centurywest
ENGINEERING CORPORATION

ENVIRONMENTAL
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January 31, 1995

Alameda County Health Agency
UST Local Oversight Program
1131 E. Harbor Bay Parkway
Alameda, CA 94502-6577

Attention: Mr. Scott Seery

Subject: Report of Second Quarterly Ground Water Monitoring
Windsor Square Auto Repair UST Site
1900 Lewelling Blvd.
San Leandro, California
CWEC 20507-001-03
Alameda County Site ID 3583

Ladies and Gentlemen;

This report documents the second quarterly monitoring of five ground water monitoring wells at the subject site in San Leandro, California (see Figure 1 and Figure 2). This letter report summarizes the work performed and the results of these monitoring activities.

Description of Sampling Activities

On December 15, 1994, Century West Engineering Corporation purged and sampled all five ground water monitoring wells (MW-1 through MW-5) located at the subject site. Purging and sampling was conducted in accordance with California LUFT Field Manual guidelines as follows:

- After unlocking all five monitoring wells, water levels were measured to the nearest 0.01 foot with an electronic probe.
- Using a disposable PVC bailer, a single bail of ground water was taken from each well to check for the presence or absence of floating free product.
- Each well was purged of approximately three well volumes. During purging, temperature, pH, conductivity, and turbidity of the well water was periodically monitored and recorded until they stabilized. All purged water was stored onsite in 55-gallon metal drums. Ground water sampling data sheets are contained in Appendix A.

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- After purging parameters had stabilized, ground water was poured directly from the bailer into four 40-ml VOC vials, and two one-liter amber bottles (MW-2). Each container was then tightly sealed with teflon lined septum, labeled and placed in cold storage for transport to the analytical laboratory under formal chain-of-custody.

Results of Quarterly Monitoring

Hydrologic Conditions and Ground Water Gradient

Monitoring wells MW-1 through MW-4 exhibited no hydrocarbons odors or hydrocarbon sheens. Purged water from monitoring well MW-5 exhibited slight hydrocarbon odors and slight sheen. A ground water gradient of 0.03 ft/ft to the northwest was obtained using ground water elevation measurements taken from all five wells at the subject site (see Figure 2).

Analytical Results

Ground water samples from each well were analyzed for total petroleum hydrocarbons as gasoline (TPH-G by EPA Method 8015 Modified), and benzene, toluene, ethylbenzene and xylenes (BTEX by EPA Method 8020/602). Table 2 summarizes these analytical results.

Table 2
SUMMARY OF GROUND WATER ANALYTICAL RESULTS
Windsor Square Auto Repair UST Site

Sample ID	Sample Date	Ground Water Elevation[1]	Concentration (ppm) TPH-G	B	T	E	X
MW-1	07/05/94	7.25	ND(0.05)[2]	ND(.001)	ND(.003)	ND(.003)	ND(.003)
(14.20)[3]	12/15/94	8.64	ND(0.05)	ND(.0005)	ND(.0005)	ND(.0005)	ND(.0005)
MW-2	07/05/94	7.26	ND(0.05)	ND(.001)	ND(.003)	ND(.003)	ND(.003)
(13.70)	12/15/94	9.02	ND(0.05)	ND(.0005)	ND(.0005)	ND(.0005)	ND(.0005)
MW-3	07/05/94	7.30	5.0	0.015	0.0079	0.08	0.23
(12.41)	12/15/94	7.46	1.4	0.013	0.007	0.0011	0.0061
MW-4	07/05/94	6.99	ND(0.05)	0.0009	ND(.0005)	ND(.0005)	ND(.0005)
(12.56)	12/15/94	7.33	ND(0.05)	ND(.0005)	ND(.0005)	ND(.0005)	ND(.0005)

Table 2
SUMMARY OF GROUND WATER ANALYTICAL RESULTS
Windsor Square Auto Repair UST Site

Sample ID	Sample Date	Ground Water Elevation[1]	Concentration (ppm) TPH-G	B	T	E	X
MW-5	07/05/94	6.68	ND(0.05)	0.0011	ND(.0005)	ND(.0005)	ND(.0005)
(11.76)	12/15/94	7.52	0.061	0.001	ND(.0005)	ND(.0005)	ND(.0005)

1 - Ground water table elevation in feet above mean sea level datum.
2 - Not detected above the value expressed in the parentheses.
3 - Surveyed top of casing elevation in feet above mean sea level.

In addition, ground water from well MW-2 was analyzed for halogenated volatile organic compounds (HVOCs by EPA Method 601/8010) and semi-volatile organic compounds (SVOCs by EPA Method 625/8270). Laboratory results of HVOCs and SVOCs revealed 0.0015 parts per million (ppm) of c-1,2-Dichloroethene and non-detectable concentrations of all other analytes. Data reports and chain-of-custody records are contained in Appendix B.

Conclusions

The ground water flow gradient is significantly steeper than during the first quarterly monitoring (0.030 ft/ft for this quarter versus 0.006 ft/ft for the last quarter), and the flow direction has shifter from the southwest during the last quarter to the northwest during this quarterly monitoring. We believe that this change in the ground water flow gradient is seasonal, resulting from the abnormally high precipitation experienced in October and November. Ground water analytical results seem to confirm that long-term ground water flow beneath the site is to the southwest.

