



**Chevron U.S.A. Inc.**

2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500  
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Marketing Department

July 29, 1991

**Mr. Ravi Arulananthum**  
Alameda County Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94621

Re: Chevron S.S. #9-5542  
7007 San Ramon Valley Blvd., Dublin, CA 94568

Dear Mr. Arulananthum:

Enclosed are revisions to Table 4, Figure 5, and Figure 6 of the subsurface investigation report which was prepared by Chevron's consultant, Sierra Environmental (Sierra), and dated July 22, 1991. As the enclosed letter dated July 26, 1991 from Sierra indicates, a surveyor's calculation error resulted in incorrect groundwater elevation data for well MW-6. Please insert these items into the report in place of the incorrect ones. I apologize for this inconvenience.

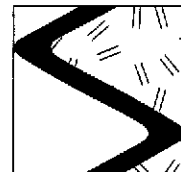
If you have any questions or comments, you may contact me at (415) 842-8658.

Sincerely,

**Clint B. Rogers**  
Environmental Engineer

Enclosures

cc: Richard Hiatt, San Francisco Bay RWQCB, Oakland, CA  
Mary Diamond, See's Candy, 3423 S. La Cienega Blvd., Los Angeles, CA 90016-4401  
Real Estate Dept., See's Candy, 210 El Camino Real, South San Francisco, CA 94080  
Sharon Halper, Sierra Environmental, Martinez, CA (w/o enclosures)

SLH  
July 26, 1991

Clint Rogers  
Chevron USA  
P.O. Box 5004  
San Ramon, California 94583

Re: Chevron S.S. #9-5542  
7007 San Ramon Road  
Dublin, California  
SES Project #1-214-00

Dear Mr. Rogers:

Enclosed are the revised ground water contour maps and Table 1 for the above-referenced service station. Our surveyor reviewed his calculations and determined that the top of casing elevation for well MW-6 was incorrect as reported in the Subsurface Investigation report dated July 22, 1991. Please insert the corrected table and maps into the report.

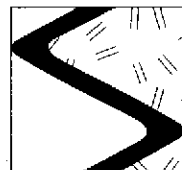
Thank you for allowing us to provide services to Chevron. Please call if you have any questions or comments.

Sincerely,  
Sierra Environmental Services

Sharon Halper  
Senior Project Geologist

SLH:ly

enclosures



JUL 24 1991 T.L.H.

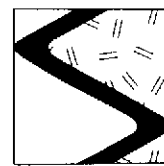
**SUBSURFACE INVESTIGATION REPORT**

Chevron S.S. #9-5542  
7007 San Ramon Road  
Dublin, California

*prepared for*

Chevron USA  
P.O. Box 5004  
San Ramon, CA 94583

July 22, 1991



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## SUBSURFACE INVESTIGATION REPORT

Chevron S.S. #9-5542  
7007 San Ramon Road  
Dublin, California

*prepared by*

### Sierra Environmental Services

P.O. Box 2546  
Martinez, California 94553

*Sharon Halper*

*7-22-91*

Sharon Halper  
Senior Project Geologist

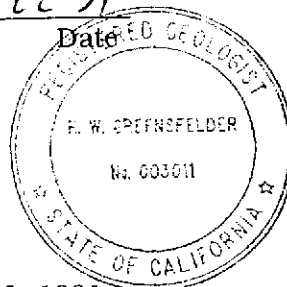
Date

*Roger Greensfelder*

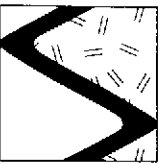
*7-22-91*

Dr. Roger Greensfelder  
Registered Geologist #003011

Date

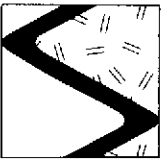


July 22, 1991



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downgradient wells are nine municipal wells located approximately one-half mile east of the Chevron station.



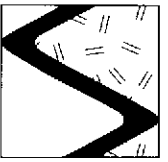
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## 1. INTRODUCTION

### 1.1 Scope of Work

This report presents the results of the subsurface investigation completed by Sierra Environmental Services (SES) at Chevron Service Station #9-5542, located at 7007 San Ramon Road in Dublin, California (Figure 1, Appendix A). The purpose of the SES investigation was to further define the extent of hydrocarbons in ground water in the site vicinity, and to verify the ground water flow direction and gradient in the site vicinity. The following outlines the scope of work and procedures for this investigation.

1. Research the site history and prepare a site safety plan specific to this investigation.
2. Conduct an area business survey to identify other potential sources of hydrocarbons near the site.
3. Conduct an area survey of water wells within one-half mile of the site.
4. Drill three off-site soil borings. Survey soil samples from the borings with an organic vapor meter (OVM) to determine the presence or absence of volatile hydrocarbons in the samples. Analyze a minimum of one soil sample from each boring for total purgeable petroleum hydrocarbons as gasoline [TPPH(G)], benzene, toluene, ethylbenzene and xylenes (BTEX), and total lead. Analyze soil cuttings for organic lead (OL) for soil disposal purposes.
5. Complete the three soil borings as 2-inch diameter ground water monitoring wells.
6. Develop the three new wells and collect ground water samples from all wells associated with the Chevron station. Analyze the ground water samples for TPPH(G), BTEX, halogenated volatile organic compounds (HVOCs). The ground water samples from the new wells were also analyzed for organic lead.
7. Survey top-of-casing elevations and measure the depth to water of/in all monitoring wells. Use the survey data and water level data to verify the ground water flow direction and gradient in the site vicinity.
8. Arrange for disposal of the drill cuttings from the soil borings, the steam-cleaning rinseate, and the monitoring well purge water.
9. Report the results.
10. Discuss the results with the client and make recommendations for further action.



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## 1.2 Background

The following site history information was obtained from Mr. Clint Rogers of Chevron USA.<sup>1</sup>

Four steel tanks were installed at the site in 1965 (two 10,000-gallon underground fuel tanks, one 4,000-gallon underground fuel tank and one 500-gallon waste oil tank). In 1983, a hole was discovered in the regular leaded gasoline tank and the tank was lined with fiberglass.

In December 1983, five monitoring wells were installed at the site. All five wells were drilled to a depth of approximately 20 feet below grade. Ground water was not encountered in any of the wells. In January 1984, well MW-3 was deepened to a depth of 25 feet below grade. Free-phase hydrocarbons (identified as motor oil) were present in the well. The free-phase hydrocarbons were bailed from the well and did not reappear during subsequent bi-weekly monitoring.

In September 1984 a corroded section of fuel piping was replaced and cathodic protection was installed. In November 1984, the regular leaded product line failed a leak test.

In February 1990, the station was rebuilt and the fuel tanks and product lines were replaced. Three 12,000-gallon fiberglass fuel tanks were installed. The waste oil tank was removed but was not replaced. Soil samples were collected from beneath the fuel tanks and waste oil tank. Hydrocarbons were detected beneath all of the tanks. The highest concentration of TPPH(G), 5,100 parts per million (ppm), was detected beneath the northern end of the eastern fuel tank (Figure 2, Appendix A).

Soil was removed to a depth of 22 feet below grade at the southern end of the tank excavation. Soil samples collected from 22 feet below grade in the southern portion of the tank excavation contained over 1,000 ppm TPPH(G).

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<sup>1</sup> Rogers, Clint, 1991, Memorandum from Clint Rogers, Chevron Engineer to Sharon Halper, SES Senior Project Geologist, May 28, 1991, 1 pp.



Tank test results from the previously existing tanks were not available for inclusion in this work plan.

In March 1990, the five existing monitoring wells were abandoned and four new wells (MW-1 through MW-4) were installed at the site (Figure 2, Appendix A). Hydrocarbons were detected in soil samples collected from three of the monitoring wells (MW-1, MW-3, and MW-4). The highest concentration of TPPH(G) in soil, 1,300 ppm, was detected in a sample collected from 25 feet below grade in boring/well MW-1. In April, 1990, ground water samples were collected from wells MW-1 through MW-4. Hydrocarbons as gasoline and BTEX were detected in samples from wells MW-1, MW-3 and MW-4.

Historic analytic results for soil and ground water from the installation and sampling of the four monitoring wells are shown in Tables 1 and 2 (Appendix B). A quarterly ground water sampling program was initiated at the site as part of this investigation in May, 1991.

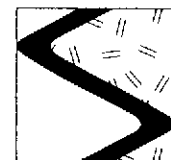
### **1.3 Area Business Survey**

An area business survey was conducted to identify properties and businesses within a one-block radius of the site in order to determine the surrounding land use and to identify other potential sources of petroleum hydrocarbons near the site. The area business survey consisted of a review of records at the Alameda County Health Department and the Regional Water Quality Control Board, and an area reconnaissance.

The surrounding land use is commercial (Figure 3, Appendix A). There are several other potential sources of hydrocarbons within two blocks of the site. A Unocal 76 Service Station is located on the northwest corner of San Ramon Road and Dublin Boulevard, and a Shell Service Station is located on the southwest corner of San Ramon Road and Dublin Boulevard.

In June 1990, two underground fuel tanks (a 10,000-gallon super unleaded and a 10,000-gallon regular unleaded gasoline) and a waste oil tank were removed from the Unocal station. Hydrocarbons as gasoline and BTEX were detected in soil samples from the tank excavation. Hydrocarbons as diesel, TPPH(G), BTEX, oil and grease (O&G) and 1,2-dichlorobenzene were detected in the soil samples collected from the waste oil tank excavation. The highest





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concentrations of TPPH(G), 5,700 and 2,200 ppm, were detected on the northwest edge of the tank excavation. A ground water sample collected from the tank excavation contained 2,300 parts per billion (ppb) TPPH(G).

On December 17, 1990 a ground water investigation was completed at the Unocal station.<sup>2</sup> Four borings/monitoring wells were installed and soil samples were collected from all borings. Soil samples from all borings/wells were analyzed for TPPH(G) and BTEX. In addition, one soil sample from the boring/well by the waste oil tank, was analyzed for TPH(D), HVOCs, and O&G. None of these compounds were detected in any of the samples analyzed.

Ground water samples were collected from the wells and analyzed for TPPH(G) and BTEX. In addition, the ground water sample from well MW-1, by the waste oil tank was analyzed for TPH(D), HVOCs and O&G. None of these compounds were detected in ground water samples from the monitoring wells. The ground water flow direction on November 16, 1990 was northerly.

All wells at the Unocal station were resampled April 23, 1991.<sup>3</sup> Ground water samples from the wells were analyzed for TPPH(G) and BTEX. In addition, the ground water sample from well MW-1 (adjacent to the waste oil tank) was analyzed for TPH(D), HVOCs and O&G. None of these compounds were detected in ground water samples from the monitoring wells. Ground water elevations in February, March and April indicated that the ground water flow direction across the site was easterly.

There was no information on the Shell station on-file at the Alameda County Health Department or at the Regional Water Quality Control Board.

#### **1.4 Area Water Well Survey**

A review of the California Department of Water Resources records was conducted in order to identify water wells within a one-half mile radius of the site. Twenty-four water wells were

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<sup>2</sup> Kaprealian Engineering, Inc., 1990, Consultant's Preliminary Ground Water Investigation at Unocal Service Station #5901, 11976 Dublin Boulevard, Dublin, California, 10 pp and attachments.

<sup>3</sup> Kaprealian Engineering, Inc., 1991, Consultant's Quarterly Report prepared for UNOCAL, April 23, 1991, 10 pp and attachments.



identified and are listed in Table 3 (Appendix B). The wells identified in the survey are shown in Figure 4 (Appendix A). Nine of the wells, municipal wells, are potentially downgradient of the site; however, they are located approximately one-half mile east of the site.

### **1.5 Topographic and Geologic Setting**

The site is located in Dublin, in the San Ramon Valley region of California. The topography of the site is relatively flat. The site is mapped as Quaternary alluvium which is composed of unconsolidated and semi-consolidated clay, silt, sand and gravel.<sup>4</sup> The closest surface water is Dublin Creek located approximately 2,000 feet south of the site.

Information from this investigation and previous investigations indicates that the site is underlain by relatively low permeability sandy clay and silty clay. Depth to ground water at the site in May 1991 was approximately 23 to 26 feet below grade.

The ground water flow direction at the site was easterly based on water level measurements collected in November 1990. The ground water flow direction in the site vicinity on June 21, and July 17, 1991 was easterly.

## **2. SUBSURFACE INVESTIGATION**

On June 11 and 12, 1991, Soils Exploration Services of Vacaville, California drilled and installed three monitoring wells off-site, MW-5, MW-6 and MW-7, using a hollow-stem auger drill rig (Figure 5, Appendix A).

The monitoring wells were drilled to evaluate the extent of hydrocarbons in ground water off-site, and to verify the ground water flow direction and gradient in the site vicinity. Well MW-5 is located in Dublin Boulevard. Well MW-6 is located near the See's Candy/Grand Auto property boundary, downgradient of the site. Well MW-7 is located north of the site near the See's Candy/Woolworth property boundary.

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<sup>4</sup> Dibblee, Thomas, 1980, Preliminary Geologic Map of the Dublin Quadrangle, Alameda and Contra Costa Counties, United States Geological Survey Open File Report 80-537.



## **2.1 Soil Borings and Monitoring Well Installation**

Soil samples were collected in accordance with SES Standard Operating Procedure - Soil Sampling (Appendix C). The borings were logged in accordance with SES Standard Operating Procedure - Logging Method (Appendix C). Soil samples were screened for volatile hydrocarbons during drilling in accordance with SES Standard Operating Procedure - OVM Readings (Appendix C).

Soils encountered from the surface to approximately 36 feet below grade (total depth explored) generally consisted of interbedded layers of silty and sandy clay and clayey sand.

Drill cuttings were temporarily stored on-site in 55-gallon U.S. Department of Transportation (DOT)-approved drums pending analytic results. Each drum was sealed and labeled. The drill cuttings will be taken to an appropriate waste disposal facility.

Ground water was encountered at approximately 26 to 28 feet below grade during drilling. Water levels in all wells later stabilized at approximately 23 to 23.5 feet below grade. The water-bearing zone in the wells consisted primarily of low-permeability silty clay and clayey sand.

