H2OGEOL
A GROUNDWATER CONSULTANCY

Vec 11/3/95

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Division
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502-6577

October 30, 1995

RE: Second consecutive quarter (4th Quarter, 1995) groundwater monitoring: 1628 Webster Street, Alameda, California.

Dear Ms. Chu;

This letter report provides the results of the second consecutive quarter (Fourth Quarter, 1995) sampling of the monitoring wells at 1628 Webster Street, Alameda, California (Figure 1).

Depth to water in each monitoring well was measured to +/- 0.01 feet using a Solinst Model 101 water level meter on October 11, 1995. The depth to water was converted to potentiometric surface elevation by subtracting the measured depths to water from the casing top elevation. This information is presented below.

WELL AND GROUNDWATER ELEVATIONS
OCTOBER 11, 1995

Well Number	Top of Casing Elevation (feet, msl)	Time of Depth measurement	Depth to Water (feet)	Groundwater Surface Elevation (feet, msl)
MW-1	14.71	09:59	6.28	8.43
MW-2	15.69	10:00	6.65	9.04
MW-3	14.71	10:02	6.43	8.28

The groundwater flow direction (more precisely direction of groundwater gradient, since the horizontal hydraulic conductivity anisotropy is unknown) for the triangle with a well at each apex is N 33.6° E at a gradient of 0.00559. Figure 2 is a potentiometric surface map showing well locations and groundwater surface contours as measured on October 11, 1995. Historic water level information follows.

			DTW	GWE
MW-1	07/11/95	06:27	5.44	9.27
	10/11/95	09:59	6.28	8.43
MW-2	07/11/95	06:26	5.81	9.88
	10/11/95	10:00	6.65	9.04
MW-3	07/11/95	06:23	5.41	9.30
	10/11/95	10:02	6.43	8.28

GROUNDWATER FLOW DIRECTION AND GRADIENT

07/11/95 N 6.41° E at a gradient of 0.00491
10/11/95 N 33.6° E at a gradient of 0.00559

AVERAGE N 20.6° E at a gradient of 0.00525

Following water level measurements the groundwater surface at each monitoring well was checked for free product, observation of sheen, and odor. No free product or sheen was found. Groundwater from monitoring well MW-1 possessed a septic odor.

The monitoring wells were purged by pumping with an "ES-60" submersible pump marketed for monitoring well purging by Enviro-Tech Services Co. of Martinez, California. Field measured water quality parameters were measured using a Cambridge Scientific Industries Hydac™ Conductivity Temperature pH Tester. Well purging activities and the field measured water quality parameters are documented in Attachment A. For each well, purging continued until specific conductance stabilized to +/- 5% on consecutive readings.

The purge pump was slowly removed from each well while running to allow a sweeping of the wellbore, preventing significant surging of the wellbore and drainage of the discharge tubing into the well.

Groundwater samples for TPH-D were collected directly from the end of the pump discharge tubing into a one liter amber glass bottle. Groundwater samples for TPH-G plus BTEX were collected using a precleaned Teflon™ bailer suspended from a new nylon twine line. Water samples were transferred, in duplicate, from the bailer to 40-mL glass vials with Teflon™ septum lids using a precleaned Teflon™ pepcock type bottom emptying device.

Groundwater sample bottles were labeled and placed in an ice chest with 2 Liter plastic bottles containing ice. Chain-of-Custody forms were filled out and were delivered with the ice chest to Superior Analytical Laboratory, Inc. of Martinez, California, a state certified laboratory.

Groundwater samples from monitoring well MW-2 was found not to contain detectable concentrations of petroleum hydrocarbons. Monitoring well MW-3 was found to contain 120 micrograms per liter (µg/L) of TPH-Diesel. Monitoring well MW-1 was found to contain 1,800 micrograms per liter (µg/L) of hydrocarbons in the range of diesel but not resembling a diesel fingerprint and 2,600 µg/L of TPH-Gasoline, 53 µg/L Benzene, 13 µg/L Toluene, 52 µg/L Ethylbenzene, and 44 µg/L total Xylene isomers. The laboratory report and Chain-of-Custody documentation is contained in Attachment B. The historic groundwater sample analytical results are summarized below.

All concentrations are expressed in micrograms per liter (µg/L).

Well	TPH-D	TPH-G	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-1						
07/11/95	<50	6,300	16	3.0	28	88
10/11/95	1,800*	2,600	53	13	52	44
MW-2						
07/11/95	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/11/95	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3						
07/11/95	<50	<0.5	<0.5	<0.5	<0.5	<0.5
10/11/95	120	<0.5	<0.5	<0.5	<0.5	<0.5
California*Primary MCL's	na	na	1	na	680	1,750
US E.P.A.*Primary MCL's	na	na	5	1,000	700	10,000

* "Hydrocarbons were found in the range of diesel but do not resemble a diesel fingerprint."

na - not available

Marshack, Jon B., D. Env. 1991, A Compilation of Water Quality Goals, Central Valley Regional Water Quality Control Board.

The third consecutive quarter (First Quarter, 1996) sampling event at 1628 Webster Street, Alameda, California is scheduled for the week of January 08, 1996.

Please do not hesitate to call me at (510) 373-9211 should you have any questions.

Sincerely,

Gary D. Lowe, R.G., C.E.G., C.H.
Principal, Hydrogeologist
Sole Proprietor

xc: Mrs. Jean Ratto Larkin, 778 Augusta Drive, Morage, CA, 94566

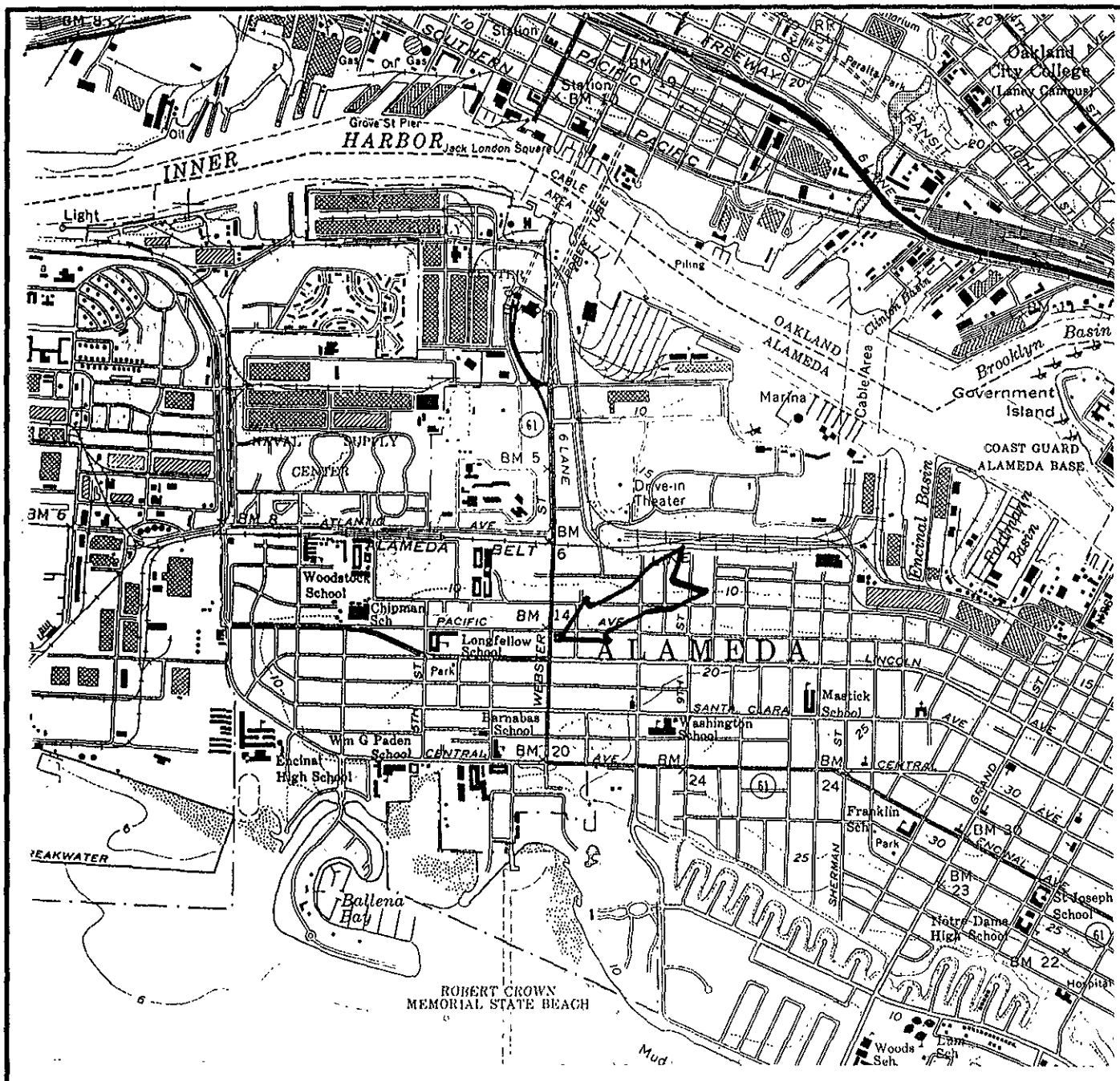
Mr. Robert F. Campbell, FITZGERALD, ABBOTT & BEARDSLEY, 1221 Broadway 21st Floor, Oakland, CA, 94612-1837

Mr. Christopher Berka/Ms. Clair Cormier, MCCUTCHEN, DOYLE, BROWN & ENERSEN, Market Post Tower, Suite 1500, 55 South Market Street, San José, CA , 95113

Mr. Norman A. Dupont, PAUL, HASTINGS, JANOFSKY & WALKER, 23rd Floor, 555 South Flower Street, Los Angeles, CA, 90071-2371

Mr. Tom Hargett, TEXACO ENVIRONMENTAL SERVICES, 10 Universal City Plaza, 7th Floor, Universal City, CA 91608-7812

Mr. Jeff Smith, PHILLIPS PETROLEUM COMPANY, 13D2 Phillips Building, Bartlesville, OK, 74004



Base from U.S. Geological Survey Oakland West 7.5 Minute Series Topographic Map

NORTH

1000 0 1000 2000 3000 4000 5000 FEET

CALIF

H2OGEOL
A GROUND WATER CONSULTANCY

SITE LOCATION MAP

1628 WEBSTER STREET
ALAMEDA, CALIFORNIA

FIGURE
1

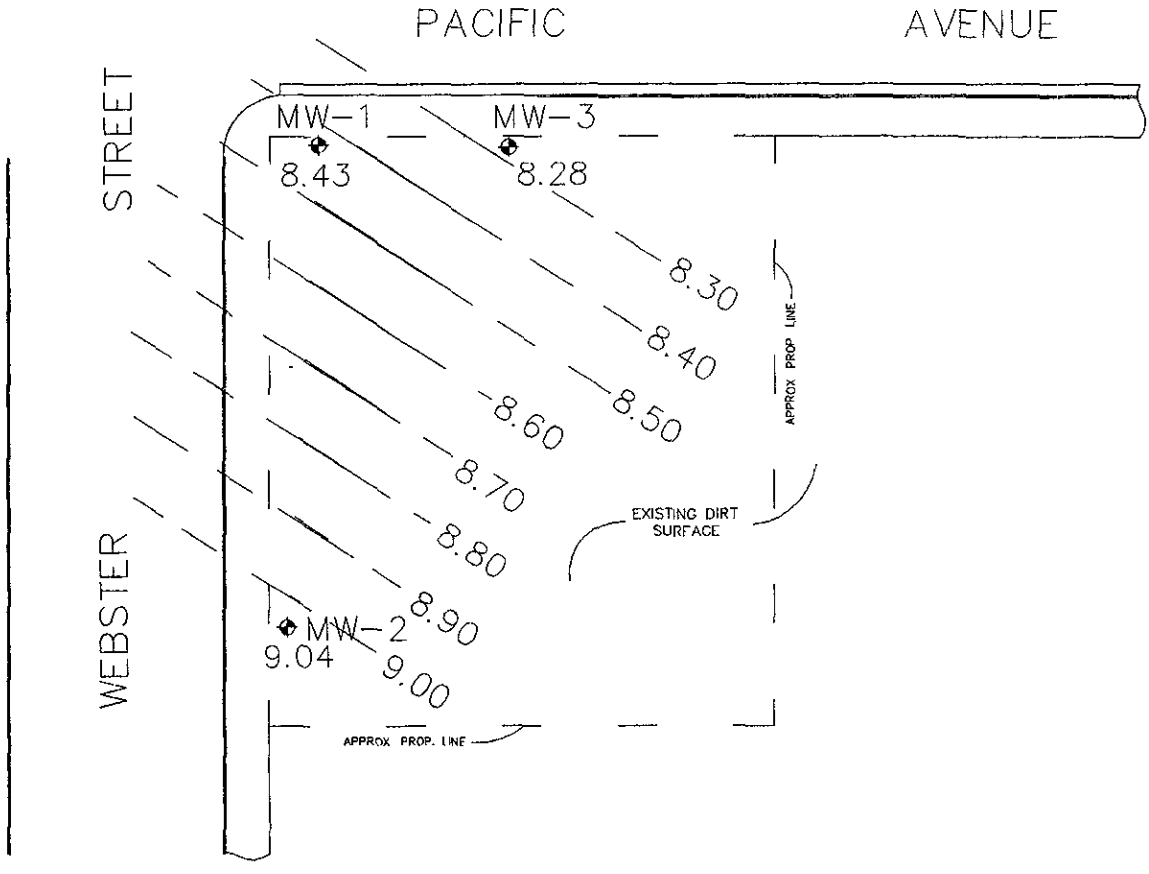
MW-3 MONITORING WELL NAME/NUMBER

MONITORING WELL LOCATION

8.28 GROUNDWATER ELEVATION AT WELL

8.70 POTENTIOMITRIC SURFACE CONTOUR AND CONTOUR ELEVATION

SCALE: 1" = 50'



GRADIENT = 0.00559 Feet/Foot

DIRECTION OF GRADIENT = N 33.6° E

(Approximate groundwater flow direction, uncorrected for hydraulic conductivity anisotropy).

Well survey by Ron Archer, Civil Engineer, Inc. July 14, 1995
Top of casing elevations: MW-1, 14.98, MW-2, 15.95; MW-3, 15.09

H2OGEOL
A GROUND WATER CONSULTANCY

POTENTIOMETRIC SURFACE MAP
OCTOBER 11, 1995
1628 WEBSTER STREET
ALAMEDA, CALIFORNIA

FIGURE
2

H2OGEO!
A GROUNDWATER CONSULTANCY

P.O.Box 2165 ▪ Livermore, California 94551 ▪ 510-373-9211

ATTACHMENT A

FIELD DATA SHEET
LOG OF WELL SAMPLING ACTIVITIES

LOG OF WELL SAMPLING ACTIVITIES

Well Identification: MW-2 Project Name: 1628 Webster Street, Alameda, California Date: 10/11/95

Sampled by: G. Lowe & R. Vorst Weather Conditions: Clear, 73°F, Calm

Well Location: Southwest end of site Well Casing Diameter: 2-inch Depth of Well Casing: 15.05

Measuring Point: Top of PVC Casing Initial Depth to Water: 6.65 Final Depth to Water: Not measured

Casing Volume (1 vol / 3 vol): 1.75 / 4.04 Well Borehole Volume: /

Purging Method: Centrifugal Pump/Peristaltic Pump; Grundfos Submersible Pump; Centrifugal Pump/ES-60 Submersible; ES-60 Submersible Pump — X

Sampling Method: Peristaltic Pump; Grundfos Submersible Pump; ES-60 Submersible Pump ✓; Teflon Bailer ✓

Purging Rate: See below Total Discharge: 9.2 Casing Volumes Purged: 6x8

Comments:

Waste Water Disposal: To property site drum

Starting Time: 10:40

Time Pump on: 10:42

Date	Time	Gal. Purged	pH	T deg. F	Diluted S.C.		Dil. Factor		S.C. (µS/cm)	Color
10/11/95	10:48	5.2	7.22	62.5		x		=	529	lt. yellow
"	10:50	7.0	7.26	62.6		x		=	525	" "
"	10:52	8.2	7.28	62.3		x		=	537	" "
"	10:53	8.6	7.24	62.1		x		=	534	Colorless
"	10:54	9.2	7.26	62.2		x		=	541	colorless
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		

Sample Identification: 1628/MW-2 Sample Time: 10:55

TURBIDITY ANALYSIS

Finishing Time: 11:01 Time Analyzed: ____ NTU Value: ____

LOG OF WELL SAMPLING ACTIVITIES

Well Identification: MW-1 Project Name: 1628 Webster Street, Alameda, California Date: 10/11/95

Sampled by: G. Lowe & R. Vorst Weather Conditions: Sunny, Calm, 74°F

Well Location: North west corner Well Casing Diameter: 2-inch Depth of Well Casing: 15.05

Measuring Point: Top of PVC Casing Initial Depth to Water: 6.23 Final Depth to Water: Not measured

Casing Volume (1 vol / 3 vol): 1.40 / 4.21 Well Borehole Volume: /

Purging Method: Centrifugal Pump/Peristaltic Pump; Grundfos Submersible Pump; Centrifugal Pump/ES-60 Submersible; ES-60 Submersible Pump — X

Sampling Method: Peristaltic Pump; Grundfos Submersible Pump; ES-60 Submersible Pump ✓; Teflon Bailer ✓

Purging Rate: See below Total Discharge: 9.1 Casing Volumes Purged: 6-5

Comments: Light color

Waste Water Disposal: To property site drum

Starting Time: 11:01

Time Pump on: 11:03

Date	Time	Gal. Purged	pH	T deg. F	Diluted S.C.		Dil. Factor		S.C. (µS/cm)	Color
10/11/95	11:11	5.2	6.70	72.1		x		=	888	Lt Grey
"	11:14	6.4	6.75	71.9		x		=	860	" "
"	11:17	7.1	6.79	72.3		x		=	854	" "
"	11:19	8.4	6.76	72.1		x		=	861	" "
"	11:21	9.1	6.78	72.4		x		=	851	" "
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		

Sample Identification: 1628/MW-1 Sample Time: 11:22

TURBIDITY ANALYSIS

Finishing Time: 11:32 Time Analyzed: ____ NTU Value: ____

LOG OF WELL SAMPLING ACTIVITIES

Well Identification: MW 3 Project Name: 1648 Webster Street Alameda, California Date: 10/11/95

Sampled by: G Lowe & R Vorst Weather Conditions: Partly cloudy, 72°F

Well Location: North end of site Well Casing Diameter: 2-inch Depth of Well Casing: 15.05

Measuring Point: Top of PVC Casing Initial Depth to Water: 6.47 Final Depth to Water: Not measured

Casing Volume (1 vol./ 3 vol): 1.38 / 4.14 Well Borehole Volume: _____

Purging Method: Centrifugal Pump/Peristaltic Pump; Grundfos Submersible Pump; Centrifugal Pump/ES-60 Submersible Pump; ES-60 Submersible Pump; _____ (X)

Sampling Method: Peristaltic Pump; Grundfos Submersible Pump; ES-60 Submersible Pump ✓; Teflon Bailer

Purging Rate: See below Total Discharge: 86 Casing Volumes Purged: 6.2

Comments: _____

Waste Water Disposal: To property site drum.

Starting Time: 10:22

Time Pump on: 10:25

Date	Time	Gal. Purged	pH	T deg. F	Diluted S.C.		Dil. Factor		S.C. (µS/cm)	Color
10/11/95	10:28	4.5	6.78	72.1		x		=	705	Lt. yellow
"	10:29	5.8	6.75	72.3		x		=	709	" "
"	10:31	6.3	6.86	72.0		x		=	695	Yellowish
"	10:32	7.0	6.97	72.2		x		=	701	"
"	10:34	8.2	6.92	72.0		x		=	694	"
"	10:35	8.6	6.89	72.2		x		=	699	"
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		
	:					x		=		

Sample Identification: 1628/MW-3 Sample Time: 10:37

TURBIDITY ANALYSIS

Finishing Time: 10:40 Time Analyzed: _____ NTU Value: _____

H2OGEO
A GROUNDWATER CONSULTANCY

P.O.Box 2165 • Livermore, California 94551 • 510-373-9211

ATTACHMENT B

LABORATORY ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Superior Analytical Laboratory

H2OGEOL A GROUNDWATER CONSULTANCY
P.O.BOX 2165
LIVERMORE, CA 94551

Date: October 20, 1995

Attn: GARY D. LOWE

Laboratory Number : 20292

Project Number/Name : 1628

This report has been reviewed and

approved for release.

Senior Chemist
Account Manager

Customer Service: (800) 521-6109 • Laboratory: (510) 313-0850 • Facsimile: (510) 229-0916
Post Office Box 2648 • 835 Arnold Drive • Suite #106 • Martinez, California 94553
1555 Burke Street • Suite A • San Francisco, California 94124

Superior Analytical Laboratory

H2OGEOL A GROUNDWATER CONSULTANCY
Attn: GARY D. LOWE

Project 1628
Reported on October 17, 1995

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 20292

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1	10/11/95	10/13/95	10/17/95	10/17/95	BJ161.04	01
MW-2	10/11/95	10/13/95	10/16/95	10/16/95	BJ161.04	02
MW-3	10/11/95	10/13/95	10/16/95	10/16/95	BJ161.04	03

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
BJ161.04-01	Method Blank	MB	Water	10/16/95	10/16/95
BJ161.04-02	Laboratory Spike	LS	Water	10/16/95	10/16/95
BJ161.04-03	Laboratory Spike Duplicate	LSD	Water	10/16/95	10/16/95
BJ161.04-04	BB	MS 20291-02	Water	10/16/95	10/16/95
BJ161.04-05	BB	MSD 20291-02	Water	10/16/95	10/16/95
BJ161.04-06	Method Blank	MB	Water	10/17/95	10/17/95

Superior Analytical Laboratory

H2OGEOL A GROUNDWATER CONSULTANCY
Attn: GARY D. LOWE

Project 1628
Reported on October 17, 1995

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	Dil.Factor	Moisture
20292-01	MW-1	Water	1.0	-
20292-02	MW-2	Water	1.0	-
20292-03	MW-3	Water	1.0	-

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

Compound	20292-01 Conc. ug/L	RL	20292-02 Conc. ug/L	RL	20292-03 Conc. ug/L	RL
Gasoline_Range	2600	50	ND	50	ND	50
Benzene	53	0.5	ND	0.5	ND	0.5
Toluene	13	0.5	ND	0.5	ND	0.5
Ethyl Benzene	52	0.5	ND	0.5	ND	0.5
Total Xylenes	44	0.5	ND	0.5	ND	0.5
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)	184I		106		100	

Superior Analytical Laboratory

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: 20292
Method Blank(s)

	BJ161.04-01 Conc. ug/L	RL	BJ161.04-06 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)	102		100	

Superior Analytical Laboratory

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: 20292

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L)						
BJ161.04 02 / 03 - Laboratory Control Spikes						
Gasoline_Range		320	388/395	121/123	65-135	2
Benzene		20	22/21	110/105	65-135	5
Toluene		20	21/21	105/105	65-135	0
Ethyl Benzene		20	21/21	105/105	65-135	0
Total Xylenes		60	63/61	105/102	65-135	3
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				101/100	50-150	
For Water Matrix (ug/L)						
BJ161.04 04 / 05 - Sample Spiked: 20291 - 02						
Gasoline_Range	ND	320	383/392	120/123	65-135	2
Benzene	ND	20	21/21	105/105	65-135	0
Toluene	ND	20	21/21	105/105	65-135	0
Ethyl Benzene	ND	20	21/21	105/105	65-135	0
Total Xylenes	ND	60	61/63	102/105	65-135	3
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				98/99	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)

Superior Analytical Laboratory

H2OGEOL A GROUNDWATER CONSULTANCY
Attn: GARY D. LOWE

Project 1628
Reported on October 23 1995

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Chronology

Laboratory Number 20292

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1	10/11/95	10/13/95	10/17/95	10/19/95	BJ171.21	01
MW-2	10/11/95	10/13/95	10/17/95	10/19/95	BJ171.21	02
MW-3	10/11/95	10/13/95	10/17/95	10/19/95	BJ171.21	03

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
BJ171.21-01	*Method Blank*	MB	Water	10/17/95	10/18/95
BJ171.21-02	Laboratory Spike	LS	Water	10/17/95	10/18/95
BJ171.21-03	Laboratory Spike Duplicate	LSD	Water	10/17/95	10/18/95

Superior Analytical Laboratory

H2OGEOL A GROUNDWATER CONSULTANCY
Attn: GARY D. LOWE

Project 1628
Reported on October 23, 1995

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

LAB ID	Sample ID	Matrix	Dil.Factor	Moisture
20292-01	MW-1	Water	1.0	-
20292-02	MW-2	Water	1.0	-
20292-03	MW-3	Water	1.0	-

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

Compound	20292-01 Conc.	RL	20292-02 Conc.	RL	20292-03 Conc.	RL
	ug/L		ug/L		ug/L	
Diesel:	1800**	50	ND	50	120	50
>> Surrogate Recoveries (%) <<						
Tetracosane	123		117		89	

Superior Analytical Laboratory

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 20292
Method Blank(s)

	BJ171.21-01 Conc.	RL
	ug/L	
Diesel:	ND	50
>> Surrogate Recoveries (%) <<		
Tetracosane	67	

Superior Analytical Laboratory

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 20292

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Water Matrix (ug/L) BJ171.21 02 / 03 - Laboratory Control Spikes						
Diesel:		1000	890/940	89/47	50-150	62
>> Surrogate Recoveries (%) <<						
Tetracosane				98/97	50-150	

** - Hydrocarbons were found in the range of diesel, but do not resemble a diesel fingerprint.

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)

20292

H_2OCEOL ENGINEERING & GROUNDWATER CONSULTANCY

CHAIN OF CUSTODY

DATE: 10/13/95 PAGE 1 of 1

P O. BOX 2165
LIVERMORE, CALIFORNIA 94551-2165

Sample Source
Ratto-Larkin Property
1628 Webster Street
Alameda, CA

SAMPLER(S): Gary D. Lowe & Richard C. Vorst

SAMPLER'S SIGNATURE:

SAMPLE RECIEPT:
TOTAL No. of CONTAINERS
CHAIN OF CUSTODY SEALS
REC'D GOOD CONDITION/COLD
CONFORMS TO RECORD
LAB NO.

ANALYTE

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	TPH-gasoline (5030/8015M) plus BTEX (EPA 602/8020)	TPH-diesel (EPA 3550/8015M)	NUMBER OF CONTAINERS
1628/MW-1	10/11/95	11:22	water		X	X	3
1628/MW-2	10/11/95	10:55	water		X	X	3
1628/MW-3	10/11/95	10:37	water		X	X	3

Please note special pricing per Quotation No. 95-00931
10-DAY TAT

RELINQUISHED BY:
SIGNATURE
PRINTED NAME: Gary D Lowe TIME: 11:55
COMPANY: H_2OCEOL DATE: 10/13/95

RELINQUISHED BY: Laboratory Courier
SIGNATURE
PRINTED NAME: Geo Ford TIME: 1/13/95
COMPANY: SUPERIOR ANALYTICAL DATE

RECEIVED BY: Laboratory Courier
SIGNATURE: 1155
PRINTED NAME: Geo Ford TIME: 10/13/95
COMPANY: SUPERIOR ANALYTICAL DATE

RECEIVED BY LABORATORY:
SIGNATURE
PRINTED NAME: Adam Hann TIME: 10/13/95
COMPANY: SUPERIOR ANALYTICAL DATE: 2.3C