

**SURFACE AND SUBSURFACE
ENVIRONMENTAL SITE ASSESSMENT
on
4605, 4611 and 4643 Malabar Avenue
Castro Valley, California
for
DELCO BUILDERS & DEVELOPERS**

by

TERRASEARCH, inc.

**Project No. 8848.E
November 3, 2000**



Environmental • Geotechnical • Special Inspections • Materials Testing

TERRASEARCH inc.

SERVING NORTHERN CALIFORNIA SINCE 1969

Project No. 8848.E

November 3, 2000

GEOTECHNICAL

GEOLOGICAL

ENVIRONMENTAL

SPECIAL
INSPECTIONS

MATERIALS
TESTING

Mr. Phil Rowe
Delco Builders & Developers
2552 Stanwell Drive, Suite 203
Concord, California 94520

Subject: Proposed Residential Development
4605, 4611 and 4643 Malabar Avenue
Castro Valley, California
**SURFACE AND SUBSURFACE ENVIRONMENTAL
SITE ASSESSMENT**

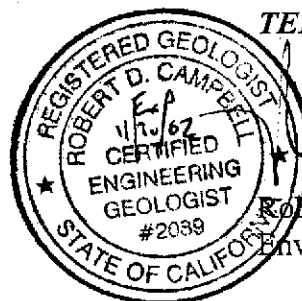
Dear Mr. Rowe:

In accordance with your authorization, **TERRASEARCH, inc.** has conducted a Surface and Subsurface Environmental Site Assessment at the above referenced site.

The following is a copy of the report, which presents the results of our assessment.

Should you have any questions relating to the contents of this report or require any additional information, please contact our office at your convenience.

Very truly yours,
TERRASEARCH, inc.



Robert D. Campbell, C.E.G.
Environmental Manager

Copies: 3 to Delco Builders & Developers

SAN JOSE:

6840 Via Del Oro
Suite 110
San Jose, CA 95119
(408) 362-4920
Fax: (408) 362-4926

DUBLIN:

11840 Dublin Blvd.
Dublin, CA 94568
(925) 833-9297
Fax: (925) 833-9548

FREMONT:

43353-B Osgood Rd.
Fremont, CA 94538
(510) 413-0100
Fax: (510) 413-0101

SACRAMENTO:

4200 N. Freeway Blvd.
Suite 2
Sacramento, CA 95834
(916) 564-7809
Fax: (916) 564-7672

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SURFACE AND SUBSURFACE ENVIRONMENTAL SITE ASSESSMENT

1.0 INTRODUCTION

1.1 Objective

Since the subject site is situated within a past and present agricultural district (orchards and row crops), organochloride and metal pesticides may have impacted the surficial soil at the subject site. In addition, a former gasoline underground-storage tank (UST) was located along the turn-about near the residence at 4611 Malabar Avenue. The purpose of this Surface and Subsurface Environmental Site Assessment was to evaluate the presence of organochloride and metal pesticides within the surficial soil and to evaluate the presence of petroleum hydrocarbons within the subsurface soil beneath the former UST at the subject site. This work has been performed in response to *TERRASEARCH, inc.*, Phase I Environmental Site Assessment dated September 27, 2000.

1.2 Scope

As authorized by Mr. Phil Rowe of Delco Builders and Developers (Client), on October 3, 2000, our services were limited to the following:

1. Collecting four soil surficial soil samples (two from each parcel) using clean brass liners from approximately 0.5 to 1 foot below ground surface (bgs). Delivering the soil samples to a State-certified hazardous waste testing laboratory for analysis and analyzed for metals arsenic, lead, mercury and organochloride pesticides using Environmental Protection Agency (EPA) Methods 7000 series and 8080A;
2. Drilling one boring in the immediate vicinity of the former gasoline UST and collect soil and groundwater (if encountered) samples from the boring for laboratory analysis. Delivering the soil and groundwater (if encountered) samples to a State-certified hazardous waste testing laboratory and analyzed for total petroleum hydrocarbons reported as gasoline (TPHg) and diesel (TPHd), gasoline constituents benzene, toluene, ethyl benzene, total xylenes (BTEX), methyl-tertiary butyl ether (MTBE) and lead using EPA Methods 5030/8015, 8020 and 7240; and
3. Preparation of this report.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Location

