



Chevron U.S.A. Inc.

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D. Moller

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Area Manager, Operations

C. G. Trimbach

Manager, Engineering

3 November 1988

Jill Duerig
Alameda County Water District
P.O. Box 5110
43885 S. Grimmer Blvd.
Fremont, California 94537

Re: Chevron Facility 90260
~~21991 Foothill Boulevard~~
Hayward, California

Dear Ms. Duerig:

Enclosed is the quarterly monitoring report for the above-referenced site. As indicated in the report, detectable levels of hydrocarbons are present in the groundwater.

If you have any questions or comments, please contact Kay Huffman or Gordon Davitt at (415) 842-9602 or (415) 842-9525.

Sincerely,
D. Moller

By _____
K.G. Huffman

KH/wa

Enclosure

cc: Hugh Murphy, Hayward City Fire Department



WEISS ASSOCIATES

2938 McClure Street, Oakland, CA 94609

Consulting in Geology & Geohydrology

415-465-1100

3 November 1988

K. G. HUFFMAN

Ms. Kay Huffman
Chevron USA
P. O. Box 5004
San Ramon, CA 94583-0804

NOV 4 REC'D

Re: Chevron Service Station #90260
21995 Foothill Boulevard
Hayward, California
WA Job #4-310-01

Dear Ms. Huffman:

This letter presents the results of the quarterly ground water sampling performed on 27 September 1988 at Chevron Service Station #90260 in Hayward, California (Figure 1). The ground water samples from all four monitoring wells sampled contained benzene, toluene, and xylenes above the California Department of Health Services (DHS) recommended action levels. The ground water samples from monitoring wells MW-6 and MW-7 contained ethylbenzene and/or 1,2-dichloroethane (EDC) above DHS recommended action levels.

GROUND WATER SAMPLING

Brian Danforth, WA geologic technician, collected ground water samples from monitoring wells MW-4, MW-5, MW-6 and MW-7 on 27 September 1988. Monitoring wells MW-1, MW-2 and MW-3 are tank backfill wells so they were not sampled. Prior to sampling, each well was purged of four wellbore volumes of water, approximately 2.5 to 5 gallons each, using steam-cleaned teflon bailers. The ground water samples were decanted from the bailers into 40 ml glass volatile organic analysis vials with teflon septa, and refrigerated for transport to Central Coast Analytical Services of San Luis Obispo, California. This sampling methodology and sample handling protocol is consistent with Environmental Protection Agency (EPA) guidelines. The water sampling collection records, including ground water elevations, and chain of custody records are included as Attachments A and B, respectively.

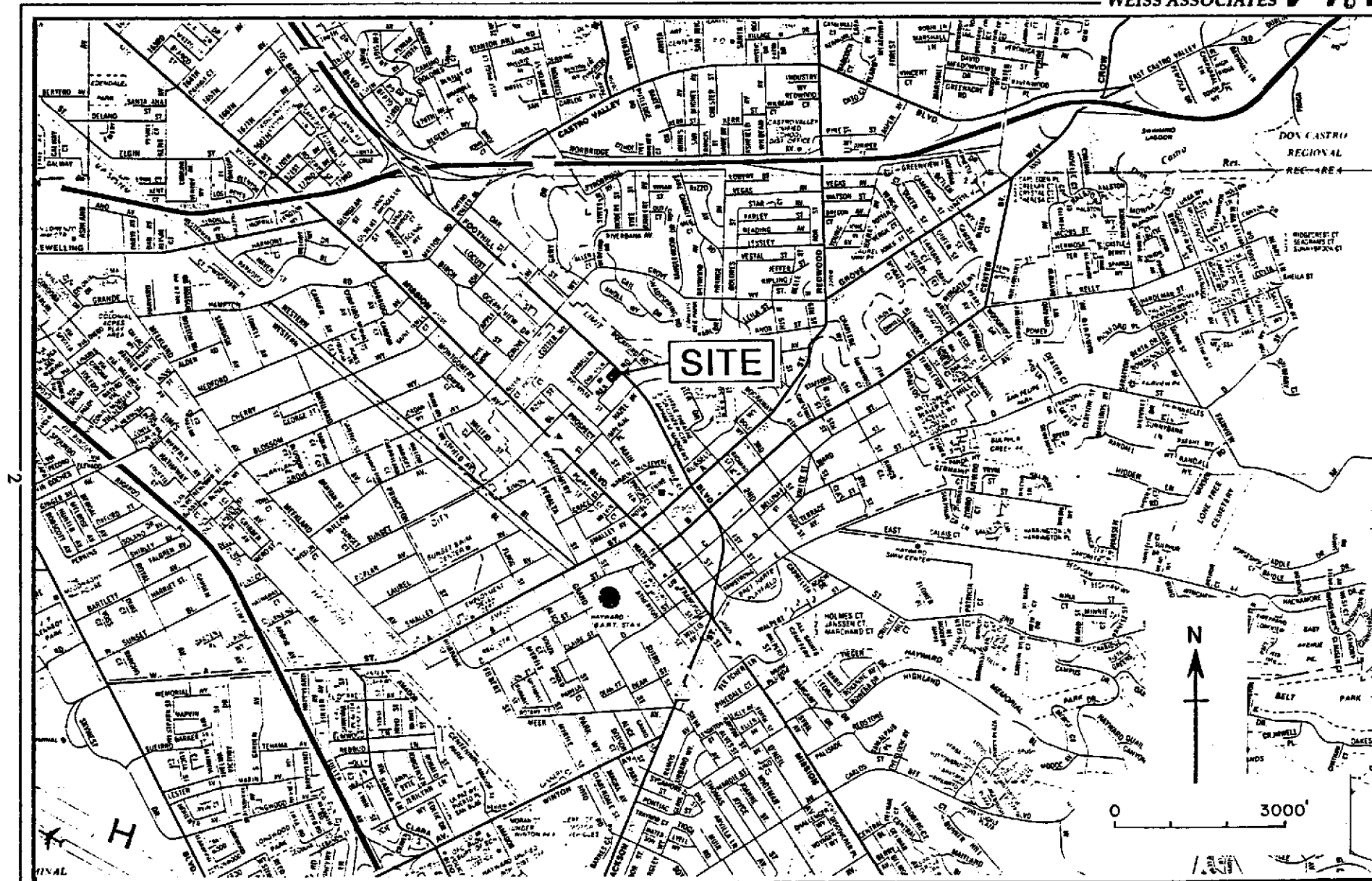


Figure 1. Site Location Map - Chevron Service Station #90260, Hayward, California

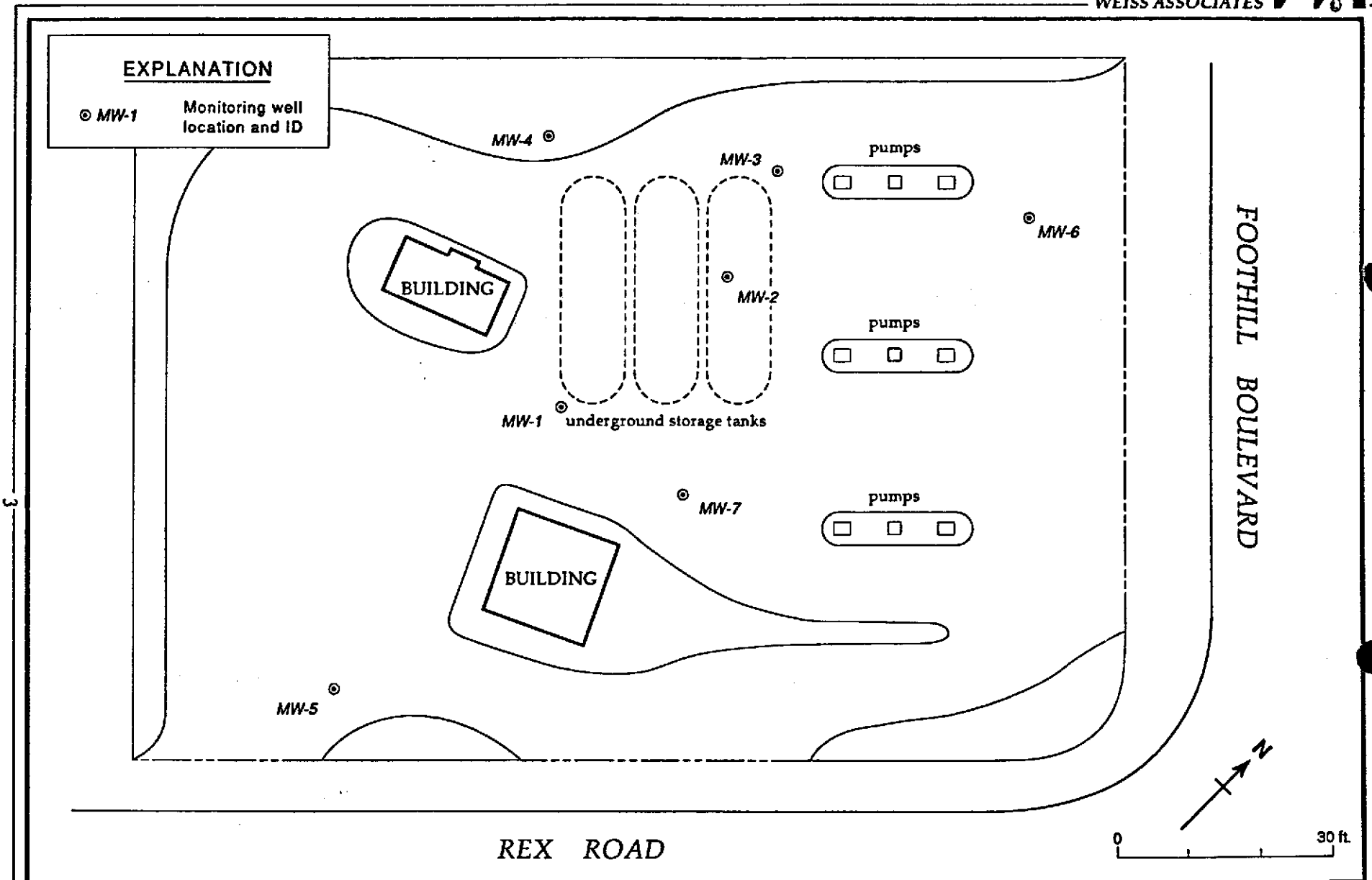


Figure 1. Monitoring Well Location Map - Chevron Service Station #90260, Hayward, California

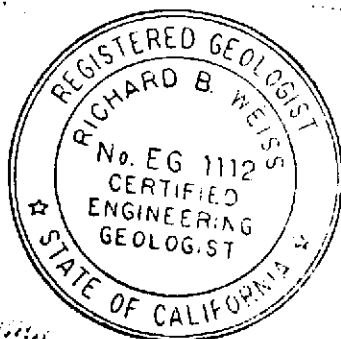
Ms. Kay Huffman
3 November 1988

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CHEMICAL ANALYSES

The ground water samples were analyzed for total fuel hydrocarbons (TFHC) and BETX by Fuel Fingerprint Analysis - EPA Method 524.2/8240. The results of the water analysis are presented in Table 1 and the analytic reports are included as Attachment C. The detection limits for ethylbenzene, 1,2-dichloroethane (EDC) and ethylene dibromide (EDB) in ground water samples from monitoring wells MW-4 and MW-5 were above DHS recommended action levels because of the high concentrations of TFHC in the samples.

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 Sharon Halper.



Sincerely,
Weiss Associates

Robert E. Kitay

Robert E. Kitay
Staff Geologist

Richard B. Weiss

Richard B. Weiss
Principal Hydrogeologist

REK/RBW:rem

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

TABLE 1. Analytic Results for Ground Water, Chevron Service Station #90260, Hayward, California

Sample ID	Sample Date	Analytic Method	Analytic Lab	TFHC	B	E	T	X	EDC	EDB
----- parts per million -----										
MW-4	02/05/88	8015/602	B&C	88	24	1.7	19	10	---	---
	06/15/88	8015/602	B&C	95	45	2.1	30	17	---	---
	09/27/88	524.2/8240	CCAS	500	41	<5.0	27	16	<5.0	<5.0
MW-5	02/05/88	8015/602	B&C	80	16	2.6	15	17	---	---
	06/15/88	8015/602	B&C	77	42	2.5	38	16	---	---
	09/27/88	524.2/8240	CCAS	470	39	<5.0	32	16	<5.0	<5.0
MW-6	02/05/88	8015/602	B&C	53	5.1	2.1	4.4	14	---	---
	06/15/88	8015/602	B&C	33	9.2	.52	5.5	20	---	---
	09/27/88	524.2/8240	CCAS	17	2.2	1.7	2.8	5.1	0.13	<0.01
MW-7	02/05/88	8015/602	B&C	81	34	2.4	36	16	---	---
	06/15/88	8015/602	B&C	77	40	1.4	41	24	---	---
	09/27/88	524.2/8240	CCAS	30	9.7	0.4	8.9	4.1	2.6	<0.01
Bailer Blank (CHB)	09/27/88	524.2/8240	CCAS	<0.05	<0.0001	<0.001	<0.001	0.001	0.0015	<0.0001
Trip Blank (CH9)	09/27/88	524.2/8240	CCAS	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.0001
DHS Action Levels	---	---	---	NE	0.0007	0.62	0.1	0.68	0.001	0.00002

Abbreviations:

TFHC = Total fuel hydrocarbons

B = Benzene

E = Ethylbenzene

T = Toluene

X = Xylenes

EDC = 1,2-dichloroethane

EDB = Ethylene dibromide

--- = Not analyzed

DHS Action Levels = Department of Health Services
Recommended Action Levels for
Drinking Water

NE = DHS action level for TFHC not established

Analytic Method:8015 = Modified EPA Method 8015, Total Fuel
Hydrocarbons602 = EPA Method 602, Aromatic Volatile
Hydrocarbons524.2/8240 = Fuel Fingerprint Analysis -
EPA Method 524.2/8240, Total
Fuel and Aromatic Volatile
HydrocarbonsAnalytic Laboratory:B&C = Brown and Caldwell Laboratories,
Emeryville, CaliforniaCCAS = Central Coast Analytical Services,
San Luis Obispo, California

ATTACHMENT A
WATER SAMPLING COLLECTION RECORDS

WATER SAMPLING DATA Well Name MW-4 Date 9-27-88 Time 13:32
 Job Name/Number CHEVRON HAYWARD / 4-310-01 Initials BLV
 Well ☒ Spring ☐ Surface ☐ Other ☐
 Location _____

WELL DATA: Well type M (Describe; M monitoring well)
 Depth to Water 14.22 ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
 Well depth 21.64 ft (sounded) Well depth 22 ft (spec)
 Well diameter 4 in. TOC height above ground _____ ft Water elev. _____ ft
 Volume Evacuated: Pumped _____ Pumped _____ Bailed _____

Time: Stop _____ Start _____
 Total hrs/min _____
 Total Evacuated 50 gal.
 Evacuation Rate 1.11 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 = 0.853 gal/ft
 V_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 4' PVC # "u"
 Hose # and type _____

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

Initial height of water in casing = 7.42 ft; volume = 4.85 gal.

Evacuation at drawdown limit = $3 \times$ initial volume = 14.54 gal.

Evacuation at sampling point = $1 \times$ initial volume = 4.85 gal.

Total to be evacuated = 19.39 gal.

Water Color: Clear Odor: Moderate to Strong
 Description of sediment and/or foreign matter in sample: NONE

Point of collection: The end of Teflon Bailer # "FF"
 Depth to water during pumping _____ ft time Sampling 14.84 ft / 14:05 time
 Pumped dry? NO 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
<u>CH 4X</u>	<u>40 ml</u>	<u>C/V</u>	<u>N</u>	<u>NaHPO4</u>	<u>EPA BZVD</u>
<u>CH 4Y</u>	<u>ml</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>CCAS</u>
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				
	<u>ml</u>				

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

WATER SAMPLING DATA Well Name MW-5 Date 9-27-88 Time 13:00
 Job Name/Number CHEVRON HAWAII / 9-310-01 Initials RR
 Well ☒ Spring ☐ Surface ☐ Other ☐
 Location _____

WELL DATA: Well type M (Describe; M - monitoring well)
 Depth to Water 13.25 ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
 Well depth 18.50 ft (sounded) Well depth 19.0 ft (spec)
 Well diameter 4 in. TOC height above ground _____ ft Water elev. _____ ft

Volume Evacuated: Pumped _____ Pumped _____ Bailed _____
 Time: Stop _____ Start _____
 Total hrs/min _____
 Total Evacuated 5 gal.
 Evacuation Rate 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 = 0.828 gal/ft
 V_6 casing = 1.47 gal/ft
 V_8 casing = 2.61 gal/ft

Pump # and type _____ Bailer # and type 3' PVC #1 W
 Hose # and type _____

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

Initial height of water in casing = 5.25 ft; volume = 3.43 gal.

Evacuation at drawdown limit = 3 x initial volume = 10.28 gal.

Evacuation at sampling point = 1 x initial volume = 3.43 gal.

Total to be evacuated = 13.71 gal.

Water Color: Clear Odor: Moderate

Description of sediment and/or foreign matter in sample: None

Point of collection: The end of Teflon Bailer #1
 Depth to water during pumping _____ ft time Sampling 13.25 ft 14:57 time
 Pumped dry? Yes After 5 gal. Recovery rate Complete recovery in 99 min
 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
<u>CH 52</u>	<u>40 ml</u>	<u>CV</u>	<u>N</u>	<u>R</u>	<u>Null 804</u>
<u>CH 57</u>	<u>40 ml</u>	<u>CV</u>	<u>N</u>	<u>R</u>	<u>Null 804</u>
	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

807-14.30

14331 13.00

WATER SAMPLING DATA Well Name MW-6 Date 9-27-88 Time 13:40
 Job Name/Number CHEVRON Hayward / 4-310-01 Initials BR
 Well ☒ Spring ☐ Surface ☐ Other _____
 Location _____
 WELL DATA: Well type M (Describe M monitoring well)
 Depth to Water 14.56 ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
 Well depth 16.00 ft (sounded) Well depth 17 ft (spec)
 Well diameter 4 in. TOC height above ground _____ ft Water elev. _____ ft
 Volume Evacuated: Pumped _____ Pumped _____ Bailed _____
 Time: Stop _____ Start _____
 Total hrs/min _____
 Total Evacuated 2.5 gal.
 Evacuation Rate 1.25 gpm
 Pump # and type _____ Bailer # and type 3" PVC # "VV"
 Hose # and type _____

Formulas/Conversions

r = well radius in ft
 h = ht of water col in ft
 $\text{vol. in cyl.} = \pi r^2 h$
 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 = 0.828 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 = 1.94' ft; volume = 1.27 gal.
 Evacuation at drawdown limit = 3 x initial volume = 3.80 gal.
 Evacuation at sampling point = 1 x initial volume = 1.27 gal.
 Total to be evacuated = 5.07 gal.

Water Color: Clear Odor: Moderate
 Description of sediment and/or foreign matter in sample: NONE

Point of collection: The end of Teflon Bailer # "11"
 Depth to water during pumping _____ ft time Sampling 14.56 ft 14:46 time
 Pumped dry? YES After 2.5 gal. Recovery rate Almost Complete Recovery in 96 min
 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
<u>CH 6x</u>	<u>40 ml</u>	<u>C/V</u>	<u>R</u>	<u>ANALY</u>	<u>CCAS</u>
<u>CH 6y</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
	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

WATER SAMPLING DATA Well Name MW-7 Date 9-27-88 Time 13:20
 Job Name/Number CHEVRON HAYWARD 14-310-01 Initials DR
 Well Spring Surface Other
 Location _____

WELL DATA: Well type M (Describe: M - monitoring well)
 Depth to Water 13.60 ft (pump/stat) Maximum Drawdown Limit (MDL) _____ ft
 Well depth 17.85 ft (sounded) Well depth 18.5 ft (spec)
 Well diameter 4 in. TOC height above ground _____ ft Water elev. _____ ft

Volume Evacuated: Pumped _____ Pumped _____ Bailed _____
 Time: Stop _____ Start _____
 Total hrs/min _____
 Total Evacuated 3 gal.
 Evacuation Rate 1.0 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 3' PVC #PP
 Hose # and type _____

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

Initial height of water in casing = 4.25 ft; volume = 2.78 gal.

Evacuation at drawdown limit = $3 \times$ initial volume = 8.33 gal.

Evacuation at sampling point = $1 \times$ initial volume = 2.78 gal.

Total to be evacuated = 11.11 gal.

Water Color: Clear Odor: Hydrocarbon - Strong
 Description of sediment and/or foreign matter in sample: NONE

Point of collection: The end of Teflon Bailer # "EE"
 Depth to water during pumping _____ ft time Sampling 13:27 ft 14:42 time
 Pumped dry? YES After 3 gal. Recovery rate Almost complete recovery in 14 min
 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
CH 7X 40 ml	C/V	N	↓	↓	CLAS
CH 7Y ↓ 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

8060 2 14.10
 14.12
 13.88

WATER SAMPLING DATA Well Name Bailer Blank Date 9-27-88 Time _____
 Job Name/Number CHEVRON HAWAII / 4-310-01 Initials BD
 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: The END of TEFLON BAILER # "11"
 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
CHAX 40 ml	C/V	N	R	NALSOY	CCAS
CHBY 1 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

WATER SAMPLING DATA Well Name TRIP Blank Date 9-27-89 Time _____
 Job Name/Number CHEVRON HAYWARD 14-310-01 Initials BD
 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
 $\text{vol. in cyl.} = \pi r^2 h$
 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
CH 9 x 40 ml	C/V	N	R	EM 8240	CCAS
CH 9 y 1 ml	↓	↓	↓	Full Fingerprint	
_____ 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

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-10090
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88
Collected by: B. Danforth

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

Weiss Associates
2938 McClure Street
Oakland, CA 94609

SAMPLE DESCRIPTION:
Project #4-310-01, CH4, Y-Water

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	5.	41.
Toluene	5.	27.
Ethylbenzene	5.	not found
Xylenes	5.	16.
1,2-Dichloroethane (EDC)	5.	not found
Ethylene Dibromide (EDB)	5.	not found
TOTAL PURGEABLE PETROLEUM HYDROCARBONS 500. (GASOLINE)		500.
BTX as a Percent of Fuel		17.
Percent Surrogate Recovery		102.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D.
President

MSD#3
10-07-88
E10090f.wr1/300
MH/gb/dc/rh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-10091
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88
Collected by: B. Danforth

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

Weiss Associates
2938 McClure Street
Oakland, CA 94609

SAMPLE DESCRIPTION:

Project #4-310-01, CH5, Y-Water

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	5.	39.
Toluene	5.	32.
Ethylbenzene	5.	not found
Xylenes	5.	16.
1,2-Dichloroethane (EDC)	5.	not found
Ethylene Dibromide (EDB)	5.	not found
TOTAL PURGEABLE PETROLEUM HYDROCARBONS 50. (GASOLINE)		470.
BTX as a Percent of Fuel		19.
Percent Surrogate Recovery		94.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

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141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-10092
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88
Collected by: B. Danforth
Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

Weiss Associates
2938 McClure Street
Oakland, CA 94609

SAMPLE DESCRIPTION:
Project #4-310-01, CH6, Y-Water

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	0.01	2.2
Toluene	0.01	2.8
Ethylbenzene	0.01	1.7
Xylenes	0.01	5.1
1,2-Dichloroethane (EDC)	0.01	0.13
Ethylene Dibromide (EDB)	0.01	not found
TOTAL PURGEABLE PETROLEUM HYDROCARBONS 1. (GASOLINE)		17.
BTX as a Percent of Fuel		59.
Percent Surrogate Recovery		92.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D.
President

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MH/gb/dc/rh

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141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-10093
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88

Collected by: B. Danforth

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

Weiss Associates
2938 McClure Street
Oakland, CA 94609

SAMPLE DESCRIPTION:
Project #4-310-01, CH7, Y-Water

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	0.1	9.7
Toluene	0.1	8.9
Ethylbenzene	0.1	0.4
Xylenes	0.1	4.1
1,2-Dichloroethane (EDC)	0.1	2.6
Ethylene Dibromide (EDB)	0.1	not found

TOTAL PURGEABLE PETROLEUM HYDROCARBONS (GASOLINE)	10.	30.

BTX as a Percent of Fuel		75.
Percent Surrogate Recovery		108.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek
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President

MSD#3
10-07-88
E10093f.wr1/300
MH/gb/dc/rh

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Lab Number: E-10094
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88
Collected by: B. Danforth
Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)
SAMPLE DESCRIPTION:
Project #4-310-01, CH8, Y-Water

Weiss Associates
2938 McClure Street
Oakland, CA 94609

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	0.0001	not found
Toluene	0.001	not found
Ethylbenzene	0.001	not found
Xylenes	0.001	0.001
1,2-Dichloroethane (EDC)	0.0001	0.0015
Ethylene Dibromide (EDB)	0.0001	not found

TOTAL PURGEABLE PETROLEUM HYDROCARBONS (GASOLINE)	0.05	<0.05

BTX as a Percent of Fuel		not applicable
Percent Surrogate Recovery		99.
=====		

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

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President

MSD#3
10-07-88
E10094f.wr1/300
MH/gb/dc/rh

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Lab Number: E-10095
Collected: 09/27/88
Received: 09/30/88
Tested: 10/05/88
Collected by: B. Danforth

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

Weiss Associates
2938 McClure Street
Oakland, CA 94609

SAMPLE DESCRIPTION:
Project #4-310-01, CH9, Y-Water

Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	0.0001	not found
Toluene	0.001	not found
Ethylbenzene	0.001	not found
Xylenes	0.001	not found
1,2-Dichloroethane (EDC)	0.0001	not found
Ethylene Dibromide (EDB)	0.0001	not found
<hr/>		
TOTAL PURGEABLE PETROLEUM HYDROCARBONS (GASOLINE)	0.05	<0.05
<hr/>		
BTX as a Percent of Fuel		not applicable
Percent Surrogate Recovery		103.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek
Mary Havlicek, Ph.D.
President

MSD#3
10-07-88
E10095f.wr1/300
MH/ec/dc/rh

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San Luis Obispo, California 93401
(805) 543-2553

Lab Number: S-10058-2
Collected:
Received:
Tested: 10/05/88
Collected by:

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

CCAS

SAMPLE DESCRIPTION:

STD.1/2X (#100588-4) BTE, EDB & EDC
@ 0.020 ppm, Xylenes @ 0.060 ppm

Compound Analyzed	Detection Limit in ppm	Concentration w/spike in ppm	Percent Recovery

Benzene	0.001	0.019	95.
Toluene	0.001	0.018	90.
Ethylbenzene	0.001	0.015	75.
Xylenes	0.001	0.054	90.
1,2-Dichloroethane (EDC)	0.001	0.025	125.
Ethylene Dibromide (EDB)	0.001	0.018	90.

TOTAL PURGEABLE PETROLEUM HYDROCARBONS (GASOLINE)	0.1	not applicable	

BTX as a Percent of Fuel		not applicable	
Percent Surrogate Recovery		105.	

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D.
President

MSD#3
10-07-88
S10058f2.wr1/300
MH/ec/dc/rh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: B-10058

Collected:

Received:

Tested: 10/05/88

Collected by:

Fuel Fingerprint Analysis - EPA Method 524.2/8240
EXTRACTED BY EPA METHOD 5030 (purge-and-trap)

CCAS

SAMPLE DESCRIPTION:

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Compound Analyzed	Detection Limit in ppm	Concentration in ppm
Benzene	0.001	not found
Toluene	0.001	not found
Ethylbenzene	0.001	not found
Xylenes	0.001	not found
1,2-Dichloroethane (EDC)	0.001	not found
Ethylene Dibromide (EDB)	0.001	not found

TOTAL PURGEABLE PETROLEUM HYDROCARBONS (GASOLINE)	0.1	<0.1

BTX as a Percent of Fuel		not applicable
Percent Surrogate Recovery		123.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES



Mary Havlicek, Ph.D.
President

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10-07-88
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MH/bl/dc/rh