATION 160 Holmes Livermore, CA	
---------	--	--	--	---------------------------------------	--	---	--

INCHES						LOG OF SOIL BORING:	
DRIVEN	RECOVER	BLOWS/6" SAMPLER	OVA READING	WELL DETAIL	DEPTH (feet)	GRAPHIC LOG	MW 1
							page 2 of 2

					21	GC	SANDY CLAYEY GRAVEL, grayish brown, matrix supported, 1 1/2" max clasts, moist, firm	
					22			
					23	CL	CLAY, light olive - olive brown, moist, firm grading downward into	
18	18	6			24	CL		
		8			25	ML	SILTY CLAY, light olive - light olive brown, moist, firm locally becoming CLAYEY SILT	
		9			26	ML		
					27	CL		
					28	CL		
18	17.75	6			29	CL		
		7			30	CL	SILTY CLAY, light brown, moist, firm, slight odor	

					30	Total Depth 30 feet	
					31		
					32		
					33		
					34		
					35		
					36		
					37		
					38		
					39		
					40		
					41		
					42		
					43		
					44		
					45		

LOG OF SOIL BORING:

MW2

COORDINATES:

ELEVATION RIM: 465.32' MSL

ELEVATION TOP OF CASING: 464.96' MSL

CLIENT Livermore Gas and Mini Mart	SITE NUMBER TMMNW T3 3	LOCATION 160 Holmes St Livermore, CA	
DRILLING AND SAMPLING METHODS 8" HOLLOW STEM AUGERS			
WATER LEVEL	19.65	20.35	DRILLING START FINISH
TIME	1130	0930	TIME 1045 1200
DATE	7/26/00	8/11/00	DATE 7/26/00 7/26/00
REFERENCE	TOC	TOC	

INCHES DRIVEN	INCHES RECOVER	BLOWS/6" SAMPLER	WELL DETAIL	DEPTH (feet)	GRAPHIC LOG	SURFACE CONDITIONS Planter, wood chips and black sandy loam
						DESCRIPTION BY: R. F. Flory
				0	CL	Black sandy loam
				1		SANDY SILTY CLAY, dark brown, slightly moist, moderately firm
				2		
18	17	9		3		
		10		4	CL	SANDY SILTY CLAY, brown, slightly moist, firm
		10		5		
				6		
				7		
				8		SANDY SILTY CLAY, brown - yellowish brown, slightly moist, in auger returns
18	18	8		9		
		9		10	CL	SANDY SILTY CLAY, yellowish brown, slightly moist, firm
		10		11		grading downward into brown-dark brown moist, firm
				12		
				13		
18	18	8		14		SANDY SILTY CLAY, brown- dark brown grading downward to black, moist, firm, slightly plastic
		10		15	CL	
		13		16		
				17		
				18		CLAYEY GRAVEL, light brown, sandy, matrix supported, 1 1/2" max clasts, moist, firm
18	16.5	25		19	GP	
		28		19.65		CLAYEY SANDY GRAVEL, light brown-olive brown, matrix supported, 1 1/2" max clasts, wet @ 19.5', firm, diesel? odor
		29		20		Wet @ 19.5'

Continued on page 2

RECOVER					CLIENT	LOCATION		
					Livermore Gas and Mini Mart	160 Holmes Livermore, CA		
INCHES		BLOWS/6" SAMPLER	OVA READING	WELL DETAIL	DEPTH (feet)	GRAPHIC LOG	LOG OF SOIL BORING: MW2 Page 2 of 2	
DRIVEN	RECOVER							
					21	GC	CLAYEY SANDY GRAVEL, light brown-olive brown, matrix supported, 1 1/2" max clasts, wet @ 19.5', firm, diesel? odor	
					22			SANDY GRAVELY CLAY, light brown - occasionally olive gray mottling, moist, firm
					23	CL		
18	18	11			24	SC CL		SANDY GRAVELY CLAY, light brown, moist, firm, locally becoming CLAYEY SAND
		11			25	SC CL		SANDY CLAY, light brown, moist, firm, locally becoming CLAYEY SAND
		12			26	SC CL		
					27	CL SC		
					28	CL SC		
18	17.5	6			29	CL SC CL		SANDY CLAY, light brown, moist, firm, locally becoming CLAYEY SAND
		6						
		7						
					30	Total Depth 30 feet		
					31			
					32			
					33			
					34			
					35			
					36			
					37			
					38			
					39			
					40			
					41			
					42			
					43			
					44			
					45			

LOG OF SOIL BORING:

MW3

COORDINATES:

ELEVATION RIM: 466.24' MSL

ELEVATION TOP OF CASING: 465.86' MSL

CLIENT Livermore Gas and Mini Mart	SITE NUMBER TMMNW T3 3	LOCATION 160 Holmes St Livermore, CA	
DRILLING AND SAMPLING METHODS 8" HOLLOW STEM AUGERS			
WATER LEVEL	20.50	20.97	DRILLING START FINISH
TIME	0832	1000	TIME TIME 0745 1000
DATE	7/26/00	8/11/00	DATE DATE 7/26/00 7/26/00
REFERENCE	TOC	TOC	

INCHES			WELL DETAIL	DEPTH (feet)	GRAPHIC LOG	SURFACE CONDITIONS	
DRIVEN	RECOVER	BLOWS/6" SAMPLER				DESCRIPTION BY: R. F. Flory	
				0		3" Asphalt concrete	
				1	CL	SANDY GRAVELLY CLAY, dark brown, very slightly moist, hard becoming slightly moist, firm - hard	
				2		SANDY GRAVELLY CLAY, dark brown, silty, slightly moist, firm	
				3	CL	SANDY GRAVELLY CLAY, dark brown, slightly moist, firm	
18	17.75	12		4		Becoming red brown	
		33		5	GC	SANDY CLAYEY GRAVEL, yellowish brown, locally silty, slightly moist, firm, locally interbedded with/grading to GRAVELLY CLAY	
		28		6			
				7	CL	SANDY CLAY, yellowish brown, slightly moist, in auger returns	
				8			
				9		SILTY CLAY, medium brown - dark brown, abundant black carbonaceous material, slightly moist, firm	
18	18	12		10		becoming sandy grading downward into	
		12		11			
18	18	15		12	CL	SANDY SILTY CLAY, medium brown, decreasing black carbonaceous material, slightly moist, firm	
		20		13		locally becoming CLAYEY SILT	
		23		14			
18	18	10		15			
		12		16	CL	GRAVELLY CLAY, light brown - brown, sandy, moist, firm	
18	18	14		17	GC	CLAYEY GRAVEL, light brown - brown, sandy, matrix supported, 1 1/2" max clasts, moist, firm	
		8		18	GP	GRAVEL, light brown - brown - gray brown, sandy, matrix supported, 1 1/2" max clasts, moist, firm	
18	16.5	11		19	CL	GRAVELLY CLAY, light brown - brown - yellowish brown, 1 1/2" max clasts, moist, firm	
		25	20				
		20	21	CL	SANDY CLAY, olive brown - brown, locally gravelly		
18	17	23	22		1" max clasts, moist, firm, slight ? odor		
		16	23				
		30	24				

Continued on page 2

APPENDIX C
Soil Analytical Results

ETIC

3275 Stevens Creek, Suite 315
San Jose, CA 95117

Attn.: Robert Flory

Project: TMMNW T3-3
Manwell

Attached is our report for your samples received on Wednesday July 26, 2000
This report has been reviewed and approved for release. Reproduction of this report
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after August 25, 2000
unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: vvancil@chromalab.com

Sincerely,



Vincent Vancil

Gas/BTEX (Methanol Extraction)

ETIC	✉ 3275 Stevens Creek, Suite 315 San Jose, CA 95117
Attn: Robert Flory	Phone: (408) 244-7202 Fax: (408) 244-7277
Project #: TMMNW T3-3	Project: Marwell

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-1-15	Soil	07/26/2000 12:50	5
MW-1-19	Soil	07/26/2000 12:55	6

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0410

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX (Methanol Extraction)

Sample ID: MW-1-15	Lab Sample ID: 2000-07-0410-005
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 12:50	Extracted: 07/28/2000 15:18
Matrix: Soil	QC-Batch: 2000/07/28-05.03

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	10	mg/Kg	1.00	07/28/2000 15:18	
Benzene	ND	0.62	mg/Kg	1.00	07/28/2000 15:18	
Toluene	ND	0.62	mg/Kg	1.00	07/28/2000 15:18	
Ethyl benzene	ND	0.62	mg/Kg	1.00	07/28/2000 15:18	
Xylene(s)	ND	0.62	mg/Kg	1.00	07/28/2000 15:18	
MTBE	0.93	0.62	mg/Kg	1.00	07/28/2000 15:18	
Surrogate(s)						
Trifluorotoluene	94.4	53-125	%	1.00	07/28/2000 15:18	
4-Bromofluorobenzene-FID	71.4	58-124	%	1.00	07/28/2000 15:18	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX (Methanol Extraction)

Sample ID: MW-1-19	Lab Sample ID: 2000-07-0410-006
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 12:55	Extracted: 07/28/2000 12:56
Matrix: Soil	QC-Batch: 2000/07/28-05.03

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	800	100	mg/Kg	10.00	07/28/2000 12:56	
Benzene	ND	6.2	mg/Kg	10.00	07/28/2000 12:56	
Toluene	36	6.2	mg/Kg	10.00	07/28/2000 12:56	
Ethyl benzene	18	6.2	mg/Kg	10.00	07/28/2000 12:56	
Xylene(s)	100	6.2	mg/Kg	10.00	07/28/2000 12:56	
MTBE	21	6.2	mg/Kg	10.00	07/28/2000 12:56	
Surrogate(s)						
4-Bromofluorobenzene	107.9	58-124	%	1.00	07/28/2000 12:56	
4-Bromofluorobenzene-FID	620.6	58-124	%	1.00	07/28/2000 12:56	sh

To: ETIC
Attn.: Robert Flory

Test Method: 8020
8015M
Prep Method: 5030

Batch QC Report
Gas/BTEX (Methanol Extraction)

Method Blank	Soil	QC Batch # 2000/07/28-05.03
MB: 2000/07/28-05.03-001		Date Extracted: 07/28/2000 12:06

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	10	mg/Kg	07/28/2000 12:06	
Benzene	ND	0.62	mg/Kg	07/28/2000 12:06	
Toluene	ND	0.62	mg/Kg	07/28/2000 12:06	
Ethyl benzene	ND	0.62	mg/Kg	07/28/2000 12:06	
Xylene(s)	ND	0.62	mg/Kg	07/28/2000 12:06	
MTBE	ND	0.62	mg/Kg	07/28/2000 12:06	
Surrogate(s)					
Trifluorotoluene	124.0	53-125	%	07/28/2000 12:06	
4-Bromofluorobenzene-FID	111.4	58-124	%	07/28/2000 12:06	

To: ETIC

Test Method: 8020
8015M

Attn: Robert Flory

Prep Method: 5030

Batch QC Report

Gas/BTEX (Methanol Extraction)

Laboratory Control Spike (LCS/LCSD)	Soil	QC Batch # 2000/07/28-05.03
LCS: 2000/07/28-05.03-002	Extracted: 07/28/2000 12:40	Analyzed 07/28/2000 12:40
LCSD: 2000/07/28-05.03-003	Extracted: 07/28/2000 13:12	Analyzed 07/28/2000 13:12

