Chevron U.S.A. Inc.
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Area Manager, Operations
C. G. Trimbach
Manager, Engineering

August 14, 1989

Rafat Shahid
Alameda County Environmental Health Department
80 Swan Way #200
Oakland, California 94621

Re: Former Chevron Facility #91026
3701 Broadway
Oakland, California 94611

Dear Mr. Shahid:

Enclosed are the results of quarterly ground water sampling conducted by Weiss Associates at the above-referenced site. As indicated in the report, all water samples were analyzed for total purgeable petroleum hydrocarbons (TPPH) and aromatic hydrocarbons. Ground water samples from monitoring wells A, B-1, B-2, B-4, B-6, and B-7 contained benzene above the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water. Ground water samples from monitoring wells B-1, B-2, B-4, B-6 and B-7 contained toluene above the DHS recommended action level for drinking water. Ground water samples from B-2 and B-7 contained ethylbenzene and xylenes above DHS MCLs. A remediation system is being designed for the site. If you have any questions or comments, please contact Lisa Marinaro at (415) 842-2527.

I declare under penalty of perjury that the information contained in the attached report is true and correct and that any recommended actions are appropriate under the circumstances, to the best of my knowledge.

Sincerely,
D. Moller

By Lisa Marinaro
Lisa Marinaro
Engineer

LAM/wa
Enclosure

cc: Don Dalke
Regonal Water Quality Control Board
1111 Jackson Street
Oakland, California 94607

WEISS ASSOCIATES
Consulting in Geology & Geohydrology
2938 McClure Street, Oakland, CA 94609
415-465-1100

September 14, 1989

SEP 18 '89 H.C.H.

Lisa Marinaro
Chevron USA
P.O. Box 5004
San Ramon, CA 94583-0804

Re: Chevron Service Station #91026
3701 Broadway
Oakland, California
WA Job #4-418-01

Dear Ms. Marinaro:

Weiss Associates (WA) collected ground water samples from nine monitoring wells on August 9 and 10, 1989 as part of the quarterly ground water monitoring program at Chevron Service Station #91026 in Oakland, California (Figure 1). Ground water samples from monitoring wells A, B-1, B-2, B-4, B-6, and B-7 (Figure 2) contained benzene above the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water. Ground water samples from monitoring wells B-1, B-2, B-4, B-6 and B-7 contained toluene above the DHS recommended action level. Ground water samples from wells B-2 and B-7 contained ethylbenzene and xylenes above DHS MCLs.

GROUND WATER SAMPLING

Tim Wickens and Andy Rodgers, WA environmental technicians, collected ground water samples from monitoring wells A, EA-1, EA-2, B-1, B-2, B-4, B-6, and B-7 on August 9 and 10, 1989. Monitoring wells C and B-5 were paved over so could not be sampled this quarter. Monitoring wells B and B-3 contained 2.4 and 0.1 inches of free-floating hydrocarbons, respectively, and were not sampled. Monitoring well F did not contain sufficient water for sample collection.

Prior to sampling, at least three well-casing volumes of ground water, approximately 2 to 30 gallons per well, were purged from monitoring wells B-4, EA-1, and EA-2 using steam-cleaned PVC and Teflon bailers. Monitoring wells A, B-1, B-2, B-6, and B-7 were purged dry with steam-cleaned PVC and Teflon bailers after evacuating 0.5 to 17 gallons of water, and were sampled after water levels recovered to about 80 percent of initial static water levels. Each ground water sample was decanted from a steam-cleaned Teflon sampling bailer into a

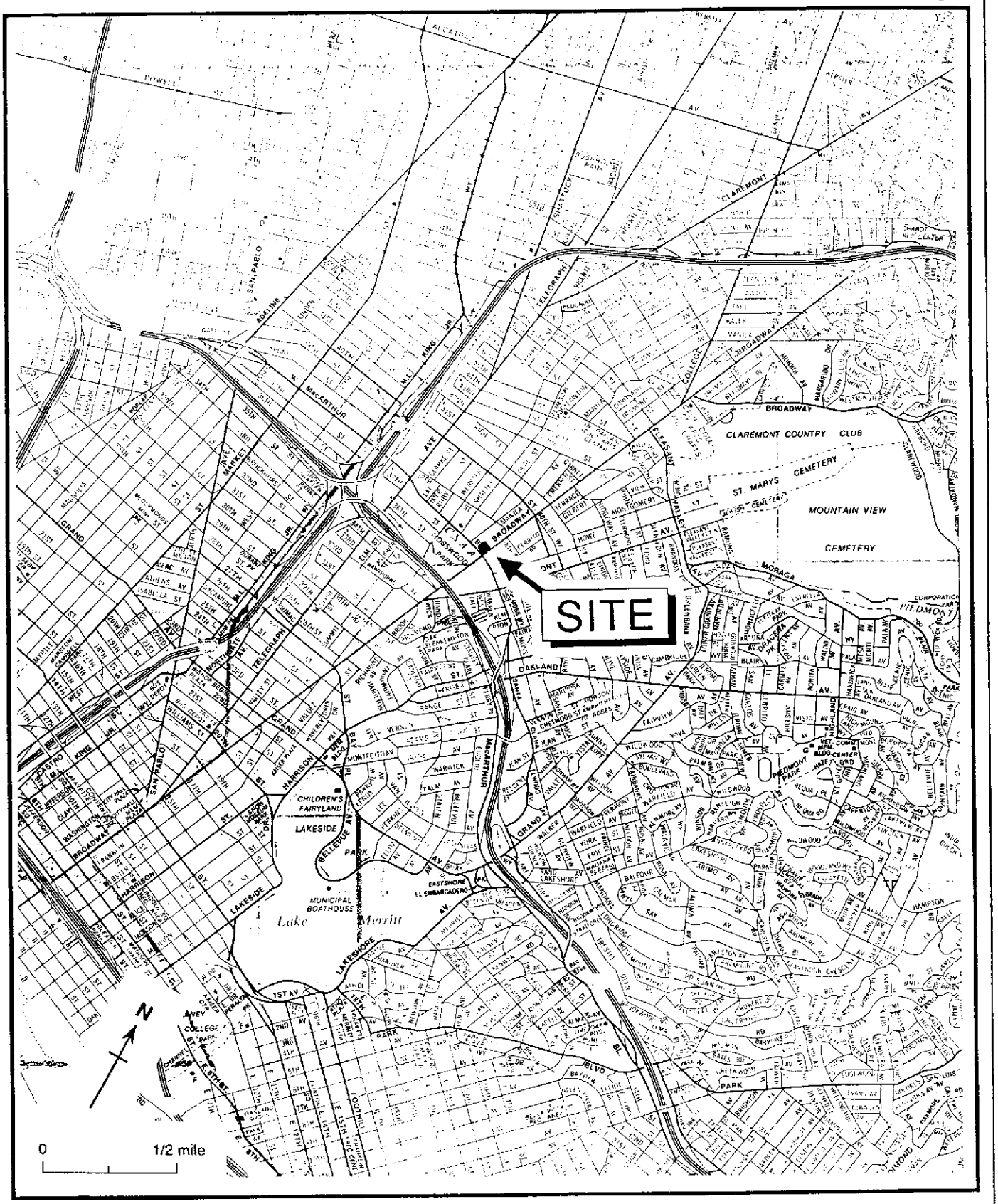


Figure 1. Site Location Map - Former Chevron Service Station #91026, Oakland, California

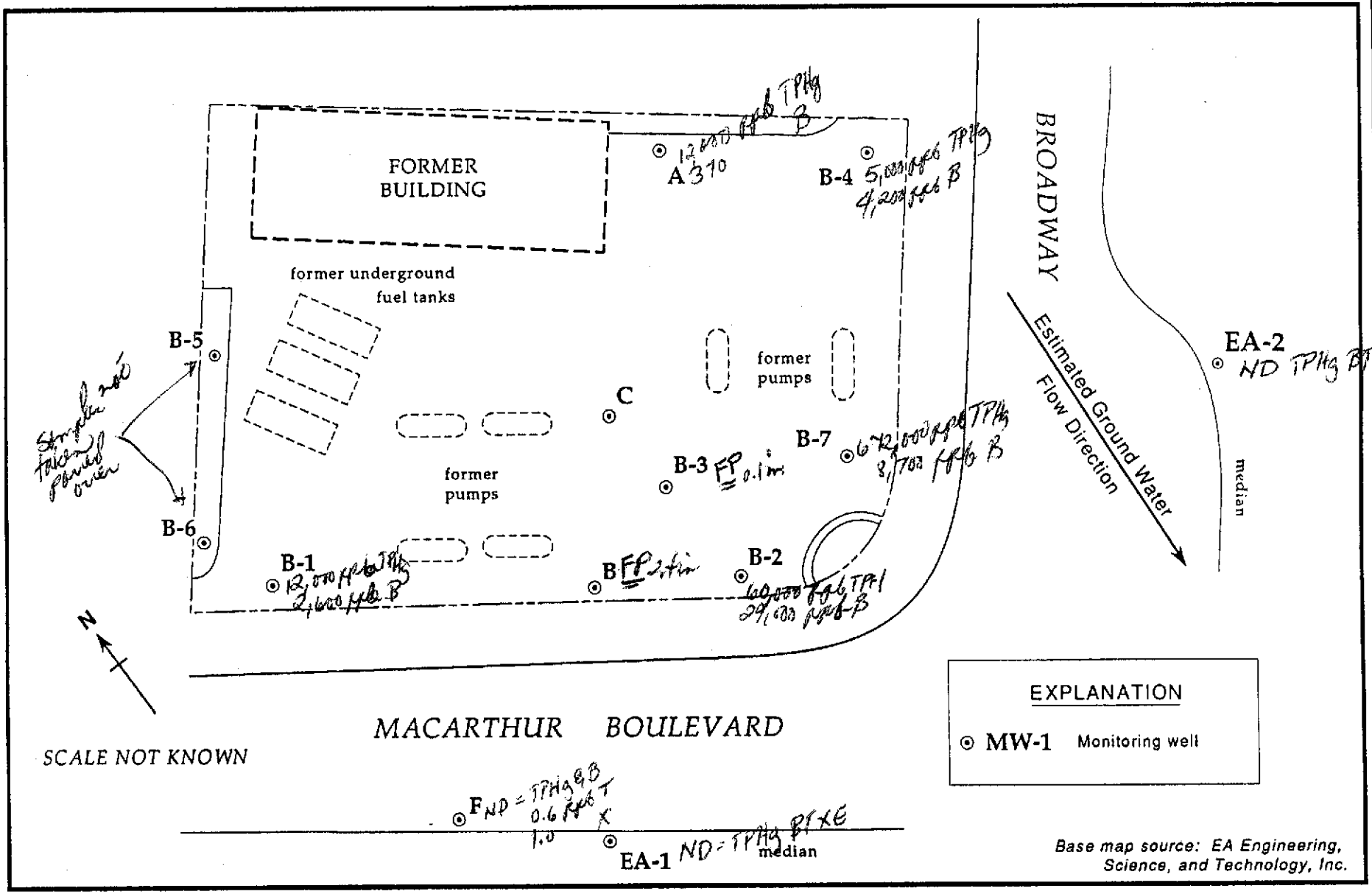


Figure 2. Monitoring Well Locations - Former Chevron Service Station #91026, Oakland, California

TABLE 1. Analytic Results for Ground Water - Chevron Service Station #91026, Oakland, California

Sample ID	Date Sampled	Analytic Lab	Analytic Method	TPPH	B	E	T	X
				<----------µg/ppb---------->				
A	5-09-89	SAL	8015/8020	11,000	260	94	<2	230
	8-09-89	SAL	8015/8020	12,000	370	100	<1.5	240
B	5-09-89 *	---	---	---	---	---	---	---
	8-09-89 *	---	---	---	---	---	---	---
F	5-09-89	SAL	8015/8020	<500	<0.5	<0.5	0.6	1.0
	8-09-89 **	---	---	---	---	---	---	---
EA-1	5-09-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
	8-09-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
EA-2	5-09-89	SAL	8015/8020	760	<0.5	1.1	<0.5	<0.5
	8-09-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
B-1	5-10-89	SAL	8015/8020	16,000	2,300	81	260	740
	8-09-89	SAL	8015/8020	12,000	2,600	100	340	870
B-2	5-09-89	SAL	8015/8020	170,000	30,000	2,300	8,400	12,000
	8-10-89	SAL	8015/8020	60,000	29,000	2,400	8,700	12,000
B-3	5-10-89	SAL	8015/8020	70,000	12,000	1,400	9,500	8,900
	5-10-89 *	---	---	---	---	---	---	---
B-4	5-10-89	SAL	8015/8020	3,600	840	120	34	200
	8-09-89	SAL	8015/8020	<500	4,200	370	130	260
	8-09-89 (dup)	SAL	8015/8020	5,000	4,200	400	83	250
B-6	5-09-89	SAL	8015/8020	26,000	120	250	110	1,300
	5-10-89	SAL	8015/8020	19,000	470	440	150	1,400
B-7	5-10-89	SAL	8015/8020	210,000	13,000	2,000	19,000	20,000
	8-09-89	SAL	8015/8020	672,000	8,700	2,700	17,000	30,000
Travel Blank	5-10-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
	8-09-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
Bailer Blank	5-10-89	SAL	8015/8020	<500	<0.5	<0.5	<0.5	<0.5
DHS MCLs		---	---	NE	1	680	100[a]	1,750

-- Table 1 continues next page--

TABLE 1. Analytic Results for Ground Water - Chevron Service Station #91026, Oakland, California (continued)

Abbreviations:

TPPH = Total Purgeable Petroleum Hydrocarbons
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
DHS MCLs = Department of Health Services
Maximum Contaminant Level for Drinking Water
<n = Not detected at detection limit of n ppb
dup = Duplicate analysis
NE = Not established by DHS
[a] = DHS Recommended Action Level for Drinking Water
* = Not sampled due to free-product
** = Not sampled because of insufficient water in the well

Analytic Laboratory:

SAL = Superior Analytical Laboratory of San Francisco, California

Analytic Methods:

8015 = Modified EPA Method 8015, TPPH
8020 = EPA Method 8020, Purgeable Aromatic Hydrocarbons

40 ml glass volatile organic analysis vial (VOA) with a Teflon septum, preserved with sodium bisulfate, sealed within a plastic guard bottle, and refrigerated for transport to Superior Analytical Laboratory, Inc. of San Francisco, California. The water sample collection records and chain of custody forms are included as Attachments A and B, respectively.

A travel blank of certified organic-free distilled water, supplied by the laboratory, accompanied the samples to provide assurance that contamination was not introduced during sample bottle transport or sample storage.

GROUND WATER GRADIENT

The ground water gradient, as inferred from regional topography, suggests southerly ground water flow.

CHEMICAL ANALYSES

The ground water samples were analyzed for total purgeable petroleum hydrocarbons (TPPH) by modified EPA Method 8015 and for benzene, ethylbenzene, toluene, and xylenes (BETX) by EPA Method 8020. A duplicate analysis was ordered by WA on the water sample from well B-4 after it was noted that TPPH was not detected in the sample even though relatively high BETX concentrations were detected. The second analysis contained 4,000 ppb TPPH which is more consistent with total BETX concentrations and historical results. The results of the water analysis are presented in Table 1 and the analytic reports are included as Attachment C.

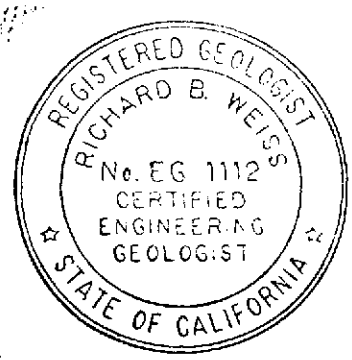
The analytic results from this quarter are generally similar to previous quarter's results except for the following:

- TPPH in well B-2 decreased since the previous quarter while the BETX concentrations remained generally consistent.

- BETX concentrations increased since the last quarter in well B-4, and to a smaller degree in well B-6.

- TPPH increased in well B-7 from the last quarter.

We appreciate the opportunity to provide hydrogeologic consulting services to Chevron and trust that this report meets your needs. If you have any questions, please call Jim Carmody.



Sincerely,
Weiss Associates

Robert E. Kitay
Staff Geologist

Richard B. Weiss
Principal Hydrogeologist

REK/RBW

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Attachments: A - Water Sample Collection Records
B - Chain of Custody
C - Analytic Reports

ATTACHMENT A

WATER SAMPLE COLLECTION RECORDS

WATER SAMPLING DATA Well Name A Date 8/9/89 Time 14:40
Job Name/Number Chevron Oakland II / 4-418-01 Initials TW
Well ✓ Spring ___ Surface ___ Other ___
Location under trailer/office hitch (back/center of lot)

WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 15.62 ft (pump/(stat)) Maximum Drawdown Limit (MDL) NA ft
Well depth 20.11 ft (sounded) Well depth 20.08 ft (spec)
Well diameter 2 in. TOC height above ground NA ft Water elev. NA ft

Volume Evacuated:	~~Pumped~~	~~Pumped~~	(Bailed)
Time: Stop	/	/	14:35
Start	/	/	14:15
Total hrs/min	/	/	20 min

Total Evacuated ~2.2 gal.
Evacuation Rate 0.1 gpm

Pump # and type ———
Hose # and type ———
Bailer # and type teflon # AS

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
$V_{2"}$ casing = (0.163) gal/ft
$V_{3"}$ casing = 0.367 gal/ft
$V_{4"}$ casing = 0.653 gal/ft
$V_{4.5"}$ casing = 0.826 gal/ft
$V_{6"}$ casing = 1.47 gal/ft
$V_{8"}$ casing = 2.61 gal/ft

Sampling Port: Rate ——— gpm Volume ——— gal.
Location/description ___

Initial height of water in casing = 4.49 ft; volume = 0.73 gal x3
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 2.2 gal.
Water Color: clear Odor: strong
Description of sediment and/or foreign matter in sample: suspended silt + some fine sand at bottom
Point of collection: decanted from end of teflon bailer # AS
Depth to water during pumping ——— ft ——— time Sampling 19.64 ft 14:47 time
Bailed ~~Pumped~~ dry? Yes After ~2 gal. Recovery rate not measured - kept bailing slowly
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature ——— °C ~~Thermometer # ——— Specific Conductance~~ ___ umhos
pH ___ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

SAMPLES COLLECTED:

	Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2)	089418-A	40 ml	C/V	N	HCl	R	gas/BTEX	Sup
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

FREE PRODUCT - NOT SAMPLED

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B* Date 8/10/89 Time NA
Job Name/Number Chevron Oakland III / 4-418-01 Initials TW
Well ___ Spring ___ Surface ___ Other _____
Location _____
WELL DATA: Well type _____ (Describe; M - monitoring well)
Depth to Water _____ ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
Well depth _____ ft (sounded) Well depth _____ ft (spec)
Well diameter ___ in. TOC height above ground _____ ft Water elev. _____ ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			
Start			
Total hrs/min			

Total Evacuated _____ gal.
Evacuation Rate _____ gpm

Pump # and type _____ Bailer # and type _____
Hose # and type _____

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate _____ gpm Volume _____ gal.
Location/description _____

Initial height of water in casing - _____ ft, volume - _____ gal.
Evacuation at drawdown limit - 3 x initial volume - _____ gal.
Evacuation at sampling point - 1 x initial volume - _____ gal.
Total to be evacuated - _____ gal.
Water Color: _____ Odor: _____
Description of sediment and/or foreign matter in sample: _____
Point of collection: _____
Depth to water during pumping ____ ft, ____ time Sampling ____ ft ____ time
Pumped dry? ____ After ____ gal. Recovery rate _____
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature ____ °C Thermometer # ____ Specific Conductance ____ umhos
pH ____ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ____ °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P - Polyethylene; Pp - Polypropylene; C or B - Clear/Brown Glass; O - Other (describe)
Additional Cap Codes: Py - Polyseal; V - VOA/Teflon septa; M - Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B-1 Date 8-9-89 Time¹ 12:15 Time² 14:45 – recovered 85%
Job Name/Number Chevron Oakland III 4-418-01 Initials ASR
Well X Spring ___ Surface ___ Other ___
Location Entrance off of MacArthur
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 14.09 ft (pump/stat) Maximum Drawdown Limit (MDL) — ft
Well depth 15.20 ft (sounded) Well depth — ft (spec)
Well diameter 2 in. TOC height above ground — ft Water elev. — ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			12:15
Start			12:05
Total hrs/min			:10

Total Evacuated .5 gal.
Evacuation Rate 0.03 gpm

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft³
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Pump # and type — Bailer # and type Del. teflon
Hose # and type —

Sampling Port: Rate — gpm Volume — gal.
Location/description —

Initial height of water in casing = 1.11 ft; volume = 0.18 gal. x 3
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = .5 gal.

Water Color: cloudy dk. green Odor: respirator worn
Description of sediment and/or foreign matter in sample: ~~black sandy particles~~ settled quickly
Point of collection: End of dedicated teflon bailer
Depth to water during pumping — ft — time Sampling — ft — time
Pumped dry? Y After .5 gal, Recovery rate —
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature — °C Thermometer # — Specific Conductance — umhos
pH — Calibration — 4.0, — 7.0, — 10.0 Calibration Temp. — °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab	
(1) 089418-B14	40 ml	c/v	N	HCl	R	~~GAS~~ ASR → Gas + BETX	SVP	HOLD
	ml							
(2) 089418-B1B	40 ml	c/v	N	HCl	R	Gas + BETX	SVP	Analyze
	ml							
	ml							
	ml							
	ml							
	ml							
	ml							
	ml							

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

lt. cloudy to dk. green - respirator worn + much less sediment present - will analyze these samples — hung the bailer over water in well

WEISS ASSOCIATES

48/10/89

WATER SAMPLING DATA Well Name B-2 Date 8/9/89 Time 9:10 8/10/89
Job Name/Number Oakland III / 4-48-01 Initials TW
Well ✓ Spring ___ Surface ___ Other ___
Location south corner near MacArthur
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 14.01 ft (pump/stat) Maximum Drawdown Limit (MDL) NA ft
Well depth 19.02 15.15 TW ft (sounded) Well depth 19.05 ft (spec)
Well diameter 2 in. TOC height above ground NA ft Water elev. NA ft

Volume Evacuated:	~~Pumped~~	~~Pumped~~	Bailed
Time: Stop	/	/	13:41
Start	/	/	13:37
Total hrs/min			4 min

Total Evacuated 1 gal.
Evacuation Rate 0.25 gpm

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Pump # and type ___ Bailer # and type Teflon EE - dedicated to B-2 (not installed in it, however)
Hose # and type ___

Sampling Port: Rate ___ gpm Volume ___ gal.
Location/description ___

Initial height of water in casing = 5.01 ft; volume = 0.82 gal. x3
Evacuation at drawdown limit = 3 x initial volume = ___ gal.
Evacuation at sampling point = 1 x initial volume = ___ gal.
Total to be evacuated = 2.4 gal.

Water Color: none Odor: mild
Description of sediment and/or foreign matter in sample: small amt suspended particles of varying size
Point of collection: decanted from end of dedicated teflon bailer (not installed in well) 8/10/89
Depth to water during pumping ___ ft ___ time Sampling 16.45 ft 9:06 time
Pumped dry? yes After 1 gal, Recovery rate 0.1 ft/hr ? - Never recovered 100% (bailed)
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

80% recov = 15.0'

CHEMICAL DATA
Temperature ___ °C Thermometer # ___ ~~Specific Conductance~~ ___ umhos
pH ___ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

Sampled at ~50% recov

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify)	(R = Refrigerated)	Analysis	Lab
(2) 0894188B2	40 ml	C/V	N	HCl	R	gas/BTEX	Sup.
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

FREE PRODUCT IN SAMPLE BAILER (1/8" BROWN)

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B-3 Date ~~8/9/89~~ 8/10/89 Time 9:26 8/10/89

Job Name/Number Chevron Oakland III / 4-418-01 Initials TW

Well ✓ Spring ___ Surface ___ Other ___

Location south end of lot a bit back from edge of lot (in car aisle)

WELL DATA: Well type M (Describe; M = monitoring well)

Depth to Water 15.38 ft (pump/(stat)) Maximum Drawdown Limit (MDL) NA ft

Well depth 18.97 ft (sounded) Well depth 18.91 ft (spec)

Well diameter 2 in. TOC height above ground NA ft Water elev. NA ft

Volume Evacuated:	~~Pumped~~	~~Pumped~~	(Bailed)
Time: Stop	/	/	14:02
Start			13:55
Total hrs/min			7 min

Total Evacuated 1 gal.

Evacuation Rate 0.1 gpm

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = (0.163) gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Pump # and type ——— Bailer # and type ded teflon bailer

Hose # and type ———

Sampling Port: Rate ___ gpm Volume ___ gal.

Location/description ———

Initial height of water in casing = 3.59 ft; volume = 0.58 gal. x3

Evacuation at drawdown limit = 3 x initial volume = — gal.

Evacuation at sampling point = 1 x initial volume = ___ gal.

Total to be evacuated = 1.75 gal.

Water Color: — Odor: Strong

Description of sediment and/or foreign matter in sample: —

Point of collection: decanted from end of dedicated teflon bailer (not a bottom emptying device)

Depth to water during pumping ___ ft ___ time Sampling 15.57 ft 9:22 time 8/10/89

~~Pumped~~ Bailed dry? Yes After 1 gal. Recovery rate ~0.17 ft/hr

ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

1/8" brown free product in bailer sample taken from BOTTOM of well, ∴ may be more product floating - don't have an interface probe today.

CHEMICAL DATA

Temperature — °C ~~Thermometer #~~ ——— ~~Specific Conductance~~ ___ umhos

pH ——— ~~Calibration~~ ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
~~(2) 0894B-B3~~	~~40~~ ml	~~C/V~~	~~N~~	~~HCl~~	~~R~~	~~gas/BETX~~	~~Sup~~
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

NOT SENT PD AB

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)

Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B4 Date 8-9-89 Time 14:05
Job Name/Number Chevron Oakland RF 4-418-01 Initials ASR
Well X Spring ___ Surface ___ Other ___
Location Northern corner of Cor alley Boarding
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 16.65 ft (pump/stat) Maximum Drawdown Limit (MDL) — ft
Well depth 19.37 ft (sounded) Well depth — ft (spec)
Well diameter 2 in. TOC height above ground — ft Water elev. ___ ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			14:05
Start			13:55
Total hrs/min			:10

Total Evacuated 2 gal.
Evacuation Rate 0.2 gpm

Pump # and type — Bailer # and type Teflon #5
Hose # and type —

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate — gpm Volume — gal.
Location/description —

Initial height of water in casing = 2.72 ft; volume = .44 gal x 3
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 1.33 gal.

Water Color: NONE Odor: Respirator burn
Description of sediment and/or foreign matter in sample: [illegible]
Point of collection: [illegible]
Depth to water during pumping: — ft — time Sampling 14:37 ft 14:21 time
Pumped dry? N After — gal. Recovery rate —
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature — °C Thermometer # — Specific Conductance — umhos
pH — Calibration — 4.0, — 7.0, — 10.0 Calibration Temp. — °C

SAMPLES COLLECTED:

Sample ID No.			Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) 083418-B4	40	ml	C/C	N	HCl	R	Gas+BETX	SCP
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

PAVED OVER

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B-5 Date 8/10/89 Time NA
Job Name/Number Chevron Oakland III / 4-418-01 Initials TW
~~Well~~ ___ Spring ___ Surface ___ Other ___
Location ___
WELL DATA: Well type ___ (Describe; M = monitoring well)
Depth to Water ___ ft (pump/stat) Maximum Drawdown Limit (MDL) ___ ft
Well depth ___ ft (sounded) Well depth ___ ft (spec)
Well diameter ___ in TOC height above ground ___ ft Water elev. ___ ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			
Start			
Total hrs/min			

Total Evacuated ___ gal.
Evacuation Rate ___ gpm

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Pump # and type ___ Bailer # and type ___
Hose # and type ___

Sampling Port: Rate ___ gpm Volume ___ gal.
Location/description ___

Initial height of water in casing = ___ ft; volume = ___ gal.
Evacuation at drawdown limit = 3 x initial volume = ___ gal.
Evacuation at sampling point = 1 x initial volume = ___ gal.
Total to be evacuated = ___ gal.
Water Color: ___ Odor: ___
Description of sediment and/or foreign matter in sample ___
Point of collection ___
Depth to water during pumping ___ ft ___ time Sampling ___ ft ___ time
Pumped dry? ___ After ___ gal. Recovery rate ___
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature ___ °C Thermometer # ___ Specific Conductance ___ umhos
pH ___ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B-6 Date ~~8/9/89~~ 8/10/89 Time 8:50 8/10/89
Job Name/Number Chevron Oakland III 14-418-01 Initials TW
Well ✓ Spring ___ Surface ___ Other ___
Location west end corner, near MacArthur & cheap motel
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 14.72 ft (pump/~~stat~~) Maximum Drawdown Limit (MDL) NA ft
Well depth use spec depth ft (sounded) Well depth 19.38 ft (spec)
Well diameter 8 in. TOC height above ground NA ft Water elev. NA ft

Volume Evacuated:	~~Pumped~~	~~Pumped~~	Bailed
Time: Stop	/	/	12:18
Start	/	/	11:46 (8/9/89)
Total hrs/min			32 min

Total Evacuated 17 gal.
Evacuation Rate 0.5 gpm lots of junk in well – ½ the bailers came up draining or empty

Pump # and type ——— Bailer # and type PVC Bail
Hose # and type ———

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

~~Sampling Port: Rate ___ gpm Volume ___ gal.~~
~~Location/description ___~~

Initial height of water in casing = 4.66 ft; volume = 12.16 gal × 3 TW
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 36.5 gal.
Water Color: clear Odor: strong
Description of sediment and/or foreign matter in sample: light [illegible]
Point of collection: ~~aerated~~ TW from dripping end of leaking teflon bailer [illegible] 1857 @
Depth to water during pumping — ft — time Sampling 17.55 ft 8:46 8/10/89 time 15:00 8/9/89
Bailed ~~Pumped~~ dry? yes After 17 gal. Recovery rate 0.3 ft/hr
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

80% recov = 15.65'

CHEMICAL DATA
~~Temperature ___ °C Thermometer # ___~~ Specific Conductance ___ umhos
~~pH ___ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C~~

SAMPLES COLLECTED:

	Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2)	08941886	40 ml	C/V	N	HCl	R	gas/BETX	Sp.
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name B-7 Date 8-9-89 Time 15:00
Job Name/Number Chevron Oakland III 4-418-01 Initials ASR
Well X Spring ___ Surface ___ Other ___
Location Southern most well along Broadway
WELL DATA: Well type M (Describe; M - monitoring well)
Depth to Water 16.36 ft (pump/stat) Maximum Drawdown Limit (MDL) — ft
Well depth 19.33 ft (sounded) Well depth — ft (spec)
Well diameter 6 in. TOC height above ground — ft Water elev. — ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop	/	/	1:40
Start	/	/	1:30
Total hrs/min	/	/	:10

Total Evacuated 5 gal.
Evacuation Rate 0.5 gpm
Pump # and type — Bailer # and type Rinse = 3' PVC #AG; Sample = teflon #AP
Hose # and type ___

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. $= \pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate — gpm Volume — gal.
Location/description —

Initial height of water in casing = 2.97 ft; volume = 4.3 gal. x 3
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 13 gal.
Water Color: Cloudy, white Odor: [illegible]
Description of sediment and/or foreign matter in sample: [illegible] pulpy particles suspended
Point of collection: [illegible] AP
Depth to water during pumping — ft — time Sampling ___ ft ___ time
Pumped dry? Y After 5 gal. Recovery rate —
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature — °C Thermometer # — Specific Conductance — umhos
pH — Calibration — 4.0, — 7.0, — 10.0 Calibration Temp. — °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) 089418-B7	40 ml	c/v	N	HCl	R	Gas + BETX	Sup
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name EA 1 Date 8-9-89 Time 10:55
Job Name/Number Chevron Oakland III 4-418-01 Initials AGR
Well X Spring ___ Surface ___ Other ___
Location Media MacArthur
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 16.09 ft (pump/stat) Maximum Drawdown Limit (MDL) — ft
Well depth 30.27 ft (sounded) Well depth — ft (spec)
Well diameter 4 in. TOC height above ground — ft Water elev. — ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop	/	/	10:55
Start	/	/	10:30
Total hrs/min	/	/	:25

Total Evacuated 30 gal.
Evacuation Rate 1.2 gpm

Pump # and type / Bailer # and type Purge = 3' PVC # A11 Sample = Teflon #11
Hose # and type /

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate — gpm Volume — gal.
Location/description —

Initial height of water in casing = 14.18 ft; volume = 9.25 gal. x 3
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 27 gal.
Water Color: Lt. Tan cloudy Odor: [illegible]
Description of sediment and/or foreign matter in sample: [illegible]
Point of collection: Bottom of Teflon bailer #11
Depth to water during pumping — ft — time Sampling 16.08 ft 10:57 time
Pumped dry? N After — gal. Recovery rate —
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature — °C Thermometer # — Specific Conductance — umhos
pH — Calibration — 4.0, — 7.0, — 10.0 Calibration Temp. — °C

SAMPLES COLLECTED:

Sample ID No.			Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) 08948-EA1	40	ml	C/V	N	HCl	R	BTEX	SVL
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name EA2 Date 8-9-89 Time 9:45
Job Name/Number Chevron Oakland III 4-418-01 Initials MSR
Well X Spring ___ Surface ___ Other ___
Location Median Boundary
WELL DATA: Well type MW (Describe; M = monitoring well)
Depth to Water 17.45 ft (pump/stat) Maximum Drawdown Limit (MDL) — ft
Well depth 30.11 ft (sounded) Well depth — ft (spec)
Well diameter 4 in. TOC Height above ground — ft Water elev. — ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			9:35
Start			9:18
Total hrs/min			:27
Total Evacuated	26 gal = 3 bore volumes		
Evacuation Rate	0.96 gpm		

Purge = PVC 3'# AT

Pump # and type — Bailer # and type Sample = Teflon #E
Hose # and type —

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate — gpm Volume — gal.
Location/description —

Initial height of water in casing = 12.66 ft; volume = 8.26 gal. x 4
Evacuation at drawdown limit = 3 x initial volume = — gal.
Evacuation at sampling point = 1 x initial volume = — gal.
Total to be evacuated = 33 gal.
Water Color: Cloudy white Odor: None - very busy traffic both sides
Description of sediment and/or foreign matter in sample: Suspended fines
Point of collection: End of Teflon bailer #E
Depth to water during pumping: — ft — time Sampling 27.10 ft 9:47 time
Pumped dry? Almost N After — gal. Recovery rate —
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature — °C Thermometer # — Specific Conductance — umhos
pH — Calibration — 4.0, — 7.0, — 10.0 Calibration Temp. — °C

SAMPLES COLLECTED:

Sample ID No			Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) ~~08418~~ ASR		ml						
089418-EA2	40	ml	C/V	N	HCl	R	Gas + BETX	SVP
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						
		ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

PAVED OVER

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name C Date 8/10/89 Time NA
Job Name/Number Chevron Oakland III / 4-418-01 Initials TW
~~Well~~ ___ ~~Spring~~ ___ ~~Surface~~ ___ ~~Other~~
Location _____
WELL DATA: Well type _____ (Describe; M = monitoring well)
Depth to Water _____ ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
Well depth _____ ft (sounded) Well depth _____ ft (spec)
Well diameter ___ in. TOC height above ground _____ ft Water elev. _____ ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			
Start			
Total hrs/min			

Total Evacuated _____ gal.
Evacuation Rate _____ gpm

Pump # and type _____ Bailer # and type _____
Hose # and type _____

Sampling Port: Rate _____ gpm Volume _____ gal.
Location/description _____

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Initial height of water in casing = _____ ft; volume = _____ gal.
Evacuation at drawdown limit = 3 x initial volume = _____ gal.
Evacuation at sampling point = 1 x initial volume = _____ gal.
Total to be evacuated = _____ gal.

Water Color: _____ Odor: _____
Description of sediment and/or foreign matter in sample: _____
Point of collection: _____
Depth to water during pumping ___ ft ___ time Sampling ___ ft ___ time
Pumped dry? ___ After ___ gal. Recovery rate _____
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature ___ °C Thermometer # ___ Specific Conductance ___ umhos
pH ___ Calibration ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

SAMPLES COLLECTED:

Sample ID/No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

GRAB SAMPLE - NO BAILING DONE

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name F Date 8/9/89 Time 11:00
Job Name/Number Chevron Oakland III / 4-418-01 Initials TW
Well ✓ Spring ___ Surface ___ Other ___
Location in MacArthur Blvd
WELL DATA: Well type M (Describe; M = monitoring well)
Depth to Water 19.03 ft (pump start) Maximum Drawdown Limit (MDL) NA ft
Well depth 19.82 ft (sounded) Well depth ___ ft (spec)
Well diameter 2 in. TOC height above ground NA ft Water elev. NA ft
Volume Evacuated: ~~Pumped~~ ~~Pumped~~ Bailed

Time: Stop			
Start			
Total hrs/min			
Total Evacuated			gal. "Bailed" well dry just in taking 2 VOA Samples
Evacuation Rate			gpm

Pump # and type ~~Bailer # and type~~
Hose # and type

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Sampling Port: Rate ~~gpm~~ ~~Volume~~ ~~gal.~~
Location/description

Initial height of water in casing = 0.79 ft; volume = ___ gal.
Evacuation at drawdown limit = 3 x initial volume = ___ gal.
Evacuation at sampling point = 1 x initial volume = ___ gal.
Total to be evacuated = ___ gal.
Water Color: none Odor: none
Description of sediment and/or foreign matter in sample: large amt of fine-sand-sized black particles
Point of collection: decanted from both ends of disposable teflon bailer (bailer leaked & I was running out of water)
Depth to water during pumping ___ ft ___ time Sampling ___ ft ___ time
Pumped dry? ___ After ___ gal. Recovery rate
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature ___ °C Thermometer # ___ ~~Specific Conductance~~ ___ umhos
pH ___ ~~Calibration~~ ___ 4.0, ___ 7.0, ___ 10.0 Calibration Temp. ___ °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) 089448-F	40 ml	C/V	N	HCl	R	~~gas/BTEX~~	Sup
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

HOLD -SLH 8/10/89

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

TRIP BLANK

WEISS ASSOCIATES

WATER SAMPLING DATA Well Name — Date 8/9/89 Time NA
Job Name/Number Chevron Oakland III / 4-418-01 Initials JW
Well ~~Spring~~ ~~Surface~~ Other
Location
WELL DATA: Well type (Describe; M = monitoring well)
Depth to Water ft (pump/stat) Maximum Drawdown Limit (MDL) ft
Well depth ft (sounded) Well depth ft (spec)
Well diameter in. TOC height above ground ft Water elev. ft

Volume Evacuated:	Pumped	Pumped	Bailed
Time: Stop			
Start			
Total hrs/min			

Total Evacuated gal.
Evacuation Rate gpm

Pump # and type Bailer # and type
Hose # and type

Sampling Port: Rate gpm Volume gal.
Location/description

Formulas/Conversions
r = well radius in ft
h = ht of water col in ft
vol. in cyl. = $\pi r^2 h$
7.48 gal/ft^3
V_2" casing = 0.163 gal/ft
V_3" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.5}$" casing = 0.826 gal/ft
V_6" casing = 1.47 gal/ft
V_8" casing = 2.61 gal/ft

Initial height of water in casing = ft; volume = gal.
Evacuation at drawdown limit = 3 x initial volume = gal.
Evacuation at sampling point = 1 x initial volume = gal.
Total to be evacuated = gal.

Water Color: Odor:
Description of sediment and/or foreign matter in sample:

Point of collection:
Depth to water during pumping ft time Sampling ft time
Pumped dry? After gal. Recovery rate =
ADDITIONAL COMMENTS, LOCATION SKETCH, ENVIRONMENTAL CONDITIONS, e.g., weather, van running nearby, problems with equipment or sampling, etc., pump on/off times, etc. (over).

CHEMICAL DATA
Temperature °C Thermometer # Specific Conductance umhos
~~pH~~ Calibration 4.0, 7.0, 10.0 Calibration Temp. °C

SAMPLES COLLECTED:

Sample ID No.		Bottle/ Cap (Specify)	Filtered (size, u) (N = No)	Preservative (specify) (R = Refrigerated)		Analysis	Lab
(2) 089418-21	40 ml	C/V	N	NA	R	gas/BETX	Sup
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						
	ml						

Bottles: P = Polyethylene; Pp = Polypropylene; C or B = Clear/Brown Glass; O = Other (describe)
Additional Cap Codes: Py = Polyseal; V = VOA/Teflon septa; M = Metal

WEISS ASSOCIATES
1 McClure St, Oakland, CA 94609 415-465-1100

SEND RESULTS TO: Sharon Heiser

CHAIN-OF-CUSTODY RECORD AND ANALYTIC INSTRUCTIONS

WA Personnel: Be sure to include copy of this form in the field sampling files

Shuttle Inventory Number: NA

Project ID: 4-418-01

Shipping Seal No. NA

NOTES TO LAB:
1) Specify analytic method and detection limit in report.
2) Notify us if there are any anomalous peaks on GC or other scans.
3) ANY QUESTIONS/CLARIFICATIONS: CALL US.

Sampled by: TW/ASR

Laboratory Name: Superior Analytical

No. of Containers	Sample ID	Sampling Date	Container Type[A]	Sample/ Analyze/ Hold[B]	Turn-around[C]	Analyze For:	Analytic Method/ Detection Limit	Comments
2	089418-A	8/9/89	W/G	A	N	gas/BETX	←	
	089418-B1B	8/9/89					←	
	089418-B2	8/10/89					←	
	089418-B4	8/9/89					←	
	089418-B6	8/10/89					←	
	089418-B7	8/9/89					←	
	089418-EA1						←	
	089418-EA2						←	
	089418-F			HOLD			←	HOLD
	089418-21			A			←	

1 Timothy J. Wilson 8/10/89
Released by (Signature), Date

2 _____
Received by (Signature), Date

3 _____
Released by (Signature), Date

4 _____
Shipping Carrier, Method, Date

5 _____
Released by (Signature), Date

6 _____ 8/10 10 40
Received by Lab Personnel, Date, Telephone

x _____
Seal intact?, Number

A Sample Type Codes: W = Water, S = Soil, O = Other (Specify) Container Type Codes: P = Plastic bottles, G = Glass bottle, T = Brass tube, O = Other (Specifiy)
B Analyze/Hold: A = Analyze; HOLD (spell out) = DO NOT ANALYZE UNLESS NECESSARY OR REQUESTED.
C N = Normal Turnaround, F = 1-Week Turnaround, R = 24-hour Turnaround

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10094
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-418-01

DATE RECEIVED: 08/10/89
DATE REPORTED: 08/16/89

Lab Number	Customer Sample Identification	Date Sampled
10094- 1	089418-A	08/09/89
10094- 2	089418-B1B	08/09/89
10094- 3	089418-B2	08/10/89
10094- 4	089418-B4	08/09/89
10094- 5	089418-B6	08/10/89
10094- 6	089418-B7	08/09/89
10094- 7	089418-EA-1	08/09/89
10094- 8	089418-EA-2	08/09/89
10094- 9	089418-F	08/09/89
10094-10	089418-21	08/09/89

Laboratory Number:	10094 1	10094 2	10094 3	10094 4	10094 5
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	12000	12000	60000	ND<500	19000
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	370	2600	29000	4200	470
TOLUENE:	ND<1.5	340	8700	130	150
ETHYL BENZENE:	100	100	2400	370	440
XYLENES:	240	870	12000	260	1400

Laboratory Number:	10094 6	10094 7	10094 8	10094 9	10094 10
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	672000	ND<500	ND<500	NA	ND<500
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	8700	ND<0.5	ND<0.5	NA	ND<0.5
TOLUENE:	17000	ND<0.5	ND<0.5	NA	ND<0.5
ETHYL BENZENE:	2700	ND<0.5	ND<0.5	NA	ND<0.5
XYLENES:	30000	ND<0.5	ND<0.5	NA	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

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

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA MEthod 8015/5030
ANALYSIC FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 10094

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

ug/L = part per billion (ppb)

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

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 1000ug/L
Daily Standard run at 200mg/L; RPD Diesel = NA
MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 500ug/L
Daily Standard run at 2mg/L; RPD Gasoline = 3%
MS/MSD Average Recovery =97%: Duplicate RPD = 0%

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; RPD = <15%
MS/MSD Average Recovery =100% Duplicate RPD = 1%

Richard Srna, Ph.D.
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.
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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 10094
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-418-01

DATE RECEIVED: 08/10/89
DATE REPORTED: 08/28/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/l) Benzene	Toluene	Ethyl Benzene	Xylenes
4	089418-B4	4200	83	400	250

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.5ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 94 %: Duplicate RPD = <3%

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10094
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-418-01

DATE RECEIVED: 08/10/89
DATE REPORTED: 08/17/89

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (ug/l) Gasoline Range
4	089418-B4	5000

ug/L - parts per billion (ppb)

Minimum Detection Limit for Gasoline in Water: 500ug/l

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15%
MS/MSD Average Recovery =82%: Duplicate RPD = 11%

Richard Srna, Ph.D.
Laboratory Director