MACTEC

February 14, 2006

4088053173 02

Ms. Joan Fleck
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd., Suite A
Santa Rosa, California 95403

Quarterly Groundwater Monitoring and Sampling – Case No. R1-2004-0019
Fourth Quarter 2005
City of Santa Rosa
Parking Garage 9
Santa Rosa, California

Dear Ms. Fleck:

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to present the results of the quarterly groundwater monitoring and sampling (Fourth Quarter 2005) for the City of Santa Rosa Parking Garage 9, located at the intersection of 2nd and D Streets in downtown Santa Rosa (Site; Plate 1). This investigation was conducted on behalf of the City of Santa Rosa (the City) in response to a letter to the City dated December 27, 2004, from the Regional Water Quality Control Board (RWQCB). In this letter, the RWQCB requested that the City implement Monitoring & Reporting Program No. R1-2004-0019 to assess and monitor the extent of petroleum hydrocarbons associated with four underground storage tanks that were abandoned in place at the site.

QUARTERLY MONITORING

On December 22, 2005, MACTEC performed groundwater monitoring, purging, and sampling of six onsite groundwater monitoring wells (MW-1 through MW-6). Prior to sampling, depth to water (DTW) measurements were collected from the monitoring wells using a calibrated electronic sounder. DTW measurements were utilized to calculate the groundwater elevation relative to mean sea level and to determine the groundwater flow direction and gradient.

All groundwater monitoring wells were purged of a minimum of three well volumes using a clean PVC bailer. Conductivity, pH, temperature, and turbidity parameters were collected at regular intervals and recorded on the attached well sampling forms (Appendix A). Groundwater samples were collected from monitoring wells MW-1 through MW-6 after purging, using a new disposable bailer for each well and

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decanting groundwater into clean sample containers provided by the laboratory. All samples were stored on ice and transported to a California State Certified laboratory for analysis.

Prior to use, all well purging equipment was steam cleaned and rinsed with deionized water at the MACTEC equipment yard. Well purge water was temporarily stored onsite in 55-gallon drums pending receipt of analytical results.

Laboratory Analysis

Groundwater samples were analyzed for the following analyses

- Total petroleum hydrocarbons (TPH) as gasoline (g) using EPA Method 8015M
- TPH as diesel (d) using EPA Method 8015M with silica gel strip (EPA Method 3630C)
- Benzene, toluene, ethyl-benzene, total xylenes (BTEX), 1,2-dichloroethane (1,2-DCA), and ethyl-dibromide (EDB) by EPA Method 8260B.

All samples were analyzed at Sequoia Analytical Laboratory (Sequoia), Morgan Hill, California. Sequoia is a hazardous materials testing laboratory certified by the California Department of Health Services for the analyses requested through the Environmental Laboratory Accreditation Program (ELAP).

RESULTS

Groundwater Flow

For the fourth quarter 2005, DTW measurements ranged from 11.70 to 14.94 feet below ground surface (bgs) and the groundwater direction at the Site was generally to the southwest at an approximate gradient of 0.007 foot per foot. Table 1 presents groundwater elevations from December 22, 2005, and Plate 2 presents a groundwater contour map.

Laboratory Results

The laboratory analytical reports for groundwater samples submitted for chemical analysis are presented in Appendix B. Table 1 summarizes the analytical results for the groundwater samples collected during this and previous sampling events. The detected results were as follows:

- TPHg was detected at concentrations of 1,800, 12,000, 66,000 and 380 micrograms per liter (μg/L) in samples collected from Wells MW-1, MW-3, MW-4 and MW-6, respectively. A duplicate groundwater sample was also collected from MW-1 and results were reported at 2,800 μg/L.

- TPHd was detected in all wells except MW-2 at concentrations between 86 and 6,600 μg/L. A duplicate groundwater sample was also collected from MW-1 and results were reported at 4,300 μg/L.

- Benzene was detected at concentrations of 93 and 3,100 μg/ in samples collected from Wells MW-3 and MW-4 respectively.

- Toluene was detected at concentrations of 2,200 and 2.8 μg/L in samples collected from Wells MW-4 and MW-6, respectively.

- Ethylbenzene was detected at concentrations of 31, 550, and 2,900 μg/L in samples collected from Wells MW-1, MW-3, and MW-4 respectively. Ethylbenzene in the duplicate sample from MW-1 was reported at 52 μg/L.

- Total xylenes were detected at concentrations of 22, 200 and 12,000 μg/L in samples collected from MW-1, MW-3, and MW-4 respectively. Total xylenes in the duplicate sample from MW-1 were reported at 34 μg/L.

- 1,2-DCA and EDB were not detected above laboratory reporting limits in collected samples.

DISCUSSION

Groundwater results from the fourth quarter 2005 monitoring event are generally consistent with previous sampling events. The highest detected hydrocarbon concentrations were reported for the groundwater sample collected from MW-4 and no analytes were reported above the laboratory detection limits for the groundwater sample collected from MW-2.

LIMITATIONS

This document was prepared by MACTEC at the direction of the City for the sole use of the City and the California Regional Water Quality Control Board, the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of MACTEC.

We trust this report provides the information required at this time. Please feel free to contact Gary Lieberman at (707) 793-3858 if you have questions.

Yours very truly,

MACTEC Engineering & Consulting, Inc.

Gary A. Lieberman
Senior Geologist

Susan K. Panttaja, P.G.
Senior Geologist

PROFESSIONAL GEOLOGIST
SUSAN K. PANTTAJA
No. 6674
STATE OF CALIFORNIA

GAL/SKP;klb/KB61626.DOC-City of Santa Rosa

Attachments: Table 1 – Groundwater Elevation and Analytical Data

Plate 1 – Site Vicinity Map
Plate 2 – Groundwater Contours and Flow Direction – December 22, 2005
Plate 3 – Groundwater Analytical Results – December 22, 2005

Appendix A – Well Sampling Forms
Appendix B – Laboratory Analytical Report

cc: Richard Nosker, City of Santa Rosa

TABLE

Table 1: Groundwater Elevation and Analytical Data
Parking Garage 9
City of Santa Rosa
Santa Rosa, California