Although ground water analytical results from MW-3 continue to show some levels of gasoline constituents, ground water analytical results from MW-5, located in native soils downgradient from MW-3, continue to show extremely low levels of gasoline constituents. Thus, quarterly ground water monitoring results continue to indicate that the dissolved gasoline plume is very small in lateral extent, and does not extent significantly beyond the backfilled gasoline UST excavation.

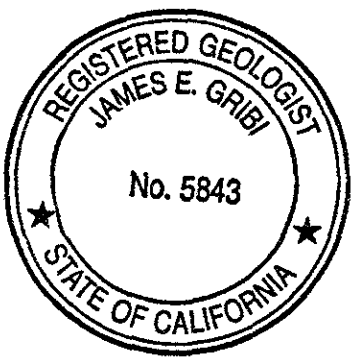
We appreciate the opportunity to present this report for your review. Please contact us if you have questions or require additional information.

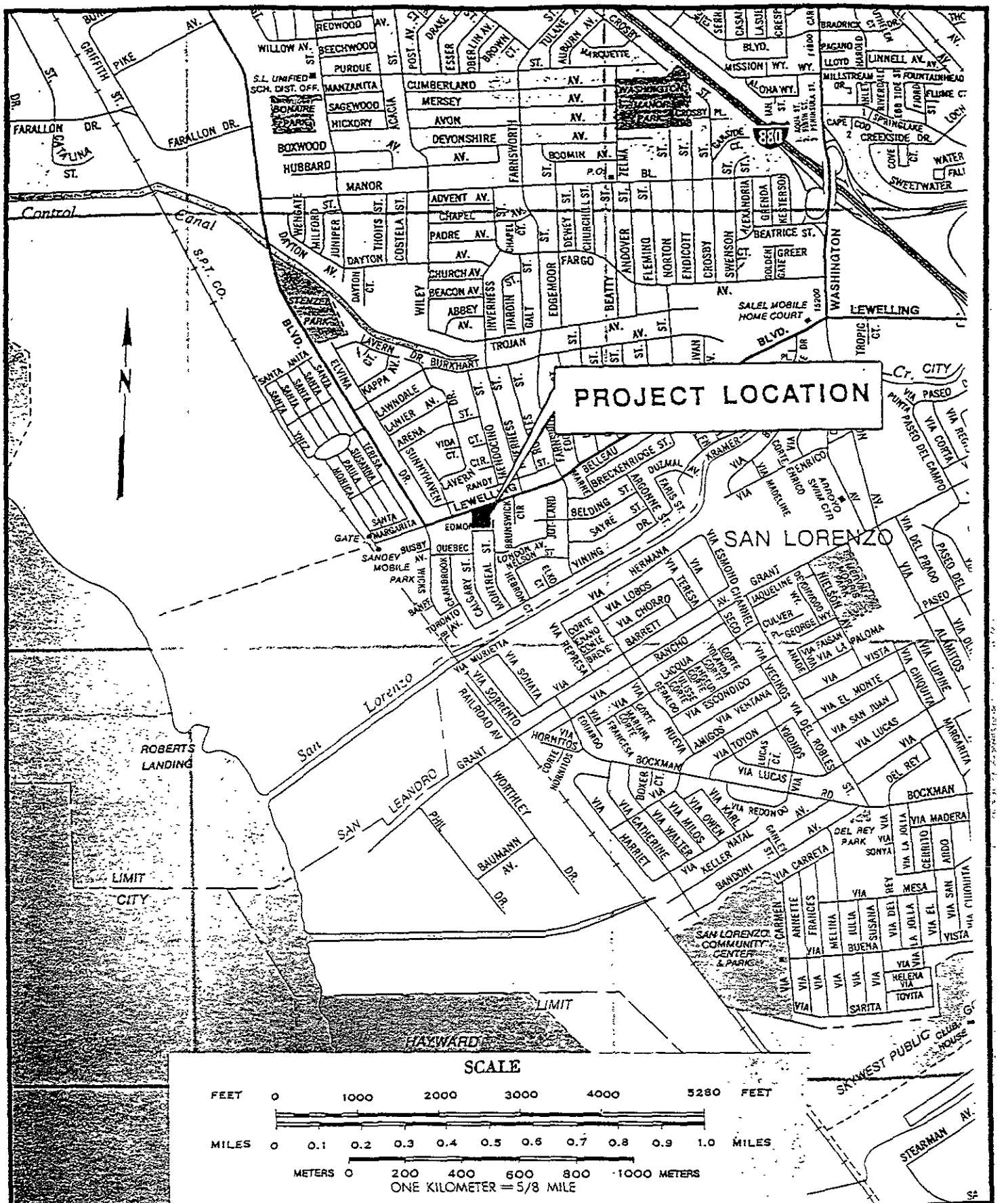
Very truly yours,

Robert S. Bogar
Geologist

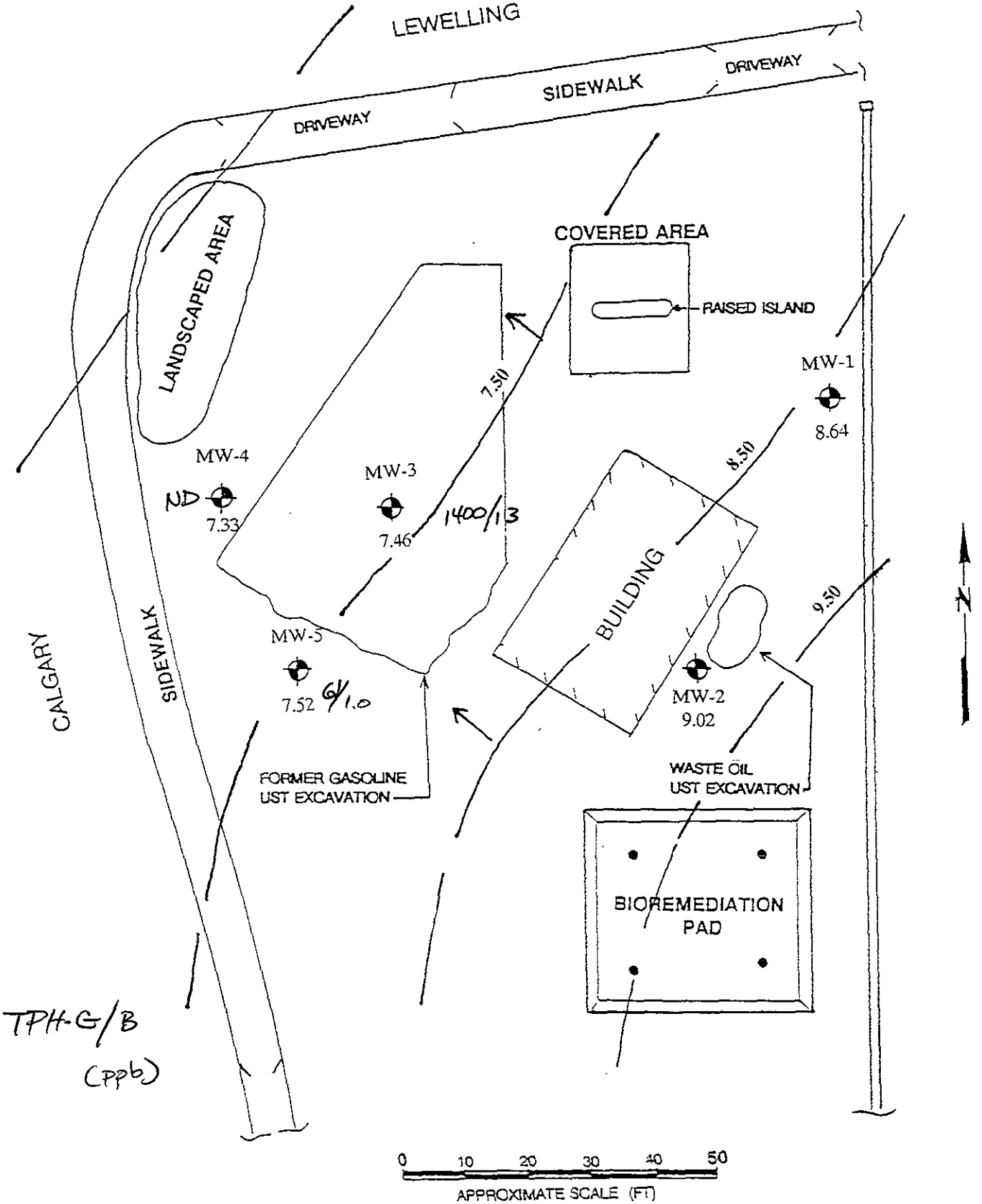
James E. Gribi
Registered Geologist
California No. 5843

RSB/JEG/:cc
Enclosures





DESIGNED BY:	CHECKED BY:	FIGURE 1 SITE VICINITY MAP CWEC: 20507-001-01	DATE:	FIGURE:
DRAWN BY:	SCALE:		CENTURY WEST ENGINEERING	
DWG. NO.:				



DESIGNED BY:	CHECKED BY:	FIGURE 2 SITE PLAN/GRADIENT MAP GRADIENT = 0.03 (ft/ft) 12/15/94	DATE:	FIGURE:
DRAWN BY:	SCALE:		CENTURY WEST ENGINEERING	
DWG. NO.:				

APPENDIX A

GROUND WATER SAMPLING DATA SHEETS

CENTURY WEST ENGINEERING

GROUNDWATER SAMPLING RECORD

****

SAMPLE NO. MW-1 WELL NO. MW-1

PROJECT NAME Jenny Lin PROJECT NO. 78587-008-03

DATE _____ TIME _____ ELEV. TOP OF CASING _____

WELL DIAMETER _____ WELL DEPTH _____ SCREEN INTERVAL _____

H2O LEVEL INIT. _____ FIN. _____

CALC. PURGE H2O COL. _____ FT. (X) ** = _____ (X) 3 = _____ GALS.

LAB ANALYSIS _____

LABORATORY _____ PURGE/SAMPLE METHOD _____

WEATHER CONDITIONS _____

****

TIME	VOLUME PUMPED (GALS.)	PUMP RATE (GPM)	TEMP. (C)	COND.	pH	REMARKS (TURBIDITY)
	0		58.4	1.49	6.47	clear no o/sh.
	2		57.7	1.57	6.46	sl muddy "
	4		57.9	1.49	"	SAME
	6		60.4	"	"	"
	8		59.5	1.46	"	"

NEED ADDITIONAL DRUM FOR NXT SAMPLING!

	MW-1	MW-2	MW-3	MW-4	MW-5
SAMPLE CREW	✓ 5.565	4.68 4.65	✓ 4.945	✓ 5.23	ⓥ 4.24 4 (4.22)

REMARKS ✓ = rechecked & NO CHANGE

ⓥ = " w/ △

** (2" = 0.163 GAL/FT) (4" = 0.653 GAL/FT)

CENTURY WEST ENGINEERING

GROUNDWATER SAMPLING RECORD

****

SAMPLE NO. MW-2 WELL NO. MW-2

PROJECT NAME _____ PROJECT NO. _____

DATE _____ TIME _____ ELEV. TOP OF CASING _____

WELL DIAMETER _____ WELL DEPTH _____ SCREEN INTERVAL _____

H2O LEVEL INIT. _____ FIN. _____

CALC. PURGE H2O COL. _____ FT. (X) ** = _____ (X) 3 = _____ GALS.

LAB ANALYSIS _____

LABORATORY _____ PURGE/SAMPLE METHOD _____

WEATHER CONDITIONS _____

****

TIME	VOLUME PUMPED (GALS.)	PUMP RATE (GPM)	TEMP. (C)	COND.	pH	REMARKS (TURBIDITY)
	0		62.9	.92	6.41	clear - no o/sh.
	2		63.4	.90	6.44	SAME
	4		62.5	.83	6.45	"
	6		62.9	.81	"	"
	8		62.4	.85	6.44	"

SAMPLE CREW _____

REMARKS _____

** (2" = 0.163 GAL/FT) (4" = 0.653 GAL/FT)

Century West Engineering Corporation / Engineers and Scientists
East 429 Third Avenue / Spokane, Washington 99202 / (509) 838-3810 / Fax: (509) 624-0355

CENTURY WEST ENGINEERING

GROUNDWATER SAMPLING RECORD

****

SAMPLE NO. MW-3 WELL NO. MW-3

PROJECT NAME Johnny Ln PROJECT NO. 29507-001-03

DATE 12/15 TIME _____ ELEV. TOP OF CASING _____

WELL DIAMETER _____ WELL DEPTH _____ SCREEN INTERVAL _____

H2O LEVEL INIT. _____ FIN. _____

CALC. PURGE H2O COL. _____ FT. (X) ** = _____ (X) 3 = _____ GALS.

LAB ANALYSIS _____

LABORATORY _____ PURGE/SAMPLE METHOD _____

WEATHER CONDITIONS _____

****

TIME	VOLUME PUMPED (GALS.)	PUMP RATE (GPM)	TEMP. (C)	COND.	pH	REMARKS (TURBIDITY)
	0		60.5	4.17	6.45	clear no O/SH
	2		62.8	4.28	6.49	grey SL O—NO SH.
	4		"	4.60	6.43	"
	6		63.4	4.55	"	SAME
	8		63.3	4.59	6.44	"

SAMPLE CREW _____

REMARKS _____

** (2" = 0.163 GAL/FT) (4" = 0.653 GAL/FT)

CENTURY WEST ENGINEERING

GROUNDWATER SAMPLING RECORD

****

SAMPLE NO. MW-4 WELL NO. MW-4

PROJECT NAME Johnny 1 PROJECT NO. 20507-001-03

DATE 12/15 TIME _____ ELEV. TOP OF CASING _____

WELL DIAMETER _____ WELL DEPTH _____ SCREEN INTERVAL _____

H20 LEVEL INIT. _____ FIN. _____

CALC. PURGE H20 COL. _____ FT. (X) ** = _____ (X) 3 = _____ GALS.

LAB ANALYSIS _____

LABORATORY _____ PURGE/SAMPLE METHOD _____

WEATHER CONDITIONS _____

****

TIME	VOLUME PUMPED (GALS.)	PUMP RATE (GPM)	TEMP. (C)	COND.	pH	REMARKS (TURBIDITY)
	0		69.8	5.96	6.41	clear no o/SH
	2		69.2	5.8	6.41	SAME (5c mud)
	4		64.7	6.25	6.41	"
	6		63.5	6.28	6.43	" (murky)
	8		62.9	6.27	6.43	"

SAMPLE CREW _____

REMARKS _____

** (2" = 0.163 GAL/FT) (4" = 0.653 GAL/FT)

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CENTURY WEST ENGINEERING

GROUNDWATER SAMPLING RECORD

****

SAMPLE NO. MW-5 WELL NO. MW-5

PROJECT NAME J-C PROJECT NO. 20507-001-03

DATE 12/15 TIME _____ ELEV. TOP OF CASING _____

WELL DIAMETER _____ WELL DEPTH _____ SCREEN INTERVAL _____

H2O LEVEL INIT. _____ FIN. _____

CALC. PURGE H2O COL. _____ FT. (X) ** = _____ (X) 3 = _____ GALS.

LAB ANALYSIS _____

LABORATORY _____ PURGE/SAMPLE METHOD _____

WEATHER CONDITIONS _____

****

TIME	VOLUME PUMPED (GALS.)	PUMP RATE (GPM)	TEMP. (C)	COND.	pH	REMARKS (TURBIDITY)
	0		60.9	1.90	6.43	SL CLEAR SL GRAY SL HC ODOR — NO SH
	2		62.9	2.45	6.41	SL HC OD — NO SH
	4		64.2	2.43	"	SAME
	6		63.4	2.63	"	"
	7		64.4	2.64	"	" SH IN BUCKET

SAMPLE CREW _____

REMARKS _____

** (2" = 0.163 GAL/FT) (4" = 0.653 GAL/FT)

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APPENDIX B

LABORATORY DATA REPORTS AND CHAIN OF CUSTODY RECORDS

Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
7950 DUBLIN BLVD
DUBLIN, CA 94568

Date: December 22, 1994

Attn: JIM GRIBI

Laboratory Number : 50180 Project Number/Name : 20507-001-03

This report has been reviewed and

approved for release.

12/22/94

Senior Chemist
Account Manager

14H

Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 22, 1994

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Chronology

Laboratory Number 50180

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1	12/15/94	12/15/94	12/16/94	12/16/94	AL091.20	01
MW-3	12/15/94	12/15/94	12/16/94	12/16/94	AL091.20	03
MW-5	12/15/94	12/15/94	12/16/94	12/16/94	AL091.20	05

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
AL091.20-04	MW-2	MS 50142-03	Water	12/09/94	12/09/94
AL091.20-05	MW-2	MSD 50142-03	Water	12/09/94	12/09/94
AL091.20-08	Method Blank	MB	Water	12/16/94	12/16/94

Certified Laboratories

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San Francisco, California 94124
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309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 22, 1994

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

LAB ID	Sample ID	Matrix	Moisture
50180-01	MW-1	Water	-
50180-03	MW-3	Water	-
50180-05	MW-5	Water	-

R E S U L T S O F A N A L Y S I S

Compound	50180-01 Conc. ug/L	RL	50180-03 Conc. ug/L	RL	50180-05 Conc. ug/L	RL
Gasoline_Range	ND	50	1400	50	61	50
Benzene	ND	0.5	13	0.5	1.0	0.5
Toluene	ND	0.5	7.0	0.5	ND	0.5
Ethyl Benzene	ND	0.5	1.1	0.5	ND	0.5
Total Xylenes	ND	0.5	6.1	0.5	ND	0.5
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)	108		212i		108	

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 50180
Method Blank(s)

	AL091.20-08 Conc. ug/L	 RL
Gasoline_Range	ND	50
Benzene	ND	0.5
Toluene	ND	0.5
Ethyl Benzene	ND	0.5
Total Xylenes	ND	0.5
>> Surrogate Recoveries (%) <<		
Trifluorotoluene (SS)	95	

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 50180

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
		For Water Matrix (ug/L)				
		AL091.20 04 / 05 - Sample Spiked: 50142 - 03				
Gasoline_Range	ND	430	409/420	95/98	65-135	3
Benzene	ND	20	20/19.2	100/96	65-135	4
Toluene	ND	20	20.9/20.1	105/101	65-135	4
Ethyl Benzene	ND	20	20.6/19.6	103/98	65-135	5
Total Xylenes	ND	60	62.3/59.3	104/99	65-135	5
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				103/98	50-150	

i - The surrogate recovery was high due to the presence of interfering compounds in the sample.

Definitions:
ND = Not Detected
RL = Reporting Limit
NA = Not Analysed
RPD = Relative Percent Difference
ug/L = parts per billion (ppb)
mg/L = parts per million (ppm)
ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

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Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 21, 1994

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Chronology

Laboratory Number 50180

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-2	12/15/94	12/15/94	12/17/94	12/18/94	AK222.24	02

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
AK222.24-07	Method Blank	MB	Water	12/17/94	12/18/94
AK222.24-02	Laboratory Spike	LS	Water	11/22/94	11/23/94
AK222.24-03	Laboratory Spike Duplicate	LSD	Water	11/22/94	11/23/94

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CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 21, 1994

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

LAB ID	Sample ID	Matrix	Moisture
50180-02	MW-2	Water	-

R E S U L T S O F A N A L Y S I S

Compound	50180-02 Conc. ug/L	RL
bis(2-chloroethyl)ether	ND	10
aniline	ND	10
phenol	ND	10
2-chlorophenol	ND	10
1,3-dichlorobenzene	ND	10
1,4-dichlorobenzene	ND	10
1,2-dichlorobenzene	ND	10
benzyl alcohol	ND	10
bis-(2-chloroisopropyl)ether	ND	10
2-methylphenol	ND	10
hexachloroethane	ND	10
n-nitroso-di-n-propylamine	ND	10
4-methylphenol	ND	10
nitrobenzene	ND	10
isophorone	ND	10
2-nitrophenol	ND	10
2,4-dimethylphenol	ND	10
bis(2-chloroethoxy)methane	ND	10
2,4-dichlorophenol	ND	10
1,2,4-trichlorobenzene	ND	10
naphthalene	ND	10
benzoic acid	ND	10
4-chloroaniline	ND	10
hexachlorobutadiene	ND	10
4-chloro-3-methylphenol	ND	10
2-methyl-naphthalene	ND	10
hexaclorocyclopentadiene	ND	10
2,4,6-trichlorophenol	ND	10
2,4,5-trichlorophenol	ND	10
2-chloronaphthalene	ND	10
2-nitroaniline	ND	10
acenaphthylene	ND	10
dimethylphthlate	ND	10

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CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 21, 1994

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

LAB ID	Sample ID	Matrix	Moisture
50180-02	MW-2	Water	-

R E S U L T S O F A N A L Y S I S

Compound	50180-02 Conc. ug/L	RL
2,6-dinitrotoluene	ND	10
Acenaphthene	ND	10
3-nitroaniline	ND	10
2,4-dinitrophenol	ND	10
dibenzofuran	ND	10
2,4-dinitrotoluene	ND	10
4-nitrophenol	ND	10
fluorene	ND	10
4-chlorophenyl-phenylether	ND	10
diethylphthlate	ND	10
4-nitroaniline	ND	10
4,6-dinitro-2-methylphenol	ND	10
n-nitrosodiphenylamine	ND	10
4-bromo-phenyl-phenylether	ND	10
hexachlorobenzene	ND	10
pentachlorophenol	ND	10
phenanthrene	ND	10
anthracene	ND	10
di-n-butylphthlate	ND	10
fluoranthene	ND	10
benzidine	ND	10
pyrene	ND	10
butylbenzylphthlate	ND	10
3.3'-dichlorobenzidine	ND	10
Benzo(a)Anthracene	ND	10
chrysene	ND	10
bis(2-ethylhexyl)phthalate	ND	10
di-n-octylphthalate	ND	10
9H-Carbazole	ND	10
benzo(b,k)fluoranthene	ND	10
Benzo(a)Pyrene	ND	10
Indeno(1,2,3)Pyrene	ND	10
dibenzo[a,h]anthracene	ND	10

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EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

LAB ID	Sample ID	Matrix	Moisture
50180-02	MW-2	Water	-

R E S U L T S O F A N A L Y S I S

Compound	50180-02 Conc. ug/L	RL
Benzo(g,h,i)Perylene	ND	10
>> Surrogate Recoveries (%) <<		
2-fluorophenol	22	
phenol-d5	17	
nitrobenzene-d5	78	
2-fluorobiphenyl	87	
2,4,6-tribromophenol	73	
terphenyl-d14	86	

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(206) 763-2992 / fax (206) 763-8429

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 50180
Method Blank(s)

	AK222.24-07 Conc. ug/L	RL
bis(2-chloroethyl)ether	ND	10
aniline	ND	10
phenol	ND	10
2-chlorophenol	ND	10
1,3-dichlorobenzene	ND	10
1,4-dichlorobenzene	ND	10
1,2-dichlorobenzene	ND	10
benzyl alcohol	ND	10
bis-(2-chloroisopropyl)ether	ND	10
2-methylphenol	ND	10
hexachloroethane	ND	10
n-nitroso-di-n-propylamine	ND	10
4-methylphenol	ND	10
nitrobenzene	ND	10
isophorone	ND	10
2-nitrophenol	ND	10
2,4-dimethylphenol	ND	10
bis(2-chloroethoxy)methane	ND	10
2,4-dichlorophenol	ND	10
1,2,4-trichlorobenzene	ND	10
naphthalene	ND	10
benzoic acid	ND	10
4-chloroaniline	ND	10
hexachlorobutadiene	ND	10
4-chloro-3-methylphenol	ND	10
2-methyl-naphthalene	ND	10
hexaclorocyclopentadiene	ND	10
2,4,6-trichlorophenol	ND	10
2,4,5-trichlorophenol	ND	10
2-chloronaphthalene	ND	10
2-nitroaniline	ND	10
acenaphthylene	ND	10
dimethylphthlate	ND	10
2,6-dinitrotoluene	ND	10
Acenaphthene	ND	10
3-nitroaniline	ND	10
2,4-dinitrophenol	ND	10
dibenzofuran	ND	10
2,4-dinitrotoluene	ND	10

Certified Laboratories

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EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 50180
Method Blank(s)

	AK222.24-07 Conc. ug/L	RL
4-nitrophenol	ND	10
fluorene	ND	10
4-chlorophenyl-phenylether	ND	10
diethylphthlate	ND	10
4-nitroaniline	ND	10
4,6-dinitro-2-methylphenol	ND	10
n-nitrosodiphenylamine	ND	10
4-bromo-phenyl-phenylether	ND	10
hexachlorobenzene	ND	10
pentachlorophenol	ND	10
phenanthrene	ND	10
anthracene	ND	10
di-n-butylphthlate	ND	10
fluoranthene	ND	10
benzidine	ND	10
pyrene	ND	10
butylbenzylphthlate	ND	10
3.3'-dichlorobenzidine	ND	10
Benzo(a)Anthracene	ND	10
chrysene	ND	10
bis(2-ethylhexyl)phthalate	ND	10
di-n-octylphthalate	ND	10
9H-Carbazole	ND	10
benzo(b,k)fluoranthene	ND	10
Benzo(a)Pyrene	ND	10
Indeno(1,2,3)Pyrene	ND	10
dibenzo[a,h]anthracene	ND	10
Benzo(g,h,i)Perylene	ND	10
>> Surrogate Recoveries (%) <<		
2-fluorophenol	42	
phenol-d5	35	
nitrobenzene-d5	77	
2-fluorobiphenyl	82	
2,4,6-tribromophenol	85	
terphenyl-d14	85	

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(206) 763-2992 / fax (206) 763-8429

EPA SW-846 Method 8270 Semivolatile Organics by GC/MS

Quality Assurance and Control Data

Laboratory Number: 50180

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Matrix (ug/L) AK222.24 02 / 03 - Laboratory Control Spikes						
phenol		100	42/41	42/41	12-110	2
2-chlorophenol		100	81/79	81/79	27-123	3
1,4-dichlorobenzene		50	44/43	88/86	36-97	2
n-nitroso-di-n-propylamine		50	48/48	96/96	41-116	0
1,2,4-trichlorobenzene		50	49/48	98/96	39-118	2
4-chloro-3-methylphenol		100	89/88	89/88	23-97	1
Acenaphthene		50	43/42	86/84	46-118	2
2,4-dinitrotoluene		50	39/40	78/80	24-96	3
4-nitrophenol		100	30/32	30/32	10-80	6
pentachlorophenol		100	54/57	54/57	9-103	5
pyrene		50	51/50	102/100	26-127	2
>> Surrogate Recoveries (%) <<						
2-fluorophenol				56/55	21-110	
phenol-d5				45/45	10-110	
nitrobenzene-d5				87/86	35-114	
2-fluorobiphenyl				90/88	43-116	
2,4,6-tribromophenol				89/87	10-123	
terphenyl-d14				94/92	33-141	

Definitions:
ND = Not Detected
RL = Reporting Limit
NA = Not Analysed
RPD = Relative Percent Difference
ug/L = parts per billion (ppb)
mg/L = parts per million (ppm)
ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

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50180

Chain of Custody and Analysis Request

Page ____ of ____

Company: CENTURY WEST ENGINEERING (CWE)
Address: 7900 DUBLIN BLVD (203)
City, State, Zip: Dublin, CA 94568
Phone: (510) 551-7774 Fax: (510) 557-7776
Project Manager: J GRIBI
Alternate Contact: Bob Bogar
Project No.: 20507-001-03 P.O. Name Johnny Lin

TURN AROUND TIME
(circle one)
Same Day 72 Hrs.
24 Hrs. 48 Hrs.
Normal 5 Day ✓

Superior Precision Analytical Inc.
P.O. Box 1545
Martinez, California 94553

Martinez I: (510) 229-1512
Martinez II: (510) 229-0166
San Francisco: (415) 647-2081

Section II: Analysis Request

Sampler:
Regulatory Agency:

Sample Identification	S=Soil A=Air W=Water Matrix		TPH-G / BTEX		HVOC's (601/8010)	5VOC (625/8270)						Date Sampled	Time Sampled	# of Containers	Preservatives (yes or no)	Sampling Remarks: Bioremediation / UST / Monitoring ✓ / Recent Contamination / Unknown Compounds / COMMENTS:
1 MW-1			✓		✓	✓										
2 MW-2			✓		✓											~~cancel gas/BTXE and~~
3 MW-3			✓													
4 MW-4			✓													
5 MW-5			✓													
6																
7																
8																
9																
10																
11																
12																

Please Initial:
Samples Stored in Ice ✓ 306
Appropriate containers ✓
Samples preserved ✓ NO
VOA's without headspace ✓ N/A
Comments:

✓ Cancel gas/BTXE + 8010 on MW-2 + MW-4 per Bob Bogar 12/16/94

Relinquished By: Bob Bogar	Date/Time 12/15/94 15:42	Received By: D Long	Date/Time 12-15-94/342	Lab: Please initial the following:	
Organization: CWE		Organization: AERO 216			
Reliquished By: D. Long	Date/Time 12-15-94 6PM	Received By:	Date/Time	Samples Stored in Ice:	
Organization: AERO 216		Organization:		Appropriate Containers:	
Relinquished By:	Date/Time	Received By: J Flowers	Date/Time	Samples Preserved:	
Organization:		Laboratory: SPAL	12/15/94 6PM	VOAs without headspace:	
				Comments:	NO VOAs for MW-4 rec'd 12 VOAs for MW-2 rec'd

Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
7950 DUBLIN BLVD
DUBLIN, CA 94568

Date: December 22, 1994

Attn: JIM GRIBI

Laboratory Number : 80277 Project Number/Name : 20507-001-03

This report has been reviewed and

approved for release.

Senior Chemist
Account Manager

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project .
Reported on Decemb

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Chronology

Sample ID	Laboratory Number	Sampled	Received	Extract.	Analyzed	QC Batch	LAB
MW-4		12/16/94	12/16/94	12/22/94	12/22/94	AL211.03	0
MW-2		12/16/94	12/16/94	12/22/94	12/22/94	AL211.03	0

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
AL211.03-01	Method Blank	MB	Water	12/21/94	12/21/94
AL211.03-02	Laboratory Spike	LS	Water	12/21/94	12/21/94
AL211.03-03	Laboratory Spike Duplicate	LSD	Water	12/21/94	12/21/94

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309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2902

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 2(
Reported on Decembe.

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

LAB ID	Sample ID	Matrix	Moisture
80277-01	MW-4	Water	-
80277-02	MW-2	Water	-

R E S U L T S O F A N A L Y S I S

Compound	80277-01 Conc. ug/L	RL	80277-02 Conc. ug/L	RL
Gasoline_Range	ND	50	ND	50
Benzene	ND	0.5	ND	0.5
Toluene	ND	0.5	ND	0.5
Ethyl Benzene	ND	0.5	ND	0.5
Total Xylenes	ND	0.5	ND	0.5
>> Surrogate Recoveries (%) <<				
Trifluorotoluene (SS)	107		110	

Certified Laboratories

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 80277
Method Blank(s)

	AL211.03-01 Conc. ug/L	RL
Gasoline_Range	ND	50
Benzene	ND	0.5
Toluene	ND	0.5
Ethyl Benzene	ND	0.5
Total Xylenes	ND	0.5
>> Surrogate Recoveries (%) <<		
Trifluorotoluene (SS)	103	

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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 80277

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L) AL211.03 02 / 03 - Laboratory Control Spikes						
Gasoline_Range		320	347/328	108/103	65-135	5
Benzene		20	14.2/13.2	71/66	65-135	7
Toluene		20	12.9/12.9	65/65	65-135	0
Ethyl Benzene		20	19.1/17.6	96/88	65-135	9
Total Xylenes		60	56.8/52.3	95/87	65-135	9
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				72/69	50-150	

Definitions:
ND = Not Detected
RL = Reporting Limit
NA = Not Analysed
RPD = Relative Percent Difference
ug/L = parts per billion (ppb)
mg/L = parts per million (ppm)
ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

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Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 20, 1994

Halogenated Volatile Organics by EPA SW-846 Methods 5030/8010

Chronology

Laboratory Number 80277

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-2	12/16/94	12/16/94	12/19/94	12/19/94	AL191.07	02

QC Samples

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
AL191.07-01	Method Blank	MB		Water	12/19/94	12/19/94
AL191.07-02	979SB13	MS	80287-02	Water	12/19/94	12/19/94
AL191.07-03	979SB13	MSD	80287-02	Water	12/19/94	12/19/94

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CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20507-001-03
Reported on December 20, 1994

Halogenated Volatile Organics by EPA SW-846 Methods 5030/8010

LAB ID	Sample ID	Matrix	Moisture
80277-02	MW-2	Water	-

R E S U L T S O F A N A L Y S I S

Compound	80277-02 Conc. ug/L	RL
Chloromethane	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	0.5
Chloroethane	ND	0.5
Trichlorofluoromethane	ND	0.5
1,1-Dichloroethene	ND	0.5
Dichloromethane	ND	1.0
t-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
c-1,2-Dichloroethene	1.5	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
c-1,3-Dichloropropene	ND	0.5
1,2-Dichloropropane	ND	0.5
t-1,3-Dichloropropene	ND	0.5
Bromodichloromethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
>> Surrogate Recoveries (%) <<		
4-Bromofluorobenzene	68	

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Halogenated Volatile Organics by EPA SW-846 Methods 5030/8010

Quality Assurance and Control Data

Laboratory Number: 80277
Method Blank(s)

	AL191.07-01 Conc. ug/L	RL
Chloromethane	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	0.5
Chloroethane	ND	0.5
Trichlorofluoromethane	ND	0.5
1,1-Dichloroethene	ND	0.5
Dichloromethane	ND	1.0
t-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
c-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
c-1,3-Dichloropropene	ND	0.5
1,2-Dichloropropane	ND	0.5
t-1,3-Dichloropropene	ND	0.5
Bromodichloromethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
>> Surrogate Recoveries (%) <<		
4-Bromofluorobenzene	87	

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Halogenated Volatile Organics by EPA SW-846 Methods 5030/8010

Quality Assurance and Control Data

Laboratory Number: 80277

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L) AL191.07 02 / 03 - Sample Spiked: 80287 - 02						
1,1-Dichloroethene	ND	100	104/104	104/104	50-189	0
Trichloroethene	ND	100	107/112	107/112	53-161	5
Chlorobenzene	ND	100	106/111	106/111	57-171	5
>> Surrogate Recoveries (%) <<						
4-Bromofluorobenzene				84/81	50-150	

Definitions:
ND = Not Detected
RL = Reporting Limit
NA = Not Analysed
RPD = Relative Percent Difference
ug/L = parts per billion (ppb)
mg/L = parts per million (ppm)
ug/kg = parts per billion (ppb)
mg/kg = parts per million (ppm)

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CWE

Job # 80277

Chain of Custody and Analysis Request

Page 1 of 1

Company: Century West Engineering (CWE)
Address: 7950 Dublin Blvd (203)
City, State, Zip: Dublin CA 94568
Phone: (510) 551-7774 Fax: (510) 551-7776
Project Manager: J Gribi
Alternate Contact: Bob Boger
Project No.: 20507-001-03 P.O. Name Jimmy Lin

TURN AROUND TIME
(circle one)
Same Day 72 Hrs.
24 Hrs. 48 Hrs.
Normal 5 Day

Superior Precision Analytical Inc.
P.O. Box 1545
Martinez, California 94553

Martinez I: (510) 229-1512
Martinez II: (510) 229-0166
San Francisco: (415) 647-2081

Section II: Analysis Request

Sampler:
Regulatory Agency:

Job # 80277

Sample Identification	S=Soil A=Air W=Water Matrix		TPH-G (8015)		HVOCs (601/8010)								Date Sampled	Time Sampled	# of Containers	Preservatives (yes or no)	Sampling Remarks: Bioremediation, UST, Monitoring, Recent Contamination, Unknown Compounds, COMMENTS:
1 MW-4	W		✓										12/16				replacement samples
2 MW-2	W		✓		✓								12/16				
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

Relinquished By: Bob Boger	Date/Time 12/16/94 12:32 pm	Received By: D. Louie 743	Date/Time 12/16 12:32	Lab: Please initial the following:
Organization: (CWE)		Organization: ACNO		
Relinquished By: D. Louie	Date/Time	Received By:	Date/Time	Samples Stored in Ice: yes 5.8°C
Organization: ACNO		Organization:		Appropriate Containers: yes
Relinquished By:	Date/Time	Received By:	Date/Time 1:45	Samples Preserved: yes
Organization:		Laboratory: Sphere	12/16/94 pm	VOAs without headspace: yes
				Comments: