

Chevron U.S.A. Products Company

2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500 Mail Address PO 80x 5004, San Ramon, CA 94583-0804

April 30, 1993

Ms. Eva Chu Alameda County Environmental Health 80 Swan Way, Room 200 Oakland, CA 94621

Re: Former Chevron Service Station No. 9-2621

7667 Amador Valley Blvd., Dublin, CA 94568

Dear Ms. Chu:

Enclosed is a report on the soil and groundwater investigation conducted at the above referenced site. This report was prepared by Pacific Environmental Group and dated April 26, 1993.

Briefly, total petroleum hydrocarbon as gasoline (TPH-G), benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in any of the soil samples. In addition, both volatile and semi-volatile organic compounds (VOCs & SVOCs) were not detected. TPH-G and BTEX were detected in all groundwater samples with the exception of HP-1. Concentrations ranged from 85 to 5500 ppb TPH-G and 4 to 8 ppb benzene.

Chevron's consultant will be preparing a work plan on the installation of permanent wells. A copy of this work plan will be sent to your office.

For additional information on the soil and groundwater investigation, please refer to the report. If you have any questions or comments, please feel free to call me at (510) 842-8752.

Sincerely,

Chevron U.S.A. Products Co.

Kenneth Kan Engineer

LKAN/MacFile 9-2621R2

Enclosure

cc: Mr. Richard Hiett, RWQCB-S.F.Bay Region 2101 Webster Street, Suite 500, Oakland, CA 94612

Mr. Jerry Lemm, J. L. Lemm & Associates 5506 Sunol Blvd., Suite 203, Pleasanton, CA 94566-7779

Mr. Bill Scudder, Chevron U.S.A. Products Co.



April 26, 1993 Project 325-35.01

Mr. Kenneth Kan Chevron U.S.A. Products Company P.O. Box 5004 San Ramon, California 94583-0804

Re: Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Dear Mr. Kan:

This report presents the results of a soil and groundwater investigation performed by Pacific Environmental Group Inc. (PACIFIC) on March 17, 1993 at the site referenced above. The primary purpose of this investigation was to assess groundwater conditions beneath the site at anticipated upgradient, lateral, and downgradient locations. The anticipated direction of groundwater flow (toward the southeast) was estimated based on topography, nearby surface drainage patterns, and other previously investigated sites in the vicinity.

In addition, selected soil samples were analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g) and benzene, toluene, ethlylbenzene, and xylenes (BTEX compounds); one soil sample collected beneath the former waste oil tank was analyzed for typical waste oil tank parameters in accordance to Regional Water Quality Board (RWQCB) guidelines. The soil and groundwater samples were collected from hydraulically driven small diameter (2 inch) soil borings.

The work was performed in accordance to PACIFIC's work plan dated March 4, 1993. This work plan was approved by Alameda Health Care Services Agency per their letter dated March 15, 1993.

This report includes a brief discussion of site background, scope of work, and findings. Field and analytical procedures are presented as Attachment A. Boring logs are presented as Attachment B. Certified analytical reports and chain-of-custody documentation are presented as Attachment C.

SITE BACKGROUND

The site is located on the northwest corner of Amador Valley Boulevard and Starward Drive in Dublin, California. Land use in the area is predominantly commercial to the south, west, and east of the site, and residential to the north of the site. A Chevron service station occupied the site from approximately 1960 to 1975. The underground fuel storage tanks were removed from the site in 1976. At the time of removal there were no apparent leaks in the tanks, however, about 15 to 20 gallons of liquid spilled from the tanks into the tank excavation. The liquid was removed from the excavation. The site is currently occupied by an optometry clinic.

Four exploratory borings (B-1 through B-4) were drilled and soil samples were collected and analyzed by RESNA Industries on October 15, 1992 (Figure 1). Depth to groundwater has ranged from approximately 9.04 to 9.46 feet below ground surface (bgs) with groundwater flow to the east-southeast at a nearby Unocal Station at 7375 Amador Valley Boulevard.

Soil samples collected from the borings detected TPH-g in sample numbers B1-2 and B4-2 at concentrations of 11 and 65 parts per million (ppm), respectively. These samples also contained detectable levels of toluene, ethylbenzene, total xylenes, and total petroleum hydrocarbons calculated as diesel (TPH-d). Benzene was detected in sample B1-2 at 0.018 ppm.

SCOPE OF WORK

The specific scope of work performed in this investigation is discussed below.

Soil Borings. Boring HP-1 was drilled in an anticipated upgradient location adjacent the former waste oil tank in the northeastern corner of the site. Borings HP-2 and HP-3 were drilled in anticipated lateral locations in the southern and northern portions of the site. Borings HP-4, HP-5, and HP-6 were drilled in an anticipated downgradient location along the southeastern property boundary adjacent Amador Valley Boulevard.

Soils Analysis. Selected soil samples were analyzed to characterize capillary fringe soil conditions in the anticipated upgradient, lateral, and downgradient locations (Borings HP-1 through HP-4). Soil samples collected from these borings were analyzed for TPH-g and BTEX compounds.

One soil sample collected from the boring drilled adjacent to the waste oil tank was also analyzed for typical waste oil tank parameters (TPH-d, halogenated hydrocarbons [VOCs], semi-volatile organic compounds [SVOCs], and metals).

Groundwater Analysis. Groundwater samples from each boring were analyzed for TPH-g and BTEX compounds. One groundwater sample collected from the boring drilled adjacent to the waste oil tank was analyzed for typical waste oil tank parameters.

FINDINGS

The findings of this investigation include a discussion of subsurface conditions, soil analytical results, and groundwater analytical results.

Subsurface Conditions

The soils encountered consisted of clayey sand to an average depth of approximately 6 feet underlain by silty clay to clay to a total depth of 10 feet.

Groundwater was first observed in the borings at an approximate depth of 8 feet and stabilized at an average depth of approximately 4.5 feet.

Soil Analytical Results

TPH-g and BTEX compounds were not detected in any capillary fringe soil samples (Table 1). Soil samples analyzed were collected at depths ranging from 4 to 6 feet bgs. In addition, soil samples collected from Boring HP-1 located adjacent to the former waste oil tank at a depth of approximately 4 to 6 feet were analyzed for TPH-d, VOCs, SVOCs, and metals. With the exception of low concentrations of metals, no compounds were detected (Table 3). The low concentrations of metals are typical of background concentrations.

Groundwater Analytical Results

TPH-g concentration in groundwater ranged from non-detectable in the upgradient Boring HP-1 to 5,500 parts per billion (ppb) in downgradient Boring HP-6 (Table 4 and Figure 1). TPH-g concentrations in groundwater samples collected from lateral Borings HP-2 and HP-3 ranged from non detected to 85 ppb. The groundwater sample collected from Boring HP-1 located adjacent to the former waste oil tank was also analyzed for TPH-d, VOCs, and SVOCs. None of these compounds were detected (Table 5).

If you have any questions, please do not hesitate to call.

Sincerely,

Pacific Environmental Group, Inc.

Charles Melancon

Staff_Geologist

Steve Krcik

Project Geologist

RG 4976

Table 1 - Soil Analytical Data - Total Petroleum Attachments:

Hydrocarbons, (TPH as Gasoline, BTEX

STEVEN E. KRCIK

Compounds, TPH as Diesel)

Table 2 - Soil Analytical Data - Halogenated

Hydrocarbons (VOCs) and Semi-Volatile

Organic Compounds (SVOCs)
Table 3 - Soil Analytical Data - Metals

Table 4 - Groundwater Analytical Data - Total Petroleum

Hydrocarbons, (TPH as Gasoline, BTEX

Compounds, and TPH as Diesel)

Table 5 - Groundwater Analytical Data - Halogenated

Hydrocarbons (VOCs) and Semi-Volatile

Organic Compounds (SVOCs)

Figure 1 - Site Map

Attachment A - Field and Analytical Procedures

Attachment B - Boring Logs Attachment C - Certified Analytical Reports and

Chain-of-Custody Documentation

cc: Dr. Ed Kemprud, Amador Valley Medical Clinic

Table 1

Soil Analytical Data

Total Petroleum Hydrocarbons (TPH as Gasoline, BTEX Compounds, and TPH as Diesel)

Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Sampling Date: March 17, 1993

Boring Number	Depth (feet)	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH as Diesel (ppm)
HP-1	4-6	ND	ND	ND	ND	ND	ND
HP-2	4-5	ND	ND	ND	ND	ND	NA
нр-з	4-5	ND	ND	ND	ND	ND	NA
HP-4	4-5	ND	ND	ND	ND	ND	NA

ppm = Parts per million

ND = Not detected

NA = Not analyzed

For detection limits see certified analytical reports.

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Table 2

Soil Analytical Data
Halogenated Hydrocarbons (VOCs) and Semi-Volatile Organic Compounds (SVOCs)

Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Boring Number	Date Sampled	Depth (feet)	VOCs (All compounds) (ppm)	SVOCs (All compounds) (ppm)
HP-1	03/17/93	4-6	ND	ND
	rts per million	*****		

Table 3 Soil Analytical Data Metals

Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Boring	Sample	Depth	Cadmium	Chromium	Lead	Nickel	Zinc
Number	Date	(feet)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
HP-1	03/17/93	4-6	2.5	14	ND	25	45

ppm = Parts per million

ND = Not detected

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Table 4

Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, and TPH as Diesel)

Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Boring Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)
HP-1	03/17/93	ND	ND	ND	ND	ND	ND
HP-2	03/17/93	ND	5	9	1	10	NA
HP-3	03/17/93	85	6	15	3	18	NA
HP-4	03/17/93	4,500	8	17	23	15	NA
HP-5	03/17/93	730	4	7	0.6	5	NA
HP-6	03/17/93	5,500	5	ND	2	8	NA

ppm = Parts per billion

ND = Not detected

NA = Not analyzed

For detection limits see certified analytical reports.

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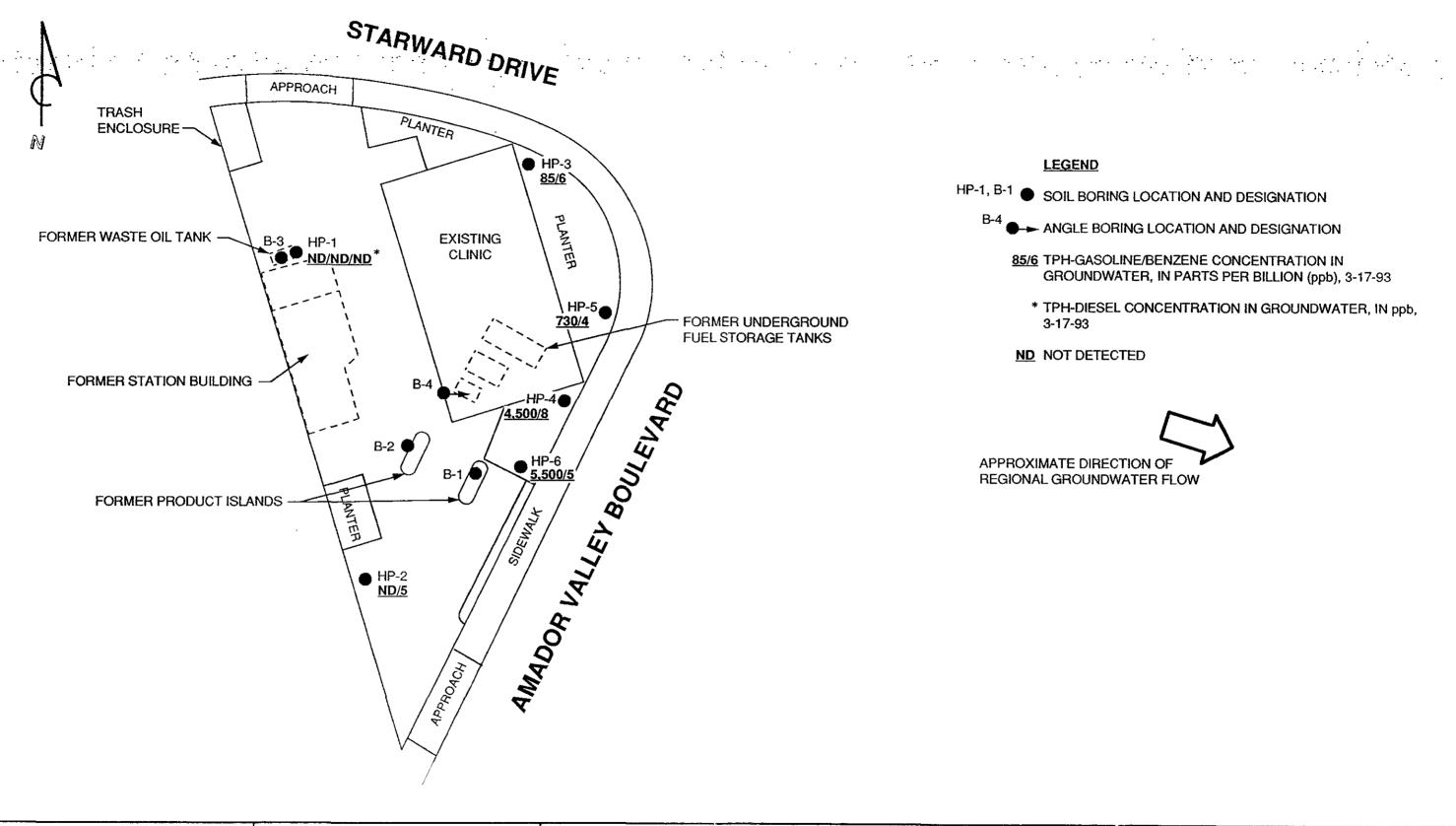
Table 5

Groundwater Analytical Date

Halogenated Hydrocarbons (VOCs) and Semi-Volatile Organic Compounds (SVOCs)

Former Chevron Service Station 9-2621 7667 Amador Valley Boulevard at Starward Drive Dublin, California

Boring Number	Date Sampled	VOCs (All Compounds) (ppb)	SVOCs (All Compounds) (ppb)
HP-1	03/17/93	ND	ND
ppb = ND = Not	Parts per b detected	illion	



LEGEND

HP-1, B-1 ullet SOIL BORING LOCATION AND DESIGNATION

B-4 ANGLE BORING LOCATION AND DESIGNATION

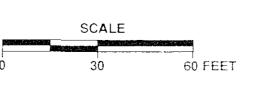
85/6 TPH-GASOLINE/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION (ppb), 3-17-93

* TPH-DIESEL CONCENTRATION IN GROUNDWATER, IN ppb. 3-17-93

ND NOT DETECTED

APPROXIMATE DIRECTION OF REGIONAL GROUNDWATER FLOW





FORMER CHEVRON SERVICE STATION 7667 Amador Valley Boulevard at Starward Drive Dublin California

SITE MAP

FIGURE **PROJECT**

325-35 01

ATTACHMENT A FIELD AND ANALYTICAL PROCEDURES

ATTACHMENT A FIELD AND ANALYTICAL PROCEDURES

Drilling and Soil Sampling Procedures

The soil borings were drilled using 2-inch diameter hydraulically driven drilling equipment and were logged by a Pacific Environmental Group, Inc. (PACIFIC) geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging and chemical analysis were collected at 5-foot depth intervals, as part of the drilling process. The soil sample from Boring HP-1 was collected by advancing a 2 foot sampler lined with a 3/4-inch brass liner into undisturbed soil. Soil samples from Borings HP-2 through HP-6 were collected by advancing a 3/4-inch steel pipe equipped with brass approximately 1 foot into undisturbed soil. Soil samples selected for chemical analysis were retained in the liners, capped with Teflon and plastic end caps, and sealed in clean zip lock bags. These samples were placed on ice for transport to the laboratory, accompanied by chain-of-custody documentation. New and clean down-hole drilling and sampling equipment was used for each boring.

Groundwater Sampling Procedures

Groundwater was sampled with a 1/2-inch diameter and 3/4-foot long bailer. Groundwater was placed in the appropriate containers, labeled and transported on ice along with chain-of-custody documentation to a state certified laboratory.

Laboratory Procedures

The groundwater samples and selected soil samples were analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) by EPA Methods 5030/8015/8020. The soil and groundwater samples from HP-1 located in the vicinity of the former waste oil tank were also analyzed for total petroleum hydrocarbons calculated as diesel (TPH-d) by EPA Method 8015, semi-volatile organic compounds (SVOCs) by EPA Method 8270, and halogenated hydrocarbons (VOCs) by EPA Methods 5030 and 8010. The soil sample from HP-1 was also analyzed for the metals cadmium, chromium, lead, nickel, and zinc

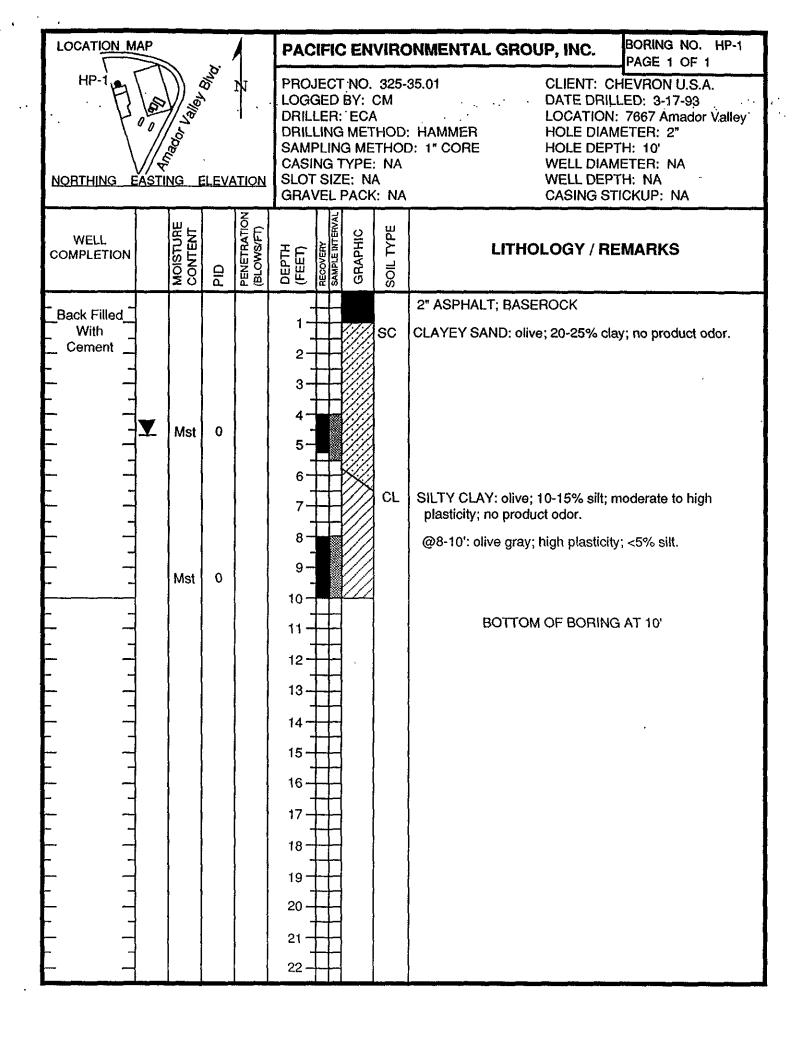
by EPA Method 6010. The samples were extracted using the purge and trap technique, with final detection by gas chromatography. The analysis was performed by a state-certified laboratory.

Organic Vapor Analysis

Soil samples collected during drilling were analyzed in the field for ionizable organic compounds using the HNU Model PI 101 photo-ionization detector with a 10.2 eV lamp. The test procedure involved measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar was warmed for approximately 20 minutes, then the foil was pierced and the head-space within the jar was tested for total organic vapor, measured in parts per million as benzene (ppm: volume/volume). The instrument had been previously calibrated using a 100 ppm isobutylene standard (in air) and a sensitivity factor of 0.7, which relates the photo-ionization sensitivity of benzene (7.0 ppm) to that of isobutylene. The results of the field testing are noted on the exploratory boring logs.

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ATTACHMENT B BORING LOGS



RAGE 1 OF 1 PROJECT NO. 325-35.01 CLIENT: CHEVRON U.S. A. DATE DRILLER: ECA DRILLER: ECA DRILLEN METHOD: 347 CORE SAMPLING METHOD: 347 CORE HOLE DEPTH: 107 WELL DAMPTER: NA SLOT SIZE: NA GRAVEL PACK: NA WELL DEPTH: NA CASING STICKUP: NA CASING STICKUP: NA WELL DEPTH: NA CASING STICKUP: NA WELL DEPTH: NA CASING STICKUP: NA LITHOLOGY / REMARKS LITHOLOGY / REMARKS Back Filled With Cement Mat Mat O Mat O BOTTOM OF BORING AT 10' BOTTOM OF BORING AT 10'	LOCATION MAR	LOCATION MAP					EN'	VIRC	DNMENTAL GROUP, INC. BORING NO. HP-2 PAGE 1 OF 1
Back Filled With Cement SC CLAYEY SAND: olive; 15-25% clay; no product odor. Wast 0 SILTY CLAY: dark gray; 10-15% silt; moderate plasticity; no product odor. BOTTOM OF BORING AT 10'	NORTHING EASTING ELEVATION				LOGG DRILL DRILL SAMP CASIN SLOT	ED ER: ING LING IG T SIZ	BY: (ECA MET G ME YPE: E: N	CM N HOD: THOI NA	35.01 CLIENT: CHEVRON U.S.A. DATE DRILLED: 3-17-93 LOCATION: 7667 Amador Valley HAMMER HOLE DIAMETER: 1 1/2" HOLE DEPTH: 10' WELL DIAMETER: NA WELL DEPTH: NA
Back Hilled With Cement Mst 0 Mst 0 Mst 0 Mst 0 BOTTOM OF BORING AT 10'		MOISTURE	DID	PENETRATION (BLOWS/FT)	оертн (FEET)	RECOVERY SAMPLE INTERVAL	GPAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
With Cement Mst 0 SC CLAYEY SAND: olive; 15-25% clay; no product odor. CL SILTY CLAY: dark gray; 10-15% silt; moderate plasticity; no product odor. BOTTOM OF BORING AT 10' BOTTOM OF BORING AT 10' 11 12 13 14 15 16 17 18 19 20 19 20 10 11 11 12 13 14 15 16 17 18 19 20 10 11 10 11 11 12 13 14 15 16 17 18 19 20 10 10 10 10 11 10 11 11 11	Back Filled					T			2" ASPHALT; BASEROCK
	With				2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19				SILTY CLAY: dark gray; 10-15% silt; moderate plasticity; no product odor.

LOCATION MAP	HP-3 . 1	PACIFIC ENVI	RONMENTAL GROUP, INC. BORING NO. HP-3 PAGE 1 OF 1
NORTHING EASTIN	NG ELEVATION	GRAVEL PACK:	CLIENT: CHEVRON U.S.A. DATE DRILLED: 3-17-93 LOCATION: 7667 Amador Valley DD: HAMMER HOLE DIAMETER: 1 1/2" HOLE DEPTH: 10' WELL DIAMETER: NA WELL DEPTH: NA
WELL COMPLETION	MOISTURE CONTENT PID PENETRATION BLOWSFET	DEPTH (FEET) RECOVERY SAMPLEINTERVAL GRAPHIC	LITHOLOGY / REMARKS
Back Filled With Cement	Mst 0	1 F Si	CLAYEY SAND: olive; 20-25% clay; fine sand; no product odor.

LOCATION MAP	. 1	PAC	IFIC EN	VIRO	ONMENTAL GROUP, INC.	BORING NO. HP-4 PAGE 1 OF 1
HP-41		LOGO DRILL DRILL SAMF CASII ON SLOT GRAV		CM A THOD: ETHO! : NA A	DATE DRIL LOCATION HAMMER HOLE DIAM D: 3/4" CORE HOLE DEP WELL DIAM WELL DEP	HEVRON U.S.A. LED: 3-17-93 : 7667 Amador Valley METER: 1 1/2" TH: 10' METER: NA
WELL COMPLETION SOM	CONTENT PID PENETRATION	(BLOWS/FT) DEPTH (FEET)	RECOVERY SAMPLE INTERVAL GRAPHIC	SOIL TYPE	LITHOLOGY / RI	EMARKS
	st 0	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 12 - 12 - 12 - 12 - 12 - 12 - 12		FL SC	Planter Topsoil FILL: gravel. CLAYEY SAND: olive; 15-20% classicate product odor. CLAY: olive gray; high plasticity; product odor. BOTTOM OF BORING	0-5% silt; moderate

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LOCATION MAP	2	,	1	PACIFIC	EN	VIRC	NMENTAL GROUP, INC.	BORING NO. HP-5 PAGE 1 OF 1
NORTHING EASTING ELEVATION				SAMPLING CASING T SLOT SIZI GRAVEL I	BY: (ECA MET G ME YPE: E: N	CM \ THOD: THOE: NA A	DATE DRIL LOCATION:	HEVRON U.S.A. LED: 3-17-93 7667 Amador Valley JETER: 1 1/2" TH: 10' JETER: NA TH: NA
WELL COMPLETION	MOISTURE	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET) RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / RE	MARKS
Back Filled With Cement	Z .	5		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 2		FL SC	Planter Topsoil FILL: gravel. CLAYEY SAND CLAY: dark gray; 0-5% silt; model BOTTOM OF BORING	

LOCATION MAP		. 1	PACIFIC ENV	RONMENTAL GROUP, INC.	BORING NO. HP-1 PAGE 1 OF 1
NORTHING EASTING ELEVATION			CASING TYPE: SLOT SIZE: NA GRAVEL PACK:	M DATE DR LOCATIO OD: HAMMER HOLE DIA HOD: 3/4" CORE HOLE DE VA WELL DIA WELL DE	CHEVRON U.S.A. ILLED: 3-17-93 N: 7667 Amador Valle METER: 1 1/2" PTH: 10' METER: NA
WELL COMPLETION	MOISTURE	PID PENETRATION (BLOWS/FT)	DEPTH (FEET) RECOVERY SAMPLE INTERVAL GRAPHIC	LITHOLOGY / F	REMARKS
Back Filled With Cement	Mst	3	3 4 5 6	Planter Topsoil FILL: gravel. SANDY CLAY CL. CLAY: dark gray; moderate plas product odor. BOTTOM OF BORII	

ATTACHMENT C CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION



Northwest Region 4080-C Pike Lone Concord, CA 94520 (510) 685-7852 (800) 544-3422 from inside California (800) 423-7143 from outside Colifornia (510) 825-0720 (FAX) Client Number: PAC01CHV08
Consultant Project Number: 325-35.01
Project ID: Chevron, Dublin
Work Order Number: C3-03-0369
Date Reissued: 04-25-83

April 26, 1993

Charles Melancon
Pacific Environmental Group
2025 Gateway Place Ste. 440
San Jose, CA 95110

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 03/19/93.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL is certified by the California State Department of Health Services, Laboratory certificate numbers 194 and 1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,

GTEL Environmental Laboratories, Inc.

Ullen F. Bullen

Eileen F. Bullen

Laboratory Director

Post-It brand fax transmittal memo 7671 fot pages > 17

To lon branks from Sill Sylhonda,

Co. GIEL Concord

Fax # 492 - 8352 From 8

Fax # 492 - 8352 From 8

GTEL Concord, CA C3030369.CVL

Table 1
ANALYTICAL RESULTS
Semi-Volatile Organics in Soil
EPA Method 82708

GTEL Sample Number		lethod 8270 ^a	22222	7	
			032293 BNA-1	1	
Client Identification		HP-1, 4-6	METHOD		
Date Sampled		03/17/93		 	
Date Extracted		03/22/93	03/22/93	 	
Date Analyzed		03/24/93	03/24/93	 	~
Analyte		Concentratio	n. up/Ka		
Phenol	300	<300	<300	1	-
bis(2-Chloroethyl)ether	300	<300	<300	 	-
2-Chlorophenol	300	<300	<300	 	
1,3-Dichlorobenzene	300	<300	<300		
1,4-Dichlorobenzene	300	<300	<300		
Benzyl alcohol	300	<300	<300		
1,2-Dichlorobenzene	300	<300	<300		┿
2-Methylphenol	300	<300	<300		 -
bis-(2-Chloroisopropyl)ether	300	<300	<300		- -
4-Methylphenol	300	<300	<300		 -
N-Nitroso-di-propylamine	300	<300	<900		
lexachloroethane	300	<300	<300		+
Virobenzene	300	<300	<300		
sophorone	300	<300	<300		
2-Nitrophenol	300	<300	<300	···	
2,4-Dimethylphenol	300	<300	<300		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3550. Results reported on a dry weight basis.



Table 1
ANALYTICAL RESULTS
Semi-Volatile Organics in Soil

	EPA	Method 8270				
GTEL Sample Number		02	032293		7	-
Client Identification		HP-1, 4-6	BNA-1 METHOD			
Date Sampled			BLANK			
Date Extracted	03/17/93	 				
Date Analyzed						
Analyte	Detection Limit, ug/Kg	03/24/93	03/24/93	<u> </u>		
Benzoic acid	1500	<1500	Concentrati	on, ug/Kg		
bis(2-Chloroethoxy)methane	300		<1500			
2,4-Dichlorophenol	300	<300	<300	ļ		
1,2,4-Trichlorobenzene	300	<300	<300	<u> </u>		
Naphthalene	300	<300	<300			
4-Chloroaniline	300	<300	<300	<u> </u>		
Hexachlorobutacione	300	<300	<300	<u> </u>		
4-Chloro-3-methylphenol	300	<300 <300	<300	<u> </u>		
2-Methylnaphthalene	300		<300	ļ		
Hexachlorocyclopentadiene	300	<300 <300	<300			
2.4,6-Trichlorophenol	300	<300	<300			
2,4,5-Trichlorophenol	1500		<300		<u> </u>	
2-Chloronaphthalene	300	<1500	<1500			
2-Nitroaniline	1500	<300	<300			
Dimethylphthalate	300	<1500	<1500			
Acenaphthylene	300	<300	<300			
3-Nitroeniline	1500	<300	<300			
Acenephthene		<1500	<1500			
2,4-Dinitrophenol	1500	<300	<300			
4-Nitrophenol		<1500	<1500			
	1500	<1500	<1500			7

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3550. Results reported on a dry weight basis.



Table 1 (Continued)
ANALYTICAL RESULTS
Semi-Volatile Organics in Soil
EPA Method 82704

	EFA MI	2thod 82704			
GTEL Sample Number		02	032293		7
Client identification	Cilent Mantidostics		BNA-1		1
		HP-1, 4-6	METHOD BLANK		
Date Sampled		03/17/93			
Date Extracted		03/22/93	03/22/93	+	
Date Analyzed		03/24/93	03/24/93	 	-
Analyte	Detection Limit, ug/Kg		Concentrati	00 va/Ka	
Dibenzofuran	300	<300	<300	1	
2,4-Dinitrotoluene	300	<300	<300	 	
2,6-Dinitrotoluene	300	<300	<300		
Diethylphthalate	300	<300		 	
4-Chlorophenyl-phenylether	300	<300	<300	 	
Fluorene	300	<300	<300	 	
4-Nitrosniline	1500		<300		
4,6-Dinitro-2-methylphenol	1500	<1500	<1500	 	
N-Nitrosodiphenylamine	300	<1500	<1500	<u> </u>	
4-Bromophenyl-phenylether	300	<300	<300		
Hexachlorobenzene	300	<300	<300	<u> </u>	
Pentachlorophenol	1500	<300	<300	L	
Phonanthrene		<1500	<1500		
Anthracene	300	<300	<300		
Di-n-buty/phthalate	300	<300	<300		
Pluorenthene	1300	<1300*	<1300*		
Pyrene	300	<300	<300		
Butylbenzylphthalate	300	<300	<300		1
	300	<300	<300		1
3,3'-Dichlorobenzidine	600	<600	<600		
Berizo(a)anthracene	300	<300	<300		+
bis(2-Ethylhexyl)phthalate	350	<350*	<350*		

Test Methods for Evaluating Solid Waste, SYV-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3550. Results reported on a dry weight basis. Detection limit related due to possible contamination by the laboratory.



Table 1 (Continued)
ANALYTICAL RESULTS
Semi-Volatile Organics in Soil
EPA Method 8270^a

	ECW M6	mod 8270a			
GTEL Sample Number		02	032293		
Client Identification			BNA-1	1	1
Chest statisticanos		HP-1, 4-6	METHOD		1
Date Sampled		02/17/02	BLANK	 	
Date Extracted		03/17/93		 	
Date Analyzed		03/22/93	03/22/93	 	
	Detection	03/24/93	03/24/93	<u> </u>	
Analyte	Limit, ug/Kg		Concentratio	n un/Ka	
Chrysene	300	<300	<300	(4, 09),(5)	
Di-n-octy/phthelete	300	<300	<300	 	
Benzo(b)fluoranthene	300	<300	<300	 	
Benzo(k)fluoranthene	300	<300	<300	 	
Benzidine	600	<600	<600	}	
Benzo(a)pyrene	300	<300	<300		
Indeno(1,2,3-cd)pyrene	300	<300	<300		
Dibenz(a,h)anthracene	300	<300	<300		
Benzo(g,h.i)perylene	300	<300	<300		
Detection Limit Multiplier		1			
Percent solids		81.2	NA.		
d5-Nitrobenzene surrogate, % recovery		78.2			
2-Fluorobiphenyl surrogate, % recovery		98.3	86.5		
d14-Terphenyl surrogate, % recovery		91.9	99.0		
d5-Phenol surrogate, % recovery		86.2	90.5		
2-Fluorophenol виподать, % гесоvery		78.5	89.1		Ļ
2,4,8-Tribromophenol surrogate, % recover	~ -		81.2		
	<u>_</u>	90.6	85.9	_	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3550. Results reported on a dry weight basis. NA = Not Applicable.



ANALYTICAL RESULTS

TPH as Diesel in Water

Method: Modified EPA 8015a

GTEL Sample Number		01	033093 GC-K		
Client Identification		HP-1	METHOD BLANK		
Date Sampled		03/17/93			
Date Analyzed		03/30/93	03/30/93		
Analyte	Detection Limit, ug/L		Concentra	tion va/l	
TPH as diesel	10	<10	<10	1 J	
Detection Limit Multiplier		1			
OTP surrogate, % recovery		114	98,3		-

a. O-Terphenyl surrogate recovery acceptability limits of 50-150% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 10 ug/L.



ANALYTICAL RESULTS

TPH as Diesel in Soil

Method: Modified EPA 8015a

GTEL Sample Number		02	040193		
Client Identification		HP-1	METHOD BLANK		
Date Sampled		03/17/93			
Date Extracted		03/25/93	03/25/93		
Date Analyzed		04/01/93	04/01/93		_
Analyte	Detection Limit, mg/Kg			ion, mg/Kg	
TPH as diesel	1	<1	<1	3,119	_
Detection Limit Multiplier		1	1		_
Percent Solids		81.0	NA NA		_
OTP surrogate, % recovery		107	109		

a. O-Terphenyl surrogate recovery acceptability limits of 50-150% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 1 mg/Kg. NA = Not Applicable.



Table 1 ANALYTICAL RESULTS

Priority Pollutant Metals in Soil

GTEL Sample Number	GTEL Sample Number			032693 MET	
Client Identification			HP-1, 4-6	METHOD BLANK	+-
Date Sampled			03/17/93	-	-}
Date Prepared			03/26/93	03/26/93	-}
Date Analyzed (Method 6)	010)		03/29/93	03/29/93	+
Analyte	Methoda	Detection Limit, mg/Kg		Concentration, mg/K	<u></u> .
Cadmium	EPA 6010	0.5	2.5	<0.5	-
Chromium, total	EPA 6010		14	<1	╅
Lead	EPA 6010	5	<5	<5	
Nickel	EPA 6010	1	25	<1	
Zinc	EPA 6010	2.5	45	<2.5	+
Detection Limit Multiplier				- 12.0	
Percent Solids			81.0	NA NA	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Digestion by Method 3050. NA = Not Applicable.



QC Matrix Spike and Duplicate Spike Results

Matrix: Water

Analyte	Sample ID	Spike Amount	Units	Recovery,			Control
Modified EPA 8020:			- Ormas		Recovery, %	RPD, %	Limits
Benzene	Reagent Water	20.0	ug/L	85.0			ļ
Toluene	Reagent Water			}	0.38	1.17	70 - 147
Ethylbenzene	Reagent Water		ug/L	90.5	93.0	1.63	67 - 150
Xylene, total	Reagent Water		ug/L	88.5	90.0	1.68	69 - 145
	Taragank Water	80.0	ug/L	91.8	93.3	1.62	71 - 152
GC-FID:	 						
Diesel	DI Water	1004					
	Oi Water	1081	ug/L	124	119	4.12	63-127
EPA 625/8270:							
Phenol	C3030369	200	110 /				
2-Chlorophenol	C3030369	200	ug/L	57.1	54.0	5.6	12 - 89
4-Chloro-3-methylphenol	C3030369		ug/L	81.7	74.2	9,6	27 - 123
4-Nitrophenol	C3030369	200	ug/L	88.2	82.7	6.4	23 - 97
Pentachlorophenol	C3030369	200	ug/L	36.4	35.4	2,8	10 - 80
1,4-Dichlorobenzene		200	ug/L	43.1	43.0	0.2	19 - 103
N-Nitroso-di-n-propylamine	C3030369	100	ug/L	66.0	63.2	4.3	36 - 197
1,2,4-Trichlorobenzene		100	ug/L	86.4	78.8	9.2	41 - 116
2,4-Dinitrotoluene	C3030369	100	ug/L	69.2	66.8	3.5	39 - 98
	C3030369	100	ug/L	87.6	82.8	5,6	24 - 96
Acenaphthene	C3030369	100	ug/L	97.6	91,6	6.3	46 - 118
Pyrene	C3030369	100	ug/L	99.6	98.8	0.8	26 - 127



Table 1 ANALYTICAL RESULTS Semi-Volatile Organics in Water EPA Method 82704/626b

	EPA Metho	xd 82704/6251	Ь		
GTEL Sample Number		01			
Client Identification		<u> </u>	032493 BNA-1	1	
		HP-1	METHOD		
Date Sampled		03/17/93	BLANK	 	
Date Extracted			 	<u> </u>	
Date Analyzed		03/24/93	03/24/93	 	
Analyte	Detection Limit, ug/L	03/27/93	03/27/93 Concentrat	ino una	
Phenol	10	<10	<10		
bis(2-Chloroethyl)ether	10	<10	<10	 	
2-Chlorophenol	10	<10	<10	+	-
1,3-Dichlorobenzene	10	<10	<10	 	
1,4-Dichlorobenzene	10	<10	<10	 	
Benzyl alcohol	10	<10	<10	 	-
1,2-Dichlorobenzene	10	<10	<10	 	
2-Methylphenol	10	<10	<10	 	- -
ble-(2-Chloroisopropyl)ether	10	<10	<10	 	
4-Methylphenol	10	<10	<10	 	
N-Nitroso-di-propylamine	10	<10	<10	 	-
Hexachioroethane	10	<10	<10		
Nitrobenzene	10	<10	<10		
Isophorone	10	<10	<10		
2-Nitrophenol	10	<10	<10		
2,4-Dimethylphenol	10	<10	<10		
Benzola acid	50	<50	- \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
bis(2-Chloroethoxy)methane	10	<10	<10		
2,4-Dichlorophenol	10	<10			
Took Markage for Earl and and		<u></u>	<10		I

Test Methods for Evaluating Solid Waste, SW-845, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.

Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.



Table 1 ANALYTICAL RESULTS
Semi-Volatile Organics in Water
EPA Method 82708 (625th

	EPA Metho	od 8270°/625	b		
GTEL Sample Number		01	032493 BNA-1		
Client Identification		HP-1	METHOD BLANK		
Date Sampled		03/17/93	-		
Date Extracted		03/24/93	03/24/93	 	
Date Analyzed		03/27/93	03/27/93	 	
Analyse	Detection Limit, ug/L		Concentrat	ion. up/l	
1,2,4-Trichlorobenzene	10	<10	<10	1	T
Naphthalene	10	<10	<10	†	
4-Chloroaniline	10	<10	<10	 	
Hexachlorobutadiene	10	<10	<10	 	
4-Chloro-3-methylphenol	10	<10	<10	 	
2-Methylnaphthalene	10	<10	<10	 	
Hexachlorocyclopentadiene	10	<10	<10	 	
2.4,8-Trichlorophenol	10	<10	<10	 	
2,4,5-Trichlorophenoi	50	<50	<50	 	
2-Chloronaphthalene	10	<10	<10		
2-Nitroaniline	50	<50	<50	 	
Dimethylphthalate	10	<10	<10		+
Acenaphthylene	10	<10	<10		
3-Nitroaniline	50	<50	<50		
Acenaphthene	10	<10	<10		·
2.4-Dinitrophenol	50	<50	<50		-
4-Nitrophenol	50	<50	<50		
Dibenzofuran	10	<10	<10		-
2,4-Dinitrotoluene	10	<10	<10		╁╼╼╼╌┈∦
2,6-Dinitrotoluene	10	<10	<10		
			> 10		3 H

Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.

Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.



Table 1 (Continued)
ANALYTICAL RESULTS Semi-Volatile Organics in Water EPA Method 8270#/625b

		10 82/U4/6259	,			
GTEL Sample Number		01	032493	7	7	
Client identification		 	BNA-1			
		HP-1	METHOD BLANK			
Date Sampled		03/17/93	BLANK			
Date Extracted		03/24/93				
Date Analyzed		03/27/93	03/24/93			
Analyte	Detection Limit, ug/L	0,0,0	03/27/93 Concentrati	<u> </u>		
Diethylphthalate	10	<10	<10	ion, ug/L		
4-Chlorophenyl-phenylether	10	<10	<10	 		
Fluorene	10	<10	<10	 	_}	
4-Nitroaniline	50	<50		 		
4,6-Dinitro-2-methylphenol	50	<50	<50		 -	
N-Nitrosodiphenylamine	10	<10	<50			
4-Bromophenyl-phenylether	10	<10	<10			
Hexachiorobenzene	10	<10	<10	 	 	
Pentachlorophenol	50	<so< td=""><td><10</td><td> </td><td><u> </u></td><td></td></so<>	<10	 	<u> </u>	
Phenanthrene	10		<50			
Anthracene	10	<10	<10			
Di-n-bury/phthalate	10	<10	<10			
Ruoranthene	10	<10	<10			
Pyrene	10	<10	<10		1	
Butylbenzylphthalate	10	<10	<10			
3,3'-Dichlorobenzidine	~	<10	<10			
Benzo(a)antivacene	20	<20	<20	······································		
	10	<10	<10		1	

Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510.

Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.



Table 1 (Continued)

ANALYTICAL RESULTS
Semi-Volatile Organics in Water
EPA Method 82704/625b

GYEL Sample Number 01 032493 BNA-1		EFA Metho	d 8270°/625°			
Date Sampled 03/17/93 -			01		T	
Date Sampled Date Extracted Date E	Client identification		HP-1	METHOD BLANK		
Date Extracted Date Analyzed Date Analyzed Date Close Date Analyzed Date Close Dat	Date Sampled		03/17/93	1	 	
Date Analyzed	Date Extracted	1		03/24/93	 -	
Detection Limit, ug/L Concentration, ug/L	Date Analyzed				 	
bis(2-Ethylhexyl)phthalate	Analyte	Detection Limit, ug/L			DD NO/I	
Chrysene	bis(2-Ethylhexyl)phthalate		<10		1	T
Di-n-cctylphthalate	Chrysene	10	<10		 	
Benzo (c) fluoranthene	Di-n-octy/phthalate	10	<10		 	
Benzo(k)fluoranthene 10 <10	Benzo(b)fluoranthene	10	<10		 	
Benzo(a) pyrene 10 <10	Benzo(k)fluoranthene	10			 	
Benzo(a)pyrene 10 <10 <10	Senzidina	20				+
Indeno(1.2,3-cd)pyrene 10 <10	Benzo(a)pyrene	10				
Dibenz (a,h)anthracene 10 <10 <10 <10 Senzo (g,h,i)perytene 10 <10 <10 <10 <10 Senzo (g,h,i)perytene 10 <10 Senzo (g,h,i)perytene 10 Senzo (g,h,i)perytene 10 Senzo (g,h,i)perytene 11 Senzo (g,h,i)	Indeno(1,2,3-cd)pyrene	10				
Benzo(g,h.i)perytene 10 <10 <10 Detection Limit Multiplier 1 1 1 d5-Nitrobenzene surrogate, % recovery 76.5 68.8 2-Huorobiphenyl surrogate, % recovery 77.3 73.2 d14-Terphenyl surrogate, % recovery 104 105 d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4	Dibenz(a.h)anthracene	10				
Detection Umit Multiplier d5-Nitrobenzene surrogate, % recovery 76.5 68.8 2-Fluorobiphenyl surrogate, % recovery 77.3 73.2 d14-Terphenyl surrogate, % recovery 104 105 d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4	Benza(g,h.i)perytene	10				
2-Fluorobiphenyl surrogate, % recovery 77.3 73.2 d14-Terphenyl surrogate, % recovery 104 105 d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4	Detection Limit Multiplier		1			
2-Fluorobiphenyl surrogate, % recovery 77.3 73.2 d14-Terphenyl surrogate, % recovery 104 105 d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4	d5-Nitrobenzene surrogate, % recovery		76.5	68.8		
d14-Terphenyl surrogate, % recovery 104 105 d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4						
d5-Phenol surrogate, % recovery 49.7 51.4 2-Fluorophenol surrogate, % recovery 65.1 62.4						
2-Fluorophenol surrogate, % recovery 65.1 62.4						
			~			
2.4,6-Tribromophenol surrogate, % recovery 58.4 54.5	2,4,6-Tribromophenol surrogate, % recovery					╂──┈╢

Test Methods for Evaluating Solid Waste, SW-946, Third Edition, Revision 0, US EPA November 1986. Sample extraction by EPA Method 3510. Federal Register, Vol. 49, October 26, 1984. Sample extraction by EPA Method 3510.



Table 1 ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Water

EPA Methods 5030, 8020, and Modified 8015a

GTEL Sample Number		01	06	07	08
Client Identification		HP-1	HP-2	HP-3	HP-4
Date Sampled		03/17/93	03/17/93	03/17/93	03/17/93
Date Analyzed		03/27/93	03/26/93	03/26/93	03/26/93
Analyte	Detection Limit, ug/L		`````````````````````````````````````	ation, ug/L	
Benzene	0.5	<0.5	5	6	8
Toluene	0.5	<0.5	9	15	17
Ethylbenzene	0.5	<0.5	1	3	23
Xylene, total	0.5	<0.5	10	18	15
BTEX, total		_	25	42	63
TPH as Gasoline	50	<50	<50	85	4500
Detection Limit Multiplier	······································	1	1	1	1
BFB surrogate, % recovery		85.2	87.7	88.0	104

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.



Table 1(continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Water

EPA Methods 5030, 8020, and Modified 8015a

GTEL Sample Number		09	10	032693GCQ	
Client Identification		HP-S	HP-6	METHOD BLANK	
Date Sampled		03/17/93	03/17/93		
Date Analyzed		03/26/93	03/26/93	03/26/93	
Analyte	Detection Limit, ug/L		Concentr	ation, ug/L	
Benzene	0.5	4	5	<0.5	
Toluene	0.5	7	<0.5	<0.5	
Ethylbenzene	0,5	0.6	2	<0.5	
Xylene, total	0.5	5	8	<0.5	
BTEX, total		17	15		
TPH as Gasoline	50	730	5500	<50	
Detection Limit Multiplier		1	1	1	
BFB surrogate, % recovery		92.5	117	90.9	-

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision.



ANALYTICAL RESULTS

Volatile Organics in Soil

EPA Methods 8020 and Modified 8015a

GTEL Sample Number		02	03	04	05	
Client Identification		HP-1, 4-6	HP-2, 4-5	HP-3, 4-5	HP-4, 4-5	
Date Sampled		03/17/93	03/17/93	03/17/93	03/17/93	
Date Extracted		03/24/93	03/24/93	03/24/93	03/24/93	
Date Analyzed		03/26/93	03/27/93	03/27/93	03/27/93	
Analyte	Detection Limit, mg/kg	Concentration, mg/kg				
Benzene	0.005	<0.005	<0.005	< 0.005	<0.005	
Toluene	0.005	<0.005	<0.005	<0.005	<0.005	
Ethylbenzene	0.005	<0.005	<0.005	<0.005	<0.005	
Xylene, total	0.015	<0.015	<0.015	<0.015	<0.015	
BTEX, total	-	••	**			
Gasoline	1	<1	<1	<1	<1	
Detection Limit Multiplier		1	1	1	1	
Percent solids		81.0	85.5	85.1	84.8	
BFB surrogate, % recovery		82.8	106	105	108	

Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Bromofluorobenzene surrogate recovery acceptability limits of 31-127% are derived from the 99% confidence interval of all samples during the previous quarter, Expected surrogate value is 0.100 mg/kg.



ANALYTICAL RESULTS

Volatile Organics in Soil

EPA Methods 8020 and Modified 8015a

GTEL Sample Number		032693GCG			
Client Identification		METHOD BLANK			
Date Sampled		_			
Date Extracted		03/24/93			
Date Analyzed		03/26/93			·
Analyte	Detection Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	<0.005			
Toluene	0.005	<0.005			
Ethylbenzene	0.005	<0.005			
Xylene, total	0.015	< 0.015			
BTEX, total	_	-			
Gasoline	1	<1			
Detection Limit Multiplier		1			
Percent solids		NA			
BFB surrogate, % recovery		96.3			

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Bromofluorobenzene surrogate recovery acceptability limits of 31-127% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 0.100 mg/kg. NA = Not Applicable.