The subject property is located on the southern extent of the San Leandro Hills, within the northern portion of Castro Valley, California, within the East San Francisco Bay region. The site consists of one parcel totaling approximately 3.5 acres located at 4605, 4611 and 4643 Malabar Avenue in Castro Valley, California. 4653 Malabar Avenue is not part of the parcel to be developed, but is part of the total Assessors Parcel Number (APN) 84C-835-1-7. The site is currently occupied by four vacant structures near the center of the property. The land to the southwest-south, north and west of the structures is vacant and extends to Seven Hills Road to the south. The current property owner occupies the residence at 4653 Malabar Avenue.

The local topography at the subject site slopes from approximately 320 feet above mean sea level (msl) on the northeastern portion to approximately 280 feet above msl on the southwestern portion of the subject property. A tributary of the San Lorenzo Creek is situated approximately 2,000 feet to the east of the site. Drainage at the site follows local topography, toward the south-southwest.

3.0 SURFICIAL SOIL PHASE II ENVIRONMENTAL SITE ASSESSMENT

3.1 Field Work

On October 30, 2000, a *TERRASEARCH, inc.* field geologist collected a total of four discrete soil samples (1 through 4) from the subject site. The soil samples 1 through 4 were collected on the southern portion of the site, since historical evidence (aerial photographs) revealed that the southern portion of the property was utilized for row-crops. All soil samples were collected using clean brass lines and advanced to approximately 0.5-foot below ground surface (bgs), capped, labeled and placed in a pre-chilled ice chest for temporary storage. The location of soil samples 1 through 4 is shown on Figure 2, Site Plan.

On November 1, 2000, one soil boring (B-2) was drilled in the immediate vicinity of the former gasoline UST, on the eastern edge of the turn-about near the residence at 4611 Malabar Avenue. Boring B-2 was advanced to five feet bgs and a soil sample was collected at the soil-bedrock interface at four feet bgs. Drilling became very hard at five feet bgs and exploration activities were ceased. The soil above the tan silty sandstone bedrock consisted of dark brown silty clay and very loose. No hydrocarbon odors were noted in the soil or bedrock drill tailings from boring B-2.

The one soil sample (B2-4) was capped, labeled, and placed into a pre-chilled ice-chest for temporary storage. The location of soil boring B-2 is shown on Figure 2.

3.2 Laboratory Analytical Methods and Results

Soil samples 1 through 4 were delivered under chain-of-custody documentation to McCampbell Analytical, Inc. of Pacheco, California, a State-certified hazardous waste testing laboratory (Certification No. 1644) for analysis. Soil samples 1 through 4 were analyzed for metals arsenic, lead and mercury and organochloride pesticides using EPA Methods 7000 series and 8080A.

Soil sample B2-4 was delivered under chain-of-custody documentation to McCampbell Analytical, Inc. for analysis and analyzed for TPHg, TPHd, BTEX, MTBE and lead using EPA Methods 5030/8015, 8020 and 7240.

Laboratory analysis of soil samples 1 through 4 reported no detectable concentrations of most organochloride pesticides analyzed.

Analytical laboratory results of soil samples 1 through 4 reported low levels of arsenic (ranging from not detected to 5.3 milligrams per kilogram [mg/Kg]), lead (ranging from 4.4 mg/Kg to 17 mg/Kg) and mercury (ranging from not detected to 0.096 mg/Kg).

Analytical laboratory results of soil sample B2-4 reported no detectable concentrations of TPHg, TPHd, BTEX or MTBE. Lead was detected at a concentration of 3.4 mg/Kg.

The laboratory analytical results are presented on Table 1, Laboratory Analysis of Soil Samples. Laboratory analytical results and chain-of-custody documents are attached to Appendix A, Analytical Laboratory Report and Chain-of-Custody Forms.

4.0 DISCUSSION

4.1 Background on DDT and DDE

DDT and DDE were the most common and widely used chemicals for controlling insect pests on agricultural crops and controlling insects that carry diseases such as malaria and typhus. The US EPA banned all uses of DDT, except for public emergency, in 1972 primarily because amounts were building-up in the environment and because some cancer tests in laboratory animals revealed positive results. Technical DDT is primarily a mixture of three forms (p,p'-DDT, o,p'-DDT, and o,o'-DDT), all of which are white, crystalline, tasteless, and almost odorless solids. DDE is found in small amounts as contaminants in technical DDT and is a break-down product of DDT as well.

4.2 Pesticide Impacted Surficial Soil

Pursuant the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24, Table III, there are set threshold limits for various pesticides which the State deems are a risk to human health or the environment over these concentrations and are considered hazardous.

Since no organochloride pesticides were detected within soil samples 1 through 4, the surficial soil does not pose an adverse environmental risk to the site and no action is required as mandated by CAL EPA.

4.3 Metal Impacted Surficial Soil

The low concentrations of arsenic, lead and mercury within soil samples 1 through 4 are within background concentrations reported for areas in the San Francisco Bay Area, including data collected in northern Santa Clara Valley. The data collected and analyzed from the northern Santa Clara Valley was published in Ms. Christina Marie Scott's Masters of Science thesis from the University of San Francisco, *Background Metals Concentrations in Soils in Northern Santa Clara County, California, for Lockheed Corporation, dated December 1991.*

4.4 Gasoline-Impacted Subsurface Soil

Since no detectable concentrations of TPHg, TPHd, BTEX or MTBE were reported for soil sample B2-4, the former gasoline UST did not impact the subsurface soil beneath the site. The low concentration of lead (3.4 mg/Kg) is within background concentrations.

5.0 CONCLUSIONS

- No organochloride pesticides were detected within the surficial soil at the subject site and no action is required by the State.
- Low concentrations of arsenic, lead and mercury were detected in soil samples 1 through 4 and low concentrations of lead detected within soil samples 1 through 4 and B2-4. All metals detected were within background concentrations.
- No detectable concentrations of TPHg, TPHd, BTEX or MTBE were detected within the soil sample B2-4 collected beneath the former gasoline UST, indicating that the former gasoline UST did not adversely impact the subject site.

In view of the above findings, it is the opinion of **TERRASEARCH, inc.**, that further environmental assessment is **not** warranted.

6.0 LIMITATIONS

This report has been prepared for the specific application to this project in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in this area. This report contains information reported to **TERRASEARCH, inc.**, by other sources, accordingly, errors or omissions may be present that **TERRASEARCH, inc.** cannot be responsible for. This investigation was conducted solely for the purpose of evaluating environmental conditions of surficial soil with respect to metals arsenic, lead, mercury, and organochloride pesticides at the subject site. Surface and subsurface conditions may vary away from the sampling locations at the site.

7.0 INFORMATION SOURCES

Barclay's *California Code of Regulations, Title 22, Register 91, No. 22, 05-31-1991*

Mr. Noel Laverty with the California Environmental Protection Agency - Toxic Waste Division.

Christina Marie Scott, *Background Metals Concentrations in Soils in Northern Santa Clara County, California*, dated December 1991.