Well Number	Sample Date	TOC (feet relative to msl)	DTW (feet below TOC)	Groundwater Elevation (feet relative to msl)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	Napthalene (µg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)
MW-1	05/22/89	164.38	11.79	152.59	58,000	33,000	990	1,500	280	4,700	--	--	--	--	--
	08/23/95	164.38	12.54	151.84	600	600	<0.5	2.6	6.5	21	--	--	--	--	--
	11/02/95	164.38	13.15	151.23	1,200	840	47	11	15	58	--	--	--	--	--
	02/12/96	164.38	8.89	155.49	13,000	2,700	180	470	480	2,500	--	--	--	--	--
	05/09/96	164.38	10.97	153.41	19,000	6,400	96	820	760	4,400	--	--	--	--	--
	05/15/98	164.38	10.52	153.86	24,000	6,100	36	300	670	3,500	--	--	--	--	--
	05/17/99	164.38	11.42	152.96	3,400	378	7.38	30.9	114	524	--	--	--	0.47	-189
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/08/00	164.38	11.10	153.28	3,830	958	<25	28.4	129	616	--	--	51.9	1.14	250
	08/09/00	164.38	12.90	151.48	--	--	--	--	--	--	--	--	--	0.43	-112
	07/26/01	164.38	13.50	150.88	610	300	<0.5	0.8	8.5	20	--	--	--	--	--
	12/22/05	**164.38**	**11.70**	**152.68**	**1,800**	**3,800**	**<2.5**	**<2.5**	**31**	**22**	**<2.5**	**<2.5**	--	--	--
	12/22/05	**Duplicate Sample**			**2,800**	**4,300**	**<2.5**	**<2.5**	**52**	**34**	**<2.5**	**<2.5**	--	--	--
MW-2	05/22/89	164.80	11.99	152.81	290	250	<0.5	<0.5	2.1	9,700	--	--	--	--	--
	08/23/95	164.80	12.75	152.05	<50	<50	<0.5	<0.5	0.6	<0.5	--	--	--	--	--
	11/02/95	164.80	13.26	151.54	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	02/12/96	164.80	8.88	155.92	260	160	1.3	<0.5	7.8	7.2	--	--	--	--	--
	05/09/96	164.80	11.24	153.56	110	80	0.7	<0.5	2.7	1.8	--	--	--	--	--
	05/15/98	164.80	10.89	153.91	80	130	<0.5	<0.5	1.1	<1.0	--	--	--	--	--
	05/17/99	164.80	11.72	153.08	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	1.06	293
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	7.42	183
	05/08/00	164.80	12.44	152.36	<50	<50	<1.0	<1.0	<1.0	1.21	--	--	1.57	11.92	182
	08/09/00	164.80	13.84	150.96	--	--	--	--	--	--	--	--	--	6.27	151
	07/26/01	164.80	14.11	150.69	<50	<50	<0.5	<0.5	<0.5	1.2	--	--	--	--	--
	12/22/05	**164.80**	**12.21**	**152.59**	**<50**	**<47**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	--	--	--
MW-3	05/22/89	164.69	12.15	152.54	49,000	17,000	650	660	1,300	3,500	--	--	--	--	--
	08/23/95	164.69	12.96	151.73	25,000	12,000	660	<0.5	2,400	4,900	--	--	--	--	--
	11/02/95	164.69	13.42	151.27	24,000	3,300	490	190	2,400	4,900	--	--	--	--	--
	02/12/96	164.69	9.14	155.55	32,000	9,900	430	<0.5	2,200	580	--	--	--	--	--
	05/09/96	164.69	11.41	153.28	32,000	8,500	440	110	2,200	4,300	--	--	--	--	--
	05/15/98	164.69	11.11	153.58	24,000	8,200	540	11	1,400	1,800	--	--	--	--	--
	05/17/99	164.69	11.91	152.78	22,400	4,880	716	<0.5	1,220	1,000	--	--		1.84	64
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	2	2
	05/08/00	164.69	12.06	152.63	22,600	4,880	450	<100	1,130	1,413	--	--	604	13.34	130
	08/09/00	164.69	13.62	151.07	--	--	--	--	--	--	--	--	--	0.23	-033
	07/26/01	164.69	14.33	150.36	6,900	2,700	240	3.2	210	110	--	--	--	--	--
	12/22/05	**164.69**	**12.55**	**152.14**	**12,000**	**4,700**	**93**	**<5.0**	**550**	**200**	**<5.0**	**<5.0**	--	--	--

Table 1: Groundwater Elevation and Analytical Data
Parking Garage 9
City of Santa Rosa
Santa Rosa, California

Well Number	Sample Date	TOC (feet relative to msl)	DTW (feet below TOC)	Groundwater Elevation (feet relative to msl)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	Napthalene (µg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)
MW-4	08/22/95	164.68	13.10	151.58	87,000	20,000	6,300	12,000	3,400	18,000	--	--	--	--	--
	11/02/95	164.68	13.75	150.93	79,000	10,000	9,000	18,000	3,400	16,000	--	--	--	--	--
	02/12/96	164.68	9.71	154.97	150,000	9,800	14,000	18,000	4,400	21,000	--	--	--	--	--
	05/09/96	164.68	11.68	153.00	100,000	11,000	13,000	14,000	3,200	13,000	--	--	--	--	--
	05/15/98	164.68	11.53	153.15	170,000	8,900	15,000	17,000	7,100	29,000	--	--	--	--	--
	05/17/99	164.68	12.25	152.43	190,000	10,000	18,000	20,000	8,000	33,000	--	--	--	0.95	38
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	1.65	-22
	05/08/00	164.68	12.21	152.47	95,700	4,360	7,870	12,900	3,540	20,120	--	--	763	0.37	258
	08/09/00	164.68	13.87	150.81	56,700	2,740	5,890	7,630	2,120	13,500	--	--	654	0.11	-090
	07/26/01	164.68	14.37	150.31	490	3,700	3,800	4,400	1,600	9,900	--	--	--	--	--
	12/22/05	**164.68**	**13.17**	**151.51**	**66,000**	**6,600**	**3,100**	**2,200**	**2,900**	**12,000**	**<50**	**<50**	--	--	--
MW-5	08/22/95	164.59	13.27	151.32	<50	210	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	11/02/95	164.59	13.83	150.76	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	02/12/96	164.59	10.00	154.59	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	05/09/96	164.59	11.92	152.67	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	05/15/98	164.59	11.55	153.04	<50	170	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--
	05/17/99	164.59	12.34	152.25	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	0.25	187
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	1.63	170
	05/08/00	164.59	12.04	152.55	<50	<50	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	2.47	308
	08/09/00	164.59	13.56	151.03	--	--	--	--	--	--	--	--	--	0.3	139
	07/26/01	164.59	14.13	150.46	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	12/22/05	**164.59**	**12.55**	**152.04**	**<50**	**86**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	--	--	--
MW-6	08/22/95	166.45	15.23	151.22	2,100	820	<0.5	7.2	9.8	9.8	--	--	--	--	--
	11/02/95	166.45	15.88	150.57	710	240	2	<0.5	3.5	5.4	--	--	--	--	--
	02/12/96	166.45	11.94	154.51	320	180	<0.5	0.6	4.4	1	--	--	--	--	--
	05/09/96	166.45	13.83	152.62	200	130	<0.5	<0.5	1	<0.5	--	--	--	--	--
	05/15/98	166.45	13.64	152.81	150	250	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--
	05/17/99	166.45	14.34	152.11	140	113	<0.5	<0.5	<0.5	<0.5	--	--	--	9.67	230
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	6.44	132
	05/08/00	166.45	14.03	152.42	<0.05	58	<1.0	<1.0	<1.0	<1.0	--	--	1.32	1.37	306
	08/09/00	166.45	15.65	150.80	--	--	--	--	--	--	--	--	--	0.36	100
	07/26/01	166.45	16.33	150.12	570	290	6.1	<0.5	0.61	<0.5	--	--	--	--	--
	12/22/05	**166.45**	**14.94**	**151.51**	**380**	**100**	**<0.50**	**2.8**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	--	--	--

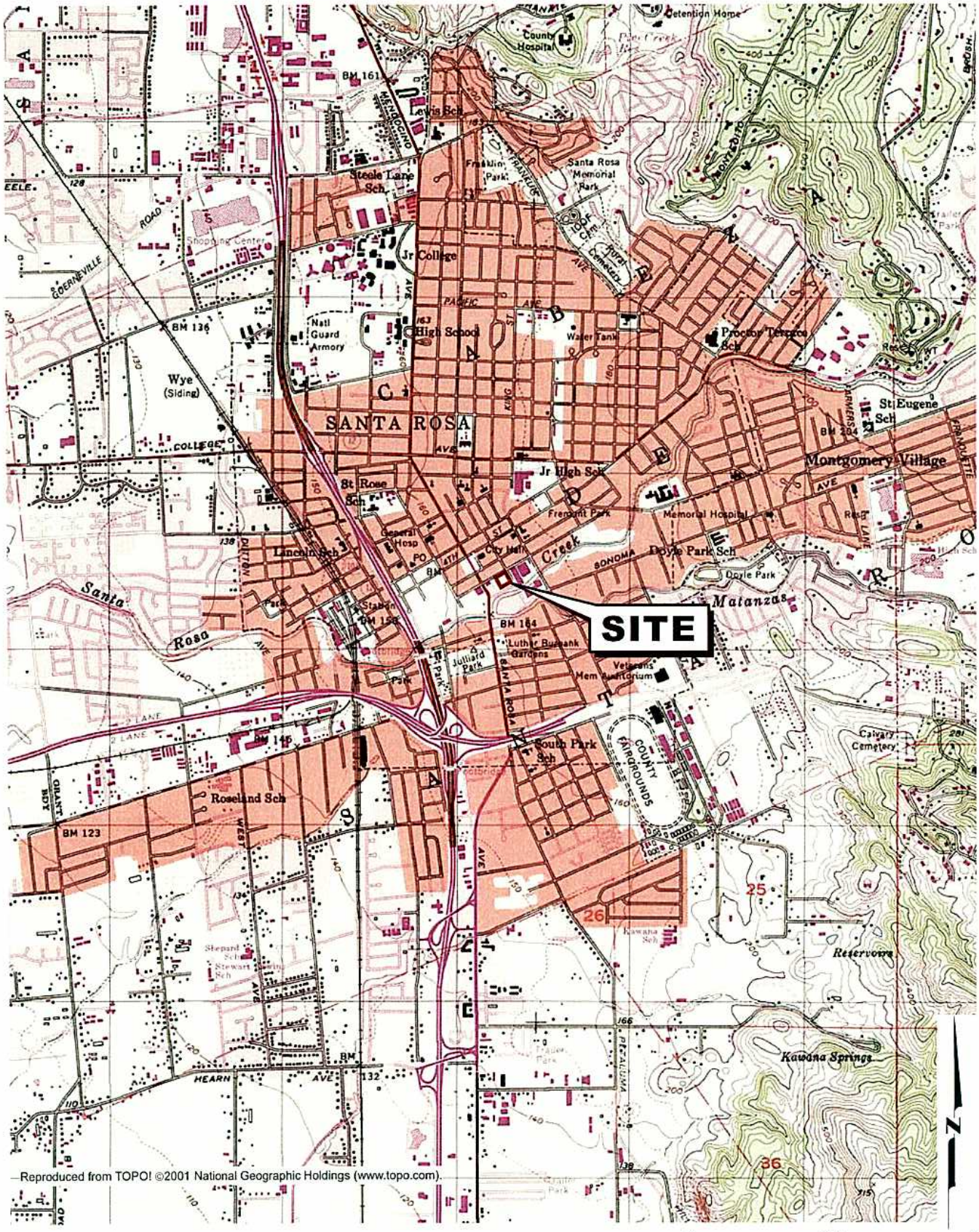
Table 1: Groundwater Elevation and Analytical Data
Parking Garage 9
City of Santa Rosa
Santa Rosa, California

Well Number	Sample Date	TOC (feet relative to msl)	DTW (feet below TOC)	Groundwater Elevation (feet relative to msl)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	Napthalene (µg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)

Notes:
TOC = top of casing elevation
DTW = depth to water
msl = mean sea level
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane
µg/l = micrograms per liter
< = less than the laboratory reporting limit
mg/l = milligrams per liter
mV = millivolts

Checked GAL
Approved SKP

PLATES



0 0.5 1.0

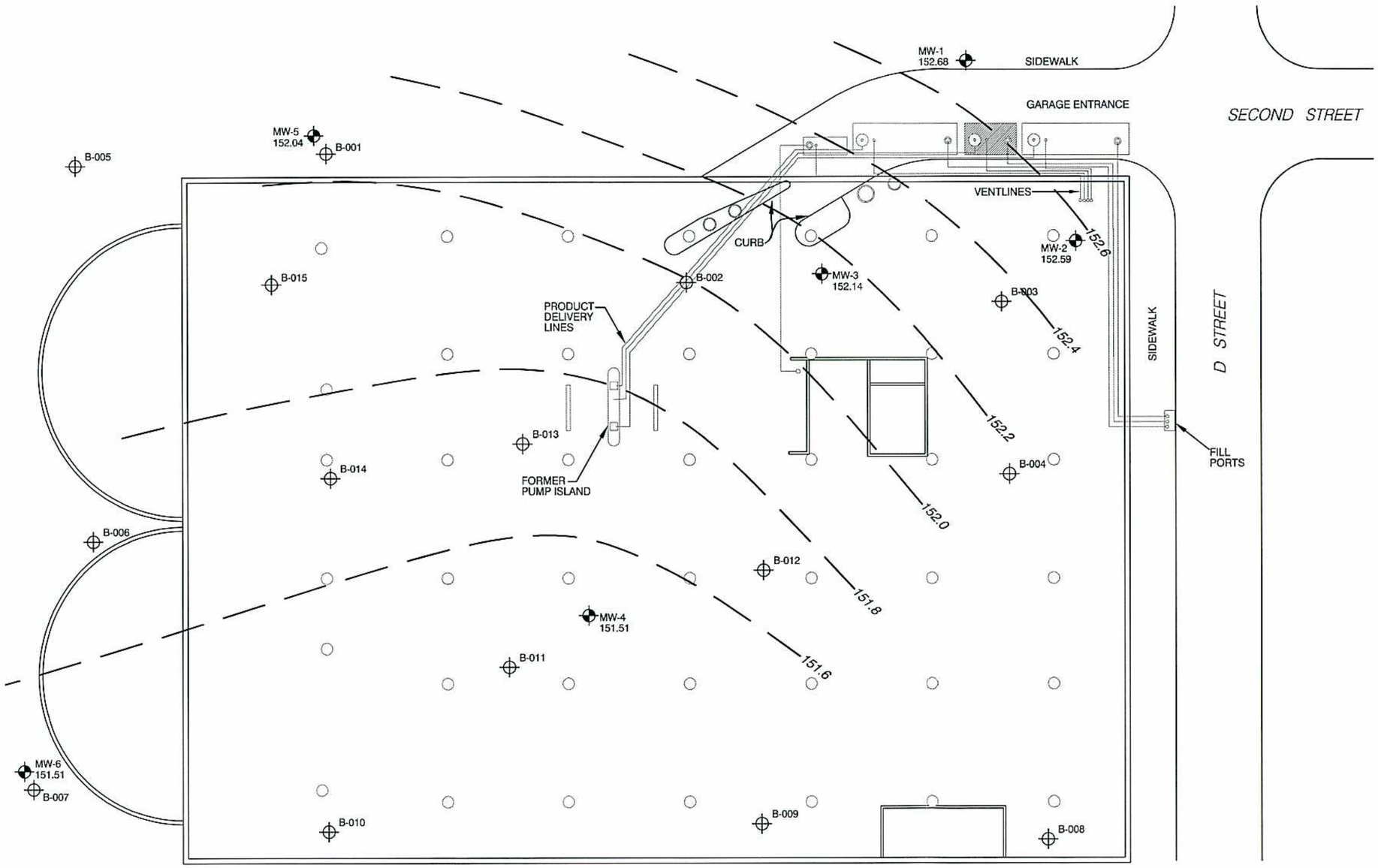
APPROXIMATE SCALE IN MILES

MACTEC

Area Map with Site Location
Parking Garage No. 9
City of Santa Rosa
Santa Rosa, California

PLATE
1

DRAWN	JOB NUMBER	CHECKED	CHECKED DATE	APPROVED	APPROVED DATE
CN	4088053173 02	GAL	1/06	SVP	2/06



EXPLANATION

MW-1	GROUNDWATER MONITORING WELL
151.51	GROUNDWATER ELEVATION IN FEET MSL
150.5	GROUNDWATER POTENTIOMETRIC CONTOUR FEET MSL
	ORC INJECTION LOCATION
	STRUCTURAL SUPPORT COLUMN
	ABANDONED UNDERGROUND STORAGE TANK

0 30 60

SCALE IN FEET

4088053173002.DWG 0.0
20060207.0840

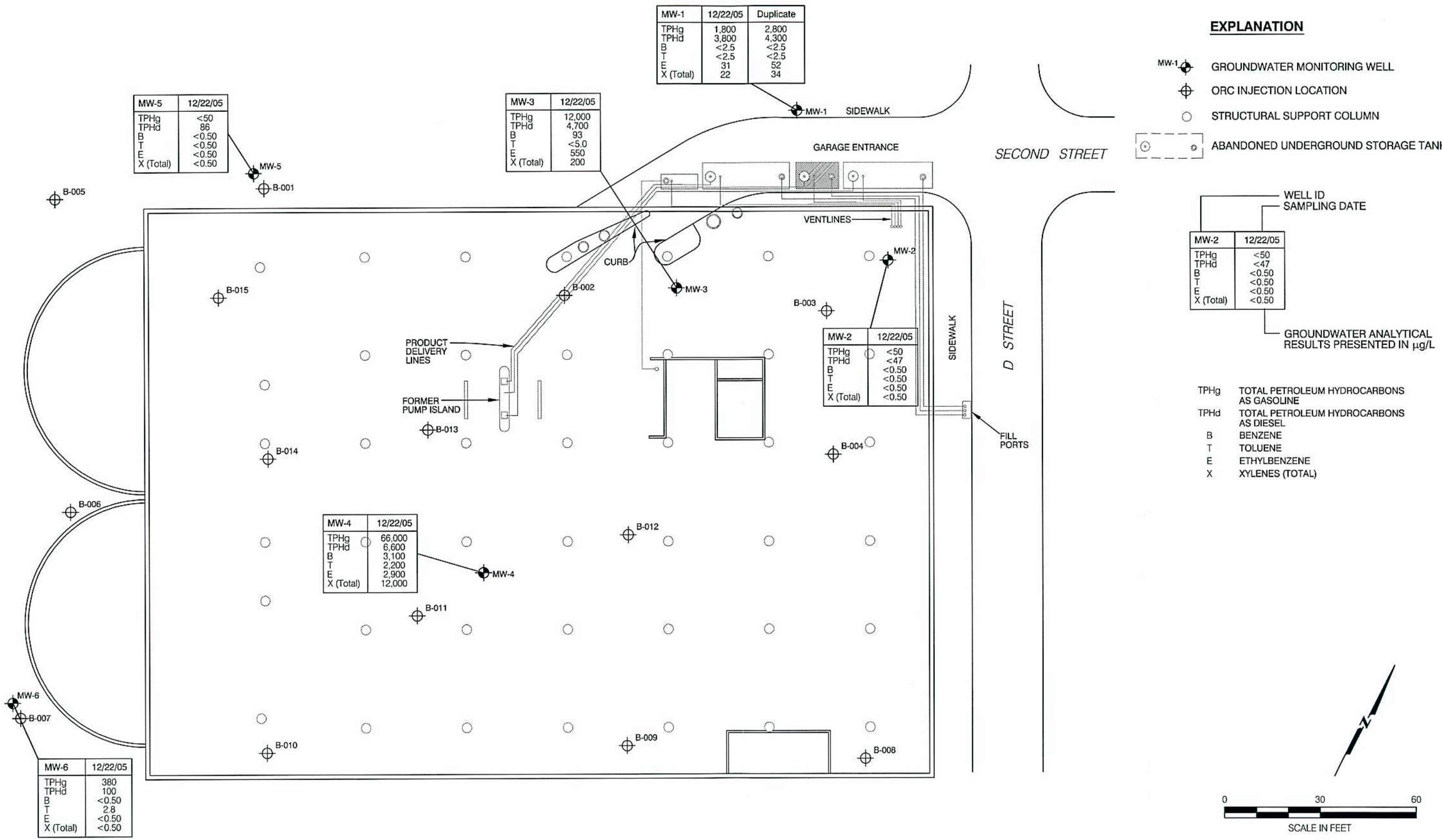
PLATE

MACTEC

Groundwater Contours and Flow Direction
December 22, 2005
City of Santa Rosa Parking Garage 9
Santa Rosa, California

2

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	4088053173 02	GAL	01/06	SHP	2/06



PLATE

MACTEC

Groundwater Analytical Results
December 22, 2005
City of Santa Rosa Parking Garage 9
Santa Rosa, California

3

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	4088053173 02	GAL	01/06	SILP	2/06

APPENDIX A

WELL SAMPLING FORMS

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-4

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173.01

Date: 12/22/05

Recorded By: (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1700

pH S/N 00M186 [x] 4 [x] 7 [ ] 10

EC S/N " [ ] redline [x] STD 1000

Turb S/N 92050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(17.7 - 13.17) X 2² X 3 X 0.0408 = 2.3 gals

TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0815 GPM: ___

Purge Stop: 0845 GPM: ___

Elapsed: 30 Volume: 2.5

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.70	921	17.8	278
.5	6.37	922	17.3	>1000
1	6.29	907	17.1	>1000
1.5	6.25	910	17.1	>1000
2	6.25	910	17.1	>1000
2.5	6.14	912	17.1	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):
strong odor of product
visible sheen, blackish color

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Teflon Disposable Bailer Sample Time: 0850

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
05512201	6-VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
↓	2-1L amber	TPH-Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.	Type	Sample No.

Review: ___
Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088653173.01

Date: 12/02/05

Recorded By: (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: ~~050~~ 1700

pH S/N 00M186 [x] 4 [x] 7 [ ] 10

EC S/N 00M186 [ ] redline [x] STD 1000

Turb S/N 78050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(19.6 - 12.55) x 2 ² X 3 X 0.0408 = 3.5 gals

TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0905 GPM: ___

Purge Stop: 0945 GPM: ___

Elapsed: 40 Volume: 3.5

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.78	910	16.9	>1000
1	6.42	881	17.0	605
1.5	6.37	870	17.0	501
2	6.32	864	17.0	275
2.5	6.41	885	17.1	296
3	6.35	865	17.0	392
3.5	6.42	868	16.9	373

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

grey cloudy

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Teflon Disposable Bailer Sample Time: 0950

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
05512202	6 VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
↓	2-1Liter	TPH-Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Review: ___
Date:

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-2

Well Type: [x] Monitor [ ] Extraction [ ] Other ____
[x] PVC [ ] St. Steel [ ] Other ____

Job Name: Parking Garage 9

Job Number: 408885 3173.01

Date: 12/22/06

Recorded By: (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1700

pH S/N 00M186 [x] 4 [x] 7 [ ] 10

EC S/N ↓ [ ] redline [x] STD 1000

Turb S/N 92050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(19.80 - 12.21) x ___ ² x 3 x 0.0408 = 3.75 gals

TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1005 GPM: ____

Purge Stop: 1045 GPM: ____

Elapsed: 40 Volume: 3.75

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ____

[ ] Other - Type: ____

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.48	610	17.3	46.8
1	6.36	572	17.5	736
1.5	6.50	554	17.6	915
2	6.50	548	17.6	>1000
2.5	6.50	549	17.6	>1000
3	6.55	548	17.6	>1000
3.75	6.54	545	17.5	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ____

Depth in feet (BTOC): ____

Screen Interval in feet (BTOC): from ____ to ____

Observations During Purging (Well Condition, Turbidity, Color, Odor):
dark black

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Teflon Disposable Bailer Sample Time: 1050 ~~1050~~

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
05512203	6 VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
05512203	2-1L amber	TPH - Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Review: ____
Date:

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-6

Well Type: [x] Monitor [ ] Extraction [ ] Other ____
[x] PVC [ ] St. Steel [ ] Other ____

Job Name: Parking Garage 9

Job Number: 4088053173.01

Date: 12/22/05

Recorded By: (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1700

pH S/N 00M186 [x] 4 [x] 7 [ ] 10

EC S/N ↓ [ ] redline [x] STD 1000

Turb S/N 92050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(23.3 - 18.94) X ___ ² X 3 X 0.0408 = 4.25 gals

TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1135 GPM: ____

Purge Stop: 1205 GPM: ____

Elapsed: 30 Volume: 4.25

PURGE METHOD

[x] Bailer - Type: PVC

[ ] Submersible - Type:

[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other

Depth in feet (BTOC):

Screen Interval in feet (BTOC): from ____ to ____

Observations During Purging (Well Condition, Turbidity, Color, Odor):

slight odor of product

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.53	550	17.3	89.5
1	6.57	522	17.4	196
2	6.61	520	17.2	199
3	6.56	517	17.8	250
3.5	6.54	515	17.8	260
4	6.52	514	17.7	300
4.25	6.52	502	17.8	3.6
				3.6

WELL SAMPLING

[x] Bailer - Type: Stainless Steel ~~Teflon Disposable Bailer~~ Sample Time: 1215

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
0512204	6 VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
↓	2-1L ambers	TPH Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.	Type	Sample No.

Review: ____
Date:

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-5

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088 05317 3.01

Date: 12/22/05

Recorded By: [signature] (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1200

pH S/N 00M186 [x] 4 [x] 7 [ ] 10

EC S/N ↓ [ ] redline [x] STD 1000

Turb S/N 92050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(17.55 - 12.55) X ___ ² X 3 X 0.0408 = 3.5 gals

TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1235 GPM: ___

Purge Stop: 1300 GPM: ___

Elapsed: 25 Volume: 3.5

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

black, slight odor product

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.99	388.5	18.2	>1000
1	6.90	382.5	18.2	>1000
1.5	6.81	386.3	18.3	>1000
2	6.71	388.9	18.4	>1000
2.5	6.69	388.8	18.4	>1000
3	6.69	387.9	18.5	956
3.5	6.65	388.1	18.4	945

WELL SAMPLING

[x] Bailer - Type: Teflon Disposable Bailer Sample Time: 1305

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
05512205 ↓	6 VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
	2-1L amber	TPH-Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No.	Duplicate Sample No.	Type	Sample No.	Type	Sample No.

Review: ___
Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Job Name: Parking Garage 9
Job Number: 4088053173.01
Recorded By: (Signature)

Well Number: MW-1
Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___
Date: 12/22/05
Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1700

pH S/N 00M186 [x] 4 [x] 7 [ ] 10
EC S/N " [ ] redline [x] STD 1000
Turb S/N 92050000 1210 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1740
pH [x] 4 [x] 7 [ ] 10
EC [ ] redline [x] STD 1000
Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(17.2 - 11.7) X ___ ² X 3 X 0.0408 = 2.75 gals
TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1315 GPM: ___
Purge Stop: 1355 GPM: ___
Elapsed: 44 40 Volume: 2.75

PURGE METHOD

[X] Bailer - Type: PVC
[ ] Submersible - Type: ___
[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	7.09	189.3	17.7	>1600
1	7.01	210	17.8	>1000
1.5	6.66	225.6	18.1	>1000
2	6.54	355	18.2	>1000
2.5	6.41	372	18.2	955
2.75	6.38	394	18.3	936

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other ___
Depth in feet (BTOC): ___
Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):
black, visable sheen
product odor

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Teflon Disposable Bailer Sample Time: 1400

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
Pre-Purge					
After-Purge					
05512206	6 VOAs	TPH-g/BTEX	HCL	Sequoia	8015m/8021
"	2-1L amber	TPH-Diesel	—	"	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.
05512206	05512207

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Review: ___
Date: ___

APPENDIX B

LABORATORY ANALYTICAL REPORT

Sequoia
Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

18 January, 2006

Gary Lieberman
MACTEC Engineering & Consulting [Petaluma]
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954

RE: Parking Garage 9 Santa Rosa
Work Order: MOL0974

Enclosed are the results of analyses for samples received by the laboratory on 12/22/05 20:11. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race
Senior Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

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MACTEC Engineering & Consulting [Petaluma] 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Parking Garage 9 Santa Rosa Project Number:4088053173.01 Project Manager:Gary Lieberman	MOL0974 **Reported:** 01/18/06 12:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
05512201	MOL0974-01	Water	12/22/05 08:50	12/22/05 20:11
05512202	MOL0974-02	Water	12/22/05 09:50	12/22/05 20:11
05512203	MOL0974-03	Water	12/22/05 10:50	12/22/05 20:11
05512204	MOL0974-04	Water	12/22/05 12:15	12/22/05 20:11
05512205	MOL0974-05	Water	12/22/05 13:05	12/22/05 20:11
05512206	MOL0974-06	Water	12/22/05 14:00	12/22/05 20:11
05512207	MOL0974-07	Water	12/22/05 14:00	12/22/05 20:11

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.

Sequoia Analytical

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MACTEC Engineering & Consulting [Petaluma] 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Parking Garage 9 Santa Rosa Project Number:4088053173.01 Project Manager:Gary Lieberman	MOL0974 **Reported:** 01/18/06 12:40

Extractable Hydrocarbons with Silica Gel cleanup by EPA 8015B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
05512201 (MOL0974-01) Water Sampled: 12/22/05 08:50 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**6600**	500	ug/l	10	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*114 %*	*34-123*		"	"	"	"	
05512202 (MOL0974-02) Water Sampled: 12/22/05 09:50 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**4700**	470	ug/l	10	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*102 %*	*34-123*		"	"	"	"	
05512203 (MOL0974-03) Water Sampled: 12/22/05 10:50 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	ND	47	ug/l	1	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	
Surrogate: n-Octacosane		*69 %*	*34-123*		"	"	"	"	
05512204 (MOL0974-04) Water Sampled: 12/22/05 12:15 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**100**	50	ug/l	1	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*63 %*	*34-123*		"	"	"	"	
05512205 (MOL0974-05) Water Sampled: 12/22/05 13:05 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**86**	49	ug/l	1	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*65 %*	*34-123*		"	"	"	"	
05512206 (MOL0974-06) Water Sampled: 12/22/05 14:00 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**3800**	470	ug/l	10	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*148 %*	*34-123*		"	"	"	"	*S04*
05512207 (MOL0974-07) Water Sampled: 12/22/05 14:00 Received: 12/22/05 20:11									
Diesel Range Organics (C10-C28)	**4300**	480	ug/l	10	5L29018	12/29/05	01/04/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*125 %*	*34-123*		"	"	"	"	*S04*

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MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MOL0974
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	01/18/06 12:40

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
05512201 (MOL0974-01) Water Sampled: 12/22/05 08:50 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	**66000**	5000	ug/l	100	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	**3100**	50	"	"	"	"	"	"	
Toluene	**2200**	50	"	"	"	"	"	"	
Ethylbenzene	**2900**	50	"	"	"	"	"	"	
Xylenes (total)	**12000**	50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*60-135*		"	"	"	"	
05512202 (MOL0974-02) Water Sampled: 12/22/05 09:50 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	**12000**	500	ug/l	10	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	**93**	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	**550**	5.0	"	"	"	"	"	"	
Xylenes (total)	**200**	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*60-135*		"	"	"	"	
05512203 (MOL0974-03) Water Sampled: 12/22/05 10:50 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	6A05010	01/05/06	01/05/06	EPA 8260B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*95 %*	*60-135*		"	"	"	"	

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MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MOL0974
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	01/18/06 12:40

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
05512204 (MOL0974-04) Water Sampled: 12/22/05 12:15 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	**380**	50	ug/l	1	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	**2.8**	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*109 %*	*60-135*		"	"	"	"	
05512205 (MOL0974-05) Water Sampled: 12/22/05 13:05 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*60-135*		"	"	"	"	
05512206 (MOL0974-06) Water Sampled: 12/22/05 14:00 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	**1800**	250	ug/l	5	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	ND	2.5	"	"	"	"	"	"	
Toluene	ND	2.5	"	"	"	"	"	"	
Ethylbenzene	**31**	2.5	"	"	"	"	"	"	
Xylenes (total)	**22**	2.5	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	2.5	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*60-135*		"	"	"	"	

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MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MOL0974
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	01/18/06 12:40

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
05512207 (MOL0974-07) Water Sampled: 12/22/05 14:00 Received: 12/22/05 20:11									
Gasoline Range Organics (C4-C12)	**2800**	250	ug/l	5	6A03015	01/03/06	01/03/06	EPA 8260B	
Benzene	ND	2.5	"	"	"	"	"	"	
Toluene	ND	2.5	"	"	"	"	"	"	
Ethylbenzene	**52**	2.5	"	"	"	"	"	"	
Xylenes (total)	**34**	2.5	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	2.5	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*118 %*		*60-135*	"	"	"	"	

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Sequoia Analytical

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MACTEC Engineering & Consulting [Petaluma] 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Parking Garage 9 Santa Rosa Project Number:4088053173.01 Project Manager:Gary Lieberman	MOL0974 **Reported:** 01/18/06 12:40

Extractable Hydrocarbons with Silica Gel cleanup by EPA 8015B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5L29018 - EPA 3510C / EPA 8015B-SVOA										
Blank (5L29018-BLK1)				Prepared: 12/29/05	Analyzed: 01/04/06					
Diesel Range Organics (C10-C28)	ND	50	ug/l							
Surrogate: n-Octacosane	*33.5*		"	*50.0*		*67*	*34-123*			
Laboratory Control Sample (5L29018-BS1)				Prepared: 12/29/05	Analyzed: 01/04/06					
Diesel Range Organics (C10-C28)	318	50	ug/l	500		64	51-128			
Surrogate: n-Octacosane	*33.2*		"	*50.0*		*66*	*34-123*			
Laboratory Control Sample Dup (5L29018-BSD1)				Prepared: 12/29/05	Analyzed: 01/04/06					
Diesel Range Organics (C10-C28)	335	50	ug/l	500		67	51-128	5	27	
Surrogate: n-Octacosane	*34.1*		"	*50.0*		*68*	*34-123*			
Duplicate (5L29018-DUP1)	**Source: MOL0974-01**			Prepared: 12/29/05	Analyzed: 01/04/06					
Diesel Range Organics (C10-C28)	7840	470	ug/l		6600			17	200	
Surrogate: n-Octacosane	*47.4*		"	*47.2*		*100*	*34-123*			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6A03015 - EPA 5030B P/T / EPA 8260B										
Blank (6A03015-BLK1)				Prepared & Analyzed: 01/03/06						
Gasoline Range Organics (C4-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*2.95*		"	*2.50*		*118*	*60-135*			
Laboratory Control Sample (6A03015-BS1)				Prepared & Analyzed: 01/03/06						
Gasoline Range Organics (C4-C12)	492	50	ug/l	440		112	60-140			
Benzene	5.61	0.50	"	5.16		109	65-115			
Toluene	42.3	0.50	"	37.2		114	85-120			
Ethylbenzene	7.59	0.50	"	7.54		101	75-135			
Xylenes (total)	43.0	0.50	"	41.2		104	85-125			
1,2-Dichloroethane	18.4	0.50	"	14.7		125	85-130			
1,2-Dibromoethane (EDB)	20.4	0.50	"	14.9		137	85-120			QC01
Surrogate: 1,2-Dichloroethane-d4	*3.00*		"	*2.50*		*120*	*60-135*			
Matrix Spike (6A03015-MS1)	**Source: MOL0974-01**			Prepared & Analyzed: 01/03/06						
Gasoline Range Organics (C4-C12)	107000	5000	ug/l	44000	66000	93	60-140			
Benzene	3610	50	"	516	3100	99	65-115			
Toluene	6290	50	"	3720	2200	110	85-120			
Ethylbenzene	3630	50	"	754	2900	97	75-135			
Xylenes (total)	16300	50	"	4120	12000	104	85-125			
1,2-Dichloroethane	1630	50	"	1470	ND	111	85-130			
1,2-Dibromoethane (EDB)	1810	50	"	1490	ND	121	85-120			QC01
Surrogate: 1,2-Dichloroethane-d4	*2.86*		"	*2.50*		*114*	*60-135*			

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MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MOL0974
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	01/18/06 12:40

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6A03015 - EPA 5030B P/T / EPA 8260B										
Matrix Spike Dup (6A03015-MSD1)	**Source: MOL0974-01**			Prepared & Analyzed: 01/03/06						
Gasoline Range Organics (C4-C12)	110000	5000	ug/l	44000	66000	100	60-140	3	25	
Benzene	3680	50	"	516	3100	112	65-115	2	20	
Toluene	6460	50	"	3720	2200	115	85-120	3	20	
Ethylbenzene	3690	50	"	754	2900	105	75-135	2	15	
Xylenes (total)	16700	50	"	4120	12000	114	85-125	2	20	
1,2-Dichloroethane	1650	50	"	1470	ND	112	85-130	1	20	
1,2-Dibromoethane (EDB)	1850	50	"	1490	ND	124	85-120	2	15	QC01
Surrogate: 1,2-Dichloroethane-d4	*2.78*		*"*	*2.50*		*111*	*60-135*			
Batch 6A05010 - EPA 5030B P/T / EPA 8260B										
Blank (6A05010-BLK1)				Prepared & Analyzed: 01/05/06						
Gasoline Range Organics (C4-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*2.44*		*"*	*2.50*		*98*	*60-135*			
Laboratory Control Sample (6A05010-BS1)				Prepared & Analyzed: 01/05/06						
Gasoline Range Organics (C4-C12)	423	50	ug/l	440		96	60-140			
Benzene	5.38	0.50	"	5.16		104	65-115			
Toluene	40.1	0.50	"	37.2		108	85-120			
Ethylbenzene	7.24	0.50	"	7.54		96	75-135			
Xylenes (total)	36.9	0.50	"	41.2		90	85-125			
1,2-Dichloroethane	15.1	0.50	"	14.7		103	85-130			
1,2-Dibromoethane (EDB)	15.8	0.50	"	14.9		106	85-120			
Surrogate: 1,2-Dichloroethane-d4	*1.92*		*"*	*2.50*		*77*	*60-135*			

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MACTEC Engineering & Consulting [Petaluma] 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Parking Garage 9 Santa Rosa Project Number:4088053173.01 Project Manager:Gary Lieberman	MOL0974 **Reported:** 01/18/06 12:40

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6A05010 - EPA 5030B P/T / EPA 8260B										
Matrix Spike (6A05010-MS1)	**Source: MOL1049-01**			Prepared & Analyzed: 01/05/06						
Gasoline Range Organics (C4-C12)	7270	500	ug/l	4400	2400	111	60-140			
Benzene	361	5.0	"	51.6	290	138	65-115			QM04
Toluene	423	5.0	"	372	17	109	85-120			
Ethylbenzene	185	5.0	"	75.4	99	114	75-135			
Xylenes (total)	520	5.0	"	412	120	97	85-125			
1,2-Dichloroethane	171	5.0	"	147	ND	116	85-130			
1,2-Dibromoethane (EDB)	168	5.0	"	149	ND	113	85-120			
Surrogate: 1,2-Dichloroethane-d4	*2.24*		"	*2.50*		*90*	*60-135*			
Matrix Spike Dup (6A05010-MSD1)	**Source: MOL1049-01**			Prepared & Analyzed: 01/05/06						
Gasoline Range Organics (C4-C12)	6970	500	ug/l	4400	2400	104	60-140	4	25	
Benzene	348	5.0	"	51.6	290	112	65-115	4	20	
Toluene	404	5.0	"	372	17	104	85-120	5	20	
Ethylbenzene	173	5.0	"	75.4	99	98	75-135	7	15	
Xylenes (total)	491	5.0	"	412	120	90	85-125	6	20	
1,2-Dichloroethane	173	5.0	"	147	ND	118	85-130	1	20	
1,2-Dibromoethane (EDB)	167	5.0	"	149	ND	112	85-120	0.6	15	
Surrogate: 1,2-Dichloroethane-d4	*2.14*		"	*2.50*		*86*	*60-135*			

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MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MOL0974
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	01/18/06 12:40

Notes and Definitions

S04	The surrogate recovery for this sample is above control limits due to interference from the sample matrix.
QM04	The spike recovery was above control limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QC01	The percent recovery was above the control limits.
HC-12	Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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MACTEC

5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954
(707) 793-3800

CHAIN OF CUSTODY FORM

Seq. No.: № 2294

Samplers:

Lab: Sequoia

Job Number: 4088053173.01

Name/Location: Parking Garage 9 Santa Rosa

Project Manager: Gary Lieberman

Recorder: (Signature Required)

MOL0974

MATRIX: Water	Soil	Air	# CONTAINERS & PRESERV.: Unpres.	H2SO4	HNO3	HCL	SAMPLE NUMBER YR	SEQ	DATE YR	MO	DAY	TIME	STATION DESCRIPTION	DEPTH	TPH gas	BTEX	TPH Diesel
X			2			6	05	51122001	05	12	22	0850	01		X	X	X
X			2			6	05	51122002	05	12	22	0950	02		X	X	X
X			2			6	05	51122003	05	12	22	1050	03		X	X	X
X			2			6	05	51122004	05	12	22	1215	04		X	X	X
X			2			6	05	51122005	05	12	22	1305	05		X	X	X
X			2			6	05	51122006	05	12	22	1400	06		X	X	X
X			2			6	05	51122007	05	12	22	1400	07		X	X	X

ANALYSIS REQUESTED

ADDITIONAL INFORMATION

SAMPLE NUMBER (YR / SEQ)

TURNAROUND TIME/ REMARKS

Standard T.A.T

TPH Diesel: include silica gel strip (EPA 3630C)

BTEX: include (1,2 DCA) and (EDB) 8260

We also need an EDF for

CHAIN OF CUSTODY RECORD

12/22/05

Relinquished By (Signature)	(Print Name)	(Company)	Date/Time
	Justin Hanzel-Davis	MACTEC	1500
Received By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**
	Alfredo Lorenzo	SEQUOIA	12-22-05 1500
Relinquished By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**
	Alfredo Lorenzo	SEQUOIA	12-22-05
Received By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**
	[illegible]	SA	12-22-05 3:15
Relinquished By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**
	[illegible]	SA	12/22/05 7:21pm
Received By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**
	Erica Fallini	SA	12/22/05 2011
Received By (Signature)	**(Print Name)**	**(Company)**	**Date/Time**

Method of Shipment:

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: Mactec
REC. BY (PRINT): E. Fallin
WORKORDER: M0L0974

DATE REC'D AT LAB: 12/22/05
TIME REC'D AT LAB: 2011
DATE LOGGED IN: 12/28/05

For Regulatory Purposes?
DRINKING WATER YES / NO
WASTE WATER YES / NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	pH	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / Absent	01	A-F	05512201	40a (6)	HCl	—	L	12/22/05	
Intact / Broken*	~~02~~	G/H	↓	1L amber (2)	—	↓	↓	↓	
2. Chain-of-Custody Present / Absent*	~~03~~ 02	A-H	05512202	Same	Same	↓	↓	↓	
3. Traffic Reports or Packing List: Present / Absent	~~04~~ 03	↓	03	↓	↓	↓	↓	~~12/21~~	
4. Airbill: Airbill / Sticker Present / Absent	~~05~~ 04		04						
	~~06~~ 05		05						
	~~07~~ 06		06						
5. Airbill #:	~~08~~ 07		07						
6. Sample Labels: Present / Absent									
7. Sample IDs: Listed / Not Listed on Chain-of-Custody									
8. Sample Condition: Intact / Broken* / Leaking*									
9. Does information on chain-of-custody, traffic reports and sample labels agree? Yes / No*									
10. Sample received within hold time? Yes / No*									
11. Adequate sample volume received? Yes / No*									
12. Proper preservatives used? Yes / No*									
13. Trip Blank / Temp Blank Received? (circle which, if yes) Yes / No*									
14. Read Temp: 4.6 °C									
Corrected Temp: 4.6 °C									
Is corrected temp 4 +/-2°C? Yes / No**									
(Acceptance range for samples requiring thermal pres.)									
**Exception (if any): METALS / DFF ON ICE or Problem COC									

BJF 12/22/05

*IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.

SRL Revision 7
Replaces Rev 5 (07/13/04)