Ground water monitoring wells were constructed in the borings in accordance with the SES Standard Operating Procedure - Monitoring Well Design and Construction (Appendix C). The monitoring wells were constructed using 0.010-inch slotted well screen and #2/12 sand as a filter pack. The soil classification chart used for drilling and a typical well construction detail are included in Appendix D. Details of subsurface sediments, OVM readings, water levels and well construction are shown on the boring logs in Appendix D. Water level data and well construction details are also shown in Table 4 (Appendix B).

## **3. WELL DEVELOPMENT AND GROUND WATER SAMPLING**

Monitoring wells MW-5, MW-6, MW-7 were developed on June 18, 1991 with a vented surge block in accordance with SES Standard Operating Procedure - Monitoring Well Development (Appendix C). Purge water was removed with a steam-cleaned submersible pump.



Monitoring wells MW-1, MW-2, MW-3 and MW-4 were sampled on May 31, 1991, and monitoring wells MW-5, MW-6 and MW-7 were sampled on June 21, 1991. The wells were sampled in accordance with the SES Standard Operating Procedure - Ground Water Sampling (Appendix C). Ground water samples were collected with steam-cleaned teflon bailers.

The steam-cleaning rinseate, and well development and purge water were placed in 55-gallon DOT-approved drums, sealed and labeled. The liquid was taken to Gibson Refinery of Bakersfield, California by a Chevron-designated trucking company.

#### **4. SURVEYING AND GROUND WATER GRADIENT**

The top of casing elevations of all site wells were surveyed to within 0.01-foot by Ron Miller, Professional Engineer #15816, on June 26, 1991. The elevations are referenced to mean sea level using the benchmark established on the southwest corner of San Ramon Road and Dublin Boulevard.<sup>5</sup>

Water levels were measured in all wells on June 21, and July 17, 1991. Free-phase hydrocarbons were not present in any of the wells. Water level measurements, top of casing elevations, and ground water elevations are shown in Table 4 (Appendix B).

Ground water elevation data from June 21 and July 17, 1991 indicate that the ground water flow direction beneath the site is westerly, at a gradient of approximately 0.05 to 0.06 ft/ft (Figures 5 and 6, Appendix A).

#### **5. ANALYTIC RESULTS FOR SOIL AND GROUND WATER**

Selected soil and ground water samples from the wells were analyzed for TPHH(G) by EPA Method 8015/5030 and BTEX by EPA Method 8020. The soil samples were also analyzed for total lead by EPA Method 7421. The ground water samples from all wells were also analyzed for

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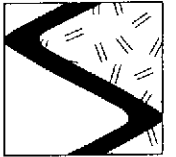
<sup>5</sup> The surveyor indicated that the benchmark has been disturbed.



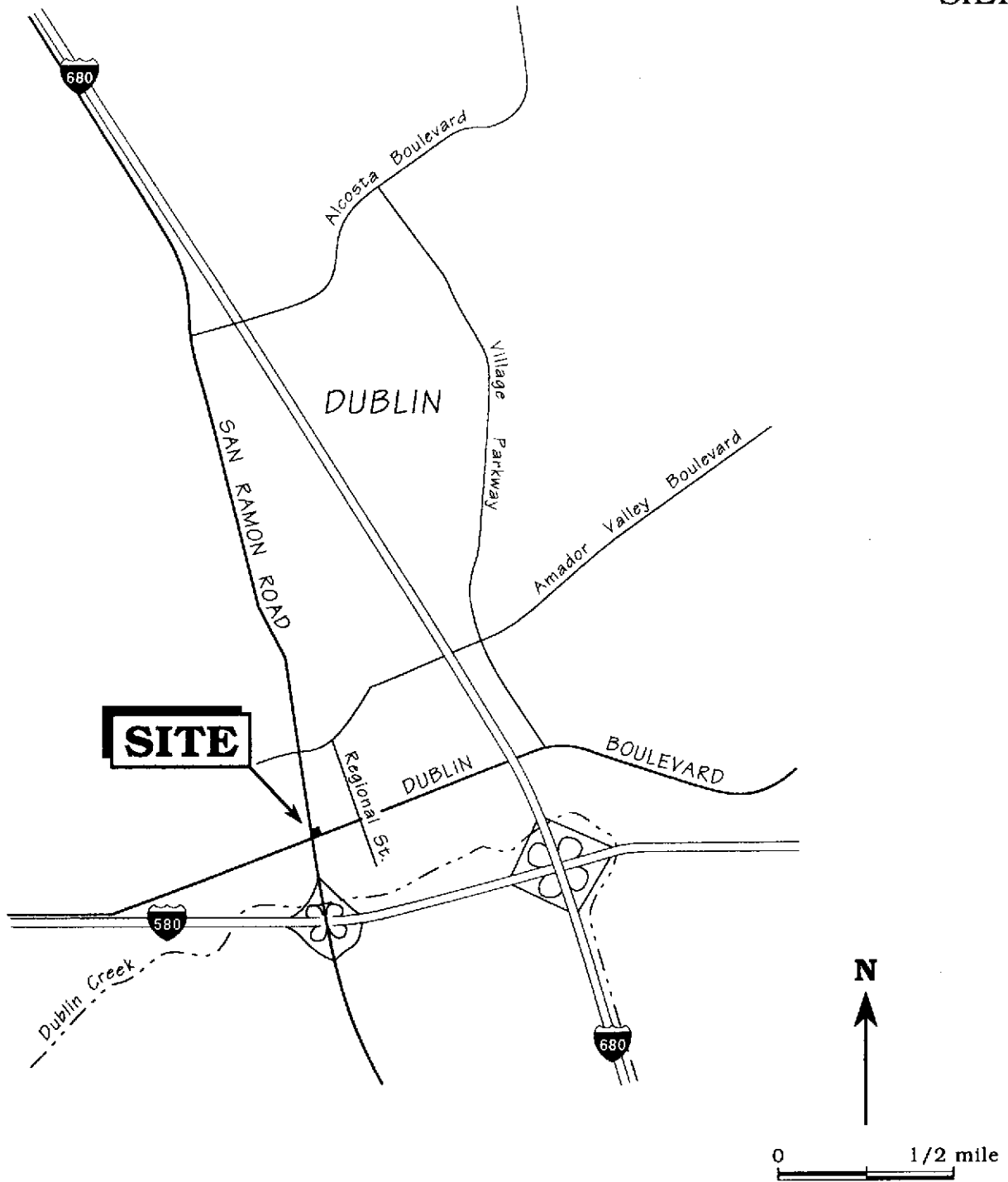
HVOCs by EPA Method 8010. The ground water samples from the new wells were also analyzed for organic lead by the DHS LUFT Method. In addition the ground water samples from the on-site wells, MW-1, MW-2, MW-3 and MW-4 were analyzed for O&G. All samples were analyzed by Superior Analytic Laboratory of San Francisco and Martinez, California. Chain of custody documents, laboratory analytic reports, and all QA/QC data provided by the laboratory are included in Appendix E. SES is not responsible for laboratory omissions or errors.

The soil samples from just above or at the water table were selected for analysis. Analytic results for soil are shown in Table 1 (Appendix B).

Ground water samples were collected from all wells, on- and off-site. Analytic results for ground water are shown in Table 2 (Appendix B).



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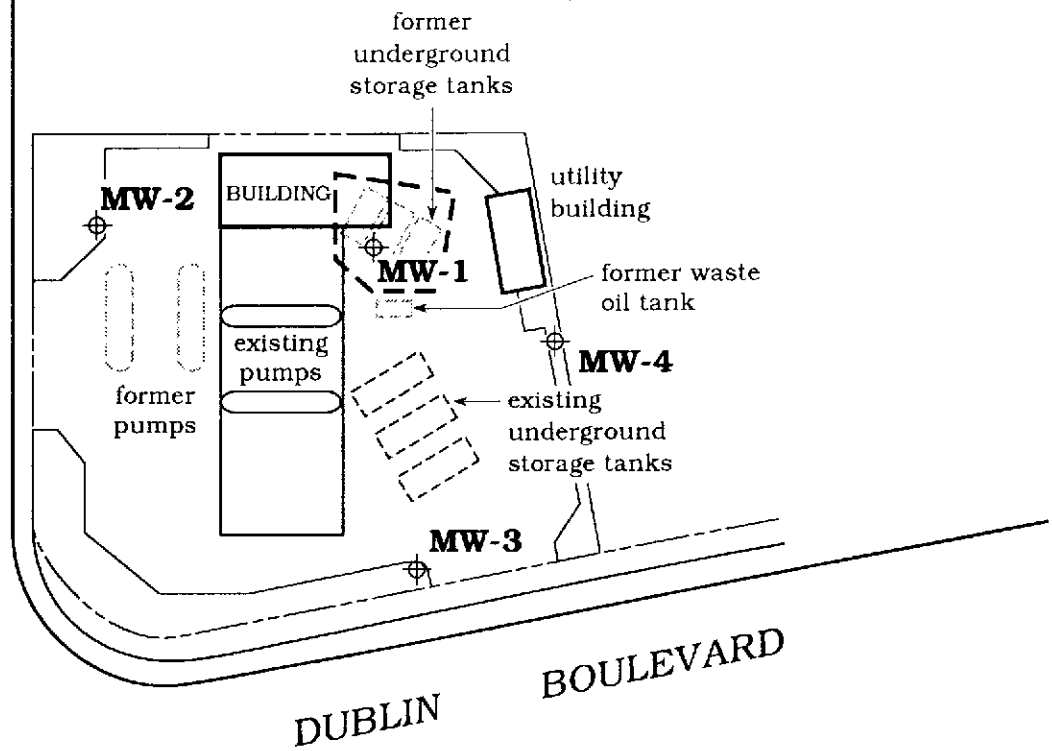
Base map ref: California State Automobile Association (AAA)

Figure 1. Site Location Map - Chevron Service Station #9-5542 - 7007 San Ramon Road, Dublin, California



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SAN RAMON ROAD



**EXPLANATION**

⊕ **MW-4** Existing monitoring well

⊔ Excavated area



0 30 60 ft.

Base map after Chemical Processors, Inc.

Figure 2. Existing Monitoring Well Location Map - Chevron Service Station #9-5542 - 7007 San Ramon Road, Dublin, California





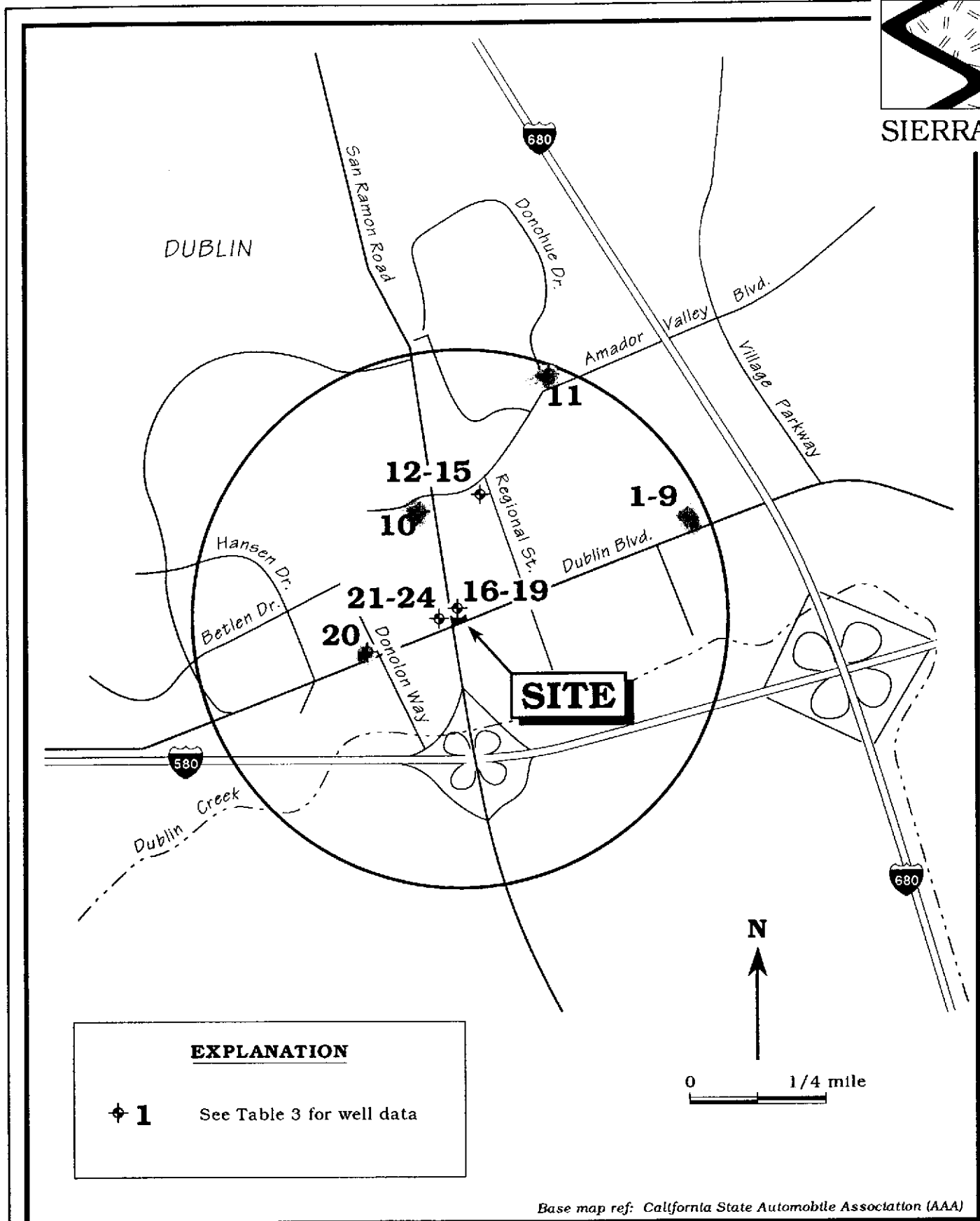
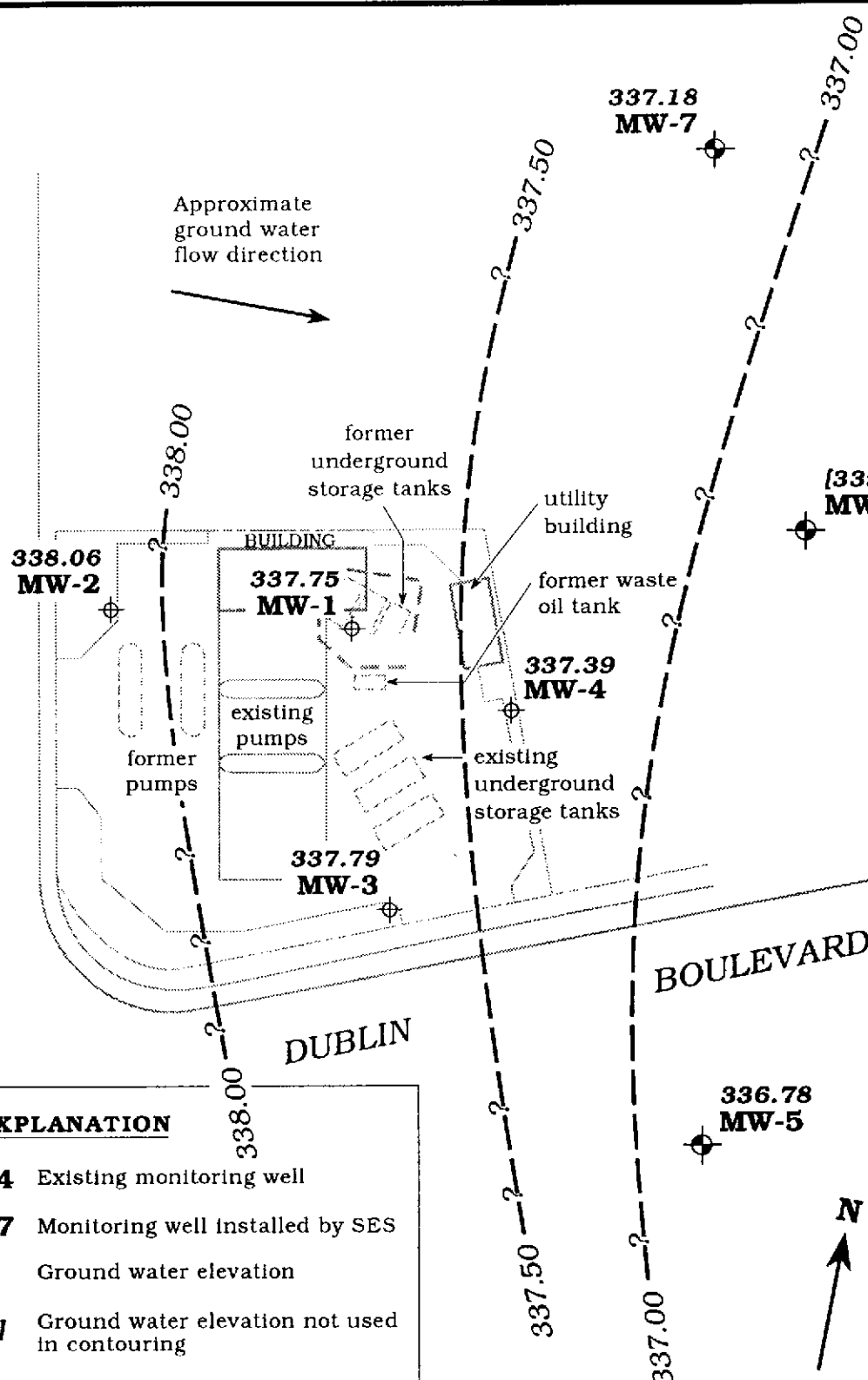


Figure 4. Water Wells Within One-Half Mile of Chevron Service Station #9-5542 - 7007 San Ramon Road, Dublin, California



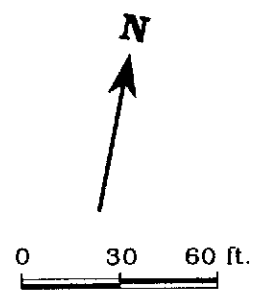
SAN RAMON ROAD

Approximate ground water flow direction



**EXPLANATION**

- MW-4** Existing monitoring well
- MW-7** Monitoring well installed by SES
- 337.18** Ground water elevation
- [339.11]** Ground water elevation not used in contouring
- 337.5** Ground water elevation contour, dashed where inferred, queried where uncertain
- Excavated area



Base map after Chemical Processors, Inc.

Figure 5. Monitoring Well Location and Ground Water Elevation Contour Map - June 21, 1991 - Chevron Service Station #9-5542 - 7007 San Ramon Road, Dublin, California



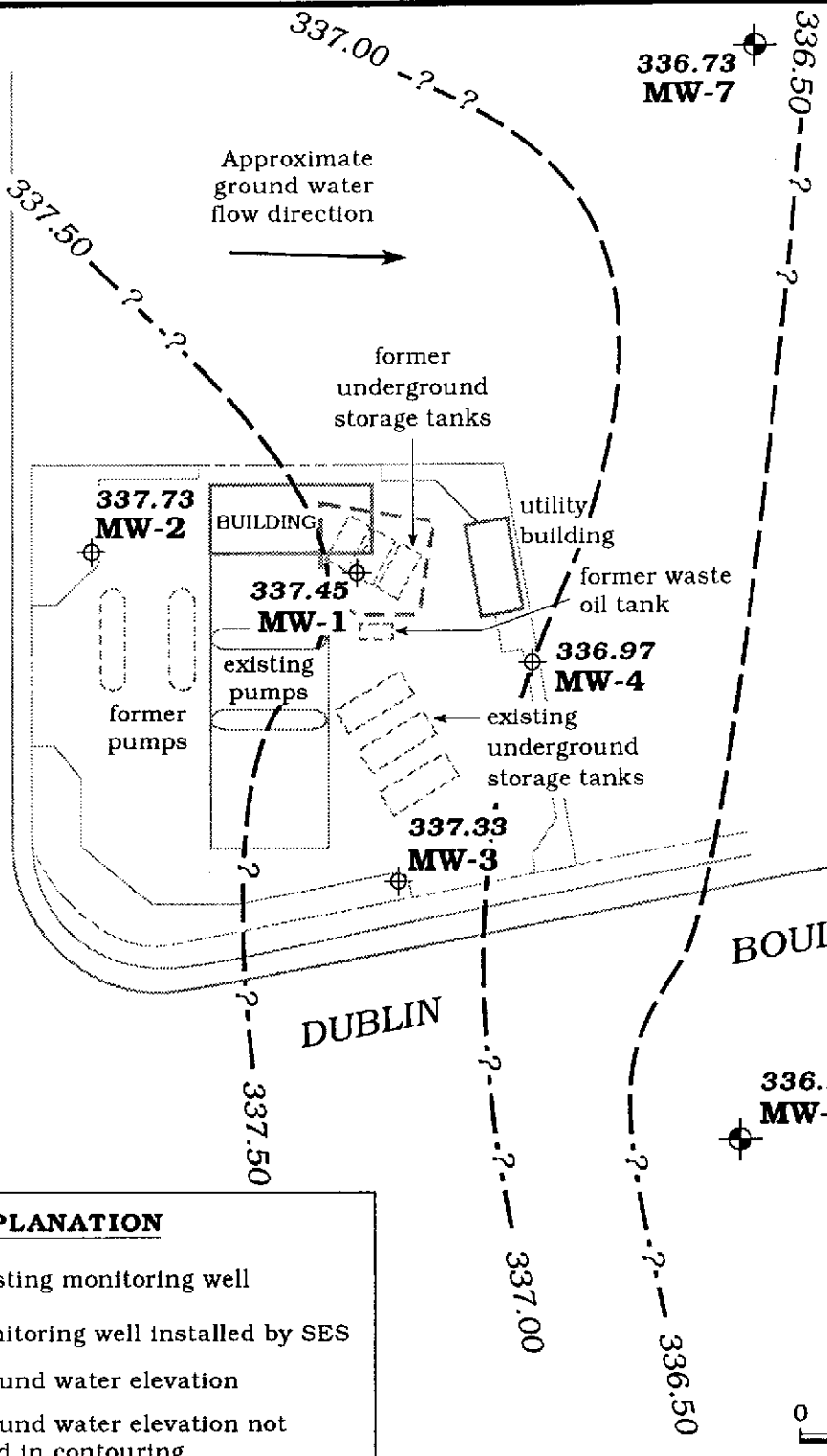
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SAN RAMON ROAD

BOULEVARD

DUBLIN

Approximate ground water flow direction



**EXPLANATION**

- MW-4** Existing monitoring well
- MW-7** Monitoring well installed by SES
- 336.97** Ground water elevation
- [338.66]** Ground water elevation not used in contouring
- 337.0** Ground water elevation contour, dashed where inferred, queried where uncertain
- Excavated area

**336.27**  
**MW-5**

**337.00**

**337.50**

**336.73**  
**MW-7**

**[338.66]**  
**MW-6**

**336.97**  
**MW-4**

**337.73**  
**MW-2**

**337.45**  
**MW-1**

**337.33**  
**MW-3**

**N**

0 30 60 ft.

Base map after Chemical Processors, Inc.

Figure 6. Monitoring Well Location and Ground Water Elevation Contour Map - July 17, 1991 - Chevron Service Station #9-5542 - 7007 San Ramon Road, Dublin, California

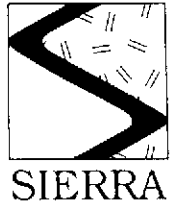


Table 1. Analytic Results for Soil - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California

Sample ID	Depth (ft)	Sample Date	Analytic Lab	Analytic Method	TPPH(G)	TPH(D)	O&G	B	T	E	X	Cd	Cr	Pb	Zn
					-----ppm-----										
MW-1	25	3/27/90	*	8015/8020	1,300	---	---	38	150	34	180	---	---	---	---
	30	3/27/90	*	8015/8020	270	---	---	1	4	4	18	---	---	---	---
MW-2	15	3/26/90	*	8015/8020	<10	---	---	<0.005	<0.005	<0.005	<0.015	---	---	---	---
MW-3	15	3/26/90	*	8015/8020	<10	---	---	<0.005	<0.005	<0.005	<0.015	---	---	---	---
	20	3/26/90	*	8015/8020	<10	---	---	<0.005	0.01	0.01	0.12	---	---	---	---
	25	3/26/90	*	8015/8020	51	---	---	<0.005	0.02	0.05	0.28	---	---	---	---
MW-4	15	3/28/90	*	8015/8020	<10	<10	---	---	---	---	---	---	---	---	---
	15	3/28/90	*	7130/7190/7420/7950	---	---	---	---	---	---	---	<3	26	37	39
	20	3/28/90	*	8015/8020	<10	<10	---	---	---	---	---	---	---	---	---
	20	3/28/90	*	7130/7190/7420/7950	---	---	---	---	---	---	---	<3	25	41	44
	25	3/28/90	*	8015/503E/8240**	<10	<10	30	2.7	23	5.6	46	---	---	---	---
25	3/28/90	*	7130/7190/7420/7950	---	---	---	---	---	---	---	<3	13	26	28	
MW-5	28.5	6/11/91	SAL	8015/8020/7420	<1	---	---	<0.005	<0.005	<0.005	<0.005	---	---	<10	---
MW-6	26	6/12/91	SAL	8015/8020/7420	5	---	---	0.006	0.006	0.060	0.12	---	---	<10	---
MW-7	26	6/11/91	SAL	8015/8020/7420	<1	---	---	<0.005	<0.005	<0.005	<0.005	---	---	<10	---



Table 1. Analytic Results for Soil - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California (continued)

EXPLANATION:

TPPH(G) = Total Purgeable Petroleum Hydrocarbons as Gasoline  
TPH(D) = Total Petroleum Hydrocarbons as Diesel  
O&G = Oil & Grease  
B = Benzene  
T = Toluene  
E = Ethylbenzene  
X = Xylenes  
Cd = Cadmium  
Cr = Chromium  
Pb = Lead  
Zn = Zinc  
ppm = Parts per million  
--- = Not analyzed/Not applicable  
\*\* = Method 8240 compounds not detected, detection limits were not stated

ANALYTIC METHODS:

8015 = EPA Method 8015 for TPPH(G) and TPH(D)  
8020 = EPA Method 8020 for BTEX  
503E = Standard Method 503E for O&G  
7130 = EPA Method 7130 for Cd  
7190 = EPA Method 7190 for Cr  
7420 = EPA Method 7420 for Pb  
7950 = EPA Method 7950 for Zn

ANALYTIC LABORATORY:

\* Analytic data was compiled from a draft report prepared by Chempro, undated. Analytic laboratory not shown.