Compound	Conc. [mg/Kg]		Exp. Conc. [mg/Kg]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	0.635	0.539	0.625	0.625	101.6	86.2	16.4	75-125	35		
Benzene	0.144	0.137	0.125	0.125	115.2	109.6	5.0	77-123	35		
Toluene	0.148	0.139	0.125	0.125	118.4	111.2	6.3	78-122	35		
Ethyl benzene	0.152	0.144	0.125	0.125	121.6	115.2	5.4	70-130	35		
Xylene(s)	0.457	0.436	0.375	0.375	121.9	116.3	4.7	75-125	35		
Surrogate(s)											
Trifluorotoluene	612	570	500	500	122.4	114.0		53-125			
4-Bromofluorobenzene-FI	383	382	500	500	76.6	76.4		58-124			

To: ETIC

Test Method: 8015M
8020

Attn: Robert Flory

Prep Method: 5030

Legend & Notes

Gas/BTEX (Methanol Extraction)

Analyte Flags

sh

Surrogate recoveries were higher than QC limits due to matrix interference.

Gas/BTEX and MTBE

ETIC	☒ 3275 Stevens Creek, Suite 315 San Jose, CA 95117
Attn: Robert Flory	Phone: (408) 244-7202 Fax: (408) 244-7277
Project #: TMMNW T3-3	Project: Manwell

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-3-15	Soil	07/26/2000 08:20	1
MW-3-20	Soil	07/26/2000 08:30	2
MW-2-15	Soil	07/26/2000 11:12	3
MW-2-20	Soil	07/26/2000 11:20	4

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-3-15	Lab Sample ID: 2000-07-0410-001
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 08:20	Extracted: 07/27/2000 15:27
Matrix: Soil	QC-Batch: 2000/07/27-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	07/27/2000 15:27	
Benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:27	
Toluene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:27	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:27	
Xylene(s)	ND	0.0050	mg/Kg	1.00	07/27/2000 15:27	
MTBE	ND	0.0050	mg/Kg	1.00	07/27/2000 15:27	
Surrogate(s)						
Trifluorotoluene	49.2	53-125	%	1.00	07/27/2000 15:27	sl
4-Bromofluorobenzene-FID	33.8	58-124	%	1.00	07/27/2000 15:27	sl

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-3-20	Lab Sample ID: 2000-07-0410-002
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 08:30	Extracted: 07/27/2000 15:54
Matrix: Soil	QC-Batch: 2000/07/27-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	07/27/2000 15:54	
Benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:54	
Toluene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:54	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 15:54	
Xylene(s)	ND	0.0050	mg/Kg	1.00	07/27/2000 15:54	
MTBE	ND	0.0050	mg/Kg	1.00	07/27/2000 15:54	
Surrogate(s)						
Trifluorotoluene	75.0	53-125	%	1.00	07/27/2000 15:54	
Trifluorotoluene-FID	65.5	53-125	%	1.00	07/27/2000 15:54	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0410

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-2-15	Lab Sample ID: 2000-07-0410-003
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 11:12	Extracted: 07/27/2000 16:22
Matrix: Soil	QC-Batch: 2000/07/27-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	07/27/2000 16:22	
Benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 16:22	
Toluene	ND	0.0050	mg/Kg	1.00	07/27/2000 16:22	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	07/27/2000 16:22	
Xylene(s)	ND	0.0050	mg/Kg	1.00	07/27/2000 16:22	
MTBE	ND	0.0050	mg/Kg	1.00	07/27/2000 16:22	
Surrogate(s)						
Trifluorotoluene	77.8	53-125	%	1.00	07/27/2000 16:22	
Trifluorotoluene-FID	65.6	53-125	%	1.00	07/27/2000 16:22	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-07-0410

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW-2-20	Lab Sample ID: 2000-07-0410-004
Project: TMMNW T3-3 Manwell	Received: 07/26/2000 08:20
Sampled: 07/26/2000 11:20	Extracted: 07/27/2000 16:48
Matrix: Soil	QC-Batch: 2000/07/27-01.04

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	1.1	1.0	mg/Kg	1.00	07/27/2000 16:48	
Benzene	0.0092	0.0050	mg/Kg	1.00	07/27/2000 16:48	
Toluene	0.013	0.0050	mg/Kg	1.00	07/27/2000 16:48	
Ethyl benzene	0.053	0.0050	mg/Kg	1.00	07/27/2000 16:48	
Xylene(s)	0.13	0.0050	mg/Kg	1.00	07/27/2000 16:48	
MTBE	0.11	0.0050	mg/Kg	1.00	07/27/2000 16:48	
Surrogate(s)						
Trifluorotoluene	80.6	53-125	%	1.00	07/27/2000 16:48	
Trifluorotoluene-FID	100.4	53-125	%	1.00	07/27/2000 16:48	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

Printed on: 07/31/2000 12:33

Page 5 of 8

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Batch QC Report
Gas/BTEX and MTBE

Method Blank	Soil	QC Batch # 2000/07/27-01.04
MB: 2000/07/27-01.04-001		Date Extracted: 07/27/2000 07:53

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	07/27/2000 07:53	
Benzene	ND	0.0050	mg/Kg	07/27/2000 07:53	
Toluene	ND	0.0050	mg/Kg	07/27/2000 07:53	
Ethyl benzene	ND	0.0050	mg/Kg	07/27/2000 07:53	
Xylene(s)	ND	0.0050	mg/Kg	07/27/2000 07:53	
MTBE	ND	0.0050	mg/Kg	07/27/2000 07:53	
Surrogate(s)					
Trifluorotoluene	66.2	53-125	%	07/27/2000 07:53	
Trifluorotoluene-FID	64.2	53-125	%	07/27/2000 07:53	

To: ETIC

Test Method: 8020
8015M

Attn: Robert Flory

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD)		Soil		QC Batch # 2000/07/27-01.04	
LCS:	2000/07/27-01.04-002	Extracted:	07/27/2000 10:09	Analyzed	07/27/2000 10:09
LCSD:	2000/07/27-01.04-003	Extracted:	07/27/2000 08:47	Analyzed	07/27/2000 08:47

Compound	Conc. [mg/Kg]		Exp. Conc. [mg/Kg]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	0.506	0.539	0.500	0.500	101.2	107.8	6.3	75-125	35		
Benzene	0.0904	0.0805	0.1000	0.1000	90.4	80.5	11.6	77-123	35		
Toluene	0.0926	0.0813	0.1000	0.1000	92.6	81.3	13.0	78-122	35		
Ethyl benzene	0.0923	0.0812	0.1000	0.1000	92.3	81.2	12.8	70-130	35		
Xylene(s)	0.268	0.236	0.300	0.300	89.3	78.7	12.6	75-125	35		
Surrogate(s)											
Trifluorotoluene	483	411	500	500	96.6	82.2		53-125			
4-Bromofluorobenzene-FI	313	327	500	500	62.6	65.4		58-124			

1220 Quarry Lane * Pleasanton, CA 94566-4756

Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

To: ETIC

Test Method: 8015M
8020

Attn: Robert Flory

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

sl

Surrogate recoveries were lower than QC limit due to matrix interference, confirmed by reanalysis.

APPENDIX D
Soil Testing Results

CHROMALAB, INC.

1220 Chimney Lane • Pleasanton, California 94568-4758
(925) 484-1919 • Fax (925) 484-1096

Chain of Custody

Environmental Services (SDB) (DOLIS 1094)

DATE 7/26/00 PAGE 03527 01

CLIENT NAME Robert Flory
 COMPANY ETIC
 ADDRESS 7275 Sparrows Ck Blvd
Sunnyvale CA 95117
 SAMPLE ID (S/N) [Signature] (PHONE NO) 408-244-7202
 (FAX NO) -7277

ANALYSIS REPORT

2000-07-0410

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	TPH-EPA 8015, 8020 Gas w/ STEQCUMTE	PURGEABLE AROMATICS STEX (EPA 8020)	TPH-Class (EPA 8015M)	TEPE (EPA 8015M) 3 Dist. 0 M.O. 0 Other	PURGEABLE HALOCARBONS (SVOCs) (EPA 8010)	VOLATILE ORGANICS (VOCs) (EPA 8260)	SEMI-VOLATILES (EPA 8270)	TOTAL OIL AND GRAV (SM 5520 B+F, 3)	PESTICIDES (EPA 8080) PCB'S (EPA 8080)	PNA's by 0 8270 0 8210	Spec. Cond. TSS 0 TDS	LUFT METALS: Cd, Cr, Pb, Ni, Zn	CAM 17 METALS (EPA 8010/7470/7471)	TOTAL LEAD	WET (STLC) STCLP	Hexavalent Chromium Hex 124 hr hold time for H2O	NUMBER OF CONTAINERS	
MW 3-15	7/26/00	0820	soil	ice	X	X																
MW 3-20	7/26/00	0830			X	X																
MW 2-15	7/26/00	1112			X	X																
MW 2-10	7/26/00	1100							Hold	REF 7/26/00												
MW 2-20	7/26/00	1120			X	X																
MW 1-10	7/26/00	1240							Hold	REF 7/26/00												
MW 1-15	7/26/00	1240			X	X												X				
MW 1-19	7/26/00	1245	V	V	X	X																

PROJECT INFORMATION

PROJECT NAME Manure 11
 PROJECT NUMBER TPM MAW T3-3
 P.O.# 1165

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS _____
 HEAD SPACE _____
 TEMPERATURE _____
 CONFORMS TO RECORD _____

STAT 5-DAY 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS
 Report: (1) Routine (2) Level 2 (3) Level 3 (4) Level 4 (5) Electronic Report

RELINQUISHED BY 1
 SIGNATURE [Signature] (DATE) _____
 PRINTED NAME Robert Flory (DATE) _____
 COMPANY ETIC

RELINQUISHED BY 2
 SIGNATURE _____ (DATE) _____
 PRINTED NAME _____ (DATE) _____
 COMPANY _____

RELINQUISHED BY
 SIGNATURE [Signature] (DATE) _____
 PRINTED NAME Chris Rowley (DATE) 07/26/00
 COMPANY Chromalab

APPENDIX D
Soil Testing Results



COOPER TESTING LABORATORY

1951 Colony Street, Unit X
Mountain View, California 94043
Tel: 650 968-9472 FAX: 650 968-4228
email: cooper@coopertestinglabs.com
Web Page: <http://www.coopertestinglabs.com>

LETTER OF TRANSMITTAL

TO: ETIC
3275 Stevens Creek Blvd.
Suite 315
San Jose, CA 95117
Attn: Robert Flory

DATE: August 15, 2000
PROJECT: TMMNN-T3
CTL #: 392-001
ENCLOSED: Laboratory soil test data.
REMARKS:

David R. Cooper

COOPER TESTING LABS

COOPER TESTING LABS

MOISTURE DENSITY - POROSITY DATA SHEET

Job # Client Project/Location Date	392-001 ETIC Monwell/TMMNNT3 8/9/00				
Boring #	MW2	MW2			
Depth (ft)	12.5'	17'			
Soil Type	brown CLAY with sand (very silty)	brown clayey GRAVEL with sand			
Specific Gravity	2.82	2.75			
Volume Total cc	95.286	95.882			
Volume of Solids	59.239	65.134			
Volume of Voids	36.047	30.748			
Void Ratio	0.609	0.472			
Porosity %	37.8%	32.1%			
Saturation %	93.6%	78.6%			
Moisture %	20.2%	13.5%			
Dry Density (pcf)	109.4	116.6			
Remarks					

Specific Gravity
ASTM D-854



Cooper Testing Lab

Job#:	392-001	Date:	08/10/00				
Client:	ETIC	By:	DC				
Project:	TMMNN-T3						
Boring:	MW-2	MW-2					
Sample:							
Depth, ft.:	12.5	17					
Soil Classification: (visual)	brown CLAY w/sand	brown clayey GRAVEL w/sand					
Wt. of Pycnometer Soil & Water, gm:	719.9	721.62					
Temp. centigrade:	23	23					
Wt. of Pycnometer & Water, gm:	662.85	671.24					
Wt. Dry Soil, gm:	88.44	79.09					
Temp. Correction Factor:	1	1					
Specific Gravity:	2.82	2.75	ERR	ERR	ERR	ERR	

Remarks: The temperature correction factor is shown as 1 if the weight of the pycnometer is taken from the lab temperature correction curve.

From:
ChromaLab, Inc. (CL)
 1220 Quarry Lane
 Pleasanton, CA 94566-4756

To:
 Advanced Technology Labs
 3275 Walnut Street
 Signal Hill, CA 90807

Project Manager: Vincent Vancil
 Phone:
 Fax: (925) 484-1096
 Email: vvancil@chromalab.com

Ext:
 Phone: (562) 989-4045
 Fax: (562) 989-4040
 Contact: Rachelle Arada
 Phone: (562) 989-4045

CL Submission #: **2000-07-0411**
 CL PO #:

Project #: TMNMWT3-3
 Project Name: Marwell

Client Sample ID	CL#	Sampled	Matrix	
Analysis			Method	Due
MW3-10	001	07/26/2000 08:12	Soil	
Subcontract - TOC			415.1	08/08/2000 17:00

PLEASE INCLUDE QC WITH FAXED AND HARD-COPY RESULTS

RELINQUISHED BY: 1. <i>[Signature]</i> 13:10 Signature Time <i>[Signature]</i> 07/31/00 Printed Name Date Company	RELINQUISHED BY: 2. Signature Time Printed Name Date Company	RELINQUISHED BY: 3. Signature Time Printed Name Date Company
RECEIVED BY: 1. <i>[Signature]</i> 08/00 Signature Time <i>[Signature]</i> 8/1/00 Printed Name Date ATL Company	RECEIVED BY: 2. Signature Time Printed Name Date Company	RECEIVED BY: 3. Signature Time Printed Name Date Company

ELAP No.: 1838

Chromalab, Inc.
1220 Quarry Lane
Pleasanton, CA 94566-4756

ATTN: Vincent Vancil

Client's Project: Manwell, #TMNMWT3-3
Lab No.: 45713-001

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562) 989 - 4045 if I can be of further assistance to your company.

Sincerely,



Cheryl De Los Reyes
Technical Operations Manager
CDR/jh

Date: 5/11/02

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited.



Advanced Technology
Laboratories

1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

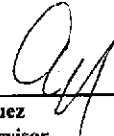
Client: **Chromalab, Inc.**
 Attn: **Vincent Vancil**

Client's Project: **Manwell, #TMNMWT3-3**

Date Received: **08/01/00**
 Date Sampled: **07/26/00**

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results	Matrix, Units	MDL	DLR	Analyst
45713-001	MW3-10	EPA 9060 (TOC)	08/02/00	ND	Soil, mg/kg	30	30	OL

MDL = Method Detection Limit
 ND = Not Detected (Below DLR)
 DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By: 
Eddie Rodriguez
Inorganics Supervisor

Date: 8/7/00

The cover letter is an integral part of this analytical report.



Advanced Technology
 Laboratories

1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Spike Recovery and RPD Summary Report

Method: EPA 9060
 Analyst: OL
 Data File: 0215-1S

Date: 08/02/00
 Sample ID: BLANK
 Matrix: SOIL
 QC Batch: TOC 000802-1S

ANALYTE	UNIT	LCS Conc	LCS Res	% Rec	METH BLAN	SPL CONC	SPK ADDE	MS RESULT	MSD RESULT	%MS REC	%MSD RE	% REC Limit	RPD	RPD Limit	MDL
TOC	mg/kg	2000	1880	94	ND	ND	2000	1870	1880	94	94	59-137	1	21	30

Approved by:
 Eddie Rodriguez
 Inorganics Supervisor

Date: 8/7/00

APPENDIX E

Field Data

ETIC

MONITORING WELL DATA FORM

Site Name: Manwell Date: 8.11.00
Location: Livermore Project No: TRMNDWT 3/2/0

Well Number	Depth to Water feet	Depth to Product feet	Apparent Thickness feet	Amount of Product Removed gallons	Monitoring Well Integrity	Depth to Bottom of Well feet	Well Casing Diameter inches
MW 1	20.49	0	0	0	29.61	29.61	2"
MW 2	20.35	0	0	0	29.68	29.68	2"
MW 3	20.77	0	0	0	29.60	29.60	2"

Note: Depth to bottom measured during first quarter unless otherwise noted

Purge Sampling/ Well Development Data Sheet

Project/Location Manuel Date Purged 8.11.00
 Well Number MW1 Purge Method Calc
 Initial Water Level 20.49 Sampling Method Bohr
 Final Water Level _____ Sample Type Grab () Composite
 Casing Vol Purged 10 Containers 5
 By: AE & CA

Calculations

Height water col: $\frac{29.61}{\text{Tot Depth}} - \frac{20.49}{\text{DTW}} = \frac{\cancel{9.12}}{\text{wtr col}} = 9.12$

Est Purge Vol $\frac{\cancel{9.12}}{\text{wtr col}} \times \frac{.163}{\text{VCF}} \times \frac{\cancel{8.10}}{\# \text{ csg vol}} = \frac{14.8}{\text{purge vol}}$

VCF	Diameter
0.163	2"
0.38	3"
0.66	4"
1.02	5"
1.47	6"

Vol	Conductivity	Redox	Temperature	DO	pH	odor/prod	
0	947		20.6	1.90	7.5	Y	N
2	956		19.8	1.78	7.7		
4	960		19.6	1.96	7.5		
6	938		19.1	1.52	7.3		
8	917		19.3	1.90	7.5		
10	89.6		19.4	1.82	7.2		
12	877		19.6	1.97	7.4		
14	862		19.6	2.25	7.2		
16	860		19.1	1.89	7.2		

Notes

Silty + Shear

Purge Sampling/ Well Development Data Sheet

Project/Location Manwell Date Purged 8.11.00
 Well Number MW2 Purge Method Balr
 Initial Water Level 20.35 Sampling Method Balr
 Final Water Level _____ Sample Type Grab () Composite
 Casing Vol Purged 10 Containers 5
 By: AE+CA

Calculations

Height water col: $\frac{29.68}{\text{Tot Depth}} - \frac{20.35}{\text{DTW}} = \frac{9.33}{\text{wtr col}}$

Est Purge Vol $\frac{9.33}{\text{wtr col}} \times \frac{.66}{\text{VCF}} \times \frac{10}{\# \text{ csg vol}} = \frac{15.26}{\text{purge vol}}$

VCF	Diameter
0.163	2"
0.38	3"
0.66	4"
1.02	5"
1.47	6"

Vol	Conductivity	Redox	Temperature	DO	pH	odor/prod	
0	831		19.0	1.55	7.6	Y	N
5	832		18.6	1.58	7.5		
10	826		18.6	1.48	7.2		
15	818		18.0	1.74	7.3		
	815		17.7	1.89	7.2		

Notes _____

Purge Sampling/ Well Development Data Sheet

Project/Location Manuell Date Purged 8.11.00
 Well Number MW - 3 Purge Method Baiter
 Initial Water Level 20.97 Sampling Method Baiter
 Final Water Level _____ Sample Type Grab () Composite
 Casing Vol Purged _____ Containers 5
 By: MEVCA

Calculations
 Height water col: $\frac{29.60}{\text{Tot Depth}} - \frac{20.97}{\text{DTW}} = \frac{8.63}{\text{wtr col}}$

VCF	Diameter
0.163	2"
0.38	3"
0.66	4"
1.02	5"
1.47	6"

Est Purge Vol $\frac{8.63}{\text{wtr col}} \times \frac{162}{\text{VCF}} \times \frac{5}{\# \text{ csg vol}} = 14.06$

Vol	Conductivity	Redox	Temperature	DO	pH	odor/prod	
0	755		20.3	1.29	7.3	N	N
5	741		19.5	1.47	7.2	↓	↓
10	746 746		19.1	1.32	7.3	↓	↓
15	760		18.3	1.47	7.5	↓	↓

Notes: Silty well

APPENDIX F

Groundwater Analytical results

ETIC

3275 Stevens Creek, Suite 315
San Jose, CA 95117

Attn.: Robert Flory

Project: TMMN T2/T3
Manwell

Attached is our report for your samples received on Friday August 11, 2000
This report has been reviewed and approved for release. Reproduction of this report
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after September 25, 2000
unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: vvancil@chromalab.com

Sincerely,



Vincent Vancil

Diesel

ETIC	✉ 3275 Stevens Creek, Suite 315 San Jose, CA 95117
Attn: Robert Flory	Phone: (408) 244-7202 Fax: (408) 244-7277
Project #: TMMN T2/T3	Project: Manwell

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW 1	Water	08/11/2000 09:00	1
MW 2	Water	08/11/2000 09:30	2
MW 3	Water	08/11/2000 10:00	3

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC
Attn.: Robert Flory

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID: MW 1	Lab Sample ID: 2000-08-0269-001
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 09:00	Extracted: 08/14/2000 08:45
Matrix: Water	QC-Batch: 2000/08/14-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	57000	1000	ug/L	20.00	08/16/2000 10:35	edr
Surrogate(s) o-Terphenyl	81.1	60-130	%	20.00	08/16/2000 10:35	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

Printed on: 08/18/2000 13:21

Page 2 of 7

To: ETIC
Attn.: Robert Flory

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID: MW 2	Lab Sample ID: 2000-08-0269-002
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 09:30	Extracted: 08/14/2000 08:45
Matrix: Water	QC-Batch: 2000/08/14-01.10
Sample/Analysis Flag ri (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	1900	60	ug/L	1.20	08/15/2000 14:56	edr
Surrogate(s) o-Terphenyl	85.0	60-130	%	1.20	08/15/2000 14:56	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC
Attn.: Robert Flory

Test Method: 8015M
Prep Method: 3510/8015M

Diesel

Sample ID: MW 3	Lab Sample ID: 2000-08-0269-003
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 10:00	Extracted: 08/14/2000 08:45
Matrix: Water	QC-Batch: 2000/08/14-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	260	50	ug/L	1.00	08/15/2000 15:35	ldr
Surrogate(s) o-Terphenyl	66.3	60-130	%	1.00	08/15/2000 15:35	

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Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC
Attn.: Robert Flory

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report Diesel

Method Blank	Water	QC Batch # 2000/08/14-01.10
MB: 2000/08/14-01.10-001		Date Extracted: 08/14/2000 08:45

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	08/14/2000 14:46	
Surrogate(s) o-Terphenyl	76.0	60-130	%	08/14/2000 14:46	

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Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

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Page 5 of 7

To: **ETIC**
 Attn: Robert Flory

Test Method: 8015M
 Prep Method: 3510/8015M

Batch QC Report

Diesel

Laboratory Control Spike (LCS/LCSD)	Water	QC Batch # 2000/08/14-01.10
LCS: 2000/08/14-01.10-002	Extracted: 08/14/2000 08:45	Analyzed 08/15/2000 09:21
LCSD: 2000/08/14-01.10-003	Extracted: 08/14/2000 08:45	Analyzed 08/15/2000 10:00

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Diesel	1130	1160	1250	1250	90.4	92.8	2.6	60-130	25		
Surrogate(s) o-Terphenyl	22.5	21.8	20.0	20.0	112.5	109.0		60-130			

To: ETIC
Attn: Robert Flory

Test Method: 8015M
Prep Method: 3510/8015M

Legend & Notes

Diesel

Analysis Flags

ri

Reporting limits raised due to reduced sample size.

Analyte Flags

edr

Hydrocarbon reported is in the early Diesel range, and does not match our Diesel standard

ldr

Hydrocarbon reported is in the late Diesel range, and does not match our Diesel standard

Gas/BTEX and MTBE

ETIC	✉ 3275 Stevens Creek, Suite 315 San Jose, CA 95117
Attn: Robert Flory	Phone: (408) 244-7202 Fax: (408) 244-7277
Project #: TMMN T2/T3	Project: Manwell

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW 1	Water	08/11/2000 09:00	1
MW 2	Water	08/11/2000 09:30	2
MW 3	Water	08/11/2000 10:00	3

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW 1	Lab Sample ID: 2000-08-0269-001
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 09:00	Extracted: 08/18/2000 19:04
Matrix: Water	QC-Batch: 2000/08/18-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	170000	100000	ug/L	2000.00	08/18/2000 19:04	
Benzene	6400	1000	ug/L	2000.00	08/18/2000 19:04	
Toluene	7600	1000	ug/L	2000.00	08/18/2000 19:04	
Ethyl benzene	4200	1000	ug/L	2000.00	08/18/2000 19:04	
Xylene(s)	9700	1000	ug/L	2000.00	08/18/2000 19:04	
MTBE	320000	10000	ug/L	2000.00	08/18/2000 19:04	
Surrogate(s)						
Trifluorotoluene	84.0	58-124	%	1.00	08/18/2000 19:04	
4-Bromofluorobenzene-FID	76.0	50-150	%	1.00	08/18/2000 19:04	

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Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: **ETIC**

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW 2	Lab Sample ID: 2000-08-0269-002
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 09:30	Extracted: 08/18/2000 19:39
Matrix: Water	QC-Batch: 2000/08/18-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	4500	2500	ug/L	50.00	08/18/2000 19:39	
Benzene	220	25	ug/L	50.00	08/18/2000 19:39	
Toluene	52	25	ug/L	50.00	08/18/2000 19:39	
Ethyl benzene	160	25	ug/L	50.00	08/18/2000 19:39	
Xylene(s)	170	25	ug/L	50.00	08/18/2000 19:39	
MTBE	3000	250	ug/L	50.00	08/18/2000 19:39	
Surrogate(s)						
Trifluorotoluene	83.7	58-124	%	1.00	08/18/2000 19:39	
4-Bromofluorobenzene-FID	76.3	50-150	%	1.00	08/18/2000 19:39	

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Page 3 of 9

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC

Test Method: 8020
8015M

Attn.: Robert Flory

Prep Method: 5030

Gas/BTEX and MTBE

Sample ID: MW 3	Lab Sample ID: 2000-08-0269-003
Project: TMMN T2/T3 Manwell	Received: 08/11/2000 18:25
Sampled: 08/11/2000 10:00	Extracted: 08/17/2000 19:34
Matrix: Water	QC-Batch: 2000/08/17-01.01

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	59	50	ug/L	1.00	08/17/2000 19:34	g
Benzene	ND	0.50	ug/L	1.00	08/17/2000 19:34	
Toluene	ND	0.50	ug/L	1.00	08/17/2000 19:34	
Ethyl benzene	ND	0.50	ug/L	1.00	08/17/2000 19:34	
Xylene(s)	ND	0.50	ug/L	1.00	08/17/2000 19:34	
MTBE	ND	5.0	ug/L	1.00	08/17/2000 19:34	
Surrogate(s)						
Trifluorotoluene	77.4	58-124	%	1.00	08/17/2000 19:34	
4-Bromofluorobenzene-FID	76.6	50-150	%	1.00	08/17/2000 19:34	

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Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

Printed on: 08/22/2000 13:54

Page 4 of 9

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC

Test Method: 8015M
8020

Attn.: Robert Flory

Prep Method: 5030

Batch QC Report Gas/BTEX and MTBE

Method Blank	Water	QC Batch # 2000/08/17-01.01
MB: 2000/08/17-01.01-001		Date Extracted: 08/17/2000 10:29

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	08/17/2000 10:29	
Benzene	ND	0.5	ug/L	08/17/2000 10:29	
Toluene	ND	0.5	ug/L	08/17/2000 10:29	
Ethyl benzene	ND	0.5	ug/L	08/17/2000 10:29	
Xylene(s)	ND	0.5	ug/L	08/17/2000 10:29	
MTBE	ND	5.0	ug/L	08/17/2000 10:29	
Surrogate(s)					
Trifluorotoluene	91.6	58-124	%	08/17/2000 10:29	
4-Bromofluorobenzene-FID	83.8	50-150	%	08/17/2000 10:29	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-08-0269

To: ETIC

Test Method: 8015M

8020

Attn.: Robert Flory

Prep Method: 5030

Batch QC Report Gas/BTEX and MTBE

Method Blank	Water	QC Batch # 2000/08/18-01.01
MB: 2000/08/18-01.01-001		Date Extracted: 08/18/2000 12:24

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	08/18/2000 12:24	
Benzene	ND	0.5	ug/L	08/18/2000 12:24	
Toluene	ND	0.5	ug/L	08/18/2000 12:24	
Ethyl benzene	ND	0.5	ug/L	08/18/2000 12:24	
Xylene(s)	ND	0.5	ug/L	08/18/2000 12:24	
MTBE	ND	5.0	ug/L	08/18/2000 12:24	
Surrogate(s)					
Trifluorotoluene	92.6	58-124	%	08/18/2000 12:24	
4-Bromofluorobenzene-FID	88.6	50-150	%	08/18/2000 12:24	

1220 Quarry Lane * Pleasanton, CA 94566-4756
Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

Printed on: 08/22/2000 13:54

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To: ETIC

Test Method: 8020
8015M

Attn: Robert Flory

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD)		Water		QC Batch # 2000/08/17-01.01	
LCS:	2000/08/17-01.01-002	Extracted:	08/17/2000 08:09	Analyzed	08/17/2000 08:09
LCSD:	2000/08/17-01.01-003	Extracted:	08/17/2000 08:44	Analyzed	08/17/2000 08:44

Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	533	581	500	500	106.6	116.2	8.6	75-125	20		
Benzene	79.2	78.5	100.0	100.0	79.2	78.5	0.9	77-123	20		
Toluene	83.3	83.1	100.0	100.0	83.3	83.1	0.2	78-122	20		
Ethyl benzene	79.7	80.2	100.0	100.0	79.7	80.2	0.6	70-130	20		
Xylene(s)	240	241	300	300	80.0	80.3	0.4	75-125	20		
Surrogate(s)											
Trifluorotoluene	405	408	500	500	81.0	81.6		58-124			
4-Bromofluorobenzene-FI	381	404	500	500	76.2	80.8		50-150			

To: **ETIC**

Test Method: 8020
8015M

Attn: Robert Flory

Prep Method: 5030

Batch QC Report

Gas/BTEX and MTBE

Laboratory Control Spike (LCS/LCSD)	Water	QC Batch # 2000/08/18-01.01
LCS: 2000/08/18-01.01-002	Extracted: 08/18/2000 11:50	Analyzed 08/18/2000 11:50
LCSD: 2000/08/18-01.01-003	Extracted: 08/18/2000 12:59	Analyzed 08/18/2000 12:59

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD [%]	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD		Recovery	RPD	LCS	LCSD
Gasoline	544	520	500	500	108.8	104.0	4.5	75-125	20		
Benzene	81.8	80.8	100.0	100.0	81.8	80.8	1.2	77-123	20		
Toluene	85.2	84.5	100.0	100.0	85.2	84.5	0.8	78-122	20		
Ethyl benzene	81.1	80.9	100.0	100.0	81.1	80.9	0.2	70-130	20		
Xylene(s)	244	244	300	300	81.3	81.3	0.0	75-125	20		
Surrogate(s)											
Trifluorotoluene	412	415	500	500	82.4	83.0		58-124			
4-Bromofluorobenzene-FI	396	391	500	500	79.2	78.2		50-150			

To: ETIC

Test Method: 8015M
8020

Attn: Robert Flory

Prep Method: 5030

Legend & Notes

Gas/BTEX and MTBE

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

CLIENT Bob Flory
 COMPANY ETIC Engineering
 ADDRESS 3275 Stevens Crk Blvd # 315
San Jose, Ca 95117
 PHONE NO. 408.244.7202
 FAX NO. 408.244.7277

ANALYSIS REPORT

SAMPLE ID	DATE	TIME	MATRIX	PHASES	TPH (EPA 8015, 8020) B Gas w/2 STEKZIMTS	PURGEABLE AROMATICS STEX (EPA 8020)	TPH-Gas (EPA 8015M)	TEPE (EPA 8015A) CINEL <input type="checkbox"/> MLO <input type="checkbox"/> Other	PURGEABLE HALOGENATED (EPOCS) (EPA 8016)	VOLATILE ORGANICS (VOCs) (EPA 8260)	SEMI-VOLATILES (EPA 8270)	TOTAL OIL AND GREASE (SM 5520 B+F, B+F)	<input type="checkbox"/> PESTICIDES (EPA 8080) <input type="checkbox"/> PCB'S (EPA 8080)	PHA's by <input type="checkbox"/> 8270 <input type="checkbox"/> 8310	<input type="checkbox"/> Spec. Cond. <input type="checkbox"/> TSS <input type="checkbox"/> TDS	LUFT METALS: Cd, Cr, Pb, Ni, Zn	CAN'T 17 METALS (EPA 8010/7470/7471)	TOTAL LEAD	WAT. (STLC) TCLP	Hexavalent Chromium net 24 hr hold time for EC01	NUMBER OF CONTAINERS	
MW 1	8.11	9:00	160	Y	X		X															
MW 2	8.11	9:30	↓	Y	X		X															
MW 3	8.11	10:00	↓	Y	X		X															

PROJECT INFORMATION

PROJECT NAME MANWEN
 PROJECT NUMBER IMV 001/153/
 O.P. 180

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS _____
 HEAD SPACE _____
 TEMPERATURE _____
 CONFORMS TO RECORD _____

DATE 8-11-00 24 48 72 OTHER _____

Report: (1) Nonline (2) Level 2 (3) Level 3 (4) Level 4 (5) Electronic Report

RELINQUISHED BY

1. SIGNATURE [Signature] (NAME) _____ (DATE) 8-11-00
 ETIC (COMPANY)

2. SIGNATURE _____ (NAME) _____ (DATE) _____ (COMPANY)

3. SIGNATURE _____ (NAME) _____ (DATE) _____ (COMPANY)

RECEIVED BY

1. SIGNATURE [Signature] (NAME) _____ (DATE) 8/11/00
 (COMPANY)

2. SIGNATURE [Signature] (NAME) _____ (DATE) _____ (COMPANY)

3. SIGNATURE _____ (NAME) _____ (DATE) _____ (COMPANY)