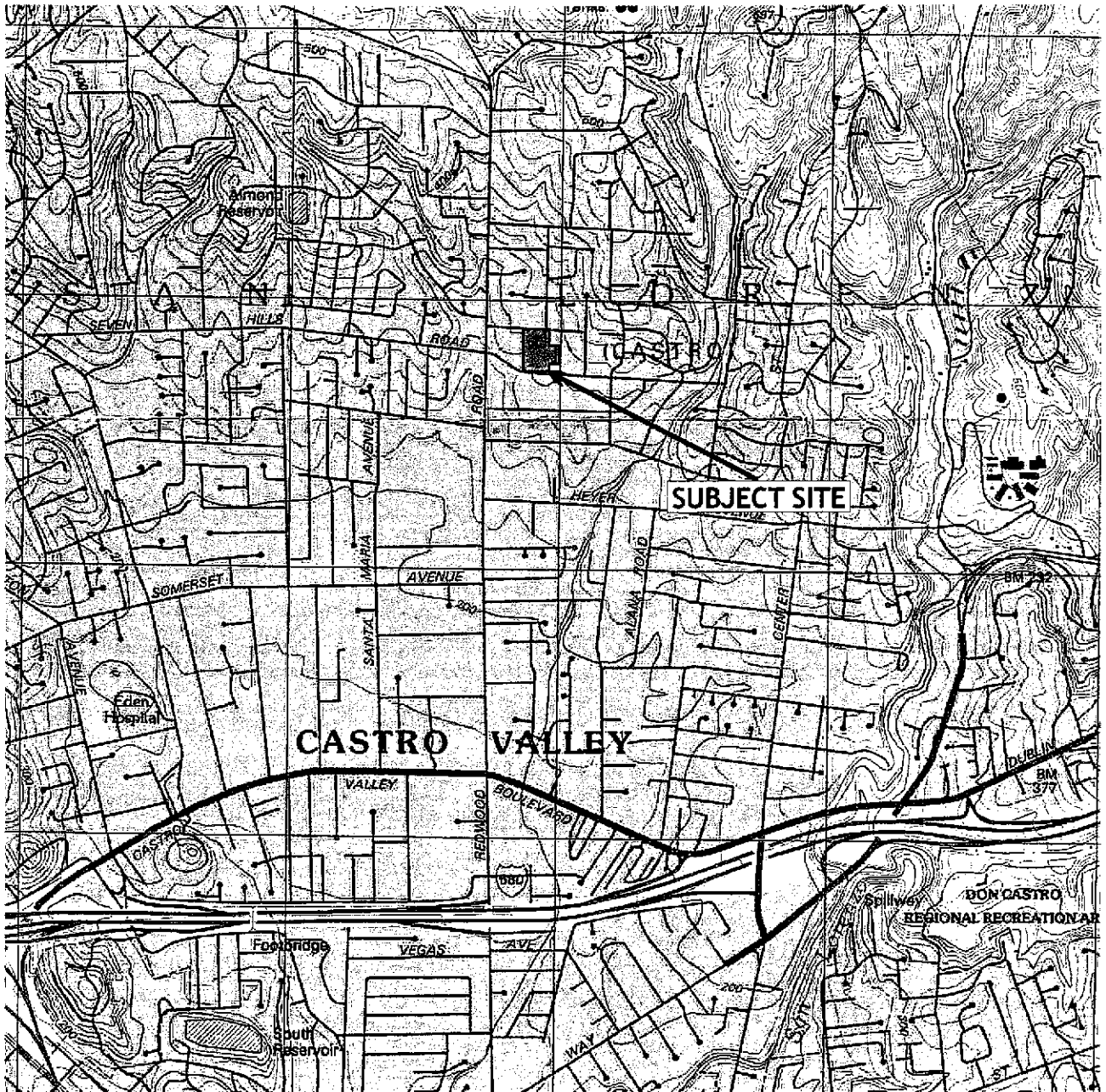
TERRASEARCH, inc., September 27, 2000. *Phase I Environmental Site Assessment at 4605, 4611 and 4643 Malabar Avenue, Castro Valley, California.* Project No. 8848.E.

US EPA, DDT and Associated Organic Pesticides, General Information and Chemical Characterization via the Internet.

TABLE 1**LABORATORY ANALYTICAL RESULTS OF SOIL SAMPLES****24462 and 24506 Fairview Avenue****Hayward, California****October 2, 2000**

Sample I.D.	Sample Depth (feet)	Arsenic (mg/Kg)	Lead (mg/Kg)	Mercury (mg/Kg)	Total Pesticides (µg/Kg)	TPHg (mg/Kg)	TPHd (mg/Kg)	BTEX (mg/Kg)	MTBE (mg/Kg)
1	0.5	<2.5	4.6	<0.06	<100 - <1000	NA	NA	NA	NA
2	0.5	<2.5	4.4	<0.06	<100 - <1000	NA	NA	NA	NA
3	0.5	5.3	17	0.096	<100 - <1000	NA	NA	NA	NA
4	0.5	4.3	7.1	<0.06	<100 - <1000	NA	NA	NA	NA
B2-4	4	NA	3.4	NA	NA	<1.0	<1.0	<0.005	<0.05

Notes: mg/Kg = Milligrams per kilogram (equivalent to parts per million [ppm]).
µg/Kg = Micrograms per kilogram (equivalent to parts per billion [ppb]).
NA = Not analyzed.
< = Less than laboratory detection limits.



SITE VICINITY MAP



GEOTECHNICAL ENGINEERS AND GEOLOGISTS

TERRASEARCH inc.

11840 DUBLIN BLVD., DUBLIN, CALIFORNIA 94568. (925) 833-9297

PHASE I ENVIRONMENTAL SITE ASSESSMENT
4643 MALABAR AVENUE (APN 846-835-1-7)
HAYWARD, CALIFORNIA

JOB NUMBER

8848.E

DATE

11/2000

SCALE

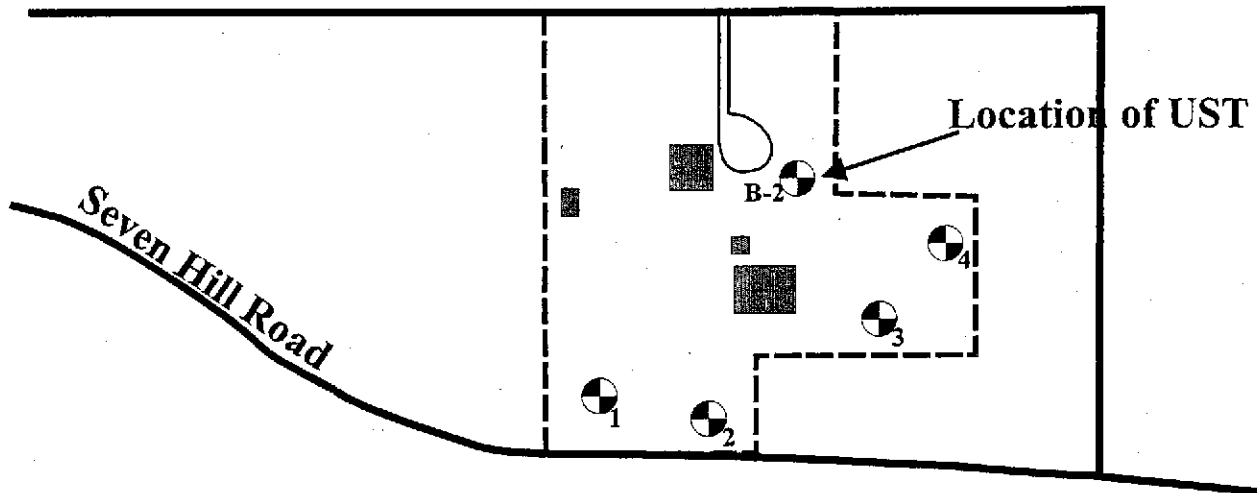
N/A

FIGURE

1



Malabar Avenue



SITE PLAN



GEOTECHNICAL ENGINEERS AND GEOLOGISTS

TERRASEARCH inc.

11840 DUBLIN BLVD., DUBLIN, CALIFORNIA 94568. (925) 833-0297

PHASE I ENVIRONMENTAL SITE ASSESSMENT
4643 MALABAR AVENUE (APN 846-835-1-7)
HAYWARD, CALIFORNIA

JOB NUMBER

8848.E

DATE

11/2000

SCALE

N/A

FIGURE

2

APPENDIX A

LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORMS



11840 DUBLIN BLVD., DUBLIN, CALIFORNIA 94568. (925) 833-9297

Chain of Custody

of Custody 22-471
ZTSI 33. doc

Reference No. _____
Page / of /

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McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

TERRASEARCH, Inc. 11840 Dublin Boulevard Dublin, CA 94568	Client Project ID: #8848.E; Malabar Ave	Date Sampled: 10/30/00
	Client Contact: Rob Campbell	Date Received: 10/30/00
	Client P.O: Castro Valley	Date Extracted: 10/30/00
		Date Analyzed: 10/30-11/01/00

Chlorinated Pesticides (including PCBs)

EPA method 608 and 3510 or 8080 and 3550

Lab ID	51746	51747	51748	51749	Reporting Limit	
Client ID	1	2	3	4	S	W, STLC, TCLP
Matrix	S	S	S	S		
Compound	Concentration*				ug/kg	ug/L
Aldrin	ND	ND	ND<100	ND	10	0.02
α -BHC	ND	ND	ND<100	ND	10	0.02
β -BHC	ND	ND	ND<100	ND	10	0.02
γ -BHC (Lindane)	ND	ND	ND<100	ND	10	0.02
σ -BHC	ND	ND	ND<100	ND	10	0.02
Chlordane	ND	ND	ND<100	ND	10	0.02
p,p'-DDD ^(k)	ND	ND	ND<100	ND	10	0.02
p,p'-DDE ^(k)	ND	ND	ND<100	ND	10	0.02
p,p'-DDT ^(k)	ND	ND	ND<100	ND	10	0.02
Dieldrin	ND	ND	ND<100	ND	10	0.02
Endosulfan I	ND	ND	ND<100	ND	10	0.02
Endosulfan II	ND	ND	ND<100	ND	10	0.02
Endosulfan Sulfate	ND	ND	ND<100	ND	10	0.02
Endrin	ND	ND	ND<100	ND	10	0.02
Endrin Aldehyde	ND	ND	ND<100	ND	10	0.02
Heptachlor	ND	ND	ND<100	ND	10	0.01
Heptachlor Epoxide	ND	ND	ND<100	ND	10	0.01
p,p'-Methoxychlor ^(k)	ND	ND	ND<100	ND	10	0.02
PCB-Total ^(*)	—	—	—	—	50	0.5
Toxaphene	ND	ND	ND<1000	ND	100	1
% Recovery Surrogate	90	91	86	89		
Comments			j			

* water and vapor samples are reported in ug/L, oils in mg/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

* surrogate diluted out of range or surrogate coelutes with another peak

* (a) PCB aroclor 1016; (b) PCB aroclor 1221; (c) PCB aroclor 1232; (d) PCB aroclor 1242; (e) PCB aroclor 1248; (f) PCB aroclor 1254; (g) PCB aroclor 1260; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >~5 vol. % sediment; (j) sample diluted due to high organic content; (k) p,p'- is the same as 4,4'-; (l) floristil (EPA 3620) cleanup; (m) silica-gel (EPA 3630) cleanup.



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110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
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<http://www.mccampbell.com> E-mail: main@mccampbell.com

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	Client P.O: Castro Valley	Date Extracted: 10/30/00
		Date Analyzed: 10/30/00

Metals by Graphite Furnace Atomic Absorption *

EPA analytical methods				206.2, 7060
Lab ID	Client ID	Matrix	Extraction ^o	Arsenic*
51746	1	S	TTLC	ND
51747	2	S	TTLC	ND
51748	3	S	TTLC	5.3
51749	4	S	TTLC	4.3
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	TTLC		0.005 mg/L
	S	TTLC		2.5 mg/kg
	—	STLC,TCLP		0.25 mg/L

* water samples are reported in mg/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in mg/L

^o EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

^ω DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

^{*} reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

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	Client Contact: Rob Campbell	Date Received: 10/30/00
	Client P.O: Castro Valley	Date Extracted: 10/30/00
		Date Analyzed: 10/31/00

Lead*

EPA analytical methods 6010/200.7, 239.2*

Lab ID	Client ID	Matrix	Extraction °	Lead*	% Recovery Surrogate
51746	1	S	TTLC	4.6	NA
51747	2	S	TTLC	4.4	NA
51748	3	S	TTLC	17	NA
51749	4	S	TTLC	7.1	NA
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		S	TTLC	3.0 mg/kg	
		W	TTLC	0.005 mg/L	
		--	STLC,TCLP	0.2 mg/L	

* soil and sludge samples are reported in mg/kg, wipe samples in ug/wipe, and water samples and all STLC / SPLP / TCLP extracts in mg/L
° Lead is analysed using EPA method 6010 (ICP) for soils, sludges, STLC & TCLP extracts and method 239.2 (AA Furnace) for water samples

° DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22 " surrogate diluted out of range; N/A means surrogate not applicable to this analysis

* reporting limit raised due matrix interference

i) liquid sample that contains greater than -2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.



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110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

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	Client P.O: Castro Valley	Date Analyzed: 10/30/00

Metals by Hydride/Cold Vapor Atomic Absorption*

EPA analytical methods				7470, 245.1, 7471, 245.5
Lab ID	Client ID	Matrix	Extraction ^o	Mercury*
51746	1	S	TTLC	ND
51747	2	S	TTLC	ND
51748	3	S	TTLC	0.096
51749	4	S	TTLC	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	TTLC		0.0008 mg/L
	S	TTLC		0.06 mg/kg
	—	STLC,TCLP		0.005 mg/L

* water samples are reported in mg/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in mg/L

^o EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

[@] DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

[&] reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

14 Edward Hamilton, Lab Director

RUSH

[illegible]



TERRASEARCH, Inc. 11840 Dublin Boulevard Dublin, CA 94568	Client Project ID: #8848.E; Delco-Malabar, Castro Valley	Date Sampled: 11/01/00
		Date Received: 11/01/00
	Client Contact: Rob Campbell	Date Extracted: 11/01/00
	Client P.O:	Date Analyzed: 11/01/00

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

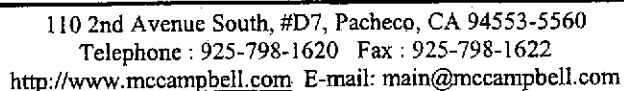
EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
51896	B2-4	S	ND	ND	ND	ND	ND	ND	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

* cluttered chromatogram; sample peak coelutes with surrogate peak

*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.



EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
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	Client P.O:	Date Extracted: 11/01/00
		Date Analyzed: 11/01/00

Lead*

EPA analytical methods 6010/200.7, 239.2*

Lab ID	Client ID	Matrix	Extraction °	Lead*	% Recovery Surrogate
51896	B2-4	S	TTLC	3.4	N/A
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		S	TTLC	3.0 mg/kg	
		W	TTLC	0.005 mg/L	
		—	STLC,TCLP	0.2 mg/L	

* soil and sludge samples are reported in mg/kg, wipe samples in ug/wipe, and water samples and all STLC / SPLP / TCLP extracts in mg/L
*Lead is analysed using EPA method 6010 (ICP)for soils, sludges, STLC & TCLP extracts and method 239.2 (AA Furnace) for water samples

® DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

surrogate diluted out of range; N/A means surrogate not applicable to this analysis

* reporting limit raised due matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.