SAL = Superior Analytical Laboratories, Inc., of San Francisco and Martinez, California



Table 2. Analytic Results for Ground Water - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California

Sample ID	Date	Analytic Method	Analytic Lab	TPPH(G)	O&G	B	T	E	X	HVOCs	1,2-DCA	EDB	OL
-----ppb----->													
MW-1 (D)	4/3-4/90	*	8015/602/504	46,000	---	8,400	7,400	860	5,600	---	---	1.04	---
	4/3-4/90	*	8015/602/504	43,000	---	8,400	7,200	840	5,200	---	---	1.1	---
	5/31/91	SAL	8015/8020/8010	31,000	---	7,400	2,500	630	2,100	ND	2	---	---
	5/31/91	SAL	503E	---	<5,000	---	---	---	---	---	---	---	---
MW-2	4/3-4/90	*	8015/602/504	<50	---	<0.3	<0.3	<0.3	<0.6	---	---	<0.02	---
	5/31/91	SAL	8015/8020/8010	100	---	3.1	4.2	0.7	2.0	ND	<0.5	---	---
	5/31/91	SAL	503E	---	<5,000	---	---	---	---	---	---	---	---
MW-3	4/3-4/90	*	8015/602/504	2,200	---	36	5	6	17	---	---	<0.02	---
	5/31/91	SAL	8015/8020/8010	2,200	---	130	11	31	78	ND	19	---	---
	5/31/91	SAL	503E	---	<5,000	---	---	---	---	---	---	---	---
MW-4	4/3-4/90	*	8015/413.1/602/504	43,000	18,000	4,000	5,000	790	5,500	---	---	<0.02	---
	4/3-4/90	*	624**	---	---	6,000	8,200	1,500	---	---	---	---	---
	5/31/91	SAL	8015/8020/8010	34,000	---	2,900	2,900	680	3,300	ND	<0.5	---	---
	5/31/91	SAL	503E	---	<5,000	---	---	---	---	---	---	---	---
MW-5	6/21/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	---
	6/21/91	SAL	8010/LUFT	---	---	---	---	---	---	ND	---	---	<4,000
MW-6	6/21/91	SAL	8015/8020	3,700	---	50	2.6	150	340	---	<0.5	---	---
	6/21/91	SAL	8010/LUFT	---	---	---	---	---	---	ND	---	---	<4,000
MW-7	6/21/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	<0.5	---	---
	6/21/91	SAL	8010/LUFT	---	---	---	---	---	---	ND	---	---	<4,000
<b>Trip blank</b> (MW-AA)	5/31/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	---	---	---
	6/21/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	---	---	---
<b>Bailer blank</b> (MW-BB)	5/31/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	---	---	---
	6/21/91	SAL	8015/8020	<50	---	<0.5	<0.5	<0.5	<0.5	---	---	---	---

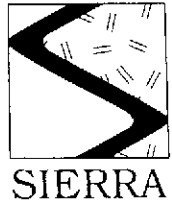


Table 2. Analytic Results for Ground Water - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California (continued)

Sample ID	Date	Analytic Method	Analytic Lab	TPPH(G)	O&G	B	T	E	X	Other HVOCs	1,2-DCA	EDB	OL
				<-----ppb----->									
DHS MCLs	---	---	---	NE	NE	1	---	680	1,750	***	0.5	0.02	NE
DHS RALs	---	---	---	---	NE	---	100	---	---	***	---	---	NE

EXPLANATION:

TPPH(G) = Total Purgeable Petroleum Hydrocarbons as Gasoline  
 O&G = Oil and Grease  
 B = Benzene  
 T = Toluene  
 E = Ethylbenzene  
 X = Xylenes  
 HVOCs = Halogenated Volatile Organic Compounds  
 1,2-DCA = 1,2-Dichloroethane  
 EDB = Ethylene dibromide  
 OL = Organic lead  
 ppb = Parts per billion  
 ND = Not detected at detection limits of 0.5 to 1 ppb  
 --- = Not analyzed/not applicable  
 DHS = Department of Health Services  
 MCLs = Maximum Contaminant Levels  
 RALs = Recommended Action Levels  
 NE = Not established  
 D = duplicate sample

ANALYTIC METHODS:

8015 = EPA Method 8015/5030 for TPPH(G)  
 602 = EPA Method 602 for BTEX  
 504 = EPA Method 504 for EDB  
 503E = Standards Methods Method 503E for O&G  
 8020 = EPA Method 8020 for BTEX  
 8010 = EPA Method 8010 for HVOCs  
 413.1 = EPA Method 413.1 for total O&G  
 624 = EPA Method 624 for BTEX and VOCs  
 LUFT = DHS LUFT Manual method for OL

ANALYTIC LABORATORY:

SAL = Superior Analytic Laboratory of San Francisco and Martinez, California

NOTES

- \* = Analytic data was compiled from a draft report prepared by Chempro, undated. Analytic laboratory was not shown.
- \*\* = 624 compounds were not reported
- \*\*\* = DHS MCLs and RALs for HVOCs vary

Well locations are shown on Figure 5 (Appendix A)



Table 3. Water Wells Within One-Half Mile of Chevron Service Station #9-5542,  
7007 San Ramon Road, Dublin, California

Map Ref	Well Owner	Well Owner's Address	Well Location*	Well Use
1-9	A.D. Selditch & Assoc Inc.	6267E Joaquin Manela Ave. Newark, California	Montgomery Ward 8900 Amador Plaza Rd. (7575 Dublin Blvd.)	D
10	Zone 7 Water Agency	5997 Parkside Dr. Pleasanton, California	SW corner of San Ramon Rd. Amador Valley Blvd.	I
11	Dougherty Regional Fire Authority	9399 Firecrest Ln San Ramon, California	7494 Donohue Dr., Dublin	I
12-15	Texaco	---	7840 Amador Valley Rd. Dublin	Mon
16-19	Chevron USA	P.O. Box 5004 San Ramon, California	7007 San Ramon Rd. (San Ramon & Dublin Blvd.)	Mon
20	Dublin Historical	Donolan Way Dublin, California	same ?	D
21-24**	Unocal	Unocal Corporation 2000 Crow Canyon Place San Ramon, California	11976 Dublin Boulevard Dublin, California	Mon

EXPLANATIONS:

D = Domestic  
I = Irrigation  
M = Municipal  
Mon = Monitoring

NOTES:

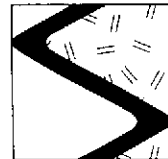
- \* Well locations are shown on Figure 4 (Appendix A)
- \*\* These wells were identified during the area business survey





Table 4. Water Level Data and Well Construction Details - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California

Well ID	Date Measured	DTW (ft)	TOC* (ft)	GWE (msl)	Product Thickness** (ft)	Screen Interval -----feet below grade-----	Sand Pack Interval	Bentonite/Grout Interval
MW-1	5/31/91	25.67	363.98	338.31	0	20.0 - 35.0	19.5 - 35.5	0 - 19.5
	6/21/91	26.23		337.75	0			
	7/17/91	26.53		337.45	0			
MW-2	5/31/91	25.51	364.19	338.68	0	22.0 - 37.0	20.0 - 37.0	0 - 20.0
	6/21/91	26.13		338.06	0			
	7/17/91	26.46		337.73	0			
MW-3	5/31/91	23.20	361.92	338.72	0	20.0 - 35.0	19.0 - 35.0	0 - 19.0
	6/21/91	24.13		337.79	0			
	7/17/91	24.59		337.73	0			
MW-4	5/31/91	24.67	362.70	338.03	0	20.0 - 35.0	19.0 - 35.0	0 - 19.0
	6/21/91	25.31		337.39	0			
	7/17/91	25.73		336.97	0			
MW-5	6/21/91	23.17	359.95	336.78	0	21.0 - 36.0	19.5 - 36.0	0 - 19.5
	7/17/91	23.68		336.27	0			
MW-6	6/21/91	23.55	<del>362.66</del> <sup>260.22</sup>	339.11	0	20.0 - 35.0	18.5 - 35.0	0 - 18.5
	7/17/91	24.00		338.66	0			
MW-7	6/21/91	23.45	360.63	337.18	0	20.0 - 35.0	18.5 - 35.0	0 - 18.5
	7/17/91	23.90		336.73	0			



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Table 4. Water Level Data and Well Construction Details - Chevron Service Station #9-5542, 7007 San Ramon Road, Dublin, California (continued)

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EXPLANATIONS:

DTW = Depth to water  
TOC = Top of casing elevation  
GWE = Ground water elevation  
msl = Measurements referenced relative to mean sea level

NOTES:

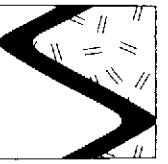
Well construction details for MW-1 through MW-4 were compiled from a draft report prepared by Chempro, undated.

\* Top of casing elevations were surveyed by Ron Miller, Professional Engineer #15816, June 26, 1991.

\*\* Product thickness was measured with an MMC flexi-dip interface probe.

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**APPENDIX C**  
SIERRA ENVIRONMENTAL SERVICES  
STANDARD OPERATING PROCEDURES



## **STANDARD OPERATING PROCEDURE**

### **SOIL SAMPLING**

The following describes sampling procedures used by SES field personnel to collect, handle, and transport soil samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis.

All drilling and sampling equipment is steam-cleaned between boreholes to prevent cross-contamination. The sampler is washed with an EPA approved detergent (such as liquinox or trisodium phosphate) between sample collection. Collection methods specific to soil sampling are presented below.

Soil samples are collected at pre-specified depth intervals or at a sediment/lithologic change for hydrogeologic description and possible chemical analysis. Samples are collected using a modified California split-spoon sampler lined with 2- or 2.5-inch I.D. x 4- or 6-inch long steam-cleaned or new brass tubes. The sampler is lowered into the borehole and driven 18-inches, using a 140-pound hammer. The drilling contractor provides the SES field personnel with the number of blows required to drive the sampler for each 6-inches of penetration.

The sampler is then extracted from the borehole and the middle or bottom brass tube is carefully removed for possible analysis. The soil material is immediately trimmed flush with the tube ends, and sealed with Teflon tape beneath polyethylene end caps. The caps are hermetically sealed to the brass tube with duct tape. The sample is then labeled to include the date, boring number, depth of sample, project number, SES, and the SES field personnel's initials. The samples are put into a plastic "zip-lock" type bag and placed into an ice chest maintained below 4°C with blue ice or dry ice, for transport under chain of custody to the laboratory. The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the SES field personnel's name. The form is signed, dated and timed by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.



## **SES STANDARD OPERATING PROCEDURE**

### **LOGGING METHOD**

Unconsolidated soil is classified and described by trained SES field personnel. All available information is used, including the following: soil recovered in the sampler, including the soil visible on both ends of the sample retained for possible analysis; soil cuttings generated during drilling; and the drilling contractor's observations of the drill rig's behavior.

Classification and description of unconsolidated soil is accomplished using the American Society of Testing and Materials (ASTM) Methods D2487-85 (Unified Soil Classification System (USCS)) and/or D2488-69 (Description and Identification of Soils (Visual-Manual Procedure)).

The soil classification and description is recorded on the field log sheet by SES field personnel and includes the following information:

- 1) Soil type;
- 2) Soil classification;
- 3) Soil color, including mottling;
- 4) Moisture content;
- 5) Plasticity and consistency (fine-grained material) or density (coarse-grained material);
- 6) Percentages of clay, silt, sand and gravel;
- 7) Grain size range of sands and gravels;
- 8) Angularity and largest diameter of gravel component;
- 9) Estimated permeability;
- 10) Odor; and
- 11) Any other observations which would assist in the interpretation of the depositional environment and/or differentiation between the various geologic units expected to be encountered.

In addition to the above, the ground water levels encountered during drilling and measured after the water stabilized is also recorded on the field log.



## **SES STANDARD OPERATING PROCEDURE**

### **OVM READINGS**

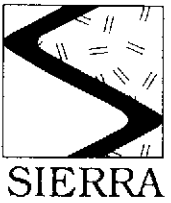
SES uses an organic vapor meter (OVM) to determine the presence or absence of volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes in soil samples chosen for field screening. The OVM uses a photoionization detector (PID) and is calibrated daily to 100 parts per million of 1-liter of isobutylene. The OVM, which measures in parts per million by volume (ppmv), is used for qualitative, not quantitative, assessment because the correlation between the volume measurements of the OVM and the weight measurements of the laboratory instruments is not well defined.

A field screen sample is obtained from the brass tube immediately above or below the brass tube containing the sample selected for possible analysis. The soil to be screened is removed from the brass tube, and is placed in a pre-cleaned brass tube with aluminum foil and a polyethylene cap on one end. The brass tube is loosely filled to approximately 1/2 full. Another square of aluminum foil is placed on the open end and a polyethylene cap with crossed slits is placed over it.

The field screen sample is allowed to temperature equilibrate for approximately 15 to 30 minutes in the sun, allowing any VOCs which might be present in the soil to volatilize out into the brass tube's headspace. The OVM nozzle is then placed inside the sealed brass tube, through the slits in the cap, in order to measure the VOCs present, if any, in the headspace. The nozzle should remain inside the brass tube for approximately 15 to 30 seconds or until the maximum reading has been recorded on the OVM readout panel.

The depth from which the sample came and the corresponding OVM reading is recorded on the original field log sheet. Field observations, OVM and (odor and staining) readings are used in determining which soil samples are to be analyzed in the laboratory.

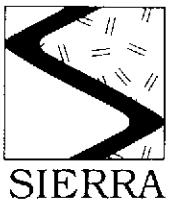
OVM.SOP



pellets to prevent the infiltration of surface water into the well. If the surface seal is less than 5 feet thick, the grout will be poured from the surface. The resulting seal will be checked for shrinkage within 24 hours and additional grout will be added, if necessary. The surface seal is used to prevent infiltration of surface water into the well.

The monitoring well(s) is locked with a stovepipe or cap and covered with a traffic-rated vault if it is located in a developed area. The well I.D. is clearly marked on the cap or casing.

MWSHLLW.SOP



## **SES STANDARD OPERATING PROCEDURE**

### **WELL DEVELOPMENT**

SES develops ground water monitoring wells not less than 48 hours after placement of the surface seal (grouting) to allow sufficient time for the cement grout to set. The wells are developed to restore the natural hydraulic conductivity of the formation(s) to be monitored, and to remove all sand and as much fine-grained material as possible. Well development consists of several cycles of surging (using a vented surge block) and over pumping of the well.

Prior to development, SES field personnel measure the depth to water and the total depth of the well. The total depth measurement is compared to the well completion diagram shown on the field log and any discrepancies are noted.

SES begins development by carefully lowering a pre-cleaned stainless steel vented surge block into the well casing to a position approximately three feet below the top of the well screen or the air/water interface, whichever is deepest. Surging begins with a slow upward stroke motion of the surge block at a stroke length not exceeding three feet. The stroke rate and length is progressively increased as surging continues for 10 to 15 minutes to loosen sand and fine-grained material from the screened interval. The surge block is then removed and placed in a clean 5-gallon bucket for future use.

During over pumping, the pump is run at the maximum flow rate to evacuate approximately two well casing volumes of ground water from the well. Over pumping will remove any sediment accumulated in the bottom of the well and any fine-grained material suspended in the water.

After a cycle of surging and over pumping has been completed SES field personnel record the time spent on each task, approximate discharge flow rate, and approximate volume of water evacuated. SES field personnel measure the depth to water, immediately after pumping and at various intervals, to approximate the recovery rate of the well.

Development shall continue until the turbidity of the water is less than 5 NTUs, or when ten well volumes have been removed, whichever occurs first.





After development is completed, the total depth of the well is remeasured and compared to the total depth noted on the field log. The two depths should be approximately the same. All data measured during the procedures described herein are recorded on the SES Well Development Form, which is part of the project file.

The ground water removed from the wells during development remains on-site in 55-gallon Department of Transportation-approved drums. The drums are sealed and labeled with the Company name and telephone number, contents, and date. The water is removed by a licensed hauler and taken to an approved disposal facility.

WELLDVLP.V2



## **STANDARD OPERATING PROCEDURE**

### **GROUND WATER SAMPLING**

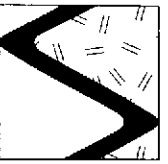
The following describes sampling procedures used by SES field personnel to collect and handle ground water samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis. Wells will be sampled no less than 24 hours after well development. Collection methods specific to ground water sampling are presented below.

Prior to sampling, each well is checked for the presence of free-phase hydrocarbons using an MMC flexi-dip interface probe. Product thickness (measured to the nearest 0.01 ft) is noted on the sampling form. Water level measurements are also made using either a water level meter or the interface probe. The water level measurements are also noted on the sampling form.

Prior to sampling, each well is purged of a minimum of four well casing volumes of water using a steam-cleaned PVC bailer, or a pre-cleaned pump. Temperature, pH and electrical conductivity are measured at least three times during purging. Purging is continued until these parameters have stabilized (i.e., changes in temperature, pH or conductivity do not exceed  $\pm 0.5^{\circ}\text{F}$ , 0.1 or 5%, respectively).

The purge water is stored temporarily on-site in 55-gallon Department of Transportation-approved drums pending analytic results. The drums are labeled with the date, contents, the SES field personnel initials and SES phone number.

Ground water samples are collected from the wells with steam-cleaned Teflon bailers. The water samples are decanted into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in polyethylene bags and in an ice chest (maintained at  $4^{\circ}\text{C}$  with blue ice or ice) for transport under chain-of-custody to the laboratory.

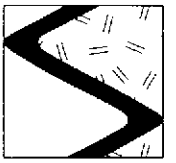


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The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the SES field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.

A trip blank and bailer blank accompanies each sampling set, or 5% trip blanks and 5% bailer blanks are included for sets of greater than 20 samples. The bailer blank is prepared by pouring previously boiled water into a steam-cleaned Teflon bailer prior to sampling a well. The trip and bailer blanks are analyzed for some or all of the same compounds as the ground water samples.

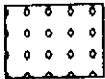
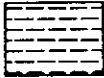
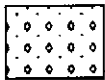
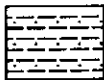
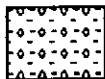
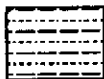
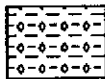
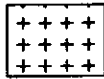
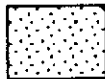



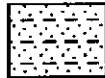

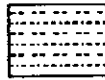

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**APPENDIX D**  
SOIL CLASSIFICATION CHART, BORING LOGS AND WELL CONSTRUCTION DETAILS

## EXPLANATION FOR SES BORING LOGS

	GRAVEL		CLAY
	Sandy GRAVEL		Sandy CLAY
	Silty GRAVEL		Silty CLAY/Clayey SILT
	Clayey GRAVEL		Organics
	SAND		Hard Rock
	Silty SAND/Sandy SILT		Slough
	Clayey SAND		Asphalt
	SILT		Concrete

K = Field estimation of soil hydraulic conductivity

 Drive sample interval

 Drive sample collected for possible chemical analysis

Note: Soils are logged using ASTM D2487 Soil Classification System

..... - - - - - Contact between sedimentary or lithologic units; dotted where approximate, dashed where uncertain

▽ Initial water level measured during drilling (date in italics)

▽ Static water level, measured after well development (date in italics)

# UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			SECONDARY DIVISIONS		
<b>COARSE GRAINED SOILS</b> More than half of material is larger than No. 200 sieve size	<b>GRAVELS</b> More than half of coarse fraction is larger than No. 4 sieve	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.	
		GRAVEL WITH FINES	GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.	
		<b>SANDS</b> More than half of coarse fraction is smaller than No. 4 sieve	CLEAN SANDS (Less than 5% fines)	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			SAND WITH FINES	GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	<b>FINE GRAINED SOILS</b> More than half of material is smaller than No. 200 sieve size	<b>SILTS AND CLAYS</b> Liquid limit is less than 50%	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SAND WITH FINES	SP	Poorly graded sands or gravelly sands, little or no fines.
			SAND WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
		<b>SILTS AND CLAYS</b> Liquid limit is greater than 50%	SAND WITH FINES	SC	Clayey sands, sand-clay mixtures, plastic fines.
<b>SILTS AND CLAYS</b> Liquid limit is less than 50%			ML	Inorganic silts and very fine sands, rock flow, silty or clayey fine sands or clayey silts with slight plasticity.	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
			OL	Organic silts and organic silty clays of low plasticity.	
<b>SILTS AND CLAYS</b> Liquid limit is greater than 50%			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils, elastic silts.	
	CH	Inorganic clays of high plasticity, fat clays.			
OH	Organic clays of medium to high plasticity, organic silts.				
<b>HIGHLY ORGANIC SOILS</b>			Pt	Peat and other highly organic soils.	

## DEFINITION OF TERMS

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS									
200		40		10		4		3/4"		3"		12"	
<b>SILTS AND CLAYS</b>	<b>SAND</b>						<b>GRAVEL</b>		<b>COBBLES</b>	<b>BOULDERS</b>			
	FINE	MEDIUM	COARSE	FINE	COARSE								

## GRAIN SIZES

SANDS & GRAVELS	Std. Pen BLOWS/FT <sup>1</sup>	2" ID SS BLOWS/FT	SILTS & CLAYS	POCKET PENETROMETER <sup>2</sup>	Std. Pen BLOWS/FT <sup>1</sup>	2" ID SS BLOWS/FT
VERY LOOSE	0 - 4	0 - 7	VERY SOFT	0 - 250	0 - 2	0 - 3
LOOSE	4 - 10	7 - 16	SOFT	250 - 500	2 - 4	3 - 6
MEDIUM DENSE	10 - 30	16 - 50	FIRM	500 - 1,000	4 - 8	6 - 13
DENSE	30 - 50	50 - 83	STIFF	1,000 - 2,000	8 - 16	13 - 26
VERY DENSE	OVER 50	OVER 83	VERY STIFF	2,000 - 4,000	16 - 32	26 - 53
			HARD	OVER 4,000	OVER 32	OVER 53

**RELATIVE DENSITY**

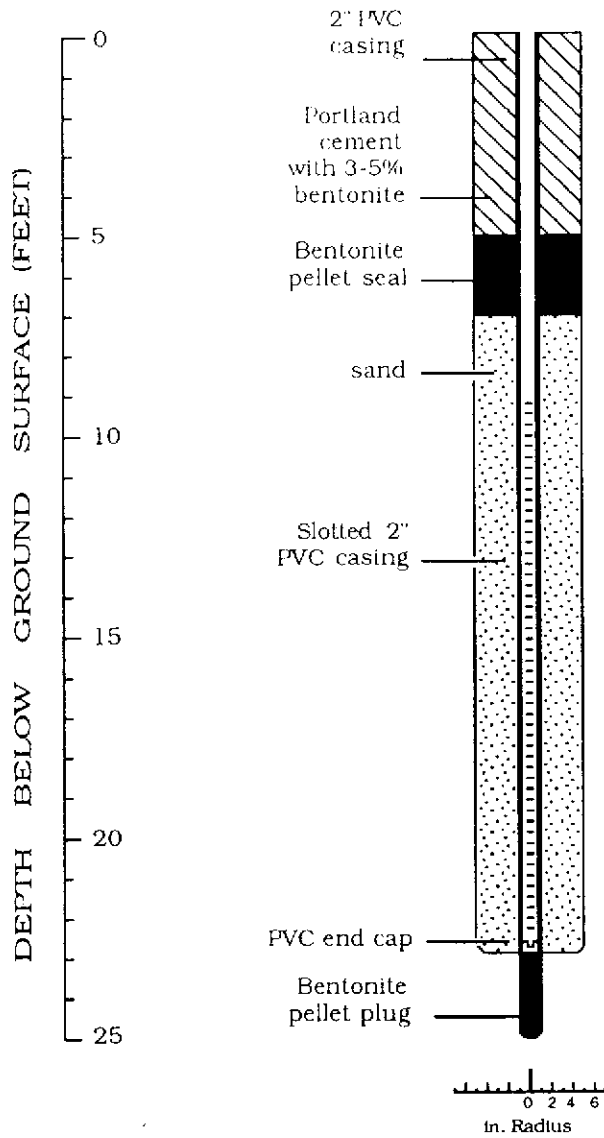
**CONSISTENCY**

Correction Factor ~ .6

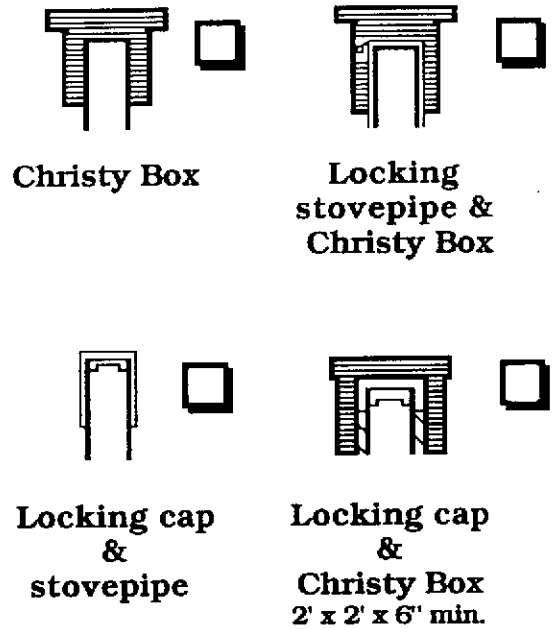
<sup>1</sup> Number of blows of 140-pound hammer falling 30 inches to drive a 2-inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

<sup>2</sup> Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

# EXPLANATION TYPICAL WELL CONSTRUCTION



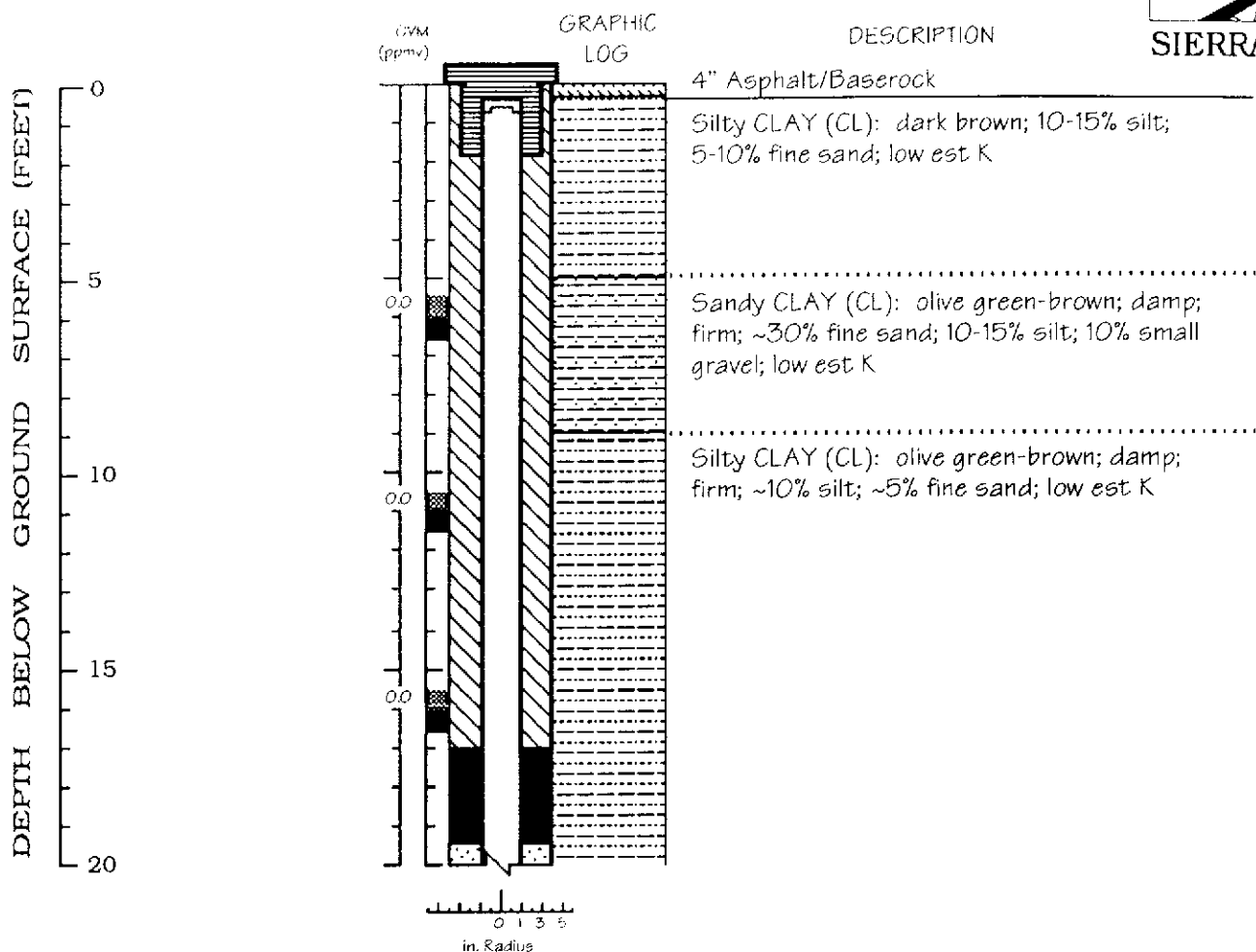
## Well Head Completion Schematic *Not to scale*



