Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

June 20, 1990

90 JUN 22 PM 12:02

Mr. Dennis Byrne
Alameda County
Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Re: Former Chevron Bulk Plant #1001067
1520 Powell Street
Emeryville, California

Dear Mr. Byrne:

Enclosed are the results of the quarterly ground water sampling conducted by Western Geologic Resources at the above referenced site. As indicated in the report, all water samples were analyzed for total purgeable petroleum hydrocarbons (TPH) and aromatic hydrocarbons (BTEX). In order to track the natural degradation of hydrocarbons in the groundwater beneath the site, Chevron will continue to monitor the site on a quarterly basis.

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. If you have any questions or require additional information, please contact Lisa Marinaro Backlund at (415) 842 - 9527.

Sincerely,
D. Moller

By Lisa Backlund
Lisa Marinaro Backlund
West Central Engineer

cc: Tom Callaghan
California Regional Water
Quality Control Board
1800 Harrison Street
Oakland, California 94607

WESTERN GEOLOGIC RESOURCES INC.

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

JUN 18 '90

12 June 1990

Ms. Lisa Marinaro
Chevron USA
2410 Camino Ramon
San Ramon, California 94583-0804

Re: Quarterly Groundwater Monitoring
Sampled 21 and 26 March 1990
Abandoned Chevron Asphalt Plant and Terminal
1520 Powell Street
Emeryville, California
WGR Project #1-045.07

Dear Ms. Marinaro:

This letter report presents the results of the quarterly groundwater monitoring performed 21 and 26 March 1990 by Western Geologic Resources, Inc. (WGR), at the subject site (Figure 1).

GROUNDWATER SAMPLING

On 21 March 1990, WGR staff measured depth-to-water and purged monitor wells MW-1 through MW-3, MW-7, MW-8 and MW-10 through MW-15. Wells MW-1 through MW-3 and MW-12 through MW-15 were purged dry before three well-casings volumes could be evacuated. Wells MW-1 and MW-2 were sampled after recovering to 32% and 68%, respectively, of their original static water levels; wells MW-3 and MW-12 through MW-15 were sampled after recovering to at least 80% of static water levels. Wells MW-7, MW-8, MW-10 and MW-11 were sampled after three well-casing volumes were evacuated. Monitor well MW-9 has not been located since 7 July 1985 and wells MW-4 through MW-6 were destroyed during soil excavation in 1989. Wells MW-13 through MW-15 are newly-constructed monitor wells. Monitor wells MW-16 through MW-19 were installed from 21 to 23 March 1990. Development of wells MW-16 through MW-19 was completed on 26 March 1990 and groundwater samples were collected on 26 March 1990 after three well-casing volumes were evacuated. Monitor well MW-19 was purged dry at three well-casing volumes and was sampled after recovering to 94% of its original static water level. All groundwater samples were collected according to the WGR standard operating procedure for groundwater sampling included as Attachment A; field forms are included as Attachment B.

All purged water was temporarily stored on-site in 55-gallon drums pending analytic results. The groundwater samples and a laboratory-supplied travel blank, consisting of deionized water, were shipped under chain-of-custody to GTEL Environmental Laboratories in Concord, California.

GROUNDWATER FLOW

Figure 2 shows the potentiometric surface of shallow groundwater, based on depth-to-water measurements taken in wells MW-1 through MW-3, MW-7, MW-8 and MW-10 through MW-15 on 21 March 1990. All wells were surveyed to a regional datum. Data reported here was based on this resurveying effort. Estimated groundwater flow direction was to the south at a gradient of about 1.2%. Groundwater elevation data are presented in Table 1.

ANALYTIC RESULTS

Groundwater samples from monitor wells MW-1 through MW-3, MW-7, MW-8 and MW-10 through MW-19 were analyzed for total petroleum hydrocarbons (TPH) and for benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Methods 8015 and 8020, respectively, and for halocarbons by EPA Method 601. In addition, wells MW-13 through MW-19 were analyzed for oil and grease by Standard Method 503E, for cadmium, chromium and zinc by EPA Method 6010 and for lead by EPA Method 239.2. Analytic results for past sampling events and this round of sampling are presented in Tables 2 and 3. Chain-of-custody forms and laboratory reports with quality assurance/quality control (QA/QC) documents are included as Attachments C and D, respectively.

COMMENTS

Total petroleum hydrocarbons (TPH), characterized as gasoline, and certain aromatic compounds were detected in groundwater samples collected from on-site wells MW-1, MW-13 and MW-14 with maximum concentrations of 3,500 parts-per-billion (ppb) TPH and 120 ppb benzene being detected in samples from monitor well MW-1. No TPH or aromatic hydrocarbons were detected in groundwater samples from any off-site wells.

Halocarbons were detected in groundwater samples from off-site wells MW-16 through MW-19, with the highest concentrations being found in samples from well MW-19. Samples from well MW-19 had 41 ppb trichloroethene (TCE), 53 ppb tetrachloroethene (PCE) and 10 ppb 1,2-dichloroethene (1,2-DCE). Halocarbons were not detected in groundwater samples from on-site wells MW-13 and MW-14 or from off-site well MW-15.

1,2-DCE concentrations in groundwater samples from on-site well MW-1 increased from 2,700 ppb during the December 1989 sampling to 7,000 ppb during the March 1990 sampling.

The highest concentrations of metals were found in samples from off-site monitor well MW-18. Monitor wells MW-18 and MW-19 are located adjacent to what has been reported by John Koch, Land Surveyor, to be a former metal machine shop. Additional information concerning the off-site land use history is being researched.

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.

Joel Coffman
Staff Geologist

Christopher S. Alger
Project Engineering Geologist

Kathleen Isaacson for
Thomas Howard
Project Hydrogeologist

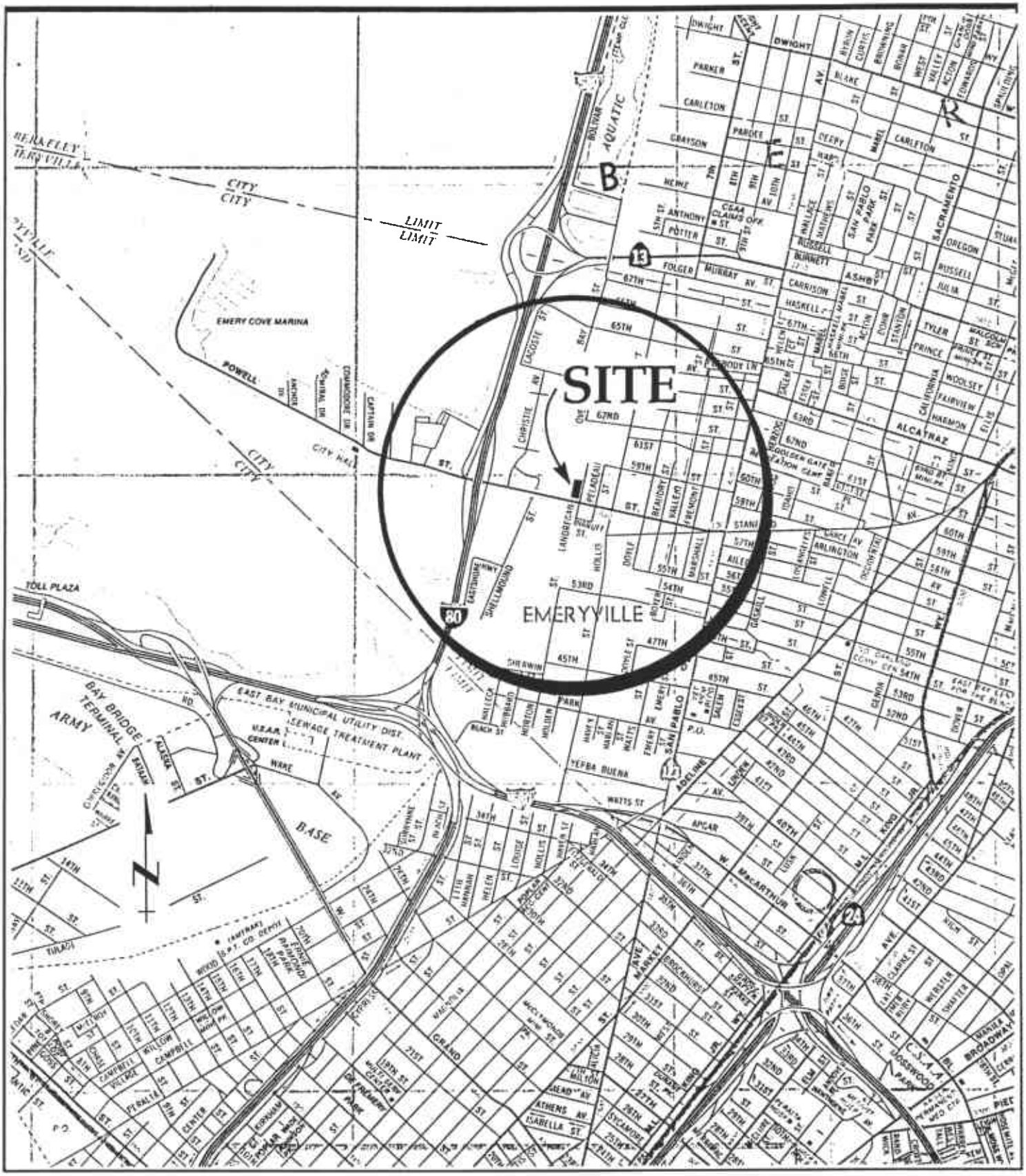
045L2AP0.WP

FIGURES

TABLES

ATTACHMENTS

FIGURES



NOT TO SCALE

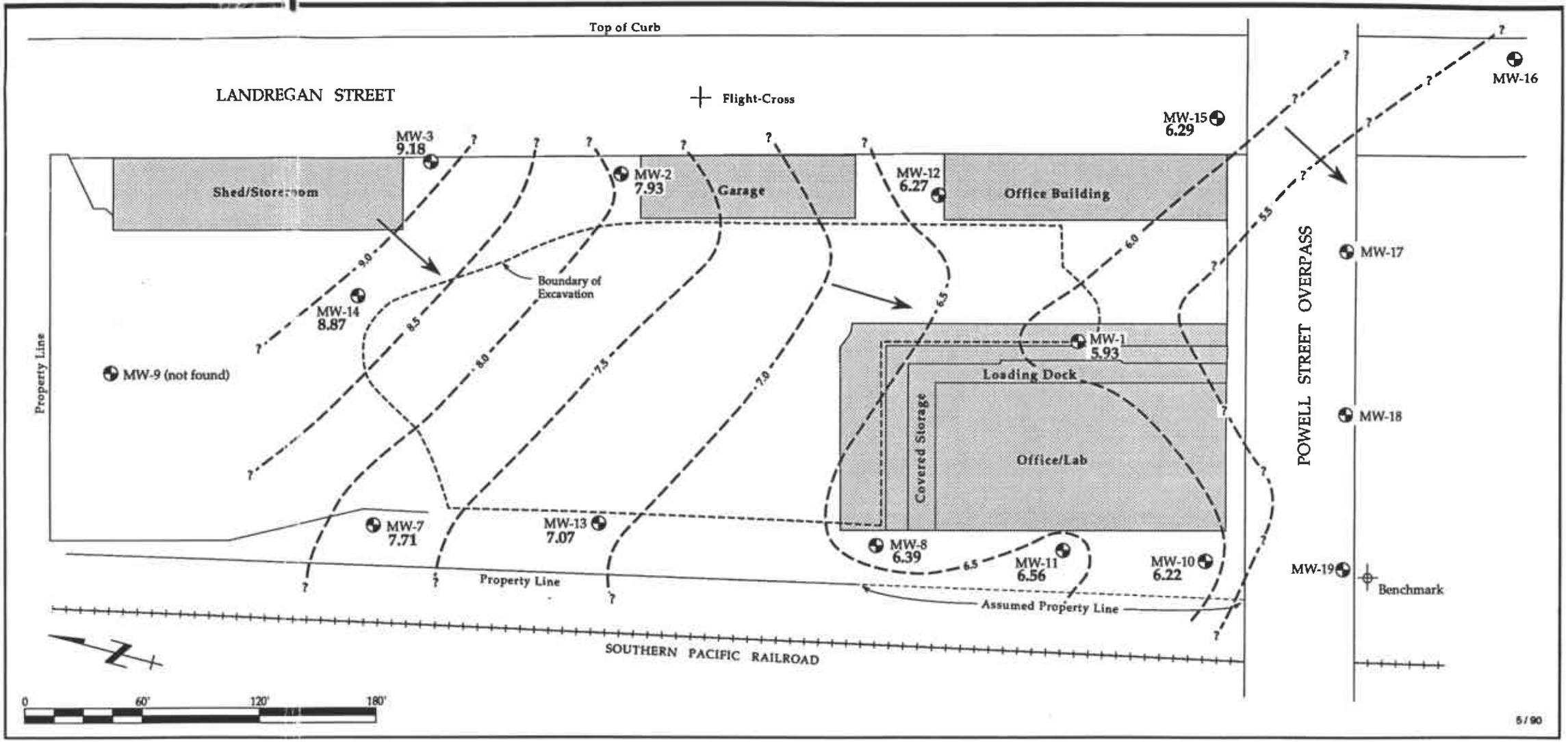
Reference: 1989 CSAA Road Map

Site Location Map
Former Chevron Asphalt Plant and Terminal
Emeryville, California

FIGURE
1

WESTERN GEOLOGIC RESOURCES, INC.

1-045.07



LEGEND

MW-8 6.39	Monitor Well Location with Groundwater Elevation, feet above mean sea level
7.0 — — — ?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain
→	Direction of Groundwater Flow

NO DATA IS AVAILABLE FOR WELLS MW-16 TO MW-19

Potentiometric Surface of Shallow Groundwater
21 March 1990
Former Chevron Asphalt Plant and Terminal
Emeryville, California

FIGURE
2

WESTERN GEOLOGIC RESOURCES, INC.

1-045.07

TABLES

TABLE 1. Groundwater Elevation Data
Abandoned Chevron Asphalt Plant and Terminal
Emeryville, California

Well ID #	Date	Rel.-TOC	TOC	DTW	Rel.-Elev.-W	Elev.-W
MW-1	13 Apr 89	98.56	10.67	3.72	94.84	6.95
MW-1	31 Jul 89	98.56	10.67	5.72	92.84	4.95
MW-1	8 Dec 89	98.56	10.67	4.80	93.76	5.87
MW-1	21 Mar 90	---	10.67	4.74	---	5.93
MW-2	13 Apr 89	99.20	13.78	2.62	96.58	11.16
MW-2	31 Jul 89	99.20	13.78	4.63	94.57	9.15
MW-2	8 Dec 89	99.20	13.78	5.98	93.22	7.80
MW-2	21 Mar 90	---	13.78	5.85	---	7.93
MW-3	13 Apr 89	99.50	11.73	2.34	97.16	9.39
MW-3	31 Jul 89	99.50	11.73	4.79	94.71	6.94
MW-3	8 Dec 89	99.50	11.73	3.03	96.47	8.70
MW-3	21 Mar 90	---	11.73	2.55	---	9.18
MW-4**	13 Apr 89	99.86	---	2.12	96.74	---
MW-5**	13 Apr 89	98.53	---	2.79	95.74	---
MW-6**	13 Apr 89	99.03	---	1.90	97.13	---
MW-7	13 Apr 89	98.40	10.47	1.90	96.50	8.57
MW-7	31 Jul 89	98.40	10.47	4.24	94.16	6.23
MW-7	8 Dec 89	98.40	10.47	2.65	95.75	7.82
MW-7	21 Mar 90	---	10.47	2.76	---	7.71
MW-8	13 Apr 89	98.31	10.46	2.80	95.51	7.66
MW-8	31 Jul 89	98.31	10.46	5.70	92.61	4.76
MW-8	8 Dec 89	98.31	10.46	4.13	94.18	6.33
MW-8	21 Mar 90	---	10.46	4.07	---	6.39
MW-10	21 Mar 90	---	10.82	4.60	---	6.22
MW-11	21 Mar 90	---	11.38	4.82	---	6.56
MW-12	21 Mar 90	---	13.03	6.76	---	6.27
MW-13	21 Mar 90	---	11.15	4.08	---	7.07
MW-14	21 Mar 90	---	9.78	0.91	---	8.87

1-045.44/G1MY0.WK1

TABLE 1. Groundwater Elevation Data (continued)
Abandoned Chevron Asphalt Pland and Terminal
Emeryville, California

Well ID #	Date	Rel.-TOC	TOC	DTW	Rel.-Elev.-W	Elev.-W
MW-15	21 Mar 90	---	11.01	4.72	---	6.29
MW-16	26 Mar 90	---	11.11	5.84	---	5.27
MW-17	26 Mar 90	---	10.41	5.61	---	4.80
MW-18	26 Mar 90	---	9.80	5.15	---	4.65
MW-19	26 Mar 90	---	8.45	5.00	---	3.45

NOTES:

Datum = Feet Above Mean Sea Level

Rel.-TOC = Relative top-of-casing elevation surveyed to temporary benchmark established at southwest corner of former totalizer, arbitrarily set at 100.00 ft above mean sea level. This TOC was used for reports prior to 21 March 1990.

TOC = Top-of-casing elevation as surveyed in April 1990, in feet above mean sea level. Back-calculated using TOC - DTW = Elev.-W to figure previous TOC'S.

DTW = Depth-to-water

Rel.-Elev.-W = Relative elevation of groundwater calculated by formula: Rel. Elev-W = (Rel. - TOC) - DTW.

Elev.-W = Elevation of groundwater

** = Monitor wells destroyed during soil excavation.

TABLE 2. Analytic Results: Groundwater
Former Chevron Asphalt Plant
Emeryville, California

Well ID #	Date	FC	O&G (ppm)	TPH/TPPH	B	T	E	X	1,1-DCE	1,2-DCE	1,1-DCA	TCA	TCE	PCE	CF	VC	Other
				<--------						ppb						-------->	
MW-1	14 Apr 89	---	---	<5,000	34.0	<5.0	<5.0	<10.0	<5.0	739.0	<5.0	<5.0	11.0	---	---	340.0	I
MW-1	31 Jul 89	Gas	---	7,000	57.0	1.2	<0.2	1.6	6.8	2,654.0	2.7	7.2	57.0	---	---	760.0	II
MW-1	8 Dec 89	---	---	---	26.0	0.4	0.9	2.0	4.3	2,700.0	1.7	1.4	59.0	---	<0.5	520.0	---
MW-1	21 Mar 90	Gas	---	3,500	120.0	9.0	3.0	3.0	7.1	7,000.0	2.1	1.1	130.0	<0.5	<0.5	1100.0	---
MW-2	14 Apr 89	---	<3.0	<100	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	---	---	<0.2	---
MW-2	31 Jul 89	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<0.2	<0.4	0.5	<0.2	---	---	<0.2	---
MW-2	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	---	<0.5	<1.0	---
MW-2	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-3	14 Apr 89	---	<3.0	<100	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	---	---	<0.2	---
MW-3	31 Jul 89	---	---	<100	<0.2	<1.0	<0.2	<0.4	<0.2	<0.2	<0.4	0.5	<0.2	---	---	<0.2	---
MW-3	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	---	<0.5	<1.0	---
MW-3	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-4*	14 Apr 89	DSL 2	<3.0	380	<0.5	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	---	---	<1.0	---
MW-4*	8 Dec 89	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5*	14 Apr 89	DSL 2	<3.0	4,300	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	<1.0	---
MW-5*	8 Dec 89	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6*	14 Apr 89	DSL 2	<3.0	3,300	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	<1.0	---
MW-6*	8 Dec 89	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-7	14 Apr 89	---	<3.0	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	---	---	<1.0	---
MW-7	31 Jul 89	DSL 2	---	160.0	<0.1	<0.5	<0.1	<0.2	<0.1	0.3	<0.1	4.5	<0.1	---	---	<0.1	III
MW-7D	31 Jul 89	DSL 2	---	100.0	<0.1	<0.5	<0.1	<0.1	<0.1	0.4	0.2	2.6	<0.1	---	---	<0.1	III
MW-7	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	0.67	<0.5	---	<0.5	<1.0	---
MW-7	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	0.6	<0.2	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<1.0	---
MW-8	14 Apr 89	---	<3.0	<50	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	---	---	<1.0	---
MW-8	31 Jul 89	---	---	<50	<0.1	<0.5	<0.1	<0.2	<0.1	2.5	1.7	1.7	0.4	---	---	1.2	---
MW-8	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.02	0.53	<0.5	0.89	<0.5	---	<0.5	<1.0	---
MW-8	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	0.96	<0.5	0.72	<0.5	<0.5	<0.5	<1.0	---

TABLE 2. Analytic Results: Groundwater (continued)
Former Chevron Asphalt Plant
Emeryville, California

Well ID #	Date	FC	O&G (ppm)	TPH/TPPH	B	T	E	X	1,1-DCE	1,2-DCE	1,1-DCA	TCA	TCE	PCE	CF	VC	Other
				<--------						ppb						-------->	
MW-10	14 Apr 89	---	<3.0	<50	<0.5	<1.0	<1.0	<1.0	<1.0	15.0	2.0	<1.0	5.0	---	---	<1.0	---
MW-10	31 Jul 89	---	---	<50	<0.1	<0.5	<0.1	<0.2	0.7	33.3	2.9	<0.1	5.3	---	---	<0.1	---
MW-10	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	24.0	3.1	<0.5	4.9	---	0.6	<1.0	---
MW-10	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	0.7	30.0	2.5	<0.5	3.5	<0.5	<0.5	<1.0	---
MW-11	14 Apr 89	---	<3.0	<50	<0.5	<1.0	<1.0	<1.0	1.0	120.0	<1.0	<1.0	4.0	---	---	10.0	---
MW-11	31 Jul 89	---	---	<100	<0.2	<0.2	<0.2	<0.2	0.9	150.0	2.2	1.4	2.9	---	---	<0.2	---
MW-11	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	0.5	120.0	2.1	1.2	4.1	---	<0.5	2.4	---
MW-11	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	1.3	150.0	1.2	1.7	3.5	<0.5	<0.5	4.3	IV
MW-12	14 Apr 89	---	<3.0	<50	<0.5	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	---	---	<1.0	---
MW-12	31 Jul 89	---	---	<100	<0.1	<0.5	<0.1	<0.2	<0.1	1.7	<0.1	<0.1	0.8	---	---	<0.1	---
MW-12	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	---	<0.5	<1.0	---
MW-12	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-13	21 Mar 90	---	---	480	<0.3	<0.3	1.0	5.0	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-14	21 Mar 90	---	---	170	<0.3	<0.3	0.4	2.0	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-15	21 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
MW-16	26 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	0.8	<0.5	<0.5	27.0	8.0	2.0	<1.0	---
MW-17	26 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	5.2	0.7	1.3	32.0	11.0	1.1	<1.0	---
MW-18	26 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	1.7	<0.5	2.4	33.0	20.0	0.9	<1.0	---
MW-19	26 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	10.0	<0.5	2.5	41.0	53.0	3.2	<1.0	---
TB	14 Apr 89	---	---	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
TB	31 Jul 89	---	---	<50	<0.1	<0.5	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
TB	8 Dec 89	---	---	---	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	---	<0.5	<1.0	---
TB	21 Mar 90	---		<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	---
TB	26 Mar 90	---	---	<50	<0.3	<0.3	<0.3	<0.6	<0.2	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<1.0	---

TABLE 2. Analytic Results: Groundwater (continued)
Former Chevron Asphalt Plant
Emeryville, California

NOTES:

FC = Fuel Characterization
O&G = Oil and Grease
TPH/TPPH = Total Petroleum Hydrocarbons/Total Purgeable Petroleum Hydrocarbons
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
1,1-DCE = 1,1-Dichloroethene
1,2-DCE = cis- and trans-1,2-dichloroethene
1,1-DCA = 1,1-Dichloroethane
TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
PCE = Tetrachloroethene
CF = Chloroform
VC = Vinyl Chloride
ppm = parts-per-million
ppb = parts-per-billion
GAS = Gasoline
DSL 2 = Diesel #2
TB = Travel Blank
--- = Not Analyzed/Not Detected
I = 6 ppb 1,2-dichloropropane
II = 0.6 ppb 1,2-dichloroethane
III = 0.1 ppb 1,2-dichlorobenzene
IV = 1.8 ppb 1,2-dichloroethane
* = Destroyed Monitor Wells - 1989

TABLE 3. Additional Analytic Results
Metals in Groundwater Samples
Former Chevron Asphalt Plant
Emeryville, California

Well Id #	Date	Total Cadmium	Total Chromium	Total Lead	Total Zinc
		<----------ppb---------->			
MW-13	21 Mar 90	<50	<100	<5.0	<100
MW-14	22 Mar 90	<50	<100	<5.0	<100
MW-15	21 Mar 90	<50	<100	<5.0	<100
MW-16	26 Mar 90	<50	6,600	45	540
MW-17	26 Mar 90	56	7,900	150	1,020
MW-18	26 Mar 90	340	20,000	140	5,900
MW-19	26 Mar 90	<50	1,600	30	420
TB	21 Mar 90	<50	<100	<5.0	<100
TB	26 Mar 90	<50	<100	<5.0	<100

NOTES:
TB = Travel Blanks
ppb = parts-per-billion

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 FORMS

LIQUID-LEVEL DATA SHEET

Job Emeryville Date 3/21/90
Job # 1-045.07 Initials D.O./J.K.

WELL	HISTORIC DATA/ DATE: DTW	DTLH	LHT	CURRENT DATA DTW	DTLH	LHT	METHOD WLP, PB or IP*	TIME	COMMENTS
MW-1				4.74				9:04	
MW-2				5.05				9:21	
MW-3				2.55				9:19	
MW-4				2.76				9:16	
MW-8				4.07				9:14	
MW-10				4.60				9:10	
MW-11				4.82				9:12	
MW-12				6.76				9:25	
MW-13				4.08				9:15	
MW-14				1.91				9:18	
MW-15				4.12				9:25	

SHEET 2 OF 2

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

From Top of Casing

LIQUID-LEVEL DATA SHEET

Job Emeryville Date 3/26/90
Job # 1-045.45 Initials DRH

WELL	HISTORIC DATA/ DATE: DTW	DTLH	LHT	CURRENT DATA DTW	Sounded Depth	LHT	METHOD WLP, PB or IP*	TIME	COMMENTS
mw 16				5.84	13.33			11:50	
mw 17				5.61	11.80		IP	11:48	
mw 18				5.15	10.75		IP	11:46	
mw-19				5.00	8.68		IP	11:44	need to notch casing

PAGE 1 OF 1

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

WGR

(1st SAMPLED)

WATER SAMPLING DATA: Well Name MW-1. Date 3/21/90 Time 940
Job Name Emeryville BP/ARCO Job Number 1-045-07 Initials [redacted] JK
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 4.74 ft.
Well Depth 11.33 ft. (spec.) Sounded Depth / ft.
Well Diameter 3 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 6.59 ft; Volume 2.4 gal.
Volume To Be Evacuated = 7.25 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	950	1003	1014
Start	944	1001	1013
Total minutes	6	2	1
Amount Evacuated	6	1	.50
Total Evacuated	6 gal.		
Evacuation Rate	6 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
(4") casing = 0.367 gal/ft
5" casing = 0.653 gal/ft
6" casing = 0.826 gal/ft
8" casing = 1.47 gal/ft
10" casing = 2.61 gal/ft

Depth to water during pumping — ft. ~ time
Pumped dry? yes After 5 gal. Recovery rate .072
Depth to water for 80% recovery 6.05 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 10:19 time Depth to water 9.90 ft. Refrigerated: ✓
Sample description: Water color clear Odor —
Sediment/Foreign matter —

Sample ID no.	Container VOA	Container other	Preservative NaHSO₄/Azide/other	Analysis	Lab
032100-01A	40 ml		HCl	EPA 602/8015	GTE
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: DTW = 10.54 at 9:54 31.56
9.25 at 9:54 = 32.70

4th Sampled

WGR

WATER SAMPLING DATA Well Name MW-2 Date 8/21/90 Time 1055
Job Name Emeryville Airport Job Number 1-045.07 Initials [illegible] JK
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 5.85 ft.
Well Depth 12.14 ft. (spec.) Sounded Depth / ft.
Well Diameter 3 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 6.29 ft; Volume 2.3 gal.
Volume To Be Evacuated = 6.9 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	1401	1111	1435
Start	1057	1110	1433
Total minutes	4	1	
Amount Evacuated	5	.25	1.75
Total Evacuated	gal.		
Evacuation Rate	gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = πr²h
7.48 gal/ft³
¾" casing = 0.163 gal/ft
(2") casing = 0.367 gal/ft
3" casing = 0.653 gal/ft
4" casing = 0.826 gal/ft
5" casing = 1.47 gal/ft
6" casing = 2.61 gal/ft

Depth to water during pumping: — ft. — time
Pumped dry? yes After 6.5 gal. Recovery rate .036
Depth to water for 80% recovery 7.1x 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 1440 time Depth to water 11.83 ft. Refrigerated: ✓
Sample description: Water color clear Odor no
Sediment/Foreign matter no

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
CB210-01A	40 ml		HCl	EPA 602/8015	CTEL
-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: DTW = 12.23 at 11:02 Sounded Depth = 14.15 at 11:03 hard bottom
[illegible]73 at 10:07
[illegible]84 at 1429 = 68.3% recovered

(5th Sampled)

WGR

WATER SAMPLING DATA: Well Name MW-3 Date 3/21/90 Time 1120
Job Name Emery/ASPECT Job Number 1-095.07 Initials ~~MMG~~ JK
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 2.55 ft.
Well Depth 12.0 ft. (spec.) Sounded Depth —/— ft.
Well Diameter 3 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 9.45 ft; Volume 3.4 gal.
Volume To Be Evacuated = 10.40 gal. (initial volume x3 ✓, x4 —)

	Evacuated	Evacuated	Evacuated
Time: Stop	1128		
Start	1121		
Total minutes	7		
Amount Evacuated	7		

Total Evacuated 7 gal.
Evacuation Rate 100 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
¾" casing = 0.163 gal/ft
(4") casing = 0.367 gal/ft
5" casing = 0.653 gal/ft
6" casing = 0.826 gal/ft
8" casing = 1.47 gal/ft
10" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 7 gal. Recovery rate 105
Depth to water for 80% recovery 4.44 ft.

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

Time		Temp. °C	Ph	Cond. umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓; End of bailer —; Other —
Samples taken 1415 time Depth to water 5.33 ft. Refrigerated: ✓
Sample description: Water color clear Odor no
Sediment/Foreign matter little silt

Sample ID no.		Container VOA/other	Preservative NaHSO₄/Azide/other	Analysis	Lab
032190-08A	40 ml		HCl	EPA 602/8015	CTEL
-08B	ml		"	"	
-08C	ml		NONE	EPA 601	
-08D	ml		"	"	↓
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: DTW = 11:00 at 11:30
10.30 at 11:35
353 at 14:07 = 89.6% removed for sampling

16th Sampled

WGR

WATER SAMPLING DATA Well Name MW-7 Date 3/21/90 Time 13:15
Job Name Emery Asphalt Job Number 1-045.07 Initials [illegible]
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 2.76 ft.
Well Depth 13.59 ft. (spec.) Sounded Depth / ft.
Well Diameter 3 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 10.83 ft; Volume 3.9 gal.
Volume To Be Evacuated = 11.9 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	14:20	/	/
Start	14:00		
Total minutes	20		
Amount Evacuated	12.0		
Total Evacuated	12.0 gal.		
Evacuation Rate	.60 gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = πr²h
7.48 gal/ft³
½" casing = 0.163 gal/ft
(1") casing = 0.367 gal/ft
1½" casing = 0.653 gal/ft
2" casing = 0.826 gal/ft
3" casing = 1.47 gal/ft
4" casing = 2.61 gal/ft

Depth to water during pumping 7.56 ft. 14:15 time
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 14:25 time Depth to water 10.58 ft. Refrigerated: ✓
Sample description: Water color SLIGHTLY Cloudy Gray Odor NONE
Sediment/Foreign matter LARGE SMALL AMOUNT OF FINE WHITE & BROWNISH SAND

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-01A	40 ml	✓	HCl	EPA 602/8015	CTEL
-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: _____

4th Sampled

WGR

WATER SAMPLING DATA: Well Name MW-8 Date 3/21/90 Time 12:45
Job Name Emery Asphalt Job Number 1-045.01 Initials [illegible] D.O.
WELL DATA: Well type MW (M=monitoring well; Describe _____)
Depth to Water 4.07 ft.
Well Depth 15.19 ft. (spec.) Sounded Depth / ft.
Well Diameter 3 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 11.12 ft; Volume 4.08 gal.
Volume To Be Evacuated = 12.2 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	13:15		
Start	12:55		
Total minutes	20		
Amount Evacuated	12.5		
Total Evacuated	12.5 gal.		
Evacuation Rate	1@25 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
¾" casing = 0.163 gal/ft
(4") casing = 0.367 gal/ft
5" casing = 0.653 gal/ft
6" casing = 0.826 gal/ft
8" casing = 1.47 gal/ft
10" casing = 2.61 gal/ft

Depth to water during pumping 12.95 ft. 13.08 time
Pumped dry? NO After — gal. Recovery rate —
Depth to water for 80% recovery — ft.

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

Time		Temp. °C	Ph	Cond. umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓ ; End of bailer — ; Other —
Samples taken 17:25 time Depth to water 13.90 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor NONE
Sediment/Foreign matter FINE TANNISH/BROWN SAND (SMALL AMOUNT)

Sample ID no.	Container	Preservative	Analysis	Lab
03210-08A	40 ml VOA / other	HCl	EPA 602/8015	GTEL
-08B	ml	✓	"	
-08C	ml	None	EPA 601	
-08D	ml ✓	"	"	✓
	ml			
	ml			
	ml			
	ml			

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

COMMENTS:

2nd Sampled

WGR

WATER SAMPLING DATA Well Name MW-10 Date 3/21/90 Time 10:00
Job Name Emery/BP HALT Job Number 1-045.09 Initials D.O.
WELL DATA: Well type M (M=monitoring well; Describe ____________)
Depth to Water 4.20 ft.
Well Depth 20.3 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 15.76 ft; Volume 10.29 gal.
Volume To Be Evacuated = 30.8 gal. (initial volume x3 ✓, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop	10:40	/	/
Start	10:13	/	/
Total minutes	27	/	/
Amount Evacuated	31	/	/
Total Evacuated	31 gal.		
Evacuation Rate	1.15 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_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

Depth to water during pumping 11.78 ft. 10:35 time
Pumped dry? No After — gal. Recovery rate —
Depth to water for 80% recovery — ft.

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

Time		Temp. (°C)	pH	Cond. (umhos)
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ✓ ; End of bailer ___ ; Other ____
Samples taken 10:45 time Depth to water 7.91 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor NONE
Sediment/Foreign matter NONE

Sample ID no.	ml	Container VOA / other	Preservative NaHSO4/Azide/other	Analysis	Lab
03210-01A	40	VOA	HCl	EPA 602/8015	GTEL
-01B	↓	↓	"	"	↓
-01C	↓	↓	NONE	EPA 601	↓
-01D	↓	↓	"	"	↓

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

COMMENTS: ____________

3rd Sampled

WGR

WATER SAMPLING DATA: Well Name MW-1 Date 3/21/90 Time 11:00
Job Name Emeryville Asphalt Job Number 1-045.07 Initials [illegible]
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 4.82 ft.
Well Depth 19.18 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 14.36 ft; Volume 9.54 gal.
Volume To Be Evacuated = 28.62 gal. (initial volume x3 ✓, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop	11:50		
Start	11:08		
Total minutes	42		
Amount Evacuated	29		
Total Evacuated	29 gal.		
Evacuation Rate	.69 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 13.14 ft. 11:44 time
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 11:35 time Depth to water 11.37 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor NONE
Sediment/Foreign matter NONE

Sample ID no.		Container (VOA) / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-11A	40 ml		HCl	EPA 602/8015	GTEL
03210-11B	1 ml		"	"	
-11C	ml		None	EPA 601	
-11D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: _____

1st 8th Sampled

WGR

WATER SAMPLING DATA Well Name MW-12 Date 8/21/90 Time 10:32
Job Name Emery Asphalt Job Number 1-095.07 Initials ~~MWH~~ JK
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 6.47 ft.
Well Depth 19.21 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 12.45 ft; Volume 8.13 gal.
Volume To Be Evacuated = 24.39 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	10:44		
Start	10:32		
Total minutes	12		
Amount Evacuated	11		

Total Evacuated gal.
Evacuation Rate .916 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
¾" casing = 0.163 gal/ft
1" casing = 0.367 gal/ft
(2") casing = 0.653 gal/ft
3" casing = 0.826 gal/ft
4" casing = 1.47 gal/ft
6" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 11 gal. Recovery rate .28
Depth to water for 80% recovery 9.25 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 1502 time Depth to water 7.20 ft. Refrigerated: ✓
Sample description: Water color dark yellow Odor —
Sediment/Foreign matter no

Sample ID no.		Container (VOA*)/other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-12A	40 ml		HCl	EPA 602/8015	GTEL
-12B	ml		"	"	
-12C	ml		None	EPA 601	
-12D	ml		"	"	
	ml				
	ml				
	ml				
	ml				

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

COMMENTS: DTW = 6.08 at 10:45
15.90 at 10:50
6.71 at 14:53 = 100+% recovered.

9th Sampled

WGR

WATER SAMPLING DATA Well Name MW-13 Date 3/21/90 Time 11:58
Job Name Emeryville Asphalt Job Number 1-045.07 Initials JK
WELL DATA: Well type M (M=monitoring well; Describe)
Depth to Water 4.08 ft.
Well Depth 12.5 ft. (spec.) Sounded Depth / ft.
Well Diameter 4 in. Date / Time /

EVACUATION: Sampling Equipment:
PVC Bailer: 3 1/4 in. Dedicated: Bladder Pump ; Bailer
Sampling Port: Number Rate — gpm. Volume — gal.
Other
Initial Height of Water in Casing 8.42 ft; Volume 5.50 gal.
Volume To Be Evacuated = 16.49 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	1210	/	/
Start	1206		
Total minutes	4		
Amount Evacuated	10		
Total Evacuated	gal.		
Evacuation Rate	2.5 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
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₄.₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft
V₈" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 10 gal. Recovery rate .07
Depth to water for 80% recovery 5.76 ft. 4.82 @ 15:05 91%

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

Time 1 °C µmhos
2
3
4

SAMPLING: Point of collection: PE Hose ; End of bailer ✓; Other
Samples taken 15:15 time Depth to water 6.13 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor NONE
Sediment/Foreign matter NONE

Sample ID no.		Container VOA/other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-13A	40 ml	VOA	HCl	EPA 602/8015	GTEL
13B	ml		"	"	
13C	ml		NONE	EPA 601	
13D	ml		"	"	
13E	1000 ml	Bottle	H_2SO_4	O&G BY 503 E&A	
13F	500 ml		NONE	Sol. METALS BY AA	
	ml				
	ml				

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

COMMENTS: DTW = 14.40 at 12:12
13.85 at 12:17
sounded depth = 14.84 at 12:13 firm bottom

91% Recovery

11th Sampled

WGR

WATER SAMPLING DATA: Well Name MW-14 Date 8/21/90 Time 12:40
Job Name Emery-Asphalt Job Number 1-095.07 Initials [redacted].JK
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 9.09 ft.
Well Depth 10.0 ft. (spec.) Sounded Depth / ft.
Well Diameter 4 in. Date / Time /

EVACUATION: Sampling Equipment:
PVC Bailer: 1¼ in. Dedicated: Bladder Pump — ; Bailer —
Sampling Port: Number — Rate — gpm. Volume — gal.
Other
Initial Height of Water in Casing 9.09 ft; Volume 5.93 gal.
Volume To Be Evacuated = 17.81 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	1246		
Start	1241		
Total minutes	5		
Amount Evacuated	8		
Total Evacuated	gal.		
Evacuation Rate	gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = πr²h
7.48 gal/ft³
¾" casing = 0.163 gal/ft
1" casing = 0.367 gal/ft
(2") casing = 0.653 gal/ft
3" casing = 0.826 gal/ft
4" casing = 1.47 gal/ft
6" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 8 gal. Recovery rate .039
Depth to water for 80% recovery 2.7 ft. 1:20 @ 9:35 8/22/90

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 1:50 time Depth to water 5.05 ft. Refrigerated: ✓
Sample description: Water color Clear-Clear Odor NONE
Sediment/Foreign matter NONE

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-14A	40 ml		HCl	EPA 602/8015	GEL
14B	ml		"	"	
14C	ml		NONE	EPA 601	
14D	ml		"	"	
14E	1000 ml	Bottle	H_2SO_4	503 E&A O&G	
14F	500 ml		NONE	501 Metals By AA	✓
	ml				
	ml				

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

COMMENTS: DTW = 9.40 at 1247
9.10 1253
9.05 at 1521 = 28.8% recovered

96.8% Recovery

10th Sampled

WGR

WATER SAMPLING DATA Well Name MW-15 Date 3/21/90 Time 1305
Job Name Emeryville Asp. Job Number 1-045.07 Initials JK
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water 4.72 ft.
Well Depth 10.5 ft. (spec.) Sounded Depth _____ ft.
Well Diameter 4 in. Date _____ Time _____

EVACUATION: Sampling Equipment:
PVC Bailer: 1½ in. Dedicated: Bladder Pump _____ ;Bailer _____
Sampling Port: Number _____ Rate _____ gpm. Volume _____ gal.
Other _____
Initial Height of Water in Casing 5.78 ft; Volume 3.77 gal.
Volume To Be Evacuated = 11.32 gal. (initial volume x3 ✓, x4 _____)

	Evacuated	Evacuated	Evacuated
Time: Stop	1310		
Start	1306		
Total minutes	4		
Amount Evacuated	7		
Total Evacuated	4 gal.		
Evacuation Rate	gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = πr²h
7.48 gal/ft³
¾" casing = 0.163 gal/ft
1" casing = 0.367 gal/ft
2" casing = 0.653 gal/ft
3" casing = 0.826 gal/ft
4" casing = 1.47 gal/ft
6" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
Pumped dry? yes After 9 gal. Recovery rate .08
Depth to water for 80% recovery 5.87 ft. 5/37 @ 15:45 89%

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 15:05 time Depth to water 6.04 ft. Refrigerated: ✓
Sample description: Water color CLEAR Odor NONE
Sediment/Foreign matter SMALL AMOUNTS OF TINY WHITE PARTICLES

Sample ID no.		Container VOA/other	Preservative NaHSO₄/Azide/other	Analysis	Lab
032010-15A	40 ml	VOA	HCl	EPA 602/8015	GTEL
15B	ml		"	"	
15C	ml		None	EPA 601	
15D	ml		"	"	
15E	1000 ml	BOTTLE	H_2SO_4	O&G BY 503E EPA	
15F	500 ml		None	SOL. METALS BY AA	
	ml				
	ml				

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

COMMENTS: DTW = 9.92 at 1311
6.30 at 1316
89% Recovery

2nd

WGR

WATER SAMPLING DATA Well Name MW-16 Date 3/26/90 Time 1106
Job Name [illegible] Job Number 1-045.45 Initials DRA
WELL DATA: Well type M (M=monitoring well; Describe)
Depth to Water 5.8+ ft.
Well Depth 13.45 ft. (spec.)
Well Diameter 2 in.

Sounded Depth 13.33 ft.
Date 3/26/90 Time 11:50

EVACUATION: Sampling Equipment:
PVC Bailer: 1 1/4 in. Dedicated: Bladder Pump – ;Bailer –
Sampling Port:Number – Rate – gpm. Volume – gal.
Other
Initial Height of Water in Casing 7.45 ft; Volume 1.2 gal.
Volume To Be Evacuated = 3.6 gal. (initial volume x3 ✓, x4)

	Evacuated	Evacuated	Evacuated
Time: Stop	13:22		
Start	13:10		
Total minutes	12		
Amount Evacuated			
Total Evacuated	3.6 gal.		
Evacuation Rate	.3 gpm.		

Formulas / Conversions
r = well radius in ft
h = ht of water col in ft
vol. of col. = πr²h
7.48 gal/ft³
V₂" casing = 0.163 gal/ft
V₃" casing = 0.367 gal/ft
V₄" casing = 0.653 gal/ft
V₄.₅" casing = 0.826 gal/ft
V₆" casing = 1.47 gal/ft
V₈" 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		Temp. °C	pH	umhos
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ___; End of bailer ✓; Other ___
Samples taken 13:22 time Depth to water 5.105 ft. Refrigerated: ✓
Sample description: Water color Dark Brown Odor –
Sediment/Foreign matter silt

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-16A	40 ml	VOA	HCl	EPA 602/8015	GTEL
16B	↓ ml	↓	"	"	↓
16C	ml		None	EPA 601	
16D	ml		"	"	
16E	1000 ml	Bottle	H_2SO_4	O&G BY 503E&A	
16F	500 ml	"	None	SOL. METALS BY AA	↓
	ml				
	ml				

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

COMMENTS: Voas collected at 13:16, bottles at 13:22

3rd sample

WGR

WATER SAMPLING DATA Well Name MW-17 Date 3/26/90 Time 1325
Job Name Coraopolis Job Number 1-045.45 Initials [illegible] JK
WELL DATA: Well type M (M=monitoring well; Describe —)
Depth to Water 5.61 ft.
Well Depth 11.50 ft. (spec.) Sounded Depth ____ ft.
Well Diameter 2 in. Date ____ Time ____

EVACUATION: Sampling Equipment:
PVC Bailer: 1 1/4 in. Dedicated: Bladder Pump — ; Bailer —
Sampling Port: Number ____ Rate — gpm. Volume — gal.
Other —
Initial Height of Water in Casing 6.2 ft; Volume 1 gal.
Volume To Be Evacuated = 3 gal. (initial volume x3 ✓, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop	1331		
Start	1327		
Total minutes	4		
Amount Evacuated	3		

Total Evacuated 3 gal.
Evacuation Rate .75 gpm.

formula / 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
4" casing = 0.367 gal/ft
5" casing = 0.653 gal/ft
6" casing = 0.826 gal/ft
8" casing = 1.47 gal/ft
10" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time
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 1337 time Depth to water 5.62 ft. Refrigerated: ✓
Sample description: Water color brown Odor —
Sediment/Foreign matter lots of silt

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-17A	40 ml	VOA	HCl	EPA 602/8015	GEO
-17B	ml		"	"	
17C	ml		None	EPA 601	
17D	ml		"	"	
17E	1000 ml	Bottle	H_2SO_4	O&G BY 503E&A	
17F	500 ml	"	None	Sol. Metals By AA	✓
	ml				
	ml				

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

COMMENTS: ____

Sampled

WGR

WATER SAMPLING DATA Well Name MW-18 Date 3/26/90 Time 12:38

Job Name 1-315.45 Job Number Evergville Initials [illegible] JK

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

Depth to Water 5.15 ft.

Well Depth 10.25 ft. (spec.) Sounded Depth ______ ft.

Well Diameter 2 in. Date ______ Time ______

EVACUATION: Sampling Equipment:

PVC Bailer: 1 1/4 in. Dedicated: Bladder Pump — ;Bailer —

Sampling Port:Number ______ Rate — gpm. Volume — gal.

Other —

Initial Height of Water in Casing 5.6 ft; Volume .91 gal.

Volume To Be Evacuated = 2.7 gal. (initial volume x3 ✓, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop	1253		
Start	1251		
Total minutes	2		
Amount Evacuated	2.7		
Total Evacuated	2.7 gal.		
Evacuation Rate	1.35 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
4.5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" casing = 2.61 gal/ft

Depth to water during pumping — ft. — time

Pumped dry? NO After — gal. Recovery rate —

Depth to water for 80% recovery — ft.

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

Time		Temp. (°C)	Ph	Cond. (umhos)
	1			
	2			
	3			
	4			

SAMPLING: Point of collection: PE Hose ___; End of bailer ✓; Other ______

Samples taken 1300 time Depth to water 5.28 ft. Refrigerated: ✓

Sample description: Water color brown Odor —

Sediment/Foreign matter 1/3 sediment

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-18A	40 ml	VOA ↓	HCl	EPA 602/8015	GTEL
18B	↓ ml		"	"	↓
18C	ml		NONE	EPA 601	
18D	↓ ml	↓	"	"	
18E	1000 ml	Bottle	H_2SO_4	O&G by 503 E&A	
18F	500 ml	"	NONE	Sol. Metals by DA	↓
	ml				
	ml				

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

COMMENTS:

WGR (4+5)

WATER SAMPLING DATA Well Name MW-19 Date 3/26/90 Time 12:35
Job Name Emeryville Job Number 1-645.45 Initials [redacted] PRA
WELL DATA: Well type M (M=monitoring well; Describe _____)
Depth to Water See ft.
Well Depth _____ ft. (spec.)
Well Diameter 2 in.

Sounded Depth 5.68 ft.
Date 3/26/90 Time 12:50

EVACUATION: Sampling Equipment:
PVC Bailer: 1¼ in. Dedicated: Bladder Pump ____ ; Bailer ____
Sampling Port: Number ____ Rate ____ gpm. Volume ____ gal.
Other ____
Initial Height of Water in Casing 3.68 ft; Volume .6 gal.
Volume To Be Evacuated = 1.8 gal. (initial volume x3 ✓, x4 ____)

	Evacuated	Evacuated	Evacuated
Time: Stop	1:00		
Start	12:55		
Total minutes	5		
Amount Evacuated			
Total Evacuated	1.5 gal.		
Evacuation Rate	.36 gpm.		

Formula: / 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 ____ ft. ____ time
Pumped dry? Yes 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 13:53 time Depth to water 5.24 ft. Refrigerated: ✓
Sample description: Water color light brown Odor —
Sediment/Foreign matter silt

Sample ID no.		Container VOA / other	Preservative NaHSO₄/Azide/other	Analysis	Lab
03210-17A	40 ml		HCl	EPA 602/8015	QTEL
17B	ml		"	"	
17C	ml		None	EPA 601	
17D	ml		"	"	
17E	100 ml	Bottle	H₂SO₄	O&G by 503E/A	
17F	500 ml	"	None	Sol Metals by AA	✓
	ml				
	ml				

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

93-100

COMMENTS: Well went dry at full evacuation - will wait 15 minutes, then sample
H₂SO₄ sample taken at 13:53 - all other samples taken at 13:47

WGR

WATER SAMPLING DATA Well Name Travel Blank Date 3/26/90 Time 15:26
Job Name Emeryville Job Number 1-045.45 Initials _____
WELL DATA: Well type _____ (M=monitoring well; Describe _____)
Depth to Water _____ ft.
Well Depth _____ ft. (spec.) Sounded Depth _____ ft.
Well Diameter ____ 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
2" casing = 0.163 gal/ft
3" casing = 0.367 gal/ft
4" casing = 0.653 gal/ft
4.5" casing = 0.826 gal/ft
6" casing = 1.47 gal/ft
8" 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
032190A	40	ml	✓	none	EPA 602/8015	G-Tel
↓ 2cB	↓	ml	✓	↓	EPA 601	↓
		ml				
		ml				
		ml				
		ml				
		ml				
		ml				

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

COMMENTS: _____

ATTACHMENT C

CHAIN-OF-CUSTODY FORMS

Chain-of-Custody Record

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

Chevron Facility Number: Chevron Asphalt Plant - Emeryville
Consultant Release Number:
Consultant Project Number: 1-045.07
Consultant Name: WGR, Inc.
Address: San Rafael CA
Fax Number:
Project Contact (Name): Tom Howard
(Phone): 415-457-7595

Chevron Contact (Name): Lisa Marinaro
(Phone): 842-9527
Laboratory Name: G-tel
Contract Number: 2780700
Samples Collected by (Name): D Osaki / J Krebs
Collection Date: 3/21/90 + 3/22/90
Signature: [signature]

Sample Number	Lab Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease E+A	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	EPA 601	Sol. Metals by AA Pb, Zn, Cd, Cr		Remarks
03210-01 ABCD		4	W		1019	see remarks	Yes	Yes			Yes				Yes			AB samples HCl preserved for EPA 602/8015
-02		↓	↓		1440		↓	↓			↓				↓			
-03					1418													CD samples unpreserved for EPA 601
-07					1425													
-08					1325													
-10					1045													E sample H_2SO_4 preserved for O&G by 503E+A
-11					1155													
-12		↓			1502													
-13 EF		6			1515					Yes						Yes		F sample unpreserved for Sol. Metals by AA
-14		↓			950*					↓						↓		
-15 ↓		↓			1555													
-20 A,C		2	↓				↓	↓			↓				↓			

*All samples taken on 3/21/90 except 03210-14 A,B,C,D,E,F which was taken on 3/22/90

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	WGR	3/23 1240	[signature]	[illegible]	
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time 3/23/90 [illegible]	Received For Laboratory By (Signature) [signature]		Date/Time

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

Chain-of-Custody Record

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

Chevron Facility Number: Emeryville Asphalt
Consultant Release Number:
Consultant Project Number: 1-045.45
Consultant Name: W.G.R., Inc
Address: 2164 E. Francisco #B, San Rafael, CA
Fax Number:
Project Contact (Name): Tom Howard
(Phone): (415) 457-7595

Chevron Contact (Name): Lisa Marinaro
(Phone): (415) 842-9527
Laboratory Name: G-Tel
Contract Number: 2780700
Samples Collected by (Name): Dean Aaland, Jennifer Krebs
Collection Date: 3-26-90
Signature: Dean R. Aaland

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	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	Sol. metals by AA			Remarks
Analyses To Be Performed																		
03210-16E		1	W		13:22	H_2SO_4	X			X					X			
-16F					13:22	none												
-17E					13:37	H_2SO_4				X					X			
-17F					13:37	none												
-18E					13:00	H_2SO_4				X					X			
-18F					13:00	none												
-19E					13:53	H_2SO_4				X					X			
-19F					13:47	none												

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Dean R. Aaland	WGR, Inc.	3/26/90 16:29	Jeff Nelson	CONCORD COURIER	3-27-7:45
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

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

White / Project File Canary / Sampler Pink / Lab

Printed in U.S.A.

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

Chevron Facility Number: Emeryville Asphalt
Consultant Release Number:
Consultant Project Number: 1-045.45
Consultant Name: Western Geologic Resources, Inc.
Address: 2169 E. Francisco Blvd. #B, San Rafael CA
Fax Number:
Project Contact (Name): Tom Howard
(Phone): (415) 457-7595

Chevron Contact (Name): Lisa Marinaro
(Phone): (415) 842-9527
Laboratory Name: G-Tel
Contract Number: 2780700
Samples Collected by (Name): Dean Aalund, Jennifer Krebs
Collection Date: 3-26-90
Signature: Dean R Aalund

Analyses To Be Performed

Sample Number	Lab Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	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
3210-16A,B		2	W		13:22	HCL	X	X			X							
16C,D					13:22	none									X			
17A,B					13:37	HCL		X			X							
17C,D					13:37	none									X			
18A,B					13:00	HCL		X			X							
18C,D					13:00	none									X			
19A,B					13:47	HCL		X			X							
19C,D					13:47	none									X			
20A		1			14:05			X			X							
20C		1			14:05										X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Dean R Aalund	WGR Inc	3/26/90 16:29	Jeff Nelson	Concord Courier	3-27 7:45	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
Relinquished By (Signature)	Organization	Date/Time 3/27/90 1030	Received For Laboratory By (Signature) L. Sousek		Date/Time	5 Days / (10 Days)

White / Project File   Canary / Sampler   Pink / Lab

ATTACHMENT D

LABORATORY REPORTS WITH QUALITY ASSURANCE/
QUALITY CONTROL DOCUMENTS

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt Emeryville
Work Order Number: D003713
Report Issue Date: March 30, 1990

Table 1

ANALYTICAL RESULTS

Total Threshold Limit Concentration in Water[1]

GTEL Sample Number		01	02	03	
Client Identification		03210-13	03210-14	03210-15	
Date Sampled		03/21/90	03/21/90	03/21/90	
Date Extracted		03/26/90	03/26/90	03/26/90	
Date Analyzed		03/26/90	03/26/90	03/26/90	
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Cadmium	50	<50	<50	<50	
Chromium	100	<100	<100	<100	
Lead	5	<5	5	<5	
Zinc	100	<100	<100	<100	

1 = EPA Method 3005/6010; Lead by EPA 239.2.

GTEL ENVIRONMENTAL LABORATORIES, INC.

QA Conformance Summary

Total Threshold Limit Concentration in Water

1.0 Blanks

The method blank was below the detection limit for all analytes as shown in Table 2.

2.0 Laboratory Control Sample (LCS)

The control limits were met for all analytes in the aqueous LCS as shown in Table 3.

3.0 Calibration Verification Standards

The control limits were met for all analytes in the initial calibration verification standard (ICVS) as shown in Table 5.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for all analytes in the MS as shown in Table 6.

5.0 Sample Duplicate Precision

Relative percent difference criteria were met for the sample duplicate as shown in Table 7.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Total Threshold Limit Concentration in Water

Date of Analysis: 03/26/90

Analyte	Concentration, ug/L
Cadmium	ND
Chromium	ND
Lead	ND
Zinc	ND

ND = Not detected above the detection limit.

Table 3

LABORATORY CONTROL SAMPLE RESULTS

Total Threshold Limit Concentration in Water

Date of Analysis: 03/26/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Cadmium	3000	3180	106	80 - 120
Chromium	3000	3140	104	80 - 120
Lead	50	50	100	80 - 120
Zinc	3000	3140	104	80 - 120

Table 3a

LABORATORY CONTROL SAMPLE SOURCE

Total Threshold Limit Concentration in Water

Analyte	Lot Number	Source
Cadmium	20071-1	EM Science
Chromium	20071-1	EM Science
Lead	20071-1	EM Science
Zinc	20071-1	EM Science

Table 4

INITIAL CALIBRATION STANDARDS DATA

Total Threshold Limit Concentration in Water

Standard ID	LN 89-077A				
Date of Analysis	03/26/90				
Analyte	Standard Concentration, ug/L				
Cadmium	0	10			
Chromium	0	10			
Lead	0	0.020	0.050	0.100	
Zinc	0	10			

Table 5

INITIAL CALIBRATION VERIFICATION STANDARDS RESULTS

Total Threshold Limit Concentration in Water

Date of Analysis: 03/26/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Cadmium	4000	4221	105	80 - 120
Chromium	4000	4223	105	80 - 120
Lead	0.05	0.05	100	80 - 120
Zinc	4000	4213	105	80 - 120

Table 5a

INITIAL CALIBRATION VERIFICATION STANDARDS SOURCE

Total Threshold Limit Concentration In Water

Analyte	Lot Number	Source
Cadmium	LN89-022B	Leeman
Chromium	LN89-022B	Leeman
Lead	LN89-022B	Leeman
Zinc	LN89-022B	Leeman

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt Emeryville
Work Order Number: D003713
Report Issue Date: March 30, 1990

Table 6

MATRIX SPIKE (MS) RECOVERY REPORT

Total Threshold Limit Concentration in Water

Date of Analysis: 03/26/90
Sample Spiked: 01

Client ID: 03210-13
Units: ug/L

Analyte	MS Result	Sample Result	Recovered	Expected	MS, % Recovery	Acceptability Limits, %
Cadmium	1013	<50	1013	1000	101	80 - 120
Chromium	1060	<100	1060	1000	106	80 - 120
Lead	44	<5	44	50	88	80 - 120
Zinc	1019	<100	1019	1000	102	80 - 120

<# = Not detected at the indicated detection limit.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt Emeryville
Work Order Number: D003713
Report Issue Date: March 30, 1990

Table 7

LABORATORY DUPLICATE SAMPLE RESULTS AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Total Threshold Limit Concentration in Water

Date of Analysis: 03/26/90
Sample Used: 01

ClientID: 03210-13
Units: ug/L

Analyte	Sample Result	Duplicate Result	RPD, %	Maximum RPD, %
Cadmium	<50	<50	NA	20
Chromium	<100	<100	NA	20
Lead	<5	<5	NA	20
Zinc	<100	<100	NA	20

NA = Not Applicable

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: EmeryvilleAsphalt
Work Order Number: D003768
Report Issue Date: April 2, 1990

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		01	02	03	04
Client Identification		03210-16 A,B	03210-17 A,B	03210-18 A,B	03210-19 A,B
Date Sampled		03/26/90	03/26/90	03/26/90	03/26/90
Date Analyzed		03/27/90	03/27/90	03/27/90	03/27/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	0.6	<0.6	<0.6	<0.6	<0.6
TPH as Gasoline	50	<50	<50	<50	<50

GTEL Sample Number		05			
Client Identification		03210-20A			
Date Sampled		03/26/90			
Date Analyzed		03/27/90			
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3			
Toluene	0.3	<0.3			
Ethylbenzene	0.3	<0.3			
Xylene (total)	0.6	<0.6			
TPH as Gasoline	50	<50			

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: EmeryvilleAsphalt
Work Order Number: D003768
Report Issue Date: April 2, 1990

QA Conformance Summary

Purgeable Aromatics and Total Petroleum Hydrocarbons as Gasoline in Water EPA Method 8020/8015

1.0 Blanks

Five of 5 target compounds were below detection limits in the reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 4 out of 4 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (naphthalene) for all samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 4 of 4 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike (WSD) Duplicate Precision

Relative percent difference (RPD) criteria was met for 4 of 4 analytes in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 03/27/90

Analyte	Concentration, ug/L
Benzene	<0.3
Toluene	<0.3
Ethylbenzene	<0.3
Xylene (total)	<0.6
Gasoline	<50

<# = Not detected at the indicated detection limit.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: EmeryvilleAsphalt
Work Order Number: D003768
Report Issue Date: April 2, 1990

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 03/26/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Benzene	50	50.7	101	85 - 115
Toluene	50	46.5	93	85 - 115
Ethylbenzene	50	46.1	92	85 - 115
Xylene (total)	150	140.4	94	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Analyte	Lot Number	Source
Benzene	18042	Supelco
Toluene	18042	Supelco
Ethylbenzene	18042	Supelco
Xylene (total)	18042	Supelco

Table 4

SURROGATE COMPOUND RECOVERY

Naphthalene

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Acceptability Limits[1]: 70 - 130 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	200	177	88
01	200	191	96
02	200	196	98
03	200	203	101
04	200	200	100
05	200	204	102
MS	200	212	106
WS	200	222	111
WSD	200	218	109

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: EmeryvilleAsphalt
Work Order Number: D003768
Report Issue Date: April 2, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons as Gasoline in Water EPA Method 8020/8015

Date of Analysis: 03/26/90
Sample Spiked: D003500-06
Client ID: CF-1
Units: ug/L

Analyte	Sample Result	Concentration Added	Concentration Recovered	MS Result	MS, % Recovery	Acceptability Limits[1], %
Benzene	<0.3	25	27.0	27.0	108	71 - 123
Toluene	<0.3	25	24.1	24.1	96	69 - 120
Ethylbenzene	<0.3	25	23.3	23.3	93	72 - 121
Xylene (total)	<0.6	75	56.7	56.7	75	75 - 123

<# = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: EmeryvilleAsphalt
Work Order Number: D003768
Report Issue Date: April 2, 1990

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD)
RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 03/27/90 Units: ug/L

Analyte	Concentration Added	WS Result	WS, % Recovery	WSD Result	WSD, % Recovery
Benzene	25	27.0	108	26.5	106
Toluene	25	24.8	99	24.8	99
Ethylbenzene	25	25.4	102	25.4	102
Xylene (total)	75	79.5	106	79.4	106

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits[1] % Recovery
Benzene	6	30	76 - 120
Toluene	0	30	72 - 117
Ethylbenzene	0	30	73 - 123
Xylene (total)	0	30	81 - 125

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175.0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: CHEVRON ASPHALT PLANT-EMERYVILLE
Work Order Number: D003712
Report Issue Date: April 3, 1990

Table 1

ANALYTICAL RESULTS

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Concentration, mg/L[1]
GTEL No.	Client ID				
01	03210-13 ABCD	03/21,22/90	03/27/90	03/28/90	1
02	03210-14 ABCD	03/21,22/90	03/27/90	03/28/90	<1
03	03210-15 ABCD	03/21,22/90	03/27/90	03/28/90	<1

1 = Method detection limit = 1.0 mg/L; analyte below this level would not be detected.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175.0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: CHEVRON ASPHALT PLANT-EMERYVILLE
Work Order Number: D003712
Report Issue Date: April 3, 1990

QA Conformance Summary

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

1.0 Blanks

The method blank was below the detection limit as shown in Table 2.

2.0 Initial Instrument Calibration

The range of concentrations of the initial instrument calibration are shown in Table 3.

3.0 Calibration Verification Standards

3.1 The control limits were met for the initial calibration verification standard (ICVS) as shown in Table 4.

3.2 The control limits were met for the continuing calibration verification standard (CCVS) as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

The control limits were met for the reference oil in the MS as shown in Table 5.

5.0 Sample Duplicate Precision

No sample was provided for a duplicate run.

Project Number: SFB-175.0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: CHEVRON ASPHALT PLANT-EMERYVILLE
Work Order Number: D003712
Report Issue Date: April 3, 1990

Table 2

METHOD BLANK DATA

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 03/28/90

Analyte	Concentration, mg/L
Petroleum Hydrocarbons	<1

<# = Not detected at the indicated detection limit.

Table 3

INITIAL CALIBRATION STANDARDS DATA

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 03/28/90

Standard Number	Concentration, mg/L
1	1.0
2	5.1
3	10.1
4	50.5
5	101.0

Project Number: SFB-175.0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: CHEVRON ASPHALT PLANT-EMERYVILLE
Work Order Number: D003712
Report Issue Date: April 3, 1990

Table 4

INITIAL AND CONTINUING CALIBRATION VERIFICATION STANDARDS RESULTS

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 03/28/90

Initial Calibration Verification Standard				
Analyte	Expected Result, mg/L	Observed Result, mg/L	Recovery, %	Acceptability Limits, %[1]
Petroleum Hydrocarbons	5.0	4.5	90	80 - 120
Continuing Calibration Verification Standard				
Analyte	Expected Result, mg/L	Observed Result, mg/L	Recovery, %	Acceptability Limits, %[1]
Petroleum Hydrocarbons	5.0	5.0	100	80 - 120

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Table 4a

INITIAL AND CONTINUING CALIBRATION VERIFICATION STANDARDS SOURCE

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Initial Calibration Verification Standard		
Analyte	Lot Number	Source
Petroleum Hydrocarbons	R07/STK1	GTEL
Continuing Calibration Verification Standard		
Analyte	Lot Number	Source
Petroleum Hydrocarbons	R06/STK1	GTEL

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175.0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: CHEVRON ASPHALT PLANT-EMERYVILLE
Work Order Number: D003712
Report Issue Date: April 3, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 03/28/90
Sample Spiked: D.I. WATER
Units: mg/L

Analyte	MS Result	Sample Result	Amount Recovered	Amount Added	MS, % Recovery	Acceptability Limits, %[1]
Petroleum Hydrocarbons	4.7	<1	4.7	5.1	92	70 - 130

1 = Arbitrary limits, pending experimental determination.
<# = Not detected at the indicated detection limit.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 6, 1990

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		01	02	03	04
Client Identification		03210-01 ABCD	03210-02 ABCD	03210-03 ABCD	03210-07 ABCD
Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	120	<0.3	<0.3	<0.3
Toluene	0.3	9	<0.3	<0.3	<0.3
Ethylbenzene	0.3	3	<0.3	<0.3	<0.3
Xylene (total)	0.6	3	<0.6	<0.6	0.6
TPH as Gasoline	50	3500	<50	<50	<50

GTEL Sample Number		05	06	07	08
Client Identification		03210-08 ABCD	03210-10 ABCD	03210-11 ABCD	03210-12 ABCD
Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	0.6	<0.6	<0.6	<0.6	<0.3
TPH as Gasoline	50	<50	<50	<50	<50

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		09	10	11	12
Client Identification		03210-13 ABCDEF	03210-14 ABCDEF	03210-15 ABCDEF	03210-20 AC
Date Sampled		03/21/90	03/22/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	1	0.4	<0.3	<0.3
Xylene (total)	0.6	5	2	<0.6	<0.6
TPH as Gasoline	50	480	170	<50	<50

1 = Extraction by EPA Method 5030

QA Conformance Summary

Purgeable Aromatics and Total Petroleum Hydrocarbons as Gasoline in Water EPA Method 8020/8015

1.0 Blanks

Five of 5 target compounds were below detection limits in the reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 4 out of 4 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (naphthalene) for 15 of 16 samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 4 of 4 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike (WSD) Duplicate Precision

Relative percent difference (RPD) criteria was met for 4 of 4 analytes in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/02/90

Analyte	Concentration, ug/L
Benzene	<0.3
Toluene	<0.3
Ethylbenzene	<0.3
Xylene (total)	<0.6
Gasoline	<50

< # = Not detected at the indicated detection limit.

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 03/02/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Benzene	50	54.8	110	85 - 115
Toluene	50	52.7	105	85 - 115
Ethylbenzene	50	53.5	107	85 - 115
Xylene (total)	150	161.4	108	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Analyte	Lot Number	Source
Benzene	LA18042	Supelco
Toluene	LA18042	Supelco
Ethylbenzene	LA18042	Supelco
Xylene (total)	LA18042	Supelco

Table 4

SURROGATE COMPOUND RECOVERY

Naphthalene

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Acceptability Limits[1]: 70 - 130 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	200	149	75
01	200	200	100
02	200	211	106
03	200	174	87
04	200	151	76
05	200	171	86
06	200	155	78
07	200	141	71
08	200	147	74
09	200	230	115
10	200	205	103
11	200	157	79
12	200	293	147*
MS	200	171	86
WS	200	147	74
WSD	200	147	74

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.
* = No backup vial avalable for repeat analysis.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 6, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/03/90
Sample Spiked: D003849-05
Units: ug/L

Analyte	Sample Result	Concentration Added	Concentration Recovered	MS Result	MS, % Recovery	Acceptability Limits[1], %
Benzene	<0.5	25	19.0	19.0	76	71 - 123
Toluene	<0.5	25	20.9	20.9	84	69 - 120
Ethylbenzene	<0.5	25	23.4	23.4	94	72 - 121
Xylene (total)	<0.5	75	63.4	63.4	85	75 - 123

<# = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 6, 1990

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD)
RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/02/90 Units: ug/L

Analyte	Concentration Added	WS Result	WS, % Recovery	WSD Result	WSD, % Recovery
Benzene	25	20.7	83	20.4	82
Toluene	25	24.1	96	23.9	96
Ethylbenzene	25	27.3	109	26.7	107
Xylene (total)	75	74.8	100	82.5	110

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits[1] % Recovery
Benzene	1	30	76 - 120
Toluene	0	30	72 - 117
Ethylbenzene	2	30	73 - 123
Xylene (total)	10	30	81 - 125

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003769
Report Issue Date: April 6, 1990

Table 1

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		03/26/90	03/26/90	03/26/90	03/26/90
Date Analyzed		03/29/90	03/29/90	03/29/90	03/29/90
Client Identification		03210-16 CD	03210-17 CD	03210-18 CD	03210-19 CD
GTEL Sample Number		01	02	03	04
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	0.7	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	0.8	5.2	1.7	10
Chloroform	0.5	2.0	1.1	0.9	3.2
1,2-Dichloroethane	0.5	1.0	0.6	<0.5	<0.5
1,1,1-Trichloroethane	0.5	<0.5	1.3	2.4	2.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	27	32	33	41
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	8	11	20	53
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5

1 = Extraction by EPA Method 5030

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date Sampled		03/26/90			
Date Analyzed		03/29/90			
Client Identification		03210-20 C			
GTEL Sample Number		05			
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5			
Bromomethane	0.5	<0.5			
Dichlorodifluoromethane	0.5	<0.5			
Vinyl chloride	1	<1			
Chloroethane	0.5	<0.5			
Methylene chloride	0.5	<0.5			
Trichlorofluoromethane	0.5	<0.5			
1,1-Dichloroethene	0.2	<0.2			
1,1-Dichloroethane	0.5	<0.5			
trans-1,2-Dichloroethene	0.5	<0.5			
Chloroform	0.5	<0.5			
1,2-Dichloroethane	0.5	<0.5			
1,1,1-Trichloroethane	0.5	<0.5			
Carbon tetrachloride	0.5	<0.5			
Bromodichloromethane	0.5	<0.5			
1,2-Dichloropropane	0.5	<0.5			
trans-1,3-Dichloropropene	0.5	<0.5			
Trichloroethene	0.5	0.5			
Dibromochloromethane	0.5	<0.5			
1,1,2-Trichloroethane	0.5	<0.5			
cis-1,3-Dichloropropene	0.5	<0.5			
2-Chloroethylvinyl ether	1	<1			
Bromoform	0.5	<0.5			
1,1,2,2-Tetrachloroethane	0.5	<0.5			
Tetrachloroethene	0.5	<0.5			
Chlorobenzene	0.5	<0.5			
1,3-Dichlorobenzene	0.5	<0.5			
1,2-Dichlorobenzene	0.5	<0.5			
1,4-Dichlorobenzene	0.5	<0.5			

1 = Extraction by EPA Method 5030

QA Conformance Summary

Purgeable Halocarbons in Water
EPA Method 601

1.0 Blanks

One of 29 target compounds found in Reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 8 out of 8 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (Bromofluorobenzene) for all samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 3 of 3 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike Duplicate (WSD) Precision

Relative percent difference (RPD) criteria was met for 3 of 3 compounds in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 03/26/90

Analyte	Observed Result, ug/L
Chloromethane	<0.5
Bromomethane	<0.5
Dichlorodifluoromethane	<0.5
Vinyl chloride	<1
Chloroethane	<0.5
Methylene chloride	**0.67**
Trichlorofluoromethane	<0.5
1,1-Dichloroethene	<0.2
1,1-Dichloroethane	<0.5
trans-1,2-Dichloroethene	<0.5
Chloroform	<0.5
1,2-Dichloroethane	<0.5
1,1,1-Trichloroethane	<0.5
Carbon tetrachloride	<0.5
Bromodichloromethane	<0.5
1,2-Dichloropropane	<0.5
trans-1,3-Dichloropropene	<0.5
Trichloroethene	<0.5
Dibromochloromethane	<0.5
1,1,2-Trichloroethane	<0.5
cis-1,3-Dichloropropene	<0.5
2-Chloroethylvinyl ether	<1
Bromoform	<0.5
1,1,2,2-Tetrachloroethane	<0.5
Tetrachloroethene	<0.5
Chlorobenzene	<0.5
1,3-Dichlorobenzene	<0.5
1,2-Dichlorobenzene	<0.5
1,4-Dichlorobenzene	<0.5

<# = Not Detected at the indicated detection limit.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003769
Report Issue Date: April 5, 1990

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 03/ 29/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Chloroethane	75	79	105	85 - 115
Methylene Chloride	75	74	99	85 - 115
1,1-Dichloroethane	75	77	103	85 - 115
Chloroform	75	73	97	85 - 115
1,2-Dichloroethane	75	74	99	85 - 115
Chlorobenzene	75	72	96	85 - 115
Trichloroethene	75	68	91	85 - 115
Carbon Tetrachloride	75	77	103	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Halocarbons in Water
EPA Method 601

Analyte	Lot Number	Source
Chloroethane	LA21062	Purgeable C Supelco
Methylene Chloride	LA21154	Purgeable A Supelco
1,1-Dichloroethane	LA21154	Purgeable A Supelco
Chloroform	LA21154	Purgeable A Supelco
1,2-Dichloroethane	LA20674	Purgeable B Supelco
Chlorobenzene	LA21154	Purgeable A Supelco
Trichloroethene	LA21154	Purgeable A Supelco
Carbon Tetrachloride	LA21154	Purgeable A Supelco

Table 4

SURROGATE COMPOUND RECOVERY

Bromofluorobenzene

Purgeable Halocarbons in Water
EPA Method 601

Acceptability Limits[1]: 63 - 131 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	100	104	104
01	100	90	90
02	100	101	101
03	100	105	105
04	100	110	110
05	100	101	101
MS	100	107	107
WS	100	107	107
WSD	100	95	95

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003769
Report Issue Date: April 5, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 03/29/90
Sample Spiked: D003607-01

Client ID: EFF
Units: ug/L

Analyte	Sample Result	MS Result	Concentration Added	MS, % Recovery	Acceptability Limits, %[1]
1,1-Dichloroethene	<0.5	57.1	50	114	64 - 114
Chlorobenzene	<0.5	50.5	50	101	58 - 123
Trichloroethene	<0.5	37.0	50	74	66 - 120

<# = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003769
Report Issue Date: April 5, 1990

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD) RESULTS
AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Halocarbons in Water
EPA Method 601

Date of Analysis: 03/29/90 Units: ug/L

Analyte	Concentration Added	WS Result	WSD Result	WS, % Recovery	WSD, % Recovery
1,1 Dichloroethene	50	62.0	57.7	124	115
Chlorobenzene	50	56.0	49.1	112	98
Trichloroethene	50	42.4	37.8	84	76

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits % Recovery[1]
1,1 Dichloroethene	7.5	30	52 - 131
Chlorobenzene	13	30	57 - 134
Trichloroethene	10	30	50 - 138

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003771
Report Issue Date: April 6, 1990

Table 1

ANALYTICAL RESULTS

Total Threshold Limit Concentration in Water

GTEL Sample Number		01	02	03	04
Client Identification		03210-16F	03210-17F	03210-18F	03210-19F
Date Sampled		03/26/90	03/26/90	03/26/90	03/26/90
Date Extracted		04/02/90	04/02/90	04/02/90	04/02/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Lead 2	5	45	150	140	30
Cadmium 1	50	<50	56	340	<50
Chromium 1	100	6600	7900	20000	1600
Zinc 1	100	540	1020	5900	420

1 = EPA Method 3005/6010.
2 = EPA Method 3005/239.2

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003771
Report Issue Date: April 6, 1990

QA Conformance Summary

Total Threshold Limit Concentration in Water

1.0 Blanks

The method blank was below the detection limit for all analytes as shown in Table 2.

2.0 Laboratory Control Sample (LCS)

The control limits were met for all analytes in the aqueous LCS as shown in Table 3.

3.0 Calibration Verification Standards

The control limits were met for all analytes in the initial calibration verification standard (ICVS) as shown in Table 5.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for all analytes in the MS as shown in Table 6.

5.0 Sample Duplicate Precision

Relative percent difference criteria were met for the sample duplicate as shown in Table 7.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Total Threshold Limit Concentration in Water

Date of Analysis: 04/02/90

Analyte	Concentration, ug/L
Lead	ND
Cadmium	ND
Chromium	ND
Zinc	ND

ND = Not detected above the detection limit.

Table 3

LABORATORY CONTROL SAMPLE RESULTS

Total Threshold Limit Concentration in Water

Date of Analysis: 04/02/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Lead	40	41	103	80 - 120
Cadmium	1000	884	88	80 - 120
Chromium	1000	912	91	80 - 120
Zinc	1000	925	93	80 - 120

Table 3a

LABORATORY CONTROL SAMPLE SOURCE

Total Threshold Limit Concentration in Water

Analyte	Lot Number	Source
Lead	3-83-VS	Spex
Cadmium	3-83-VS	Spex
Chromium	3-83-VS	Spex
Zinc	3-83-VS	Spex

Table 4

INITIAL CALIBRATION STANDARDS DATA

Total Threshold Limit Concentration in Water

Standard ID	Spex 1-83-VS-A				
Date of Analysis	04/02/90				
Analyte	Standard Concentration, ug/L				
Lead	0	20	50	100	
Cadmium	0	10000			
Chromium	0	10000			
Zinc	0	10000			

Table 5

INITIAL CALIBRATION VERIFICATION STANDARDS RESULTS

Total Threshold Limit Concentration in Water

Date of Analysis: 04/02/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Lead	50	54	108	80 - 120
Cadmium	10000	10100	101	80 - 120
Chromium	10000	10100	101	80 - 120
Zinc	10000	10090	101	80 - 120

Table 5a

INITIAL CALIBRATION VERIFICATION STANDARDS SOURCE

Total Threshold Limit Concentration in Water

Analyte	Lot Number	Source
Lead	1-83-VS-B	Spex
Cadmium	1-83-VS-B	Spex
Chromium	1-83-VS-B	Spex
Zinc	1-83-VS-B	Spex

Table 6

MATRIX SPIKE (MS) RECOVERY REPORT

Total Threshold Limit Concentration in Water

Date of Analysis: 04/02/90
Sample Spiked: 02

Client ID: 03210-17F
Units: ug/L

Analyte	MS Result	Sample Result	Recovered	Expected	MS, % Recovery	Acceptability Limits, %
Lead	1200	150	1050	1000	105	80 - 120
Cadmium	921	56	865	1000	87	80 - 120
Chromium	19210	7880	11300	10000	113	80 - 120
Zinc	1925	1023	902	1000	90	80 - 120

<# = Not detected at the indicated detection limit.

Table 7

LABORATORY DUPLICATE SAMPLE RESULTS
AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Total Threshold Limit Concentration in Water

Date of Analysis: 04/02/90
Sample Used: 02

Client ID: 03210-17F
Units: ug/L

Analyte	Sample Result	Duplicate Result	RPD, %	Maximum RPD, %
Lead	155	147	5	20
Cadmium	56	56	0	20
Chromium	7872	7889	0.2	20
Zinc	1017	1028	1	20

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003770
Report Issue Date: April 6, 1990

Table 1

ANALYTICAL RESULTS

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Concentration, mg/L[1]
GTEL No.	Client ID				
01	03210-16E	03/26/90	04/02/90	04/02/90	<1
02	03210-17E	03/26/90	04/02/90	04/02/90	1
03	03210-18E	03/26/90	04/02/90	04/02/90	<1
04	03210-19E	03/26/90	04/02/90	04/02/90	<1

1= Method detection limit = 1 mg/L; analyte below this level would not be detected.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003770
Report Issue Date: April 6, 1990

QA Conformance Summary

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

1.0 Blanks

The method blank was below the detection limit as shown in Table 2.

2.0 Initial Instrument Calibration

The range of concentrations of the initial instrument calibration are shown in Table 3.

3.0 Calibration Verification Standards

3.1 The control limits were met for the initial calibration verification standard (ICVS) as shown in Table 4.

3.2 The control limits were met for the continuing calibration verification standard (CCVS) as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

The control limits were met for the reference oil in the MS as shown in Table 5.

5.0 Sample Duplicate Precision

No sample was provided for a duplicate run.

Table 2

METHOD BLANK DATA

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 04/02/90

Analyte	Concentration, mg/L
Petroleum Hydrocarbons	<1

<# = Not detected at the indicated detection limit.

Table 3

INITIAL CALIBRATION STANDARDS DATA

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 04/02/90

Standard Number	Concentration, mg/L
1	1.0
2	5.1
3	10.1
4	50.5
5	101.0

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003770
Report Issue Date: April 6, 1990

Table 4

INITIAL AND CONTINUING CALIBRATION
VERIFICATION STANDARDS RESULTS

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 04/02/90

Initial Calibration Verification Standard				
Analyte	Expected Result, mg/L	Observed Result, mg/L	Recovery, %	Acceptability Limits, %[1]
Petroleum Hydrocarbons	5.0	4.9	98	80 - 120
Continuing Calibration Verification Standard				
Analyte	Expected Result, mg/L	Observed Result, mg/L	Recovery, %	Acceptability Limits, %[1]
Petroleum Hydrocarbons	5.0	5.2	104	80 - 120

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Table 4a

INITIAL AND CONTINUING CALIBRATION
VERIFICATION STANDARDS SOURCE

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Initial Calibration Verification Standard		
Analyte	Lot Number	Source
Petroleum Hydrocarbons	RO7/STK 1	GTEL
Continuing Calibration Verification Standard		
Analyte	Lot Number	Source
Petroleum Hydrocarbons	R06/STK 1	GTEL

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.45
Contract Number: N46CWC0244-9-X
Facility Number: Emeryville Asphalt
Work Order Number: D003770
Report Issue Date: April 6, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Petroleum Hydrocarbons in Water by Infrared
EPA Method 418.1

Date of Analysis: 04/02/90
Sample Spiked: D.I. Water Units: mg/L

Analyte	Sample Result	Amount Added	Expected Result	MS Result	MS, % Recovery	Acceptability Limits, %[1]
Petroleum Hydrocarbons	<1	5.1	5.1	4.5	88	70 - 130

1 = Arbitrary limits, pending experimental determination.
<# = Not detected at the indicated detection limit.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 1

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA Method 601/602

Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Client Identification		03210-01 ABCD	03210-02 ABCD	03210-03 ABCD	03210-07 ABCD
GTEL Sample Number		01	02	03	04
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	**1100**	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	**7.1**	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	**2.1**	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	**7000**	<0.5	<0.5	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5	**1.1**	<0.5	<0.5	**1.4**
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	**130**	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylenes	0.6	<0.6	<0.6	<0.6	<0.6

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Client Identification		03210-08 ABCD	03210-10 ABCD	03210-11 ABCD	03210-12 ABCD
GTEL Sample Number		05	06	07	08
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	**4.3**	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	**0.7**	**1.3**	<0.2
1,1-Dichloroethane	0.5	<0.5	**2.5**	**1.2**	<0.5
trans-1,2-Dichloroethene	0.5	**0.96**	**30**	**150**	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	<0.5	<0.5	**1.8**	<0.5
1,1,1-Trichloroethane	0.5	**0.72**	<0.5	**1.7**	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	**3.5**	**3.5**	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylenes	0.6	<0.6	<0.6	<0.6	<0.6

1 = Extraction by EPA Method 5030

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 1(continued)

ANALYTICAL RESULTS

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date Sampled		03/21/90	03/22/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Client Identification		03210-13 ABCD EF	03210-14 ABCD EF	03210-15 ABCD EF	03210-20 A,C
GTEL Sample Number		09	10	11	12
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Chloromethane	0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	1	<1	<1	<1	<1
Chloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1	<1	<1	<1	<1
Bromoform	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylenes	0.6	<0.6	<0.6	<0.6	<0.6

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

QA Conformance Summary

Purgeable Halocarbons in Water
EPA METHOD 601/602

1.0 Blanks

One of 29 target compounds found in Reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 8 out of 8 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (Bromofluorobenzene) for all samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 2 of 3 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike Duplicate (WSD) Precision

Relative percent difference (RPD) criteria was met for 3 of 3 compounds in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were exceptional conditions requiring dilution of samples.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 2

REAGENT BLANK DATA

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date of Analysis: 04/02/90

Analyte	Observed Result, ug/L
Chloromethane	<0.5
Bromomethane	<0.5
Dichlorodifluoromethane	<0.5
Vinyl chloride	<1
Chloroethane	<0.5
Methylene chloride	2.4
Trichlorofluoromethane	<0.5
1,1-Dichloroethene	<0.2
1,1-Dichloroethane	<0.5
trans-1,2-Dichloroethene	<0.5
Chloroform	<0.5
1,2-Dichloroethane	<0.5
1,1,1-Trichloroethane	<0.5
Carbon tetrachloride	<0.5
Bromodichloromethane	<0.5
1,2-Dichloropropane	<0.5
trans-1,3-Dichloropropene	<0.5
Trichloroethene	<0.5
Dibromochloromethane	<0.5
1,1,2-Trichloroethane	<0.5
cis-1,3-Dichloropropene	<0.5
2-Chloroethylvinyl ether	<1
Bromoform	<0.5
1,1,2,2-Tetrachloroethane	<0.5
Tetrachloroethene	<0.5
Chlorobenzene	<0.5
1,3-Dichlorobenzene	<0.5
1,2-Dichlorobenzene	<0.5
1,4-Dichlorobenzene	<0.5
Benzene	<0.3
Toluene	<0.3
Ethylbenzene	<0.3
Xylenes	<0.6

<# = Not Detected at the indicated detection limit.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date of Analysis: 04/02/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Methylene Chloride	75	74	99	85 - 115
1,1-Dichloroethane	75	77	103	85 - 115
T-1,2-Dichloroethene	75	72	96	85 - 115
Chloroform	75	73	97	85 - 115
Carbon Tetrachloride	75	77	103	85 - 115
Trichloroethylene	75	67	89	85 - 115
Bromoform	75	77	103	85 - 115
Chlorobenzene	75	72	96	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Halocarbons in Water
EPA Method 601/602

Analyte	Lot Number	Source
Methylene Chloride	LA21154	Purgeable A Supelco
1,1-Dichloroethane	LA21154	Purgeable A Supelco
T-1,2-Dichloroethene	LA20674	Purgeable B Supelco
Chloroform	LA21154	Purgeable A Supelco
Carbon Tetrachloride	LA21154	Purgeable A Supelco
Trichloroethylene	LA21154	Purgeable A Supelco
Bromoform	LA20674	Purgeable B Supelco
Chlorobenzene	LA21154	Purgeable A Supelco

Table 4

SURROGATE COMPOUND RECOVERY

Bromofluorobenzene

Purgeable Halocarbons in Water
EPA METHOD 601/602

Acceptability Limits[1]: 63 - 131 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	100	103	103
01	100	111	111
02	100	75	75
03	100	95	95
04	100	86	86
05	100	92	92
06	100	92	92
07	100	80	80
08	100	105	105
09	100	111	111
10	100	120	120
11	100	118	118
12	100	115	115
MS	100	80	80
WS	100	80	80
WSD	100	63	63

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date of Analysis: 04/02/90
Sample Spiked: 09

Client ID: 03210-13 ABCD EF
Units: ug/L

Analyte	Sample Result	MS Result	Concentration Added	MS, % Recovery	Acceptability Limits, %[1]
1,1-Dichloroethene	<0.2	58	50	116	64 - 114
Chlorobenzene	<0.5	58	50	116	58 - 123
Trichloroethene	<0.5	42	50	83	66 - 120

<# = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Asphalt Plant Emeryville
Work Order Number: D003711
Report Issue Date: April 12, 1990

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD) RESULTS AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Halocarbons in Water
EPA METHOD 601/602

Date of Analysis: 04/02/90 Units: ug/L

Analyte	Concentration Added	WS Result	WSD Result	WS, % Recovery	WSD, % Recovery
1,1 Dichloroethene	50	62	53	123	105
Chlorobenzene	50	60	45	119	89
Trichloroethene	50	43	34	86	68

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits % Recovery[1]
1,1 Dichloroethene	16	30	52 - 131
Chlorobenzene	28	30	57 - 134
Trichloroethene	23	30	50 - 138

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 13, 1990

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		01	02	03	04
Client Identification		03210-01 ABCD	03210-02 ABCD	03210-03 ABCD	03210-07 ABCD
Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	120	<0.3	<0.3	<0.3
Toluene	0.3	9	<0.3	<0.3	<0.3
Ethylbenzene	0.3	3	<0.3	<0.3	<0.3
Xylene (total)	0.6	3	<0.6	<0.6	0.6
TPH as Gasoline	50	3500	<50	<50	<50

GTEL Sample Number		05	06	07	08
Client Identification		03210-08 ABCD	03210-10 ABCD	03210-11 ABCD	03210-12 ABCD
Date Sampled		03/21/90	03/21/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene (total)	0.6	<0.6	<0.6	<0.6	<0.6
TPH as Gasoline	50	<50	<50	<50	<50

1 = Extraction by EPA Method 5030

GTEL ENVIRONMENTAL LABORATORIES, INC.

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015[1]

GTEL Sample Number		09	10	11	12
Client Identification		03210-13 ABCDEF	03210-14 ABCDEF	03210-15 ABCDEF	03210-20 AC
Date Sampled		03/21/90	03/22/90	03/21/90	03/21/90
Date Analyzed		04/02/90	04/02/90	04/02/90	04/02/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	1	0.4	<0.3	<0.3
Xylene (total)	0.6	5	2	<0.6	<0.6
TPH as Gasoline	50	480	170	<50	<50

1 = Extraction by EPA Method 5030

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 13, 1990

QA Conformance Summary

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

1.0 Blanks

Five of 5 target compounds were below detection limits in the reagent blank as shown in Table 2.

2.0 Independent QC Check Sample

The control limits were met for 4 out of 4 QC check compounds as shown in Table 3.

3.0 Surrogate Compound Recoveries

Percent recovery limits were met for the surrogate compound (naphthalene) for 15 of 16 samples as shown in Table 4.

4.0 Matrix Spike (MS) Accuracy

Percent recovery limits were met for 4 of 4 compounds in the MS as shown in Table 5.

5.0 Reagent Water Spike (WS) and Reagent Water Spike (WSD) Duplicate Precision

Relative percent difference (RPD) criteria was met for 4 of 4 analytes in the WS and WSD as shown in Table 6.

6.0 Sample Handling

6.1 Sample handling and holding time criteria were met for all samples.

6.2 There were no exceptional conditions requiring dilution of samples.

Table 2

REAGENT BLANK DATA

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/02/90

Analyte	Concentration, ug/L
Benzene	<0.3
Toluene	<0.3
Ethylbenzene	<0.3
Xylene (total)	<0.6
Gasoline	<50

<# = Not detected at the indicated detection limit.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 13, 1990

Table 3

INDEPENDENT QC CHECK SAMPLE RESULTS

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 03/02/90

Analyte	Expected Result, ug/L	Observed Result, ug/L	Recovery, %	Acceptability Limits, %
Benzene	50	54.8	110	85 - 115
Toluene	50	52.7	105	85 - 115
Ethylbenzene	50	53.5	107	85 - 115
Xylene (total)	150	161.4	108	85 - 115

Table 3a

INDEPENDENT QC CHECK SAMPLE SOURCE

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Analyte	Lot Number	Source
Benzene	LA18042	Supelco
Toluene	LA18042	Supelco
Ethylbenzene	LA18042	Supelco
Xylene (total)	LA18042	Supelco

Table 4

SURROGATE COMPOUND RECOVERY

Naphthalene

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Acceptability Limits[1]: 70 - 130 %

GTEL No.	Expected Result, ug/L	Surrogate Result, ug/L	Surrogate Recovery, %
Blank	200	149	75
01	200	200	100
02	200	211	106
03	200	174	87
04	200	151	76
05	200	171	86
06	200	155	78
07	200	141	71
08	200	147	74
09	200	230	115
10	200	205	103
11	200	157	79
12	200	293	147*
MS	200	171	86
WS	200	147	74
WSD	200	147	74

MS = Matrix Spike
WS = Reagent Water Spike
WSD = Reagent Water Spike Duplicate
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.
* = No backup vial avalable for repeat analysis.

Table 5

MATRIX SPIKE (MS) RECOVERY REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/03/90
Sample Spiked: D003849-05 Units: ug/L

Analyte	Sample Result	Concentration Added	Concentration Recovered	MS Result	MS, % Recovery	Acceptability Limits[1], %
Benzene	<0.5	25	19.0	19.0	76	71 - 123
Toluene	<0.5	25	20.9	20.9	84	69 - 120
Ethylbenzene	<0.5	25	23.4	23.4	94	72 - 121
Xylene (total)	<0.5	75	63.4	63.4	85	75 - 123

< # = Not detected at the indicated detection limit.
1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.

Project Number: SFB-175-0204.72
Consultant Project Number: 1-045.07
Contract Number: N46CWC0244-9-X
Facility Number: Chevron Asphalt
Work Order Number: D003710
Report Issue Date: April 13, 1990

Table 6

REAGENT WATER SPIKE (WS) AND REAGENT WATER SPIKE DUPLICATE (WSD)
RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD) REPORT

Purgeable Aromatics and Total Petroleum Hydrocarbons
as Gasoline in Water
EPA Method 8020/8015

Date of Analysis: 04/02/90 Units: ug/L

Analyte	Concentration Added	WS Result	WS, % Recovery	WSD Result	WSD, % Recovery
Benzene	25	20.7	83	20.4	82
Toluene	25	24.1	96	23.9	96
Ethylbenzene	25	27.3	109	26.7	107
Xylene (total)	75	74.8	100	82.5	110

Analyte	RPD, %	Maximum RPD, %	Acceptability Limits[1] % Recovery
Benzene	1	30	76 - 120
Toluene	0	30	72 - 117
Ethylbenzene	2	30	73 - 123
Xylene (total)	10	30	81 - 125

1 = Acceptability limits are derived from the 99% confidence interval of all samples during the previous quarter.