WESTERN GEOLOGIC RESOURCES INC.

2169 E. FRANCISCO BLVD., SUITE B / SAN RAFAEL
CALIFORNIA 94901 / FAX 415.457.8521
TELE 415.457.7595

JUN 8 '90 T.L.H.

4 June 1990

Mr. Robert Foss
Chevron USA
2410 Camino Ramon
San Ramon, California 94583-0804

Re: Quarterly Groundwater Monitoring
Sampled April 1990
Chevron Service Station #92582
Dublin, California
WGR Project #1-124.06

Dear Mr. Foss:

This letter report presents the results of the quarterly groundwater monitoring performed in April 1990 by Western Geologic Resources, Inc. (WGR) at the Chevron Service Station #92582, located at 7420 Dublin Boulevard in Dublin, California (Figure 1).

GROUNDWATER SAMPLING

On 23 April 1990, WGR staff measured depth-to-water and purged monitor wells EA-1 through EA-3 with the dedicated sampling systems. At least three well-casing volumes of groundwater were evacuated from each monitor well prior to sampling. All groundwater samples were collected according to the WGR standard operating procedure for groundwater sampling included as Attachment A. Field sampling and monitoring forms are included as Attachment B.

All purged water was contained in 55-gallon drums and temporarily stored on-site pending analytic results. The groundwater samples and a laboratory-supplied travel blank, consisting of deionized water, were shipped under chain-of-custody to Superior Analytical Laboratory, Inc. (SAL) of San Francisco, California.

GROUNDWATER FLOW

Figure 2 shows the potentiometric surface of shallow groundwater, based on depth-to-water measurements taken on 23 April 1990. Groundwater-elevation data are presented in Table 1. Hydrographs showing groundwater elevations over time are included as Attachment C. Estimated groundwater flow for 23 April 1990 was to the northwest at a gradient of about 0.6%.

ANALYTIC RESULTS

Groundwater samples from monitor wells EA-1 through EA-3 were analyzed for total purgeable petroleum hydrocarbons (TPPH), for benzene, toluene, ethylbenzene and total xylenes (BTEX) and for halocarbons by EPA Methods 8015, 8020 and 8010, respectively. Analytic results for past sampling events and this round of sampling are presented in Table 2. The chain-of-custody form, laboratory reports with quality assurance/quality control (QA/QC) documents are included as Attachments D and E, respectively.

COMMENTS

TPPH and BTEX were detected in groundwater samples from monitor wells EA-1 and EA-2 both for the first time since the beginning of quarterly groundwater sampling at this site. Some BTEX compounds were detected in groundwater samples from monitor well EA-3 for the first time. No halocarbons were detected in the groundwater samples from any of the wells. The estimated direction of groundwater flow and the gradient are similar to those of the previous sampling event in January 1990.

Western Geologic Resources, Inc. is pleased to provide geologic and environmental consulting services for Chevron, and trusts that this report meets your needs. Please call us at (415) 457-7595 if you have any questions.

Sincerely,
Western Geologic Resources, Inc.

Justin M. Power by gan

Justin M. Power
Senior Staff Geologist

Thomas M. Howard
Project Hydrogeologist

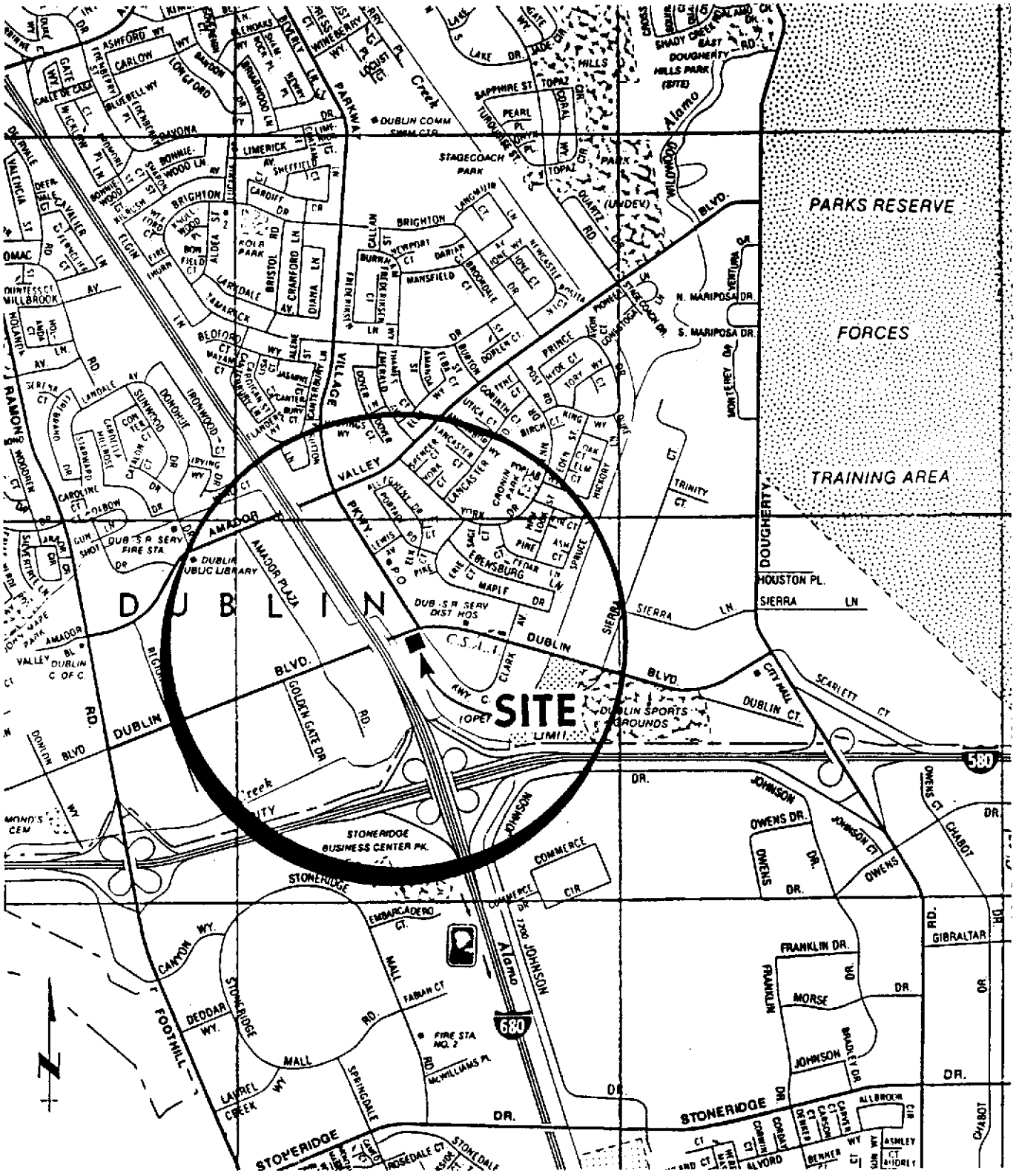
124R1MY0.WP5

FIGURES

TABLES

ATTACHMENTS

FIGURES

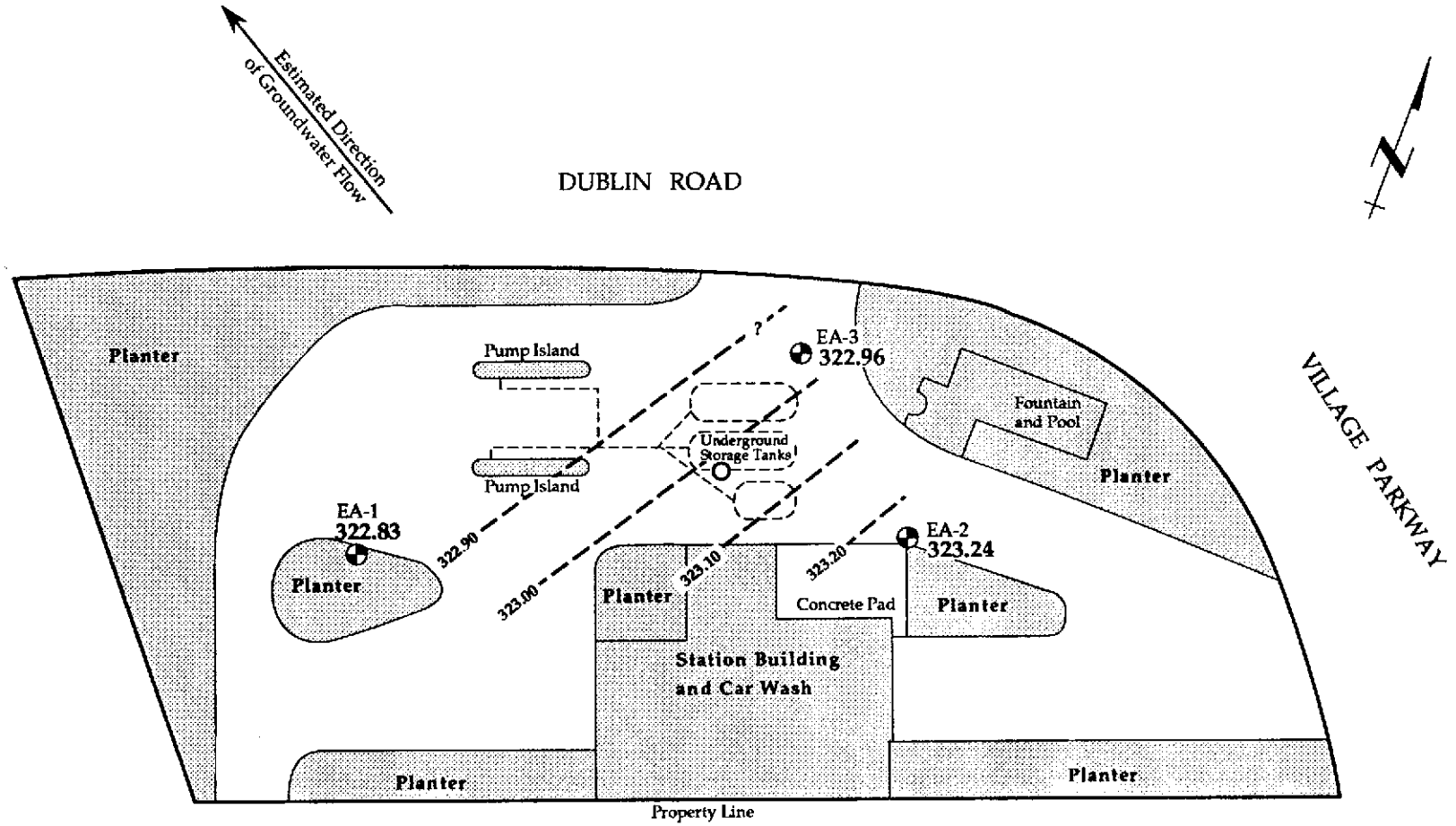


Site Location Map
Chevron Service Station #92582
Dublin, California

FIGURE
1

WESTERN GEOLOGIC RESOURCES, INC.

1-124.06



LEGEND

EA-1	Groundwater Monitor Well
O	10" Diameter PVC Casing, Slotted, Set in backfill
323.00 — — — ?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain

Potentiometric Surface of Shallow Groundwater, 23 April 1990
Chevron Service Station #92582
Dublin, California

FIGURE
2

WESTERN GEOLOGIC RESOURCES, INC.

1-124.06

TABLES

TABLE 1. Groundwater-Elevation Data
Chevron Service Station #92582
Dublin, California

Well ID #	Date	DTW	TOC	Elev-W
		<----------ft---------->		
EA-1	24 Oct 88 *	10.64	333.41	322.77
EA-1	2 Nov 88 *	10.69	333.41	322.72
EA-1	20 Dec 88 *	10.51	333.41	322.90
EA-1	28 Mar 89 *	9.87	333.41	323.54
EA-1	2 Aug 89	10.34	333.41	323.07
EA-1	6 Nov 89	10.65	333.41	322.76
EA-1	25 Jan 90	10.60	333.41	322.81
EA-1	23 Apr 90	10.58	333.41	322.83
EA-2	24 Oct 88 *	9.70	332.59	322.89
EA-2	2 Nov 88 *	10.03	332.59	322.56
EA-2	20 Dec 88 *	9.98	332.59	322.61
EA-2	28 Mar 89 *	8.80	332.59	323.79
EA-2	2 Aug 89	9.44	332.59	323.15
EA-2	6 Nov 89	9.53	332.59	323.06
EA-2	25 Jan 90	9.27	332.59	323.32
EA-2	23 Apr 90	9.35	332.59	323.24
EA-3	24 Oct 88 *	11.03	333.64	322.61
EA-3	2 Nov 88 *	11.03	333.64	322.61
EA-3	20 Dec 88 *	10.96	333.64	322.68
EA-3	28 Mar 89 *	9.77	333.64	322.87
EA-3	2 Aug 89	10.65	333.64	322.99
EA-3	6 Nov 89	10.78	333.64	322.86
EA-3	25 Jan 90	10.66	333.64	322.98
EA-3	23 Apr 90	10.68	333.64	322.96
PVC	2 Aug 89	9.83	---	---
PVC	6 Nov 89	---	---	---
PVC	25 Jan 90	---	---	---
PVC	23 Apr 90	---	---	---

TABLE 1. Groundwater-Elevation Data (continued)
Chevron Service Station #92582
Dublin, California

NOTES:

DTW = Depth-to-Water
TOC = Top-of-Casing Elevation
Elev-W = Elevation of Water
* = Data obtained by EA Engineering, Science and Technology, Inc.
PVC = 10" PVC Casing
--- = Not Measured

TABLE 2. Analytic Results: Groundwater
Chevron Station #92582
Dublin, California

Well ID #	Date	Lab	EPA Method	FC	TPPH/TPH	B	T	E	X	1,2-DCA
					<----------ppb---------->					
EA-1	17 Oct 88 *	NA	NA	---	<50.0	<0.5	<0.5	<0.5	<0.5	---
EA-1	20 Dec 88 *	PACE	8015/8020	---	<50.0	<0.5	<0.5	<0.5	<0.5	---
EA-1	28 Mar 89 *	PACE	8015/8020	---	<250	<0.5	<0.5	<0.5	<0.5	---
EA-1	2 Aug 89	CCAS	8260	---	<50.0	<0.1	<0.1	<0.1	<0.1	<0.1
EA-1	6 Nov 89	SAL	8015/8240	---	<500	<3.0	<5.0	<5.0	<5.0	<5.0
EA-1	25 Jan 90	SAL	8015/8020/8010	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5
EA-1	23 Apr 90	SAL	8015/8020/8010	---	71	2.0	5.0	3.0	8.0	<0.5
EA-2	17 Oct 88 *	NA	NA	---	<50.0	<0.5	<0.5	<0.5	1.2	---
EA-2	20 Dec 88 *	PACE	8015/8020	---	<50.0	<0.5	<0.5	<0.5	<0.5	---
EA-2	28 Mar 89 *	PACE	8015/8020	---	<250	<2.0	<0.5	<0.5	<0.5	---
EA-2	2 Aug 89	CCAS	8260	---	<50.0	<0.1	<0.1	<0.1	<0.1	<0.1
EA-2	6 Nov 89	SAL	8015/8240	---	<500	<3.0	<5.0	<5.0	<5.0	<5.0
EA-2	25 Jan 90	SAL	8015/8020/8010	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5
EA-2	23 Apr 90	SAL	8015/8020/8010	---	50	0.6	0.8	<0.5	2.0	<0.5
EA-3	17 Oct 88 *	NA	NA	---	<50.0	1.8	<0.5	<0.5	3.0	---
EA-3	20 Dec 88 *	PACE	8015/8020	Gas	240	90.0	1.2	13.0	3.3	---
EA-3	28 Mar 89 *	PACE	8015/8020	Gas	2,300	380.0	130.0	240.0	910.0	---
EA-3	2 Aug 89	CCAS	8260	---	<50.0	<0.1	<0.1	<0.1	<0.1	<0.1
EA-3	6 Nov 89	SAL	8015/8240	---	<500	<3.0	<5.0	<5.0	<5.0	<5.0
EA-3	25 Jan 90	SAL	8015/8020/8010	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5
EA-3	23 Apr 90	SAL	8015/8020/8010	---	<50	0.8	<0.5	0.9	<0.5	<0.5
PVC	2 Aug 89	CCAS	8260	Gas	100,000	8,700	14,000	1,700	17,000	50
PVC-D	2 Aug 89	CCAS	8260	Gas	110,000	9,200	14,000	1,800	13,000	50
PVC	6 Nov 89	---	---	---	---	---	---	---	---	---
PVC	25 Jan 90	---	---	---	---	---	---	---	---	---
PVC	23 Apr 90	---	---	---	---	---	---	---	---	---
EB	28 Mar 89 *	PACE	8015/8020	---	<250.0	<0.5	<0.5	<0.5	<0.5	---
TB	28 Jul 89	CCAS	8260	---	<50.0	<0.1	<0.1	<0.1	<0.1	<0.1
TB	6 Nov 89	SAL	8015/8240	---	<500	<3.0	<5.0	<5.0	<5.0	<5.0
TB	25 Jan 90	SAL	8015/8020/8010	---	<50	<0.5	<0.5	<0.5	<0.5	NA
TB	23 Apr 90	SAL	8015/8020/8010	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5

TABLE 2. Analytic Results: Groundwater (continued)
Chevron Station #92582
Dublin, California

NOTES:

FC	= Fuel Characterization	CCAS	= Central Coast Analytical Services
TPPH	= Total Purgeable Petroleum Hydrocarbons	SAL	= Superior Analytical Laboratories, Inc.
TPH	= Total Petroleum Hydrocarbons	*	= Sample collected by EA Engineering, Science and Technology, Inc.
B	= Benzene	D	= Duplicate analysis
T	= Toluene	PVC	= 10" PVC casing
E	= Ethylbenzene	EB	= Equipment Blank
X	= Total Xylenes	TB	= Travel Blank
1,2-DCA	= 1,2-Dichloroethane	Gas	= Gasoline
ppb	= parts-per-billion	NA	= Not Available
PACE	= Pace Laboratories, Inc.	---	= Not analyzed/Not Applicable

ATTACHMENT A

SOP-4: GROUNDWATER PURGING AND SAMPLING

STANDARD OPERATING PROCEDURES
RE: GROUNDWATER PURGING AND SAMPLING
SOP-4

Prior to water sampling, each well is purged by evacuating a minimum of three well-casing volumes of groundwater or until the discharge water temperature, conductivity, and pH stabilize. The groundwater sample should be taken when the water level in the well recovers to 80% of its static level.

The sampling equipment used consists of either a teflon bailer or a stainless steel bladder pump with a teflon bladder. If the sampling system is dedicated to the well, then the bailer is made of teflon, but the bladder pump is PVC with a polypropylene bladder. Forty milliliter (ml) glass volatile-organic-analysis (VOA) vials, with teflon septa, are used as sample containers.

The groundwater sample is decanted into each VOA vial in such a manner that there is a meniscus at the top of the vial. The cap is quickly placed over the top of the vial and securely tightened. The VOA vial is then inverted and tapped to see if air bubbles are present. If none are present, the sample is labeled and refrigerated for delivery under chain-of-custody to the laboratory. Label information should include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

For quality control purposes, a duplicate water sample is collected from each well. This sample is put on hold at the laboratory. A trip blank is prepared at the laboratory and placed in the transport cooler. It remains with the cooler and is analyzed by the laboratory along with the groundwater samples. A field blank is prepared in the field when sampling equipment is not dedicated. The field blank is prepared after a pump or bailer has been steam-cleaned, prior to use in a second well, and is analyzed along with the other samples. The field blank demonstrates the quality of in-field cleaning procedures to prevent cross-contamination.

To minimize the potential for cross-contamination between wells, all the well-development and water-sampling equipment that is not dedicated to a well is steam-cleaned between each well. As a second precautionary measure, wells will be sampled in order of least to highest concentrations as established by previous analyses.

ATTACHMENT B

FIELD SAMPLING AND MONITORING FORMS

LIQUID-LEVEL DATA SHEET

Project No.	Project Name	Date	Initials
1-124.06a	DUBLIN	4/24/90	D.C. / M.F.

Well No.	HISTORIC DATA/DATE: DTLH	DTW	LHT	CURRENT DATA: DTLH	DTW	LTH	METHOD WLP, PB, (IP)*	TIME	COMMENTS
EA 1					10.58			11:18	
EA 2					9.35			11:15	
EA 3					10.68			11:13	

* WLP = Water-Level Probe
PB = Product Bailer
IP = Interface Probe

WGR 1st

WATER SAMPLING DATA Well Name EA 1 Date 4/23/90 Time 11:30
Job Name DUBLIN Job Number 1-124.06 Initials MPF
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 10.38 ft.
Well Depth 37.72 ft. (spec.) Sounded Depth _____ / _____ ft.
Well Diameter 4 in. Date _____ / Time _____

EVACUATION: Sampling Equipment:
PVC Bailer: _____ in. Dedicated: Bladder Pump ✓ ;Bailer _____
Sampling Port:Number — Rate — gpm. Volume — gal.
Other —
Initial Height of Water in Casing 27.34 ft; Volume 17.83 gal.
Volume To Be Evacuated = 53.56 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	12:18		
Start	11:30		
Total minutes	48		
Amount Evacuated			

Total Evacuated 54 gal.
Evacuation Rate 1.1 gpm.

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = $\pi r^2 h$
7.48 gal/ft³
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping 14.10 ft. 12:00 time ≈ 37gal.
Pumped dry? ND After _____ gal. Recovery rate _____
Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # ____ pH Probe # ____ Cond. Probe # ____

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer ___; Other _____
Samples taken 12:18 time Depth to water 13.98 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor —
Sediment/Foreign matter —

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
041230-01A-HC	ml		HCl	EPA 602/8015	SAL
-01B	ml		"	"	
-01C	ml		NONE	EPA 601	
-01D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WGR 3rd

WATER SAMPLING DATA Well Name EA 2 Date 4/23/96 Time 13:00
Job Name DUBLIN Job Number 1-124.06 Initials MMF
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 9.55 ft.
Well Depth 38.33 ft. (spec.) Sounded Depth / ft.
Well Diameter 4 in. Date / Time /

EVACUATION: Sampling Equipment:
PVC Bailer: _____ in. Dedicated: Bladder Pump ✓ ;Bailer _____
Sampling Port:Number — Rate — gpm. Volume — gal.
Other —
Initial Height of Water in Casing 28.98 ft; Volume 18.92 gal.
Volume To Be Evacuated = 56.77 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	13:50		
Start	13:06		
Total minutes	46		
Amount Evacuated			
Total Evacuated	57 gal.		
Evacuation Rate	1.2 gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = $\pi r^2 h$
7.48 gal/ft³
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping 14.10 ft. 13:28 time ~ 35
Pumped dry? NO After _____ gal. Recovery rate _____
Depth to water for 80% recovery _____ ft.

CHEMICAL DATA: Temp. Probe # ____ Ph Probe # ____ Cond. Probe # ____

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer ___; Other _____
Samples taken 13:50 time Depth to water 13.95 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor —
Sediment/Foreign matter —

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
04232-02A	40 ml		HCl	EPA 602/8015	SAL
-02B	ml		"	"	
-02C	ml		NONE	EPA 601	
-02D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WGR 2nd

WATER SAMPLING DATA Well Name EA 3 Date 4/23/90 Time 11:30
Job Name DUBLIN Job Number 1-124.06 Initials DO
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 10.68 ft.
Well Depth 53.84 ft. (spec.) Sounded Depth ___/___ ft.
Well Diameter 4 in. Date ___/ Time ___/

EVACUATION: Sampling Equipment:
PVC Bailer: _____ in. Dedicated: Bladder Pump ✓ ;Bailer ___
Sampling Port:Number — Rate — gpm. Volume — gal.
Other —
Initial Height of Water in Casing 23.16 ft; Volume 15.12 gal.
Volume To Be Evacuated = 45.37 gal. (initial volume x3 ✓, x4 ___)

	Evacuated	Evacuated	Evacuated
Time: Stop	12:42		
Start	11:40		
Total minutes	62		
Amount Evacuated	45.50		
Total Evacuated	___ gal.		
Evacuation Rate	.7 gpm.		

Formula: / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of cal. = $\pi r^2 h$
7.48 gal/ft³
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping 14.54 ft. 12:30 time (35 gallons)
Pumped dry? NO After ___ gal. Recovery rate ___
Depth to water for 80% recovery ___ ft.

CHEMICAL DATA: Temp. Probe # ___ PH Probe # ___ Cond. Probe # ___

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer ___; Other ___
Samples taken 12:50 time Depth to water 13.35 ft. Refrigerated: ✓
Sample description: Water color SLIGHTLY CLOUDY Odor NONE
Sediment/Foreign matter NONE

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
04230-03A	40 ml	___	HCl	EPA 601/8015	S.A.L
CB3	ml	___	"	/	/
CBC	ml	___	NONE	EPA 601	/
CBD	ml	___	"	"	/
	ml	___	___	___	___
	ml	___	___	___	___
	ml	___	___	___	___
	ml	___	___	___	___

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

COMMENTS: _____

WGR

WATER SAMPLING DATA Well Name TRIP BLANK Date 4/23/96 Time —
Job Name DUBLIN Job Number 1-124.06 Initials D.A./M.F
WELL DATA: Well type ____ (M=monitoring well; Describe ____)
Depth to Water ____ ft.
Well Depth ____ ft. (spec.) Sounded Depth ____ / ____ ft.
Well Diameter 4 in. Date ____ / Time ____

EVACUATION: Sampling Equipment:
PVC Bailer: ____ in. Dedicated: Bladder Pump ____ ;Bailer ____
Sampling Port:Number — Rate —— gpm. Volume —— gal.
Other —
Initial Height of Water in Casing ____ ft; Volume ____ gal.
Volume To Be Evacuated = ____ gal. (initial volume x3 ___, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop			
Start			
Total minutes			
Amount Evacuated			

Total Evacuated ____ gal.
Evacuation Rate ____ gpm.

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = $\pi r^2 h$
7.48 gal/ft³
V_4" casing = 0.163 gal/ft
V_2" casing = 0.367 gal/ft
V_4" casing = 0.653 gal/ft
$V_{4.1}$" casing = 0.826 gal/ft
V_4" casing = 1.47 gal/ft
V_4" casing = 2.61 gal/ft

Depth to water during pumping ____ ft. ____ time
Pumped dry? ____ After ____ gal. Recovery rate ____
Depth to water for 80% recovery ____ ft.

CHEMICAL DATA: Temp. Probe # ____ Ph Probe # ____ Cond. Probe # ____

Time		°C		umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ___; End of bailer ___; Other ____
Samples taken ____ time Depth to water ____ ft. Refrigerated: ✓
Sample description: Water color ____ Odor ____
Sediment/Foreign matter ____

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
04230-CVA	40 ml	↓	NONE	EPA 602/8015 - IMGC	SAL
-CVB	↓ ml	↓	↓	↑	↓
	ml				
	ml				
	ml				
	ml				
	ml				
	ml				

Container codes: P = plastic bottle; C or B = clear/brown glass; Describe

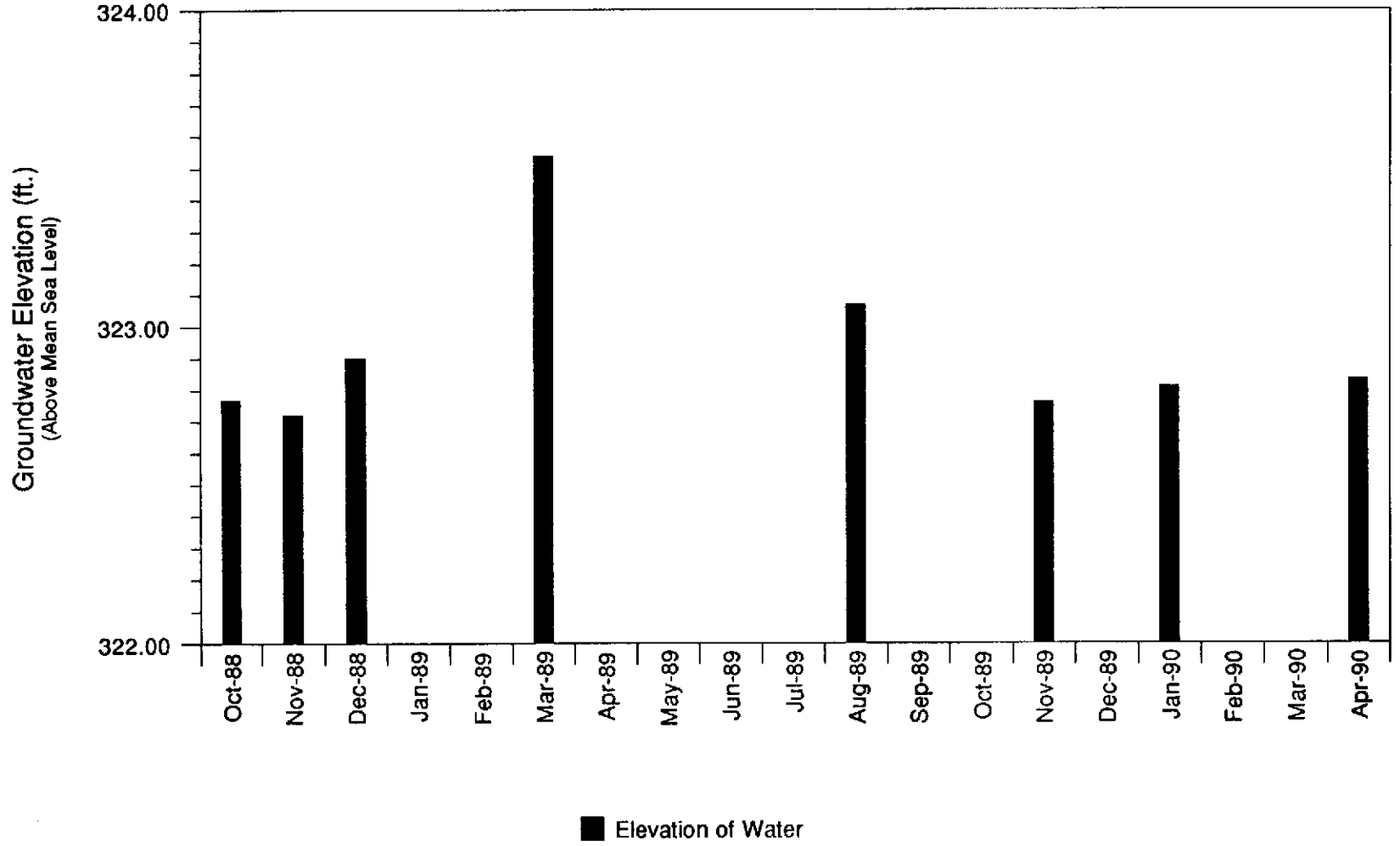
COMMENTS: ____

ATTACHMENT C

HYDROGRAPHS

GROUNDWATER MONITOR WELL EA-1

Chevron Service Station #92582 Dublin, California

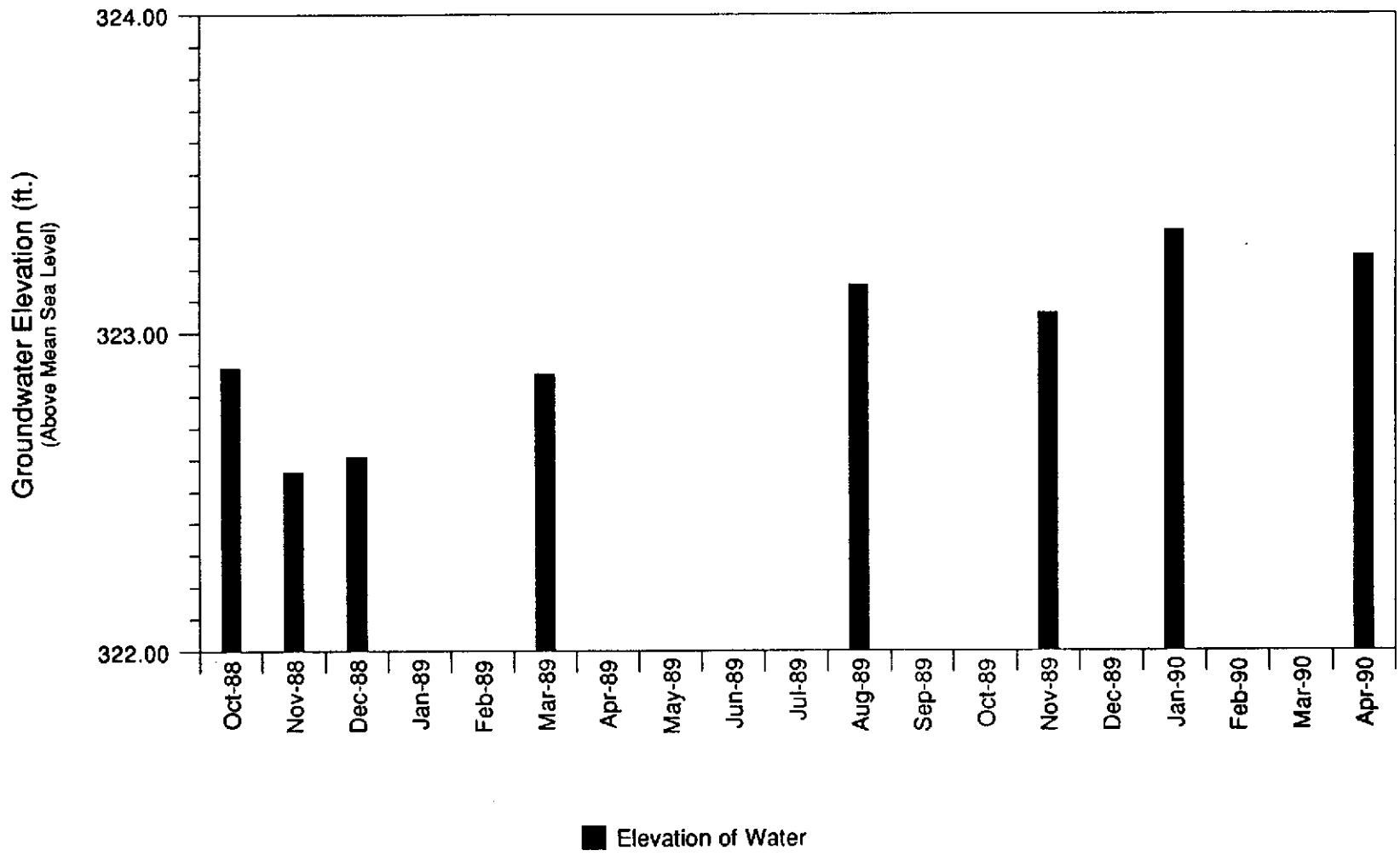


WESTERN GEOLOGIC RESOURCES, INC.

WGR #1-124.06

GROUNDWATER MONITOR WELL EA-2

Chevron Service Station #92582 Dublin, California

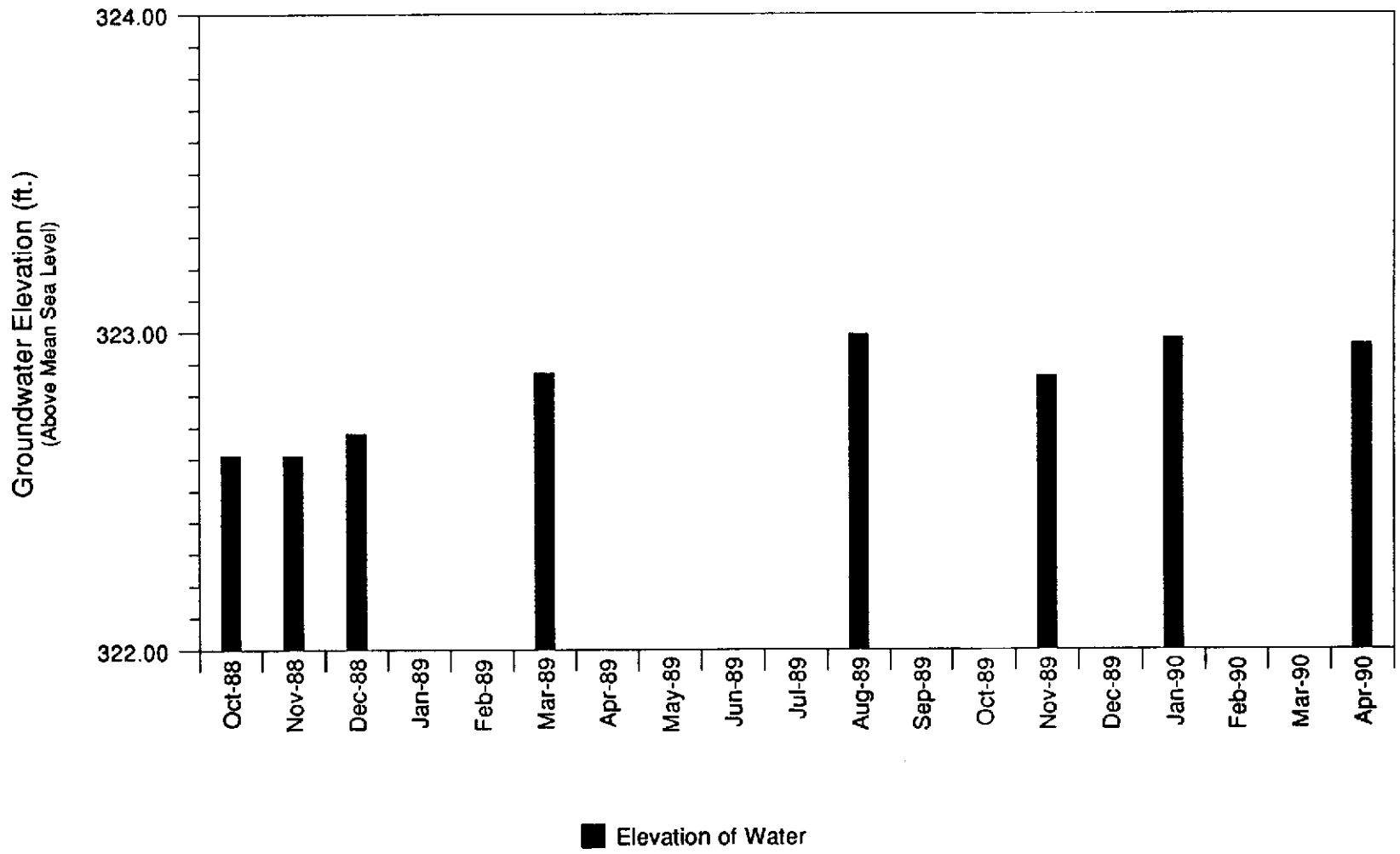


WESTERN GEOLOGIC RESOURCES, INC.

WGR #1-124.06

GROUNDWATER MONITOR WELL EA-3

Chevron Service Station #92582 Dublin, California



WESTERN GEOLOGIC RESOURCES, INC.

WGR #1-124.06

ATTACHMENT D

CHAIN-OF-CUSTODY FORM

SA # 10652

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 7282
Consultant Release Number —
Consultant Project Number 1.124.CCo
Consultant Name [illegible]
Address 2169 E. FRANCISCO BLVD [illegible]
Fax Number (415) 457-8521
Project Contact (Name) [illegible]
(Phone) (415) 457-7595

Chevron Contact (Name) [illegible]
(Phone) 842-9594
Laboratory Name SAL
Contract Number 2612800
Samples Collected by (Name) D. CRAIG / M. DYE
Collection Date 4/24/90
Signature [illegible]

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020 / Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	EPA 601			Remarks
[illegible]	A,B,C,D	4	W		12:18	ice	Yes	X			X				X			[illegible]
[illegible]	A,B,C,D				13:50	[illegible]												[illegible]
[illegible]	A,B,C,D				12:50													
TB	A,B	2			—	HCl												[illegible]
																		[illegible]

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[illegible] WGR	WGR	4-24-90 16:20	[illegible]	Express IT	4/25/90
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			[illegible]	4/25/90	12:00

Turn Around Time (Circle Choice)
24 Hrs
48 Hrs
5 Days
10 Days

Printed in U.S.A.

White / Project File Canary / Sampler Pink / Lab

ATTACHMENT E

LABORATORY REPORTS WITH QUALITY
ASSURANCE/QUALITY CONTROL DOCUMENTS

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10652
CLIENT: Western Geo. Resources
CLIENT JOB NO.: 1-124.06

DATE RECEIVED: 04/25/90
DATE REPORTED: 05/15/90

Laboratory Number	Customer Sample Identification	Date Sampled	Date Analyzed
10652- 1	04230-01	04/24/90	05/02/90
10652- 2	04230-02	04/24/90	05/02/90
10652- 3	04230-03	04/24/90	05/02/90
10652- 4	Trip Blank	04/24/90	05/02/90

Laboratory Number:	10652 1	10652 2	10652 3	10652 4
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)			
OIL AND GREASE:	NA	NA	NA	NA
TPH/GASOLINE RANGE:	71	50	ND<50	ND<50
TPH/DIESEL RANGE:	NA	NA	NA	NA
BENZENE:	2	0.6	0.8	ND<0.5
TOLUENE:	5	0.8	ND<0.5	ND<0.5
ETHYL BENZENE:	3	ND<0.5	0.9	ND<0.5
XYLENES:	8	2	ND<0.5	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • 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
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 10652

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= .
Minimum Detection limit in Water: 5000 ug/L.

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L.
Daily Standards run at 200 mg/L: RPD Diesel =NA.
MS/MSD: Average Diesel Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons

Minimum Quantitation Limit for Gasoline in Water: 50ug/L.
Daily Standards run at 200 mg/L; RPD Gasoline= <15% .
MS/MSD: Average Gasoline Recovery =81% :Duplicate RPD =1%

8020/BTXE:

Mimimum Quantitation Limit in Water: 0.50 ug/L.
Daily Standard run at 20 ug/L: RPD < 15%.
MS/MSD: Average Recovery = 100%: Duplicate RPD =3% .

Richard Srna, Ph.D.
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • 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

LABORATORY NO.: 10652-1
CLIENT: Western Geo. Resources
JOB NO.: 1-124.06

DATE SAMPLED: 04/24/90
DATE RECEIVED: 04/25/90
DATE ANALYZED: 05/04/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:04230-01ABCD

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane	0.5	ND
Bromomethane	0.5	ND
Vinyl chloride	1.0	ND
Dichlorodifluoromethane	0.5	ND
Chloroethane	0.5	ND
Methylene chloride	4.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.2	ND
1,1-Dichloroethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,2-Trichlorotrifluroethane	0.5	ND
1,2-Dichloroethane	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
Bromodichloromethane	0.5	ND
1,2-Dichloropropane	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
Trichloroethylene	0.3	ND
1,1,2-Trichloroethane	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
Dibromochloromethane	0.5	ND
2-Chloroethylvinyl ether	1.0	ND
Bromoform	0.5	ND
Tetrachloroethene / 1,1,2,2-Tetrachloroethane	0.5	ND
Chlorobenzene	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit ; ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15%
MS/MSD average recovery = 96 % : MS/MSD RPD =< 1 %

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • 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

LABORATORY NO.: 10652-2
CLIENT: Western Geo. Resources
JOB NO.: 1-124.06

DATE SAMPLED: 04/24/90
DATE RECEIVED: 04/25/90
DATE ANALYZED: 05/04/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:04230-02ABCD

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane	0.5	ND
Bromomethane	0.5	ND
Vinyl chloride	1.0	ND
Dichlorodifluoromethane	0.5	ND
Chloroethane	0.5	ND
Methylene chloride	4.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.2	ND
1,1-Dichloroethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,2-Trichlorotrifluroethane	0.5	ND
1,2-Dichloroethane	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
Bromodichloromethane	0.5	ND
1,2-Dichloropropane	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
Trichloroethylene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
Dibromochloromethane	0.5	ND
2-Chloroethylvinyl ether	1.0	ND
Bromoform	0.5	ND
Tetrachloroethene / 1,1,2,2-Tetrachloroethane	0.5	ND
Chlorobenzene	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit ; ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15%
MS/MSD average recovery = 96 % : MS/MSD RPD =< 1 %

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10652-3
CLIENT: Western Geo. Resources
JOB NO.: 1-124.06

DATE SAMPLED: 04/24/90
DATE RECEIVED: 04/25/90
DATE ANALYZED: 05/04/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:04230-03ABCD

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane	0.5	ND
Bromomethane	0.5	ND
Vinyl chloride	1.0	ND
Dichlorodifluoromethane	0.5	ND
Chloroethane	0.5	ND
Methylene chloride	4.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.2	ND
1,1-Dichloroethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,2-Trichlorotrifluroethane	0.5	ND
1,2-Dichloroethane	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
Bromodichloromethane	0.5	ND
1,2-Dichloropropane	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
Trichloroethylene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
Dibromochloromethane	0.5	ND
2-Chloroethylvinyl ether	1.0	ND
Bromoform	0.5	ND
Tetrachloroethene / 1,1,2,2-Tetrachloroethane	0.5	ND
Chlorobenzene	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit ; ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15%
MS/MSD average recovery = 96 % : MS/MSD RPD =< 1 %

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10652-4
CLIENT: Western Geo. Resources
JOB NO.: 1-124.06

DATE SAMPLED: 04/24/90
DATE RECEIVED: 04/25/90
DATE ANALYZED: 05/04/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:Trip Blank AB

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane	0.5	ND
Bromomethane	0.5	ND
Vinyl chloride	1.0	ND
Dichlorodifluoromethane	0.5	ND
Chloroethane	0.5	ND
Methylene chloride	4.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.2	ND
1,1-Dichloroethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,2-Trichlorotrifluroethane	0.5	ND
1,2-Dichloroethane	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
Bromodichloromethane	0.5	ND
1,2-Dichloropropane	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
Trichloroethylene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
Dibromochloromethane	0.5	ND
2-Chloroethylvinyl ether	1.0	ND
Bromoform	0.5	ND
Tetrachloroethene / 1,1,2,2-Tetrachloroethane	0.5	ND
Chlorobenzene	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit ; ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15%
MS/MSD average recovery = 96 % : MS/MSD RPD =< 1 %

Richard Srna, Ph.D.
Laboratory Director

OUTSTANDING QUALITY AND SERVICE