*Water level depth and date:*

- ▽ Initial water level
- ▼ Static water level

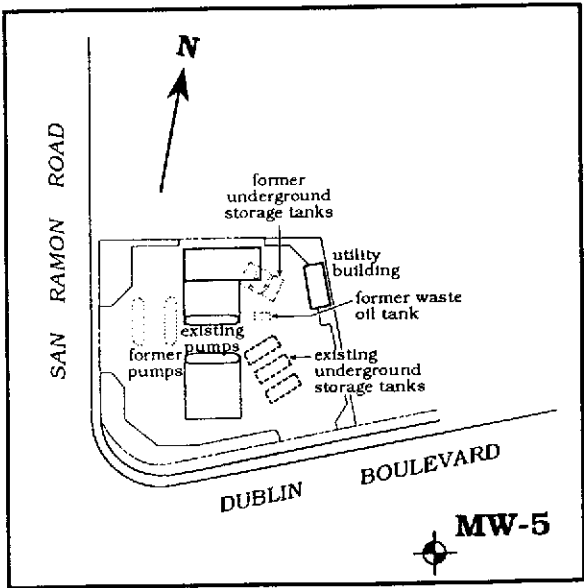
# WELL MW-5



**Well Construction and Boring Log - Well MW-5**

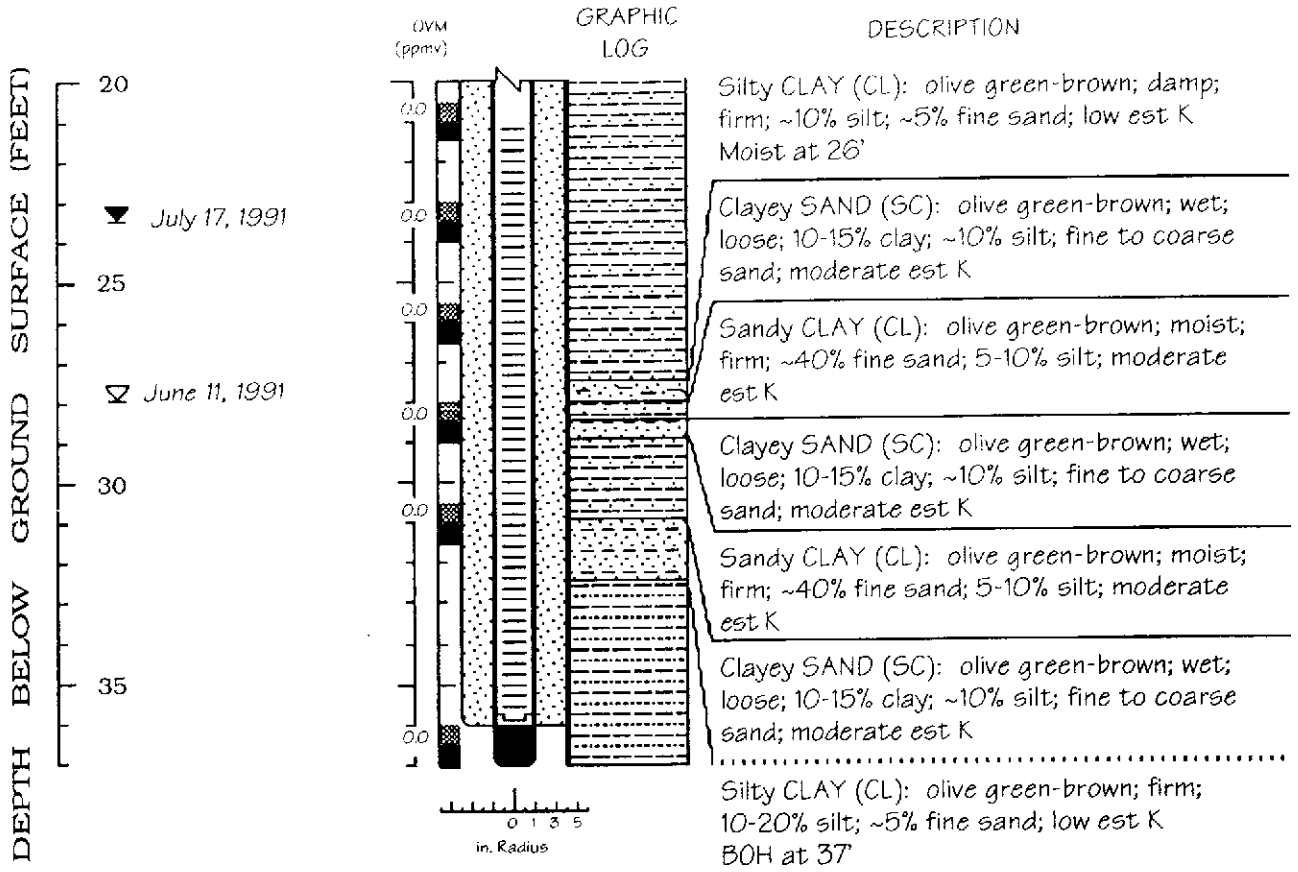
Chevron S. S. #9-5542  
7007 San Ramon Road  
Dublin, California

Logged by: Eric Gross  
Supervisor: R. Greensfelder RG#003011  
Drilling Company: Soils Exploration Services  
C-57#: 582696  
Driller: Mike Duffy  
Drilling Method: Hollow stem auger  
Date Drilled: June 11, 1991  
Well Head Completion: Locking cap & traffic-rated vault  
Type of sampler: Split barrel (2" ID)



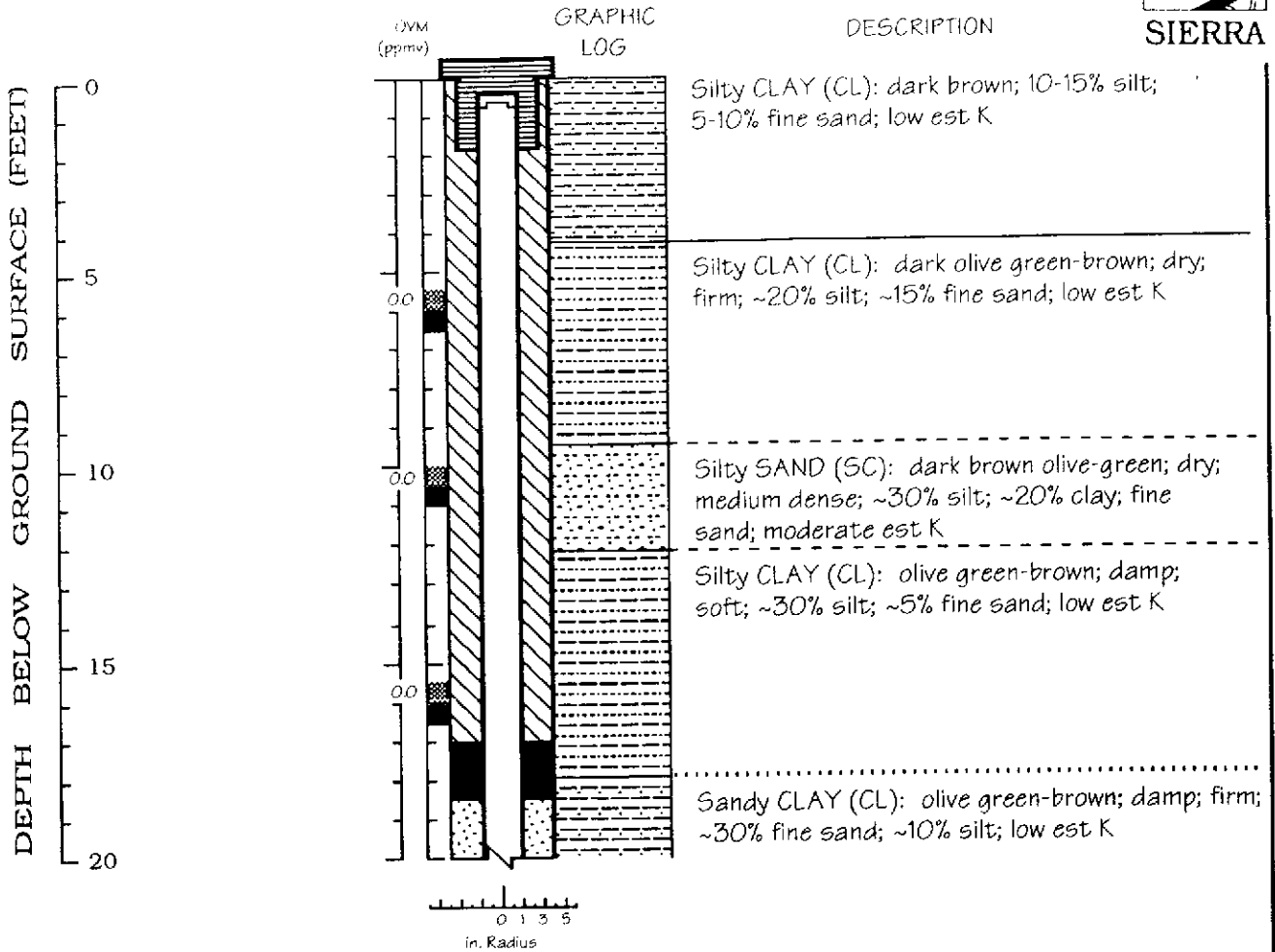


# WELL MW-5 (continued)



<b>Well Construction and Boring Log - Well MW-5</b>	<b>Chevron S. S. #9-5542 7007 San Ramon Road Dublin, California</b>
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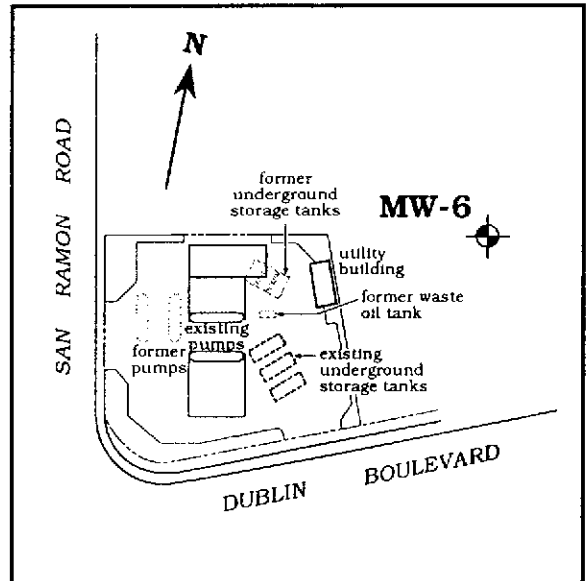
# WELL MW-6



**Well Construction and Boring Log - Well MW-6**

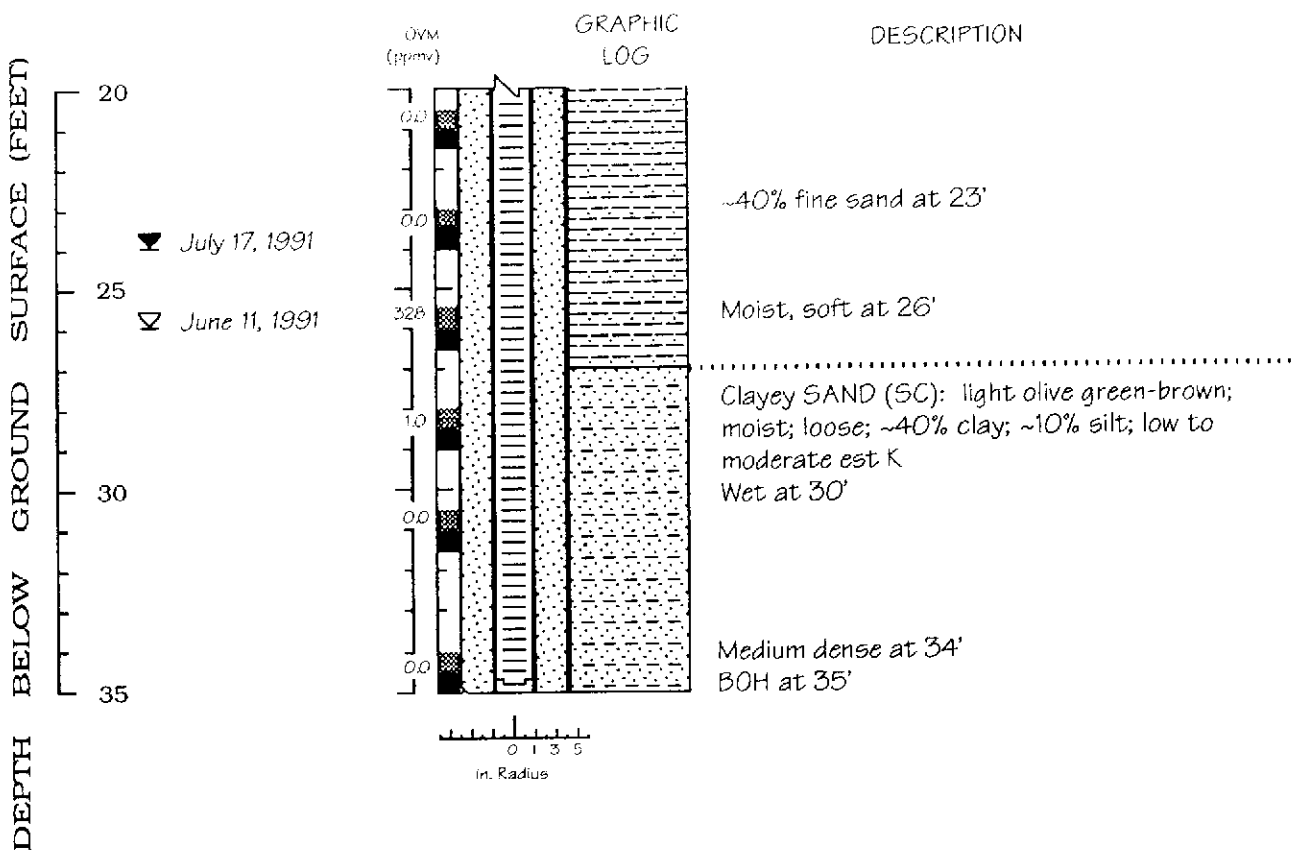
Chevron S. S. #9-5542  
7007 San Ramon Road  
Dublin, California

Logged by: Eric Gross  
Supervisor: R. Greensfelder RG#003011  
Drilling Company: Soils Exploration Services  
C-57#: 582696  
Driller: Mike Duffy  
Drilling Method: Hollow stem auger  
Date Drilled: June 11, 1991  
Well Head Completion: Locking cap & traffic-rated vault  
Type of sampler: Split barrel (2" ID)



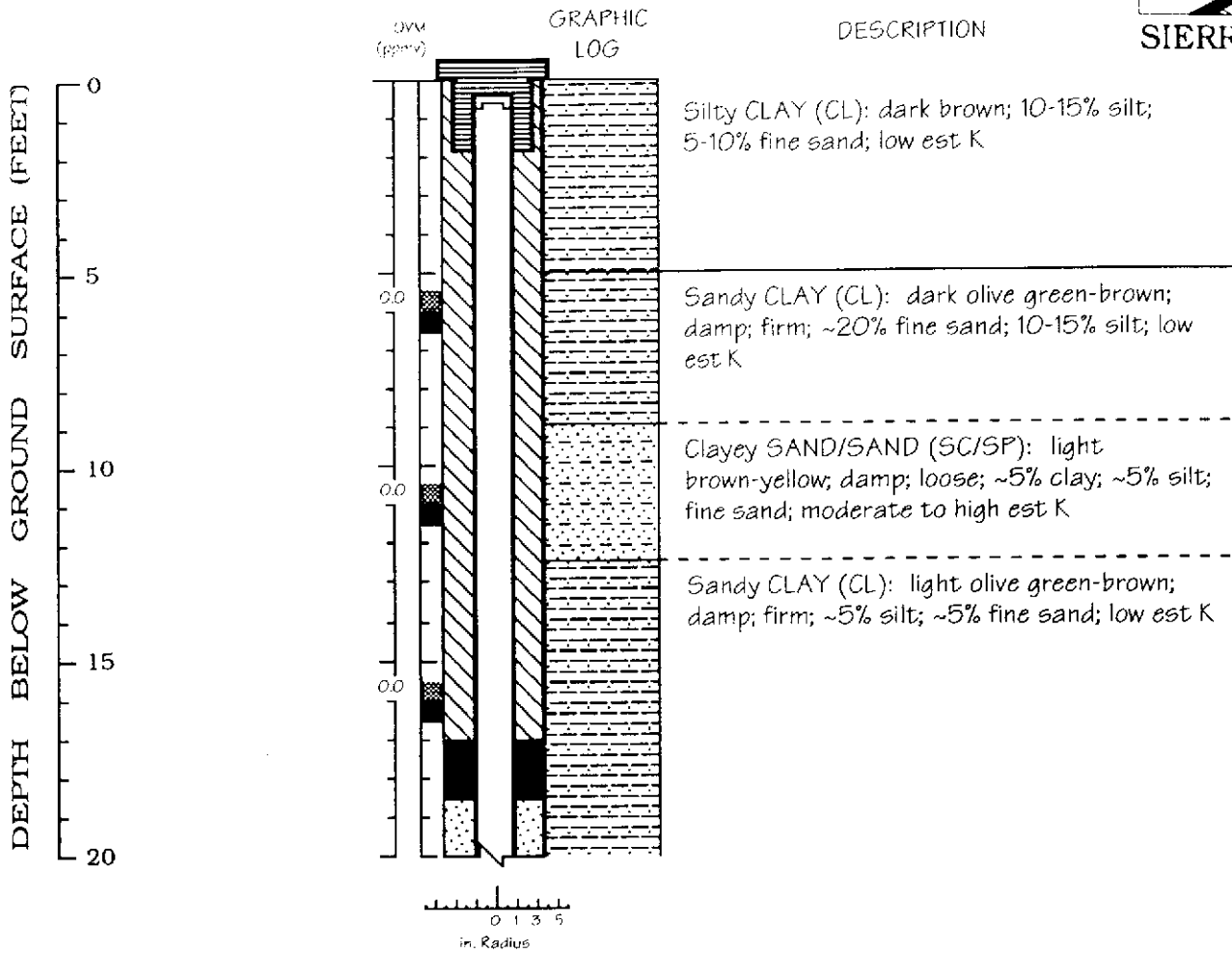
# WELL MW-6

(continued)



<b>Well Construction and Boring Log - Well MW-6</b>	Chevron S. S. #9-5542 7007 San Ramon Road Dublin, California
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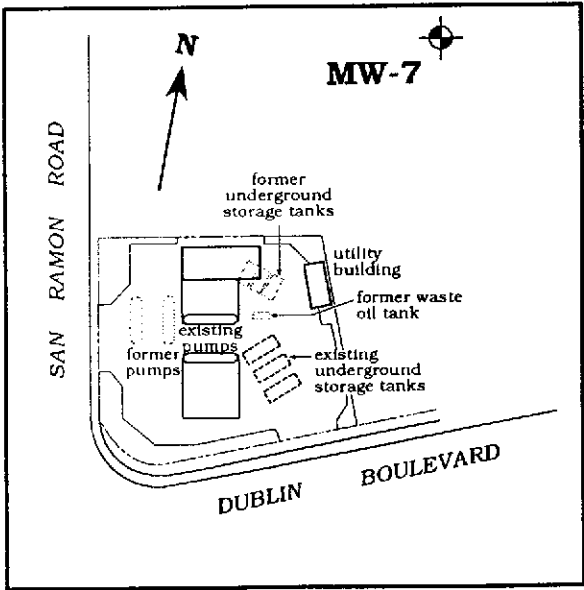
# WELL MW-7



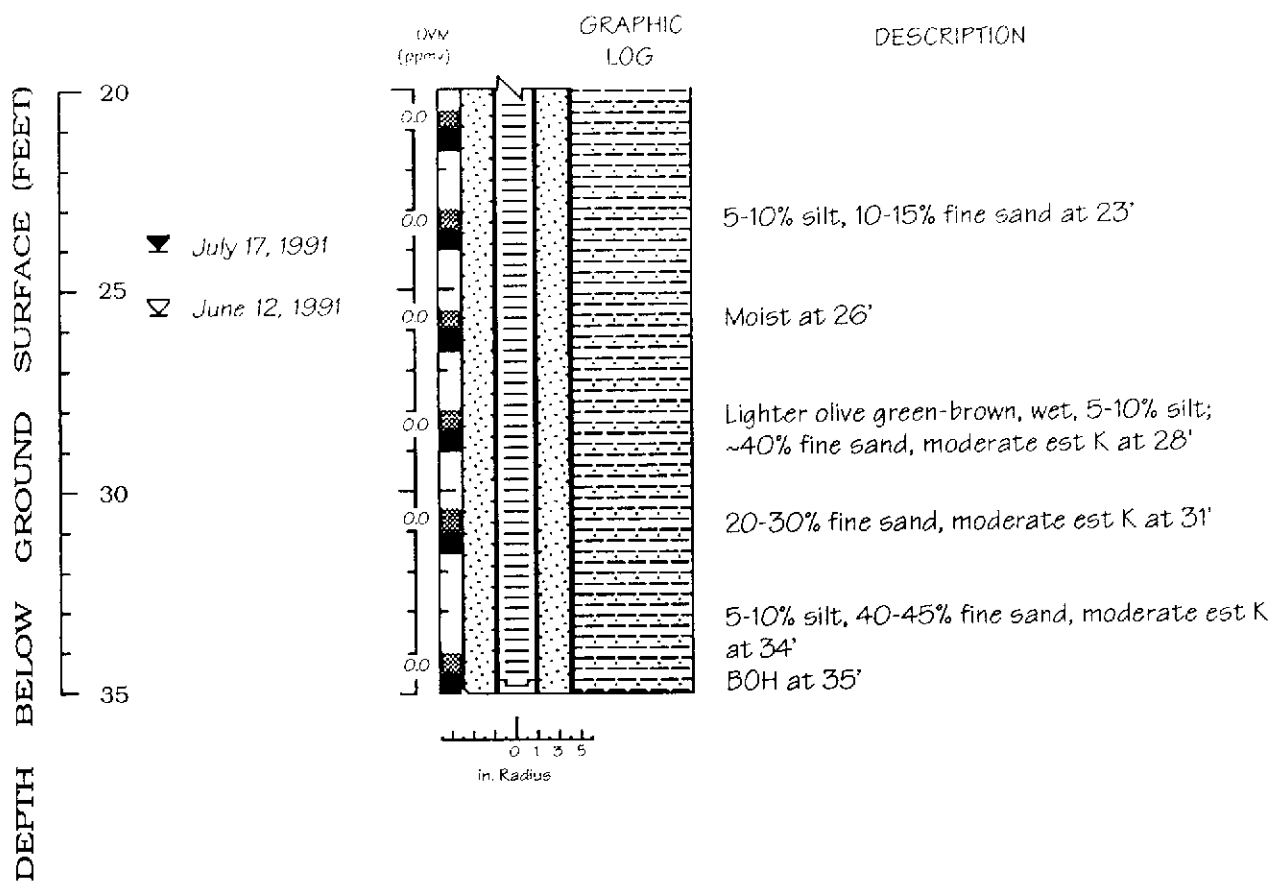
**Well Construction and Boring Log -  
Well MW-7**

Chevron S. S. #9-5542  
7007 San Ramon Road  
Dublin, California

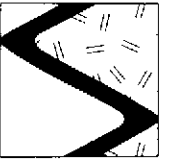
Logged by: Eric Gross  
Supervisor: R. Greenfelder RG#003011  
Drilling Company: Soils Exploration Services  
C-57#: 582696  
Driller: Mike Duffy  
Drilling Method: Hollow stem auger  
Date Drilled: June 12, 1991  
Well Head Completion: Locking cap & traffic-rated vault  
Type of sampler: Split barrel (2" ID)



# WELL MW-7 (continued)



<b>Well Construction and Boring Log - Well MW-7</b>	<b>Chevron S. S. #9-5542 7007 San Ramon Road Dublin, California</b>
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SIERRA

**APPENDIX E**  
CHAIN OF CUSTODY DOCUMENTS AND LABORATORY ANALYTIC REPORTS

# Chain-of-Custody Record

**Chevron U.S.A. Inc.**  
 P.O. Box 5004  
 San Ramon, CA 94583  
 FAX (415) 842-9591

Chevron Facility No. # 9-5572  
 Facility Address 7007 SAN RAMON VALLEY BLVD  
 Consultant Project Number 1-214-00  
 Consultant Name SIERRA ENVIRONMENTAL SERVICES  
 Address P.O. Box 2546, Martinez, CA 94553  
 Project Contact (Name) \_\_\_\_\_  
 (Phone) (415) 370-1280  
 (FAX Number) (415) 370-7959

Chevron Contact (Name) LIAT ROGERS  
 (Phone) \_\_\_\_\_  
 Laboratory Name SUPERIOR ANALYTICAL  
 Laboratory Release Number 5434460  
 Samples Collected by (Name) ERIC GROSS  
 Collection Date 6-11-91 - 6-12-91  
 Signature Eric Gross

Sample No	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (yes or no)	ANALYSIS TO BE PERFORMED										Remarks
							REF-X - TPH Gas (8070 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Chlorinated Hydrocarbons (8010)	Non-Chlorinated Hydrocarbons (8020)	Total Lead (AA) EPA 7420	Metals: Cd, Cr, Zn, Ni (ICAP or AA)	ORGANIC LEAD PHS LUIT METHOD			
MW-626.0	1	S	G	1600		YES	X							X			
MW-528.5	1	S	G	1100		YES	X							X			
MW-726.01	5	S	G	1500		YES	X							X			
MW-5 Soil Cuttings	1	S	G	1030		YES									X		

Relinquished By (Signature) <u>Eric Gross</u>	Organization <u>SIERRA ENVIRONMENTAL SERVICES</u>	Date/Time <u>6/12/91</u>	Received By (Signature) _____	Organization _____	Date/Time _____	Turn Around Time (Circle One) 24 hours 48 hours <u>5 days</u> 10 days As Contracted
Relinquished By (Signature) _____	Organization _____	Date/Time _____	Received By (Signature) _____	Organization _____	Date/Time _____	
Relinquished By (Signature) _____	Organization _____	Date/Time _____	Received for Laboratory by (Signature) <u>Eric Gross</u>	Organization _____	Date/Time <u>6/12/91 16:00</u>	

# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 83376  
CLIENT: Sierra Environmental  
CLIENT JOB NO.: 1-214-00

DATE RECEIVED: 06/12/91  
DATE REPORTED: 06/20/91

Page 1 of 2

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
83376- 1	MW-6,26.0	06/11/91	06/20/91
83376- 2	MW-5,28.5	06/11/91	06/20/91
83376- 3	MW-7,26.0	06/11/91	06/20/91
83376- 4	MW-5 SOIL CUTTINGS	06/11/91	06/20/91

Laboratory Number:	83376	83376	83376	83376
	1	2	3	4

ANALYTE LIST	Amounts/Quantitation Limits (mg/Kg)			
OIL AND GREASE:	NA	NA	NA	NA.
TPH/GASOLINE RANGE:	5	ND<1	ND<1	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA
BENZENE:	0.006	ND<.005	ND<.005	NA
TOLUENE:	0.006	ND<.005	ND<.005	NA
ETHYL BENZENE:	0.060	ND<.005	ND<.005	NA
XYLENES:	0.12	ND<.005	ND<.005	NA

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DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

### ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2  
QA/QC INFORMATION  
SET: 83376

NA = ANALYSIS NOT REQUESTED  
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT  
mg/Kg = part per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:  
Minimum Detection Limit in Soil: 50mg/Kg

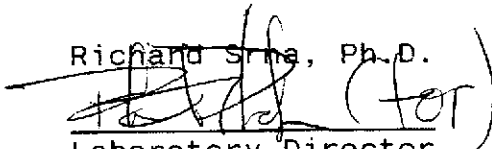
Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:  
Minimum Quantitation Limit for Diesel in Soil: 1mg/Kg  
Standard Reference: NA

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:  
Minimum Quantitation Limit for Gasoline in Soil: 1mg/Kg  
Standard Reference: 03/28/91

SW-846 Method 8020/BTXE  
Minimum Quantitation Limit in Soil: 0.005mg/Kg  
Standard Reference: 04/18/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	NA	NA	NA	NA	NA
Diesel	NA	NA	NA	NA	NA
Gasoline	03/28/91	200 ng	96	13	70-130
Benzene	04/18/91	200 ng	91	18	70-130
Toluene	04/18/91	200 ng	99	8	70-130
Ethyl Benzene	04/18/91	200 ng	99	8	70-130
Total Xylene	04/18/91	200 ng	100	7	70-130

Richard Srna, Ph.D.

  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 83376  
CLIENT: Sierra Environmental  
CLIENT JOB NO.: 1-214-00

DATE RECEIVED: 06/12/91  
DATE REPORTED: 06/20/91

### ANALYSIS FOR TOTAL LEAD by SW-846 Method 7420

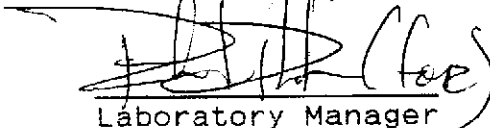
LAB #	Sample Identification	Concentration (mg/Kg) Total Lead
1	MW-6,26.0	ND<10
2	MW-5,28.5	ND<10
3	MW-7,26.0	ND<10

mg/kg - parts per million (ppm)

Method Detection Limit for Lead in Soil: 10 mg/Kg

QAQC Summary: MS/MSD Average Recovery : 98%  
Duplicate RPD : 2

Richard Sma, Ph.D.

  
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

# Chain-of-Custody Record

<b>Chevron U.S.A. Inc.</b> P.O. Box 5004 San Ramon, CA 94583 FAX (415) 842-9591	Chevron Facility No. <u>9-5542</u> Facility Address <u>7007 San Ramon Valley Blvd., Dublin</u> Consultant Project Number <u>1-214-04</u> Consultant Name <u>SIERRA ENVIRONMENTAL SERVICES</u> Address <u>P.O. Box 2546, Martinez, CA 94553</u> Project Contact (Name) <u>Sharon Halper</u> (Phone) <u>(415) 370-1280</u> (FAX Number) <u>(415) 370-7959</u>	Chevron Contact (Name) <u>Clint Rogers</u> (Phone) <u>842-8658</u> Laboratory Name <u>Superior Analytical Laboratory</u> Laboratory Release Number <u>5464460</u> Samples Collected by (Name) <u>Andrew Minkwitz</u> Collection Date <u>5/31/91</u> Signature <u><i>Andrew Minkwitz</i></u>
--	--	---

Sample No.	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (yes or no)	ANALYSIS TO BE PERFORMED										Remarks	
							BTEX + TPH Gas (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Chlorinated Hydrocarbons (8010)	Non-Chlorinated Hydrocarbons (8020)	Total Lead (AA)	Metals: Cd, Cr, Zn, Ni (ICAP or AA)	Oil & Grease				
AA	3/40	W	G	0900	HCL	Yes	✓											Page 1 of 2  In Order Listed  Analyze
BB	3/40			1500	HCL		✓											
MW-2	3/40			1515	HCL		✓											
MW-2	3/40			↓	HCL				✓									
MW-2	1L			↓	None									✓				
MW-4	3/40			1545	HCL		✓											
MW-4	3/40			↓	HCL				✓									
MW-4	1L			↓	None									✓				
MW-3	3/40			1600	HCL		✓											
MW-3	3/40			↓	HCL				✓									
MW-3	1L			↓	None									✓				

Relinquished By (Signature) <i>Andrew Minkwitz</i>	Organization S.E.S.	Date/Time 6/3/91 1120	Received By (Signature) <i>Robert Rubin</i>	Organization	Date/Time 6/3/91 11:13 AM	Turn Around Time (Circle One) 24 hours 48 hours <u>5 days</u> 10 days As Contracted
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory by (Signature)	Organization	Date/Time	



# SUPERIOR ANALYTICAL LABORATORIES, INC.

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DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 83250  
CLIENT: Sierra Environmental  
CLIENT JOB NO.: 1-214-04

DATE RECEIVED: 06/03/91  
DATE REPORTED: 06/12/91

Page 1 of 2

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
83250- 1	AA	05/31/91	06/09/91
83250- 2	BB	05/31/91	06/09/91
83250- 3	MW-2	05/31/91	06/09/91
83250- 4	MW-4	05/31/91	06/10/91
83250- 5	MW-3	05/31/91	06/10/91
83250- 6	MW-1	05/31/91	06/10/91

Laboratory Number:	83250	83250	83250	83250	83250
	1	2	3	4	5

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	ND<5000	ND<5000	ND<5000
TPH/GASOLINE RANGE:	ND<50	ND<50	100	34000	2200
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.5	ND<0.5	3.1	2900	130
TOLUENE:	ND<0.5	ND<0.5	4.2	2900	11
ETHYL BENZENE:	ND<0.5	ND<0.5	0.7	680	31
XYLENES:	ND<0.5	ND<0.5	2.0	3300	78

Laboratory Number:	83250
	6

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)
OIL AND GREASE:	ND<5000
TPH/GASOLINE RANGE:	31000
TPH/DIESEL RANGE:	NA
BENZENE:	7400
TOLUENE:	2500
ETHYL BENZENE:	630
XYLENES:	2100

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# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

### ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2  
QA/QC INFORMATION  
SET: 83250

NA = ANALYSIS NOT REQUESTED  
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT  
ug/l = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:  
Minimum Detection Limit in Water: 5000ug/L


Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:  
Minimum Quantitation Limit for Diesel in Water: 50ug/l  
Standard Reference: NA

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:  
Minimum Quantitation Limit for Gasoline in Water: 50ug/l  
Standard Reference: 03/28/91

SW-846 Method 8020/BTXE  
Minimum Quantitation Limit in Water: 0.5ug/l  
Standard Reference: 04/18/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	03/26/91	30 ppm	66	6	56-106
Diesel	NA	NA	NA	NA	NA
Gasoline	03/28/91	200 ng	103/87	17	70-130
Benzene	04/18/91	200 ng	100/102	2	70-130
Toluene	04/18/91	200 ng	98/100	2	70-130
Ethyl Benzene	04/18/91	200 ng	97/97	1	70-130
Total Xylene	04/18/91	200 ng	98/98	0	70-130

Richard Srna, Ph.D.

  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 11931-4  
 CLIENT: SIERRA ENVIRONMENTAL  
 SERVICES  
 JOB NO.: 1 214-04

DATE SAMPLED: 05/31/91  
 DATE RECEIVED: 06/03/91  
 DATE ANALYZED: 06/06/91

EPA SW-846 METHOD 8010  
 HALOGENATED VOLATILE ORGANICS  
 SAMPLE: ~~MM-1~~

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
<b>1,2-Dichloroethane</b>	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit

ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard %diff = <15%

MS/MSD average recovery = 64 % :MS/MSD RPD = <1 %

Richard Srna, Ph.D.

*Orin A. Dunigan*  
 Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE UNIT I • SAN FRANCISCO CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 11231-1  
CLIENT: SIERRA ENVIRONMENTAL  
SERVICES  
JOB NO.: 1-214-04

DATE SAMPLED: 05/31/91  
DATE RECEIVED: 06/03/91  
DATE ANALYZED: 06/05/91

EPA SW-846 METHOD 8010  
HALOGENATED VOLATILE ORGANICS  
SAMPLE: MW-2

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit  
ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard %diff = <15%

MS/MSD average recovery = 64 % ; MS/MSD RPD = <1 %

Richard Srna, Ph.D.

*Emily A. Orsini (for)*  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE



# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 11931-3  
CLIENT: SIERRA ENVIRONMENTAL  
SERVICES  
JOB NO.: 1-214-04

DATE SAMPLED: 05/31/91  
DATE RECEIVED: 06/03/91  
DATE ANALYZED: 06/06/91

EPA SW-846 METHOD 8010  
HALOGENATED VOLATILE ORGANICS  
SAMPLE: MW-3

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit  
ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard %diff = <15%

MS/MSD average recovery = 64 % ; MS/MSD RPD = < 1 %

Richard Srna, Ph.D.

*Orly A. Wroblewski*  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 11931-2  
CLIENT: SIERRA ENVIRONMENTAL  
SERVICES  
JOB NO.: 1-214-04

DATE SAMPLED: 05/31/91  
DATE RECEIVED: 06/03/91  
DATE ANALYZED: 06/06/91

EPA SW-846 METHOD 8010  
HALOGENATED VOLATILE ORGANICS

SAMPLE: ~~MW-4~~

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
<b>1,2-Dichloroethane</b>	0.5	<b>19</b>
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit

ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard %diff = <15%

MS/MSD average recovery = 64 % :MS/MSD RPD = < 1 %

Richard Srna, Ph.D.

*Orly A. Wrogon*  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# Chain-of-Custody Record

<b>Chevron U.S.A. Inc.</b> P.O. Box 5004 San Ramon, CA 94583 FAX (415) 842-9591	Chevron Facility No. <u>9-5542</u>	Chevron Contact (Name) <u>Clint Rogers</u>
	Facility Address <u>7007 San Ramon Rd. (Dublin)</u>	(Phone) <u>842-8653</u>
	Consultant Project Number <u>1-214-00</u>	Laboratory Name <u>Superior</u>
	Consultant Name <u>SIERRA ENVIRONMENTAL SERVICES</u>	Laboratory Release Number <u>5464460</u>
	Address <u>P.O. Box 2546, Martinez, CA 94553</u>	Samples Collected by (Name) <u>Ted Morse</u>
	Project Contact (Name) <u>Sharon Helper</u>	Collection Date <u>6/21/91</u>
(Phone) <u>(415) 370-1280</u>	Signature <u>Ted Morse</u>	(FAX Number) <u>(415) 370-7959</u>

Sample No.	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (yes or no)	ANALYSIS TO BE PERFORMED										Remarks	
							BTEX + TPH Gas (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Chlorinated Hydrocarbons (8010)	Non-Chlorinated Hydrocarbons (8020)	Total Lead (AA)	Metals: Cd, Cr, Zn, Ni (ICAP or AA)					
AA	3X 40	W	G	8:00	HCL	Yes	<input checked="" type="checkbox"/>											Analyze in order
BB	3X 40			8:00	HCL		<input checked="" type="checkbox"/>											
MW-5	5X 40			2:45	HCL		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>									
MW-5	2X 40			2:45	—								<input checked="" type="checkbox"/>					
MW-7	6X 40			3:45	HCL		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>									
MW-7	2X 40			3:45	—								<input checked="" type="checkbox"/>					
MW-6	6X 40			3:10	HCL		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>									
MW-6	2X 40			3:10	—								<input checked="" type="checkbox"/>					

Please Initial:

Samples Stored in ice.

Appropriate containers

Samples preserved

ICA's without headspace

Comments:

Relinquished By (Signature) <u>Ted Morse</u>	Organization <u>SES</u>	Date/Time <u>12/15</u> <u>6/24/91</u>	Received By (Signature) <u>[Signature]</u>	Organization	Date/Time	Turn Around Time (Circle One) 24 hours 48 hours <input checked="" type="radio"/> 5 days 10 days As Contracted
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory by (Signature) <u>[Signature]</u>		Date/Time <u>12/15</u> <u>6/21/91</u>	

JOS#83418

# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 83418  
CLIENT: Sierra Environmental  
CLIENT JOB NO.: 1-214-00

DATE RECEIVED: 06/24/91  
DATE REPORTED: 06/30/91

Page 1 of 2

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
83418- 1	AA	06/21/91	06/28/91
83418- 2	BB	06/21/91	06/28/91
83418- 3	MW-5	06/21/91	06/28/91
83418- 4	MW-7	06/21/91	06/28/91
83418- 5	MW-6	06/21/91	06/28/91

Laboratory Number:	83418	83418	83418	83418	83418
	1	2	3	4	5

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<50	ND<50	ND<50	ND<50	3700
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	50
TOLUENE:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.6
ETHYL BENZENE:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	150
XYLENES:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	340

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# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E   O F   A N A L Y S I S

### ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2  
QA/QC INFORMATION  
SET: 83418

NA = ANALYSIS NOT REQUESTED  
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT  
ug/l = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:  
Minimum Detection Limit in Water: 5000ug/L

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:  
Minimum Quantitation Limit for Diesel in Water: 50ug/l  
Standard Reference: NA

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:  
Minimum Quantitation Limit for Gasoline in Water: 50ug/l  
Standard Reference: 03/28/91

SW-846 Method 8020/BTXE  
Minimum Quantitation Limit in Water: 0.5ug/l  
Standard Reference: 04/18/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	NA	NA	NA	NA	NA
Diesel	NA	NA	NA	NA	NA
Gasoline	03/28/91	200 ng	89/91	2	70-130
Benzene	04/18/91	200 ng	98/93	6	70-130
Toluene	04/18/91	200 ng	91/89	3	70-130
Ethyl Benzene	04/18/91	200 ng	90/88	2	70-130
Total Xylene	04/18/91	200 ng	85/89	4	70-130

Richard Srna, Ph.D.

  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 12012-1

DATE SAMPLED: 06/21/91

CLIENT: Sierra Environmental  
Services

DATE RECEIVED: 06/24/91

DATE ANALYZED: 06/27/91

JOB NO.: 1-214-00

EPA 3W-846 METHOD 8010  
HALOGENATED VOLATILE ORGANICS  
SAMPLE: MW-5

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit

ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard RPD = <15

MS/MSD average recovery = 79 % :MS/MSD RPD = < 1 %

Richard Srna, Ph.D.

*Cecilia Gonzalez (for)*  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO CA 94124 • PHONE (415) 647-2081

DOHS #1332

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 12012-3

DATE SAMPLED: 06/21/91

CLIENT: Sierra Environmental  
Services

DATE RECEIVED: 06/24/91

DATE ANALYZED: 06/27/91

JOB NO.: 1-214-00

EPA SW-846 METHOD 8010  
HALOGENATED VOLATILE ORGANICS  
SAMPLE: MW-6

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit

ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard RPD = <15

MS/MSD average recovery = 79 % ; MS/MSD RPD = < 1 %

Richard Srna, Ph.D.

*Cecilia G. Jorgensen (for)*  
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

# SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE UNIT I • SAN FRANCISCO, CA 94124 • P-ONE (415) 647-2081

DOHS #1332

## CERTIFICATE OF ANALYSIS

LABORATORY NO.: 12012-2  
 CLIENT: Sierra Environmental  
 Services  
 JOB NO.: 1-214-00

DATE SAMPLED: 06/21/91  
 DATE RECEIVED: 06/24/91  
 DATE ANALYZED: 06/27/91

CP: SW-846 METHOD 8010  
 HALOGENATED VOLATILE ORGANICS  
 SAMPLE: MW-7

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
Cis-1,2-Dichloroethene	0.5	ND

MDL = Method Detection Limit

ug/l = parts per billion (ppb)

QA/QC Summary: Daily Standard RPD = <15

MS/MSD average recovery = 79 % :MS/MSD RPD = < 1 %

Richard Srna, Ph.D.

*Cecilia J. Srna (for)*  
 Laboratory Director

OUTSTANDING QUALITY AND SERVICE



# SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319

## C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83418  
CLIENT: Sierra Environmental  
CLIENT JOB NO.: 1-214-00

DATE RECEIVED: 06/24/91  
DATE REPORTED: 06/30/91

### ANALYSIS FOR TOTAL ORGANIC LEAD by DHS Method (LUFT Manual)

LAB #	Sample Identification	Concentration (mg/L)
3	MW-5	ND<4
4	MW-7	ND<4
5	MW-6	ND<4

Method Detection Limit for Organic Lead in Water: 4 mg/L

QAQC Summary: MS/MSD Average Recovery :104 %  
Duplicate RPD : 15

Richard Srna, Ph.D.

  
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE