CAMBRIA

STID 5057

May 20, 1997

Mr. James Wilson
Crosby, Heafey, Roach and May
1999 Harrison Street
Oakland, CA 94612

Re: **Site Investigation and Ground Water Monitoring**
Lathrop Property
5813-15 Shellmound Street
Emeryville, California
Project No. 19-122

Dear Mr. Wilson:

This report presents the results of the subsurface investigation conducted by Cambria Environmental Technology, Inc (Cambria) in February 1997 at the above-referenced site. The objective of the investigation was to address the comments made by Ms. Susan Hugo of the Alameda County Department of Health Services (ACDEH) in her September 20, 1996 correspondence to Mr. F.P. Lathrop, the property owner at the time. Specifically, the objectives of this investigation were to: 1) determine the extent of contaminants along and immediately beyond the southwestern/downgradient portion of the site, and to 2) implement a ground water monitoring program by sampling three existing and one new monitoring well. To achieve these objectives, Cambria drilled two soil borings and installed a new ground water monitoring well beyond the southern edge of the property. A brief site summary, our scope of work, the investigation results and our conclusions and recommendations are presented below.

CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
1144 65TH STREET,
SUITE B
OAKLAND,
CA 94608
PH (510) 420-0700
FAX (510) 420-9170

SITE HISTORY AND BACKGROUND

The site is located at 5813 Shellmound Street in the City of Emeryville, California (Figure 1). The property was purchased by Mr. F.P. Lathrop from the Fiberboard Corporation in the late 1960s. In 1971, Mr. Lathrop erected a single story commercial building on the eastern portion of the property and a concrete parking surface over the western portion. The property was leased from May 1, 1972 to April 30, 1987 by the F.P. Lathrop Construction Company for use as a construction yard and associated storage and office facilities. The site is currently used as a stereo installation facility by the Good Guys Retail Chain and as a retail storage and sales site by Sherwin Williams Paints.

The first environmental investigation conducted on the Lathrop property occurred in October 1989 during the removal of a gasoline UST that had been used to fuel F.P. Lathrop Construction Company

construction vehicles. No hydrocarbons were detected in soil beneath the tank and only 23 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-g) were detected in a stockpile of the backfill material removed with the tank. However, in response to a lawsuit filed by the owners of the adjacent property, who had detected BTEX compounds in a well on their property, in late 1994 Crosby, Heafey, Roach and May (Crosby) directed Cambria to conduct a subsurface investigation of the former UST pit.

1994 Subsurface Investigation: To determine the subsurface distribution of hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatics (PNAs) and metals, Cambria, in September and December 1994, drilled thirty one soil borings and converted three of these to monitoring wells C-1, C-2 and C-3. Results of this work indicated the limited presence of VOCs, benzene and toluene along the western property line and elevated concentrations of heavy oil-range hydrocarbons and PNAs in the center and southwestern portions of the site. Detailed results of this investigation are summarized in a Cambria report prepared for Crosby in March 1995.

SCOPE OF WORK

The objectives of Cambria's investigation were to define the extent of the detected contaminants along and beyond the southwestern/downgradient portion of the site and to confirm the ground water quality in the existing wells.

The specific tasks completed for this investigation included:

1. Preparing a site safety plan and coordinating field activities;

2. Obtaining a monitoring well permit from the Alameda County Water District (Zone 7) and an encroachment permit from the City of Emeryville to drill in the sidewalk beyond the property boundary;

3. Drilling three soil borings (two to a depth of 10 ft and the third to a depth of 15 ft) along the southwestern boundary of the property (Figure 2);

4. Collecting one soil and one grab water sample from each of the 10 ft borings and three soil samples from the 15 ft boring ;

5. Analyzing select soil and all ground water samples for TPHg, TPH as diesel (TPHd), TPH as creosote (TPHcr), TPH as motor oil (TPHmo), BTEX, methyl tertiary-butyl ether (MTBE), volatile and semi volatile organics (including PNAs) and risk assessment parameters;

6. Completing the 15 ft soil boring as a monitoring well (C-4);

7. Developing and surveying the Top of Casing of monitoring well C-4 and sampling of wells C-1 through C-4; and,

8. Preparing this investigation report.

INVESTIGATION PROCEDURES

The results of Cambria's February 1997 off site subsurface investigation are summarized below. A soil boring/well location map is presented as Figure 1. Tabulated analytic results for soil and ground water are presented in Tables 1 through 4. A monitoring well installation/encroachment permit is presented as Attachment A. Boring logs and well construction diagrams are presented as Attachment B. The laboratory analytic reports for soil and ground water are presented as Attachment C. Our standard field procedure for monitoring well installation is presented as Attachment D.

Soil Boring/Well Installation

Personnel Present: Staff hydrogeologist Sam Rangarajan conducted all field work for the soil borings (SB-AA and SB-BB) and monitoring well (C-4) installation, working under the supervision of Certified Engineering Geologist Joseph P.Theisen of Cambria. Staff Engineer Adam Sevi surveyed the top of casing (TOC) elevation of monitoring well C-4.

Permits: ACWD Monitoring Well Installation Permit # 97109 and City of Emeryville Encroachment Permit # 97-2-9 (Attachment A).

Drilling Company: Gregg Drilling and Testing, Inc. of Martinez, California.

Drilling Date: February 25, 1997.

Drilling Method: 8-inch diameter hollow-stem auger.

Number of Borings: Three. One of the borings was completed as ground water monitoring well C-4 (Figure 1).

Drilling Locations: The 15 ft boring (C-4) was drilled along the southwestern boundary of the property. Soil borings SB-AA and SB-BB were drilled to the east of C-4. All three borings were drilled in the public sidewalk between the property boundary and the Powell Street overpass (Figure 1).

Boring Depths: 10 to 15 ft below ground surface (Attachment B).

Sediment Lithology: From ground surface to 15 ft depth soils consist mostly of clays and sands with varying percentages of silt and gravel.

Sampling Technique: Soil borings were sampled every five ft using split-barrel samplers lined with clean brass sampling tubes driven into undisturbed sediments at the bottom of the borehole. Grab ground water samples were collected from the boreholes using a disposable bailer.

Sample Screening: A GasTech organic vapor analyzer and observations of sheen and odor were used to screen soil samples from each boring.

Well Materials: Monitoring well C-4 was constructed using two-inch diameter, schedule 40 PVC pipe with a screen size of 0.010" and #2 sand (Attachment B).

Screened Interval: Ground water was encountered in monitoring well C-4 at a depth of 6 ft during drilling. Based on this field observation, monitoring well C-4 was screened across the water table between 3 and 15 ft.

Laboratory Analyses: Selected soil and grab ground water samples were analyzed for:

- TPHg by modified EPA Method 8015;
- BTEX and MTBE by EPA Method 8020;
- TPHd, TPHcr and TPHmo by modified EPA Method 8015;
- VOCs by EPA Method 601;
- SVOCs (including PNAs) by EPA Method 8270; and,
- Total porosity, moisture content and total organic carbon.

Borehole Sealing: Each of the 10 ft borings were sealed to ground surface with a portland cement grout;

Soil Disposal: Soil cuttings are stored in sealed, labeled, D.O.T. approved 55-gallon steel drums and will be transported to a Port Arthur, Texas incineration facility for disposal during the week of May 19.

Well Development and Sampling

Monitoring well C-4 was installed to a depth of 15 ft along the southwestern boundary of the site. Details of the well development, sampling and sample analysis are summarized below.

Personnel: Cambria Hydrogeologist Sam Rangarajan developed monitoring well C-4 on March 14, 1997. Cambria Engineer Adam Sevi sampled wells C-1 through C-4 on March 19, 1997.

Development Method: Cambria developed the well by pumping at least 10 well volumes using a submersible pump.

Wellhead Survey: Cambria Engineer Adam Sevi surveyed the Top of Casing elevation of monitoring well C-4 on March 19, 1997 (Table 5). The well head elevation was 98.64 ft above msl.

Ground Water Analyses: Ground water samples from the wells were analyzed for:

- TPHg by modified EPA Method 8015;
- TPHcr, TPHmo and TPHd by modified EPA Method 8015;
- BTEX and MTBE by EPA Method 8020;
- VOCs by EPA Method 601; and,
- SVOCs (including PNAs) by EPA Method 8270.

Ground Water Flow Direction: Based on the March 19, 1997 depth to ground water measurements, ground water flows toward the southwest at a gradient of about 0.03 ft/ft (Figure 2).

Ground Water Depth: Ground water depth gauged on March 19, 1997 ranged from 3.6 ft to 6.5 ft (Tables 3 and 4).

Waste Disposal: Purge water generated during well installation, development and sampling was stored on site in a sealed, labeled, D.O.T.-approved 55 gallon steel drum. Since the purge water is not a regulated waste, the water will be stored on site until the drum is full from future sampling events, at which time it will be removed and disposed appropriately.

INVESTIGATION RESULTS

Site Hydrogeology and Drilling Observations

The three off site borings encountered mostly clays and fine sands to the maximum explored depth of 15 ft. Ground water was encountered in boring C-4 at 6 ft below ground surface. Calculation of the water table elevation using water level measurements recorded on March 19, 1997 indicates that ground water flows toward the southwest at a gradient of about 0.03 ft/ft.

Observation of soil and water samples collected during drilling activities suggests that a black, odorous materials extends beyond the southwestern boundary of the site. A chemical odor was noted in soil samples collected from the three off site borings at a depth of about 5 ft and in the water sample from well C-4. The odors were noted by field personnel to smell generally like "mothballs".

Distribution of Released Compounds in Soil

Soil samples collected at 5 ft depth from all three borings (SB-AA, SB-BB and C-4) were analyzed for the constituents identified above. TPHd, TPHmo or MTBE were not detected in any of the samples analyzed. TPHcr was detected at a maximum concentration of 34,000 ppm in the 5 ft soil sample collected from soil boring SB-AA. The maximum benzene concentration detected was 5.6 parts per million (ppm), from a sample collected at 5 ft depth in soil boring SB-AA. BTEX were also detected in this sample at concentrations ranging from 2.5 to 17 ppm.

SVOCs and PNAs were detected in the 5 ft samples from C-4 and SB-BB. The highest concentrations detected were 230 ppm pyrene and 170 ppm fluoranthene (Table 2). Naphthalene and Benzo (a) pyrene were also detected in the 5 ft sample from SB-BB at concentrations of 68 and 100 ppm respectively.

Distribution of Released Compounds in Ground Water

The results of sample analysis of one grab water and four monitoring well samples are summarized below.

WATER SAMPLING SUMMARY

Analysis	Number Performed		Number of Positive Results	Highest Concentration Detected (ppb)	Location of Highest Sample
	Grab	Well			
TPH as creosote	1	4	3	35,000	SB-BB
TPH as motor oil	1	4	2	750	C-1
TPH as gasoline	1	4	2	9,600	C-3
TPH as diesel	1	4	3	590	C-1
Aromatic Hydrocarbons (BTEX)	1	4	2	B: 1,300 T: 120 E: 170 X: 150	C-3 C-3
MTBE	1	4	0	---	---
VOCs	0	4	2	Vinyl Chloride: 1.5 cis-1,2 DCE: 0.9	C-2
Semi VOCs [(a)] (including PNAs)	1	4	3	Naphthalene: 13,000 Phenenthrene: 7,300 Pyrene: 6,400	C-4 C-4 C-4

(a) : See Table 4 for the complete list of semi volatile organic compounds detected.

The analytic data for ground water samples collected from the soil boring SB-BB and monitoring wells C-1 through C-4 are summarized as follows:

- TPHcr was detected in both on site and off site ground water samples. The highest concentration detected was 35,000 ppb TPHcr in the grab water sample from SB-BB. The highest concentration in a sample from a well was 25,000 ppb THPcr in the C-4 sample.

- TPHg and benzene were detected at a concentration of 5,400 ppb and 540 ppb respectively in monitoring well C-4. Monitoring well C-3, located in the southwest portion of the site, contained the highest TPHg and BETX concentrations at 9,600 ppb TPHg and 1,300 ppb benzene.

- VOCs, except vinyl chloride and cis-1,2 dichloroethene (cis-1,2 DCE) were not detected in ground water samples from any of the four monitoring wells. Vinyl chloride and cis-1,2 DCE were only detected in monitoring well C-2 at concentrations of 1.5 and 0.9 ppb, respectively. These results are consistent with the results of previous investigations which have suggested that the source of the VOCs is on the adjacent site to the west.

- A variety of PNAs were detected in both on site well C-3 and the off site well C-4. PNA concentrations were highest in the ground water sample from off site well C-4.

In summary, the presence in SB-AA, SB-BB and C-4 of elevated concentrations of a similar suite of chemicals found in the on site borings/wells suggests that the extent of these compounds has not been completely defined.

Soil Characteristics

To increase the accuracy of a potential future risk assessment effort, Cambria also analyzed the 5 ft soil samples from soil borings SB-BB and C-4 for total porosity, percent moisture content and organic carbon content. These soil parameters typically have the greatest affect on contaminant mobility in both vapor and liquid phases. The measured values of these parameters are summarized below.

Sample	*Total Porosity*	*Percent Moisture*	*Organic Carbon Content*
C-4-5	0.32	13.8	NA
SB-BB-5	0.39	NA	32,800

CLOSING

We appreciate this opportunity to provide environmental consulting services to Crosby, Heafey, Roach and May. Please call if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

S. Rangarajan

Sam Rangarajan, EIT
Hydrogeologist

J. P. Theisen

Joseph P. Theisen, CEG
Principal Hydrogeologist

Attachments: A - Well Installation and Encroachnment Permit
B - Boring Logs/Well Construction Detail
C - Soil and Ground Water Analytic Data
D - Standard Field Procedures for Soil Borings and Monitoring Well Installation

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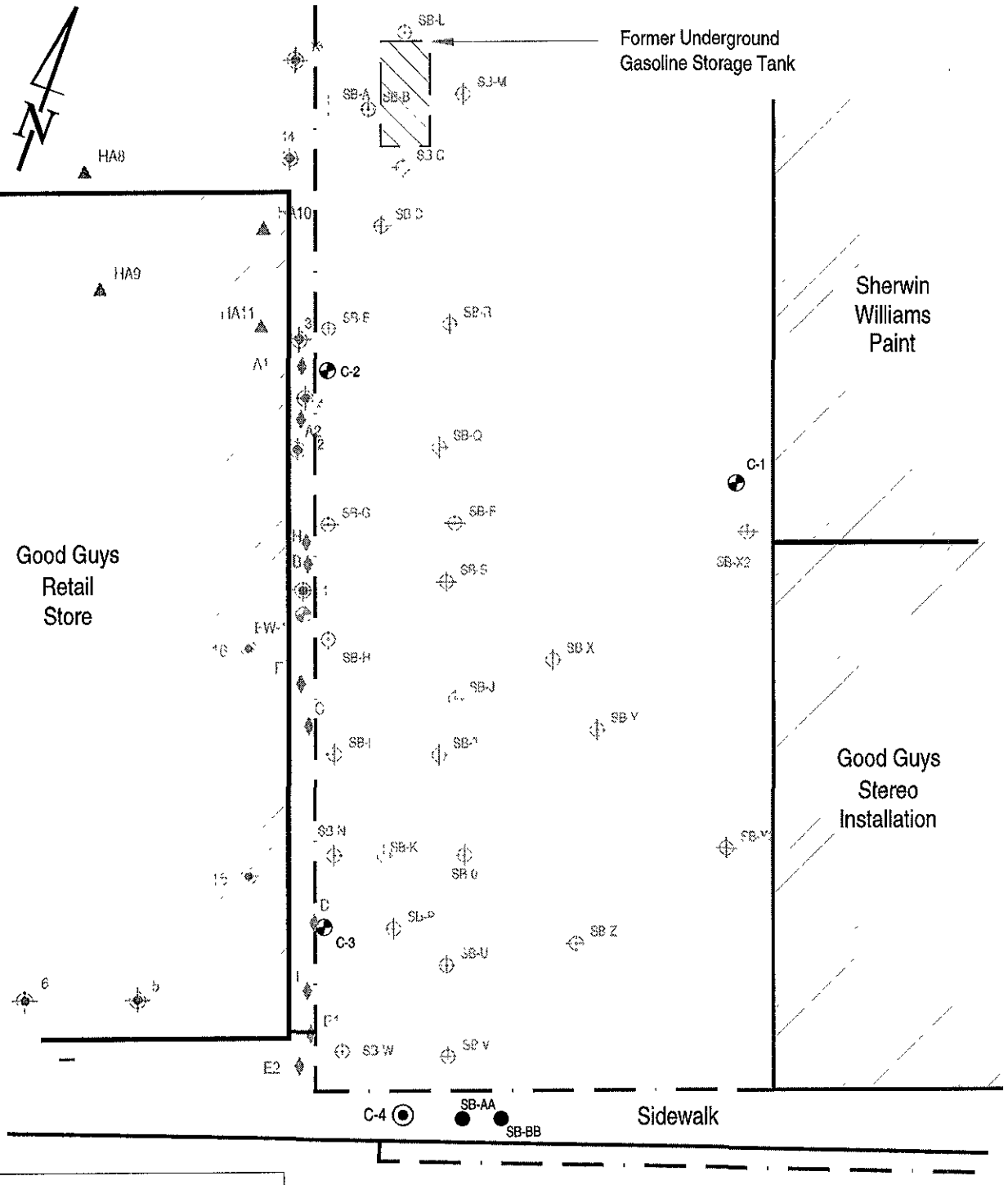

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Lathrop Property
5813-15 Shellmound Street
Emeryville, CA 94608

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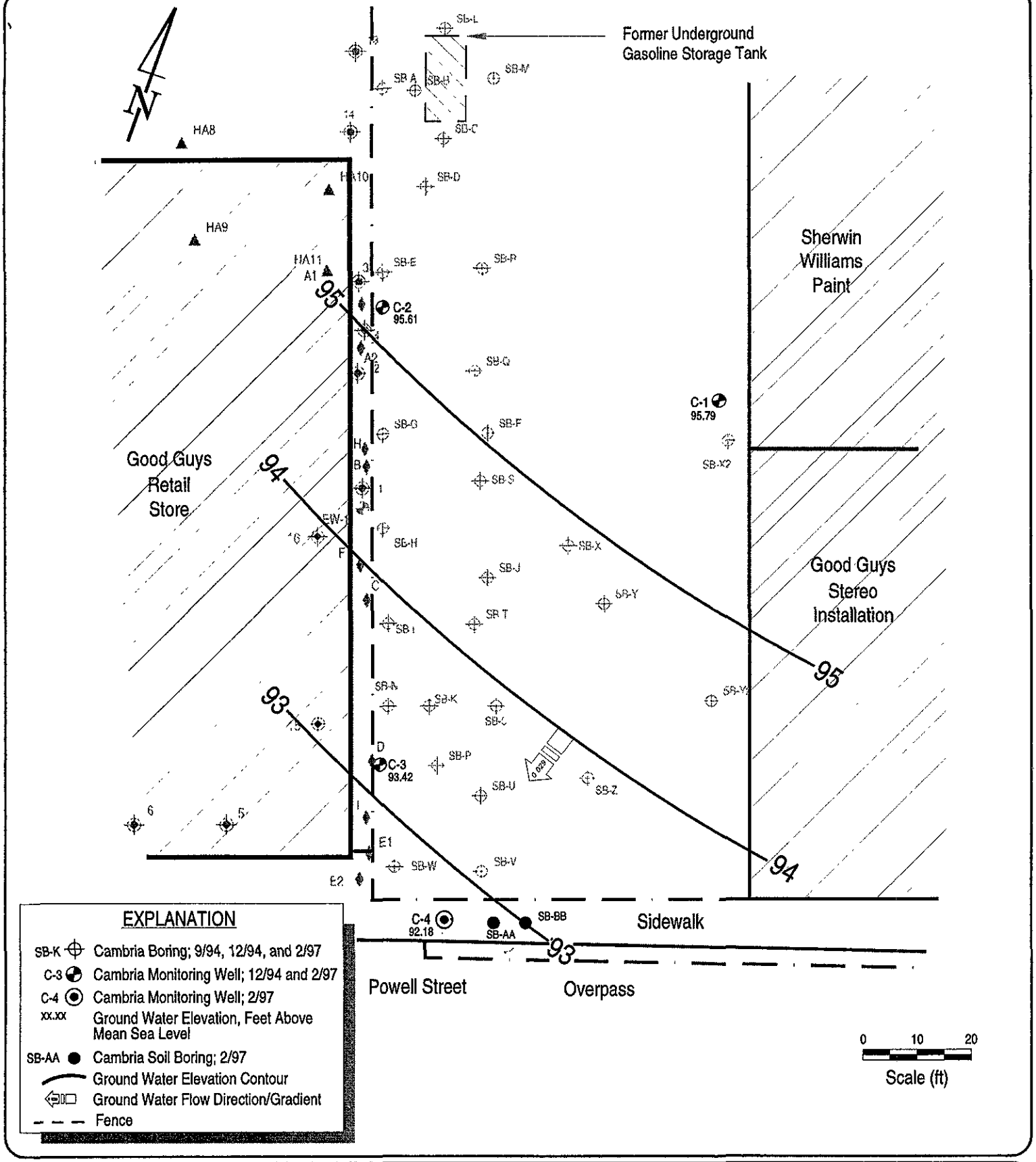
Soil Boring and Monitoring Well Locations

FIGURE
1



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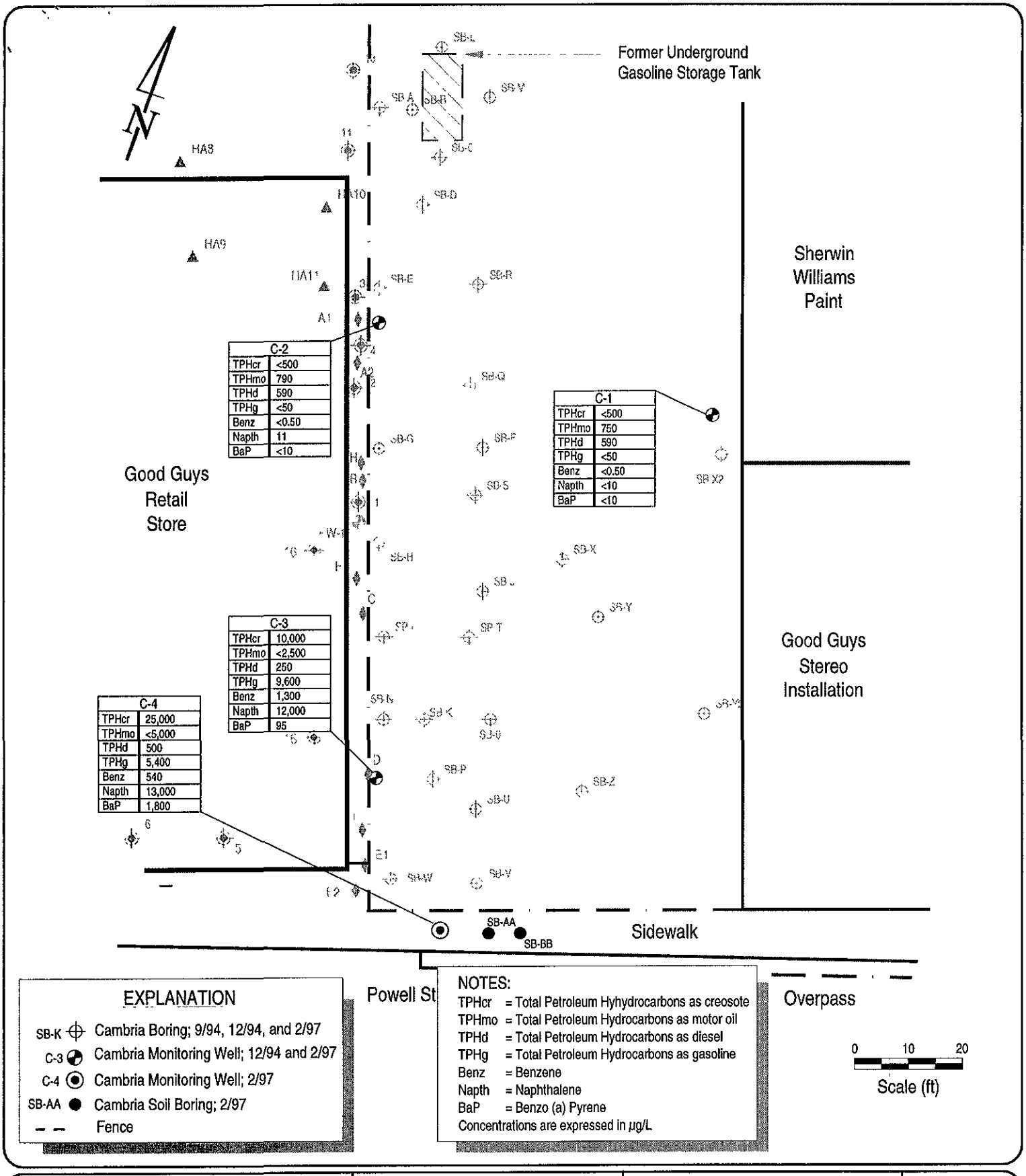
Ground Water Elevation
Contours

March 19, 1997

FIGURE
2



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Petroleum Hydrocarbons/SVOCs In Ground Water

March 19, 1997

FIGURE
3

Table 1. Soil Analytic Data for Petroleum Hydrocarbons and Volatile Organic Compounds (VOC's) - Lathrop Investigation, 5813 - 15 Shellmound Street, Emeryville, California

Sample ID	Depth (ft)	Date	TPHcr	TPHmo	TPHg	TPHd (Concentrations in mg/kg)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	BM[a]	Freon
C-4-5	5	2/25/97	3,800	<1,000	<1.0	<100	<0.0025	<0.0025	<0.0025	<0.0025	<0.010	0.0062	0.0053
SB-BB-5	5	2/25/97	4,200	<1,000	1.0	<100	0.0035	<0.0025	0.0058	0.0076	<0 010	0.004	<0.0020
SB-AA-5	5	2/25/97	34,000	<12,000	1,700	<1,200	5.6	2.5	17	14	<1.0	NA	NA

Abbreviations:
ft = feet
a = Bromomethane was detected in method blank at 0.005 mg/kg
TPHcr = Total petroleum hydrocarbons as creosote by modified EPA Method 8015
TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
Benzene , Toluene, Ethylbenzene, and Xylenes by EPA Method 8020
MTBE = Methyl Tertiary-Butyl Ether by EPA Method 8020
BM = Bromomethane by EPA Method 8010
Freon = Freon 113 by EPA Method 8010
Only the VOC's that were detected are reported here. For the complete suite of analytes, see lab report

Table 2. Soil Analytic Data for Semi-Volatile Organic Compounds (including PNAs) - 5813-15 Shellmound Street, Emeryville, California

Sample ID	Date Sampled	Depth (ft)	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo (a) anthracene	Benzo (b&k) fluor-anthene	Benzo (a) pyrene	Benzo (g,h,i) perylene	Chrysene	Dibenzo (a,h) anthracene	Fluor-anthene	Fluorene	Indeo-(1,2,3-cd) pyrene	2-Methyl-naphtha-lene	Naphtha-lene	Phenan-threne	Pyrene
									(Concentrations in mg/kg)									
C-4-5	02/25/97	5	3 4	26	18	53	120	90	84	65	17	170	5.1	63	<3.3	19	87	210
SB-BB-5	02/25/97	5	<3.3	29	27	60	140	100	97	70	18	170	11	71	5.1	68	130	230

Notes:
Only constituents that were detected are only reported here. For the complete suite of analytes, see lab report.
All analytes detected by EPA Method 8270

Table 3. Ground Water Elevation and Analytic Data for Petroleum Hydrocarbons and Volatile Organic Compounds (VOCs) - Lathrop Investigation, 5813-15 Shellmound Street, Emeryville, California

Sample ID	Date Sampled	TOC Elevation (ft)	GW Depth (ft)	GW Elevation (ft)	TPHcr	TPHd	TPHmo	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Vinyl Chloride	1,1 DCE	1,1 DCA	cis-1,2 DCE	trans 1,2 DCE	1,2 DCA	1,1,1 TCA	TCE	CA
					(Concentrations in ug/L)																	
Grab Ground Water Analytic Data																						
SB-BB	2/25/97	—	—	—	35,000	<500	<5,000	790	4 0	2.1	9.3	7 5	<2 0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Quarterly Monitoring																						
C-1	12/16/94	100.00	3.82	96.18	<500	NA	NA	<50	<0 5	<0.5	<0 5	<0.5	NA	<0 4	<0.4	<0 4	NA	<0 40	<0.4	<0.4	<0 4	<0 4
	03/19/97		4.21	95.79	<500	590	750	<50	<0 50	<0.50	<0 50	0.6	<2.0	<0 40	<0.40	<0 40	<0 50	<0 40	<0.40	<0,40	<0 40	<0.40
C-2	12/16/94	99 22	3 33	95.89	<500	NA	NA	<50	<0.5	<0 5	<0 5	<0.5	NA	<0,4	<0.4	<0.4	NA	<0.40	<0 4	<0.4	<0.4	<0.4
	03/19/97		3 61	95.61	<500	590	790	<50	<0.50	<0.50	<0 50	<0.50	<2 0	1.5	<0.40	<0.40	0.9	<0.40	<0 40	<0 40	<0.40	<0.40
C-3	12/16/94	99 24	3.82	95 42	5,100	NA	NA	17,000	1,900	120	5 1	250	NA	<0.4	<0.4	<0.4	NA	<0.40	<0 4	<0.4	<0.4	<0.4
	03/19/97		5.82	93 42	10,000	250	<2,500	9,600	1,300	120	170	150	<20	<4.0	<4.0	<4.0	<5.0	<4.0	<4.0	<4.0	<4.0	<4.0
C-4	03/19/97	98.64	6.46	92 18	25,000	<500	<5,000	5,400	540	19	62	87	<20	<4.0	<4 0	<4.0	<5.0	<4.0	<4.0	<4.0	<4.0	<4.0

Abbreviations:

ug/L = Micrograms per liter
ft = feet
NA = Not Analyzed
TOC = Top of Casing
TPHcr = Total petroleum hydrocarbons as creosote by modified EPA Method 8015
TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
Benzene , Ethelbenzene, Toluene, and Xylenes by EPA Method 8020
MTBE = Methyl Tertiary-Butyl Ether by EPA Method 8020
VC = Vinyl Chloride by EPA Methods 601or 8010
1,1DCE = 1,1 dichloroethene by EPA Methods 601or 8010
1,1DCA = 1,1 Dichlorethane by EPA Methods 601or 8010
cis-1,2 DCE = cis-1,2-Dichloroethene by EPA Methods 601or 8010
trans 1,2 DCE = trans 1,2 dichloroethene by EPA Methods 601or 8010
1,2 DCA = 1,2 Dichloroethane by EPA Methods 601or 8010
1,1,1 TCA = 1,1,1 Trichloroethane by EPA Methods 601 or 8010
TCE = Trichloroethene by EPA Methods 601 or 8010
CA = Chloroethane by EPA Methods 601or 8010

Table 4. Ground Water Elevation and Analytic Data for Semi-Volatile Organic Compounds (including PNAs) - Lathrop Investigation, 5813-15 Shellmound Street, Emeryville, California

Sample ID	Date Sampled	TOC Elevation (ft)	GW Depth (ft)	GW Elevation (ft)	Acenapth-ene	Acenapth-ylene	Anthra-cene	Benzo-(a)anthra-cene	Benzo-(a)pyrene	Benzo-(g,h,i) perylene	Chrysene	Fluor-anthene	Fluorene	2-Methyl-naphtha-lene	Naphtha-lene	Phenan-threne	Pyrene	Additional Compounds Detected
					(Conecentrations in ug/L)													
Quarterly Sampling																		
C-1	12/16/94	100.00	3.82	96.18	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
	03/19/97		4.21	95.79	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C-2	12/16/94	99.22	3.33	95.89	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
	03/19/97		3.61	95.61	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	11	<10	<10	
C-3	12/16/94	99.24	3.82	95.42	150	780	37	7.2[d]	8.5[d]	7.3[d]	20	50	110	490	11,000	260	61	a
	03/19/97		5.82	93.42	570	310	140	49	95	86	130	210	170	360	12,000	560	240	b
C-4	03/19/97	98.64	6.46	92.18	2,400	880	1,600	1,300	1,800	1,700	2,000	5,400	1,100	500	13,000	7,300	6,400	c

Abbreviations:

ug/L = Micrograms per liter

a = Dibenzofuran at 15 ug/L by EPA Method 8270

b = Benzo (b&k) Fluoranthene detected at 110 ug/L by EPA Method 8270
= Dibenzofuran dectected at 25 ug/L by EPA Method 8270
= Indeno (1,2,3 - cd) pyrene dectected at 61 ug/L by EPA Method 8270

c = Benzo (b&k) Fluoranthene detected at 2,300 ug/L by EPA Method 8270
= Dibenzo (a,h) anthracene detected at 260 ug/L by EPA Method 8270
= Dibenzofuran dectected at 110 ug/L by EPA Method 8270
= Indeno (1,2,3 - cd) pyrene detected at 1,200 ug/L by EPA Method 8270

d = Lab estimated value

Attachment A

Well Installation and Encroachment Permit

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 5813 Shellmound Street
Emeryville, CA 94608

CLIENT
Name F. P. Lathrop
Address 2000 Powell St. #1660 Voice
City Emeryville, CA Zip 94608

APPLICANT
Name CAMBRIA ENVIRONMENTAL TECHNOLOGY
Fax (510) 420-9170
Address 1144 65th St. Suite B Voice (510) 420-0700
City OAKLAND, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	X
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 485165

WELL PROJECTS

Drill Hole Diameter	12	in.	Maximum		
Casing Diameter	2	in.	Depth	15	ft.
Surface Seal Depth	3	ft.	Number	1	

GEOTECHNICAL PROJECTS

Number of Borings	1-2		Maximum		
Hole Diameter	___	in.	Depth	10	ft.

ESTIMATED STARTING DATE 2/25/97
ESTIMATED COMPLETION DATE 2/25/97

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Ann M. Crum Date 2/11/97

FOR OFFICE USE

PERMIT NUMBER 97109
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 21 Feb 97
Wyman Hong

91992

PERMIT NO. 97-2-9 (FORM REVISED JUNE 1996)

ENCROACHMENT PERMIT
CITY OF EMERYVILLE - PUBLIC WORKS DEPARTMENT
2200 POWELL ST., 12TH FLR.
EMERYVILLE, CA 94608
(510) 596 4330

DATE 2/11/97

PROPERTY OWNER F. P. Lathrop PHONE NO. (510)420-9184

CONTACT PERSON Ann M. Crum - Cambria Environmental Technology

ADDRESS 1144 65th Street, Suite B, OAKLAND CA 94608

CONTRACTOR Gregg Drilling LICENSE NO. 485165 CLASS C57

CONTACT PERSON Chris Pruner PHONE NO. (510) 313-5800

ADDRESS 5813-15 Shellmound Street Emeryville
LOCATION OF WORK (INCLUDE ADDRESS AND STREET NAME AND CROSS STREETS)

Work will be performed near the intersection of Powell St. & Christie

PLANNED DATE OF COMMENCEMENT 2/25/97 PLANNED DATE OF COMPLETION 2/25/97

DESCRIPTION OF WORK (INCLUDE AVERAGE DEPTH OF EXCAVATION, MAXIMUM DEPTH, AVERAGE WIDTH, LENGTH, AND ESTIMATED COST OF WORK)

Install one 2" monitoring well (maximum depth = 20')
and 1-2 soil borings

CURRENT BUSINESS LICENSE ON FILE ✓ YES? _____ NO? → Gregg Drilling is mailing the paperwork and fees

CONTRACTOR SIGNATURE Ann Crum (for Gregg Drilling)

DO NOT WRITE BELOW THIS LINE

☒ 24 HOUR NOTICE PRIOR TO START OF WORK ☐ PLAN TO BE SUBMITTED

REMARKS Use Caltrans standards for traffic control.

NOTE: PROOF OF ADEQUATE INSURANCE MUST BE PRESENTED PRIOR TO START OF WORK OR THIS PERMIT IS VOID.

SEE ATTACHED ENCROACHMENT PERMIT GENERAL PROVISIONS.

FOR INSPECTION UPON COMPLETION OF WORK, PLEASE CALL JUAN ARREGUIN AT (510) 596-4333. FOR REFUNDABLE DEPOSIT UPON ENGINEER SIGN-OFF, PLEASE CALL KATHLEEN WALLS AT (510) 596-4336. PLEASE REFER TO THE PERMIT NUMBER LISTED ABOVE.

INSPECTION COMPLETED ON _____ BY _____

REFUNDABLE DEPOSIT RETURNED ON _____ BY _____

_____ _____ Project Coordinator
(SIGNATURE) (TITLE)

Attachment B

Boring Logs/Well Construction Detail

BORING LOG

Client: **Crosby, Heafey, Roach, and May**

Project No: **19-122** Phase Task **12**

Boring ID **SB-AA**

Location **5813 Shellmound Street, Emeryville, CA**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
0	Ground Surface			**CONCRETE**				0	
				Silty SAND; (SM); black; damp; 50% silt, 50% sand; low plasticity; low to moderate estimated permeability.					
5				**Silty Sandy CLAY**; (CL); black; wet; 40% clay, 20% silt, 40% sand; low to medium plasticity; low to moderate estimated permeability.	1,700			5	Water level @ 6 ft.
10								10	Bottom of boring @ 10 ft.

Driller **Gregg Drilling**

Logged By **SR**

Water-Bearing Zones **NA**

Drilling Started **2/25/97**

Drilling Completed **2/25/97**

Grout Type **Portland I/II**

Notes: **South of site.**

BOR 19122 5/5/97

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Crosby, Heafey, Roach, and May**

Project No: **19-122** Phase Task **12**

Boring ID **SB-BB**

Location **5813 Shellmound Street, Emeryville, CA**

Surface Elev. **NA ft.**

Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth (feet)	Additional Comments
0	Ground Surface							0	
				Sandy CLAY; (CH); brown; damp; 50% clay, 50% coarse to fine sand; medium to high plasticity; low estimated permeability.					
5					<1.0			5	
				Clayey Sand; (SC); brown to black; moist; 40% clay, 10%silt, 50% sand; medium to high plasticity; low estimated permeability.					Water level @ 6 ft.
10				wet				10	Bottom of boring @ 10 ft.

Driller **Gregg Drilling**

Logged By **SR**

Water-Bearing Zones **NA**

Drilling Started **2/25/97**

Drilling Completed **2/25/97**

Grout Type **Portland I/II**

Notes: **South of site.**

BOR 19122 5/5/97

Cambria Environmental Technology, Inc.

BORING LOG

Client: **Crosby, Heafey, Roach, and May**

Project No: **19-122** Phase Task **12**

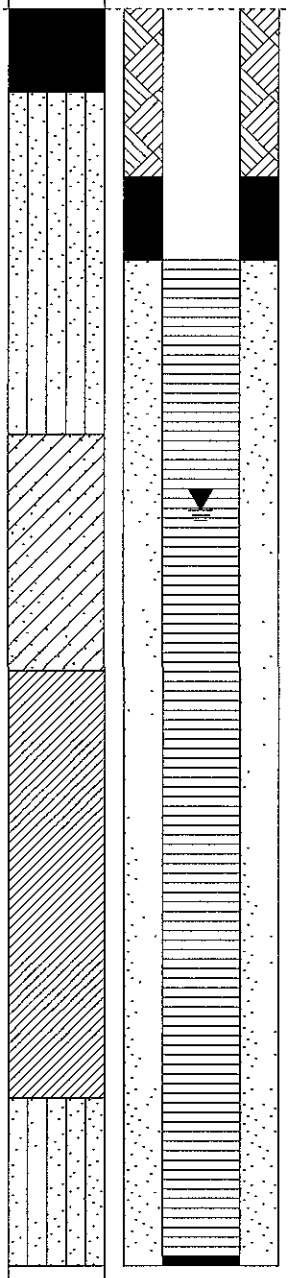
Boring ID **C-4**

Location **5813 Shellmound Street, Emeryville, CA**

Surface Elev. **NA ft,** Page **1** of **1**

Depth (feet)	Blow Count	Sample	Interval	Lithologic Description
0	Ground Surface			
				CONCRETE
				Silty SAND; (SM); black; damp; 20% silt, 70% fine to medium sand, 10% medium gravel; no plasticity; moderate to high estimated permeability.
5				
				Gravelly Clayey SAND; (SC); black; moist; 25% clay, 60% sand, 15% gravel; medium to high plasticity; low to moderate estimated permeability.
				Gravelly Sandy CLAY; (CL); black to brown; wet; 50% clay, 25% medium sand, 25% gravel; low to medium plasticity; low to moderate estimated permeabiliity.
10				
				Silty SANDS; (SM); brown; wet; 25% silt, 75% medium to coarse sand; no plasticity; moderate to high permeability.
15				

TPHg (ppm): <1.0



Depth (feet): 0, 5, 10, 15

Additional Comments: Water level @ 6 ft.

Bottom of boring @ 15 ft.

Driller **Gregg Drilling**

Logged By **SR**

Water-Bearing Zones **6' to 15'**

Drilling Started **2/25/97**

Drilling Completed **2/25/97**

Grout Type **Portland I/II**

Notes: **South of site.**

BOR 19122 5/5/97

Cambria Environmental Technology, Inc.

Attachment C

Soil and Ground Water Analytic Data

L E G E N D

Analytical Services

3636 N. Laughlin Road, Suite 110 Santa Rosa, California 95403 707.541.2313 707.541.2333 fax

Ann Crum
Cambria Env. Technology
1144 65th Street
Suite C
Oakland, CA 94608

Date: 03/13/1997
LEGEND Client Acct. No: 98900
LEGEND Job No: 97.00396
Received: 02/27/1997

Client Reference Information

Crosby,Heafey,Roach and May/Project No. 19-122

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Result Flags" for definition of terms. Should you have questions regarding procedures or results, please feel free to call me at (707) 541-2313.

Submitted by:

Jennifer L. Roseberry
Quality Assurance Officer

Enclosure(s)

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: C-4-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272587

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
Total Porosity	0.320	RSC		%			03/13/1997	2
Percent Moisture	13.8		0.10	%	160.3		03/03/1997	106
TPH (Gas/BTXE,Solid)								
5030/M8015	--						03/03/1997	2112
DILUTION FACTOR*	1						03/03/1997	2112
as Gasoline	ND		1.0	mg/kg	5030		03/03/1997	2112
8020 (GC,Solid)	--						03/03/1997	2112
Benzene	ND		2.5	ug/kg	8020		03/03/1997	2112
Toluene	ND		2.5	ug/kg	8020		03/03/1997	2112
Ethylbenzene	ND		2.5	ug/kg	8020		03/03/1997	2112
Xylenes (Total)	ND		2.5	ug/kg	8020		03/03/1997	2112
Methyl-tert-butyl ether	ND		10	ug/kg	8020		03/03/1997	2112
SURROGATE RESULTS	--						03/03/1997	2112
Bromofluorobenzene (SURR)	88			% Rec.	5030		03/03/1997	2112
8015M - HEAVY SCAN						03/05/1997		
DILUTION FACTOR*	100						03/07/1997	27
as Creosote	3,800		1,000	mg/kg	M8015		03/07/1997	27
as Diesel	ND		100	mg/kg	M8015		03/07/1997	27
as Motor Oil	ND		1,000	mg/kg	M8015		03/07/1997	27
SURROGATE RESULTS	--						03/07/1997	27
Ortho-terphenyl (SURR)	--	DS		% Rec.	M8015		03/07/1997	27

Client Name: Cambria Env. Technology Date: 03/13/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00396 Page: 3

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: C-4-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272587

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Solid)								
DILUTION FACTOR*	1						03/05/1997	712
Bromodichloromethane	ND		2.0	ug/kg	8010		03/05/1997	712
Bromoform	ND		2.0	ug/kg	8010		03/05/1997	712
Bromomethane	6.2	B-O	2.0	ug/kg	8010		03/05/1997	712
Carbon tetrachloride	ND		2.0	ug/kg	8010		03/05/1997	712
Chlorobenzene	ND		2.0	ug/kg	8010		03/05/1997	712
Chloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
2-Chloroethylvinyl ether	ND		5.0	ug/kg	8010		03/05/1997	712
Chloroform	ND		2.0	ug/kg	8010		03/05/1997	712
Chloromethane	ND		2.0	ug/kg	8010		03/05/1997	712
Dibromochloromethane	ND		2.0	ug/kg	8010		03/05/1997	712
1,2-Dichlorobenzene	ND		2.0	ug/kg	8010		03/05/1997	712
1,3-Dichlorobenzene	ND		2.0	ug/kg	8010		03/05/1997	712
1,4-Dichlorobenzene	ND		2.0	ug/kg	8010		03/05/1997	712
Dichlorodifluoromethane	ND		2.0	ug/kg	8010		03/05/1997	712
1,1-Dichloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
1,2-Dichloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
1,1-Dichloroethene	ND		2.0	ug/kg	8010		03/05/1997	712
cis-1,2-Dichloroethene	ND		2.0	ug/kg	8010		03/05/1997	712
trans-1,2-Dichloroethene	ND		2.0	ug/kg	8010		03/05/1997	712
1,2-Dichloropropane	ND		2.0	ug/kg	8010		03/05/1997	712
cis-1,3-Dichloropropene	ND		2.0	ug/kg	8010		03/05/1997	712
trans-1,3-Dichloropropene	ND		2.0	ug/kg	8010		03/05/1997	712
Freon 113	5.3		2.0	ug/kg	8010		03/05/1997	712
Methylene chloride	ND		50	ug/kg	8010		03/05/1997	712
Ethylene dibromide	ND		2.0	ug/kg	8010		03/05/1997	712
1,1,2,2-Tetrachloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
Tetrachloroethene	ND		2.0	ug/kg	8010		03/05/1997	712
1,1,1-Trichloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
1,1,2-Trichloroethane	ND		2.0	ug/kg	8010		03/05/1997	712
Trichloroethene	ND		2.0	ug/kg	8010		03/05/1997	712
Trichlorofluoromethane	ND		2.0	ug/kg	8010		03/05/1997	712
Vinyl chloride	ND		2.0	ug/kg	8010		03/05/1997	712
SURROGATE RESULTS	--						03/05/1997	712
1,4-Dichlorobutane (SURR)	108			% Rec.			03/05/1997	712

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: C-4-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272587

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270(GCMS,Solid)						02/28/1997		
DILUTION FACTOR*	10						03/01/1997	775
BASE/NEUTRAL EXTRACTABLES	--						03/01/1997	775
Acenaphthene	3,400		3,300	ug/kg	8270		03/01/1997	775
Acenaphthylene	26,000		3,300	ug/kg	8270		03/01/1997	775
Anthracene	18,000		3,300	ug/kg	8270		03/01/1997	775
Benzidine	ND		16,000	ug/kg	8270		03/01/1997	775
Benzo(a)anthracene	53,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(b&k)fluoranthene	120,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(a)pyrene	90,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(g,h,i)perylene	84,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzoic acid	ND		16,000	ug/kg	8270		03/01/1997	775
Benyzl alcohol	ND		3,300	ug/kg	8270		03/01/1997	775
Butyl benzyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroethyl)ether	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroethoxy)methane	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroisopropyl)ether	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Ethylhexyl)phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
4-Bromophenyl phenyl ether	ND		3,300	ug/kg	8270		03/01/1997	775
4-Chloroanaline	ND		3,300	ug/kg	8270		03/01/1997	775
2-Chloronaphthalene	ND		3,300	ug/kg	8270		03/01/1997	775
4-Chlorophenyl phenyl ether	ND		3,300	ug/kg	8270		03/01/1997	775
Chrysene	65,000	FE	17,000	ug/kg	8270		03/07/1997	775
Dibenzo(a,h)anthracene	17,000		3,300	ug/kg	8270		03/01/1997	775
Dibenzofuran	ND		3,300	ug/kg	8270		03/01/1997	775
Di-n-butylphthalate	ND		3,300	ug/kg	8270		03/01/1997	775
1,2-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
1,3-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
1,4-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
3,3'-Dichlorobenzidine	ND		6,600	ug/kg	8270		03/01/1997	775
Diethylphthalate	ND		3,300	ug/kg	8270		03/01/1997	775
Dimethyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dinitrotoluene	ND		3,300	ug/kg	8270		03/01/1997	775
2,6-Dinitrotoluene	ND		3,300	ug/kg	8270		03/01/1997	775
Di-n-octyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
Fluoranthene	170,000	FE	17,000	ug/kg	8270		03/07/1997	775
Fluorene	5,100		3,300	ug/kg	8270		03/01/1997	775
Hexachlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachlorobutadiene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachlorocyclopentadiene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachloroethane	ND		3,300	ug/kg	8270		03/01/1997	775
Indeno(1,2,3-cd)pyrene	63,000	FE	17,000	ug/kg	8270		03/07/1997	775
Isophorone	ND		3,300	ug/kg	8270		03/01/1997	775
2-Methylnaphthalene	ND		3,300	ug/kg	8270		03/01/1997	775
Naphthalene	19,000		3,300	ug/kg	8270		03/01/1997	775
2-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775
3-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775

Client Name: Cambria Env. Technology
Client Acct: 98900
LEGEND Job No: 97.00396

Date: 03/13/1997
ELAP Cert: 2193
Page: 5

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: C-4-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272587

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
4-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775
Nitrobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
N-Nitroso-Di-N-propylamine	ND		3,300	ug/kg	8270		03/01/1997	775
N-Nitrosodiphenylamine	ND		3,300	ug/kg	8270		03/01/1997	775
Phenanthrene	87,000	FE	17,000	ug/kg	8270		03/07/1997	775
Pyrene	210,000	FE	17,000	ug/kg	8270		03/07/1997	775
1,2,4-Trichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
ACID EXTRACTABLES	--						03/01/1997	775
4-Chloro-3-methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2-Chlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dichlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dimethylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dinitrophenol	ND		16,000	ug/kg	8270		03/01/1997	775
4,6-Dinitro-2-methylphenol	ND		16,000	ug/kg	8270		03/01/1997	775
2-Nitrophenol	ND		3,300	ug/kg	8270		03/01/1997	775
4-Nitrophenol	ND		16,000	ug/kg	8270		03/01/1997	775
Pentachlorophenol	ND		16,000	ug/kg	8270		03/01/1997	775
Phenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4,6-Trichlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2-Methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
4-Methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4,5-Trichlorophenol	ND		16,000	ug/kg	8270		03/01/1997	775
SURROGATE RESULTS	--						03/01/1997	775
Nitrobenzene-d5 (SURR)	97			% Rec.	8270		03/01/1997	775
2-Fluorobiphenyl (SURR)	113			% Rec.	8270		03/01/1997	775
p-Terphenyl-d14 (SURR)	139			% Rec.	8270		03/01/1997	775
Phenol-d5 (SURR)	98			% Rec.	8270		03/01/1997	775
2-Fluorophenol (SURR)	80			% Rec.	8270		03/01/1997	775
2,4,6-Tribromophenol (SURR)	95			% Rec.	8270		03/01/1997	775

Client Name: Cambria Env. Technology Date: 03/13/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00396 Page: 6

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-BB-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272588

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
Total Porosity	0.391	RSC		%			03/13/1997	2
Total Organic Carbon	32,800	*M	25	mg/kg	415.1		03/06/1997	374
TPH (Gas/BTXE,Solid)								
5030/M8015	--						03/03/1997	2112
DILUTION FACTOR*	1						03/03/1997	2112
as Gasoline	1.0		1.0	mg/kg	5030		03/03/1997	2112
8020 (GC,Solid)	--						03/03/1997	2112
Benzene	3.5		2.5	ug/kg	8020		03/03/1997	2112
Toluene	ND		2.5	ug/kg	8020		03/03/1997	2112
Ethylbenzene	5.8		2.5	ug/kg	8020		03/03/1997	2112
Xylenes (Total)	7.6		2.5	ug/kg	8020		03/03/1997	2112
Methyl-tert-butyl ether	ND		10	ug/kg	8020		03/03/1997	2112
SURROGATE RESULTS	--						03/03/1997	2112
Bromofluorobenzene (SURR)	83			% Rec.	5030		03/03/1997	2112
8015M - HEAVY SCAN						03/05/1997		
DILUTION FACTOR*	100						03/07/1997	27
as Creosote	4,200		1,000	mg/kg	M8015		03/07/1997	27
as Diesel	ND		100	mg/kg	M8015		03/07/1997	27
as Motor Oil	ND		1,000	mg/kg	M8015		03/07/1997	27
SURROGATE RESULTS	--						03/07/1997	27
Ortho-terphenyl (SURR)	--	DS		% Rec.	M8015		03/07/1997	27

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-BB-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272588

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Solid)								
DILUTION FACTOR*	1						03/06/1997	712
Bromodichloromethane	ND		2.0	ug/kg	8010		03/06/1997	712
Bromoform	ND		2.0	ug/kg	8010		03/06/1997	712
Bromomethane	4.0	B-O	2.0	ug/kg	8010		03/06/1997	712
Carbon tetrachloride	ND		2.0	ug/kg	8010		03/06/1997	712
Chlorobenzene	ND		2.0	ug/kg	8010		03/06/1997	712
Chloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
2-Chloroethylvinyl ether	ND		5.0	ug/kg	8010		03/06/1997	712
Chloroform	ND		2.0	ug/kg	8010		03/06/1997	712
Chloromethane	ND		2.0	ug/kg	8010		03/06/1997	712
Dibromochloromethane	ND		2.0	ug/kg	8010		03/06/1997	712
1,2-Dichlorobenzene	ND		2.0	ug/kg	8010		03/06/1997	712
1,3-Dichlorobenzene	ND		2.0	ug/kg	8010		03/06/1997	712
1,4-Dichlorobenzene	ND		2.0	ug/kg	8010		03/06/1997	712
Dichlorodifluoromethane	ND		2.0	ug/kg	8010		03/06/1997	712
1,1-Dichloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
1,2-Dichloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
1,1-Dichloroethene	ND		2.0	ug/kg	8010		03/06/1997	712
cis-1,2-Dichloroethene	ND		2.0	ug/kg	8010		03/06/1997	712
trans-1,2-Dichloroethene	ND		2.0	ug/kg	8010		03/06/1997	712
1,2-Dichloropropane	ND		2.0	ug/kg	8010		03/06/1997	712
cis-1,3-Dichloropropene	ND		2.0	ug/kg	8010		03/06/1997	712
trans-1,3-Dichloropropene	ND		2.0	ug/kg	8010		03/06/1997	712
Freon 113	ND		2.0	ug/kg	8010		03/06/1997	712
Methylene chloride	ND		50	ug/kg	8010		03/06/1997	712
Ethylene dibromide	ND		2.0	ug/kg	8010		03/06/1997	712
1,1,2,2-Tetrachloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
Tetrachloroethene	ND		2.0	ug/kg	8010		03/06/1997	712
1,1,1-Trichloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
1,1,2-Trichloroethane	ND		2.0	ug/kg	8010		03/06/1997	712
Trichloroethene	ND		2.0	ug/kg	8010		03/06/1997	712
Trichlorofluoromethane	ND		2.0	ug/kg	8010		03/06/1997	712
Vinyl chloride	ND		2.0	ug/kg	8010		03/06/1997	712
SURROGATE RESULTS	--						03/06/1997	712
1,4-Dichlorobutane (SURR)	101			% Rec.			03/06/1997	712

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-BB-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272588

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270(GCMS,Solid)						02/28/1997		
DILUTION FACTOR*	10						03/01/1997	775
BASE/NEUTRAL EXTRACTABLES	--						03/01/1997	775
Acenaphthene	ND		3,300	ug/kg	8270		03/01/1997	775
Acenaphthylene	29,000		3,300	ug/kg	8270		03/01/1997	775
Anthracene	27,000		3,300	ug/kg	8270		03/01/1997	775
Benzidine	ND		16,000	ug/kg	8270		03/01/1997	775
Benzo(a)anthracene	60,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(b&k)fluoranthene	140,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(a)pyrene	100,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzo(g,h,i)perylene	97,000	FE	17,000	ug/kg	8270		03/07/1997	775
Benzoic acid	ND		16,000	ug/kg	8270		03/01/1997	775
Benyzl alcohol	ND		3,300	ug/kg	8270		03/01/1997	775
Butyl benzyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroethyl)ether	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroethoxy)methane	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Chloroisopropyl)ether	ND		3,300	ug/kg	8270		03/01/1997	775
bis(2-Ethylhexyl)phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
4-Bromophenyl phenyl ether	ND		3,300	ug/kg	8270		03/01/1997	775
4-Chloroanaline	ND		3,300	ug/kg	8270		03/01/1997	775
2-Chloronaphthalene	ND		3,300	ug/kg	8270		03/01/1997	775
4-Chlorophenyl phenyl ether	ND		3,300	ug/kg	8270		03/01/1997	775
Chrysene	70,000	FE	17,000	ug/kg	8270		03/07/1997	775
Dibenzo(a,h)anthracene	18,000		3,300	ug/kg	8270		03/01/1997	775
Dibenzofuran	ND		3,300	ug/kg	8270		03/01/1997	775
Di-n-butylphthalate	ND		3,300	ug/kg	8270		03/01/1997	775
1,2-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
1,3-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
1,4-Dichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
3,3'-Dichlorobenzidine	ND		6,600	ug/kg	8270		03/01/1997	775
Diethylphthalate	ND		3,300	ug/kg	8270		03/01/1997	775
Dimethyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dinitrotoluene	ND		3,300	ug/kg	8270		03/01/1997	775
2,6-Dinitrotoluene	ND		3,300	ug/kg	8270		03/01/1997	775
Di-n-octyl phthalate	ND		3,300	ug/kg	8270		03/01/1997	775
Fluoranthene	170,000	FE	17,000	ug/kg	8270		03/07/1997	775
Fluorene	11,000		3,300	ug/kg	8270		03/01/1997	775
Hexachlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachlorobutadiene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachlorocyclopentadiene	ND		3,300	ug/kg	8270		03/01/1997	775
Hexachloroethane	ND		3,300	ug/kg	8270		03/01/1997	775
Indeno(1,2,3-cd)pyrene	71,000	FE	17,000	ug/kg	8270		03/07/1997	775
Isophorone	ND		3,300	ug/kg	8270		03/01/1997	775
2-Methylnaphthalene	5,100		3,300	ug/kg	8270		03/01/1997	775
Naphthalene	68,000	FE	17,000	ug/kg	8270		03/07/1997	775
2-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775
3-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-BB-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272588

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
4-Nitroaniline	ND		16,000	ug/kg	8270		03/01/1997	775
Nitrobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
N-Nitroso-Di-N-propylamine	ND		3,300	ug/kg	8270		03/01/1997	775
N-Nitrosodiphenylamine	ND		3,300	ug/kg	8270		03/01/1997	775
Phenanthrene	130,000	FE	17,000	ug/kg	8270		03/07/1997	775
Pyrene	230,000	FE	17,000	ug/kg	8270		03/07/1997	775
1,2,4-Trichlorobenzene	ND		3,300	ug/kg	8270		03/01/1997	775
ACID EXTRACTABLES	--						03/01/1997	775
4-Chloro-3-methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2-Chlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dichlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dimethylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4-Dinitrophenol	ND		16,000	ug/kg	8270		03/01/1997	775
4,6-Dinitro-2-methylphenol	ND		16,000	ug/kg	8270		03/01/1997	775
2-Nitrophenol	ND		3,300	ug/kg	8270		03/01/1997	775
4-Nitrophenol	ND		16,000	ug/kg	8270		03/01/1997	775
Pentachlorophenol	ND		16,000	ug/kg	8270		03/01/1997	775
Phenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4,6-Trichlorophenol	ND		3,300	ug/kg	8270		03/01/1997	775
2-Methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
4-Methylphenol	ND		3,300	ug/kg	8270		03/01/1997	775
2,4,5-Trichlorophenol	ND		16,000	ug/kg	8270		03/01/1997	775
SURROGATE RESULTS	--						03/01/1997	775
Nitrobenzene-d5 (SURR)	81			% Rec.	8270		03/01/1997	775
2-Fluorobiphenyl (SURR)	107			% Rec.	8270		03/01/1997	775
p-Terphenyl-d14 (SURR)	139			% Rec.	8270		03/01/1997	775
Phenol-d5 (SURR)	100			% Rec.	8270		03/01/1997	775
2-Fluorophenol (SURR)	72			% Rec.	8270		03/01/1997	775
2,4,6-Tribromophenol (SURR)	89			% Rec.	8270		03/01/1997	775

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-AA-5
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272589

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Solid)								
5030/M8015	--						03/06/1997	2113
DILUTION FACTOR*	100						03/06/1997	2113
as Gasoline	1,700		100	mg/kg	5030		03/06/1997	2113
8020 (GC,Solid)	--						03/06/1997	2113
Benzene	5,600		250	ug/kg	8020		03/06/1997	2113
Toluene	2,500		250	ug/kg	8020		03/06/1997	2113
Ethylbenzene	17,000		250	ug/kg	8020		03/06/1997	2113
Xylenes (Total)	14,000		250	ug/kg	8020		03/06/1997	2113
Methyl-tert-butyl ether	ND		1,000	ug/kg	8020		03/06/1997	2113
SURROGATE RESULTS	--						03/06/1997	2113
Bromofluorobenzene (SURR)	109			% Rec.	5030		03/06/1997	2113
8015M - HEAVY SCAN						03/06/1997		
DILUTION FACTOR*	1,200						03/07/1997	28
as Creosote	34,000		12,000	mg/kg	M8015		03/07/1997	28
as Diesel	ND		1,200	mg/kg	M8015		03/07/1997	28
as Motor Oil	ND		12,000	mg/kg	M8015		03/07/1997	28
SURROGATE RESULTS	--						03/07/1997	28
Ortho-terphenyl (SURR)	--	DS		% Rec.	M8015		03/07/1997	28

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

SAMPLE DESCRIPTION: SB-BB
Date Taken: 02/25/1997
Time Taken:
LEGEND Sample No: 272594

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/03/1997	3807
DILUTION FACTOR*	1						03/03/1997	3807
as Gasoline	0.79	G1	0.050	mg/L	5030		03/03/1997	3807
8020 (GC,Liquid)	--						03/03/1997	3807
Benzene	4.0		0.50	ug/L	8020		03/03/1997	3807
Toluene	2.1		0.50	ug/L	8020		03/03/1997	3807
Ethylbenzene	9.3		0.50	ug/L	8020		03/03/1997	3807
Xylenes (Total)	7.5		0.50	ug/L	8020		03/03/1997	3807
Methyl-tert-butyl ether	ND		2.0	ug/L	8020		03/03/1997	3807
SURROGATE RESULTS	--						03/03/1997	3807
Bromofluorobenzene (SURR)	106			% Rec.	5030		03/03/1997	3807
8015M - HEAVY SCAN						02/28/1997		
DILUTION FACTOR*	10						03/03/1997	26
as Creosote	35		5.0	mg/L	M8015		03/03/1997	26
as Diesel	ND		0.50	mg/L	M8015		03/03/1997	26
as Motor Oil	ND		5.0	mg/L	M8015		03/03/1997	26
SURROGATE RESULTS	--						03/03/1997	26
Ortho-terphenyl (SURR)	243	MI		% Rec.	M8015		03/03/1997	26

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CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
Total Organic Carbon	109.5	1,094.5	1,000		mg/kg	03/06/1997	djm	374
TPH (Gas/BTXE,Liquid)								
as Gasoline	101.6	0.508	0.50		mg/L	03/03/1997	vah	3807
Benzene	95.2	19.04	20.0		ug/L	03/03/1997	vah	3807
Toluene	90.5	18.09	20.0		ug/L	03/03/1997	vah	3807
Ethylbenzene	94.2	18.84	20.0		ug/L	03/03/1997	vah	3807
Xylenes (Total)	93.3	55.95	60.0		ug/L	03/03/1997	vah	3807
Methyl-tert-butyl ether	97.1	77.64	80.0		ug/L	03/03/1997	vah	3807
Bromofluorobenzene (SURR)	107.0	107	100		% Rec.	03/03/1997	vah	3807
8015M - HEAVY SCAN								
as Diesel	109.8	1098	1000		mg/L	03/03/1997	vah	26
Ortho-terphenyl (SURR)	113.0	113	100		% Rec.	03/03/1997	vah	26
TPH (Gas/BTXE,Solid)								
as Gasoline	98.0	2.449	2.50		mg/kg	03/03/1997	cjy	2112
Benzene	97.0	96.95	100.0		ug/kg	03/03/1997	cjy	2112
Toluene	96.6	96.60	100.0		ug/kg	03/03/1997	cjy	2112
Ethylbenzene	95.8	95.85	100.0		ug/kg	03/03/1997	cjy	2112
Xylenes (Total)	95.7	287.2	300.0		ug/kg	03/03/1997	cjy	2112
Methyl-tert-butyl ether	94.7	378.6	400.0		ug/kg	03/03/1997	cjy	2112
Bromofluorobenzene (SURR)	112.0	112	100		% Rec.	03/03/1997	cjy	2112
TPH (Gas/BTXE,Solid)								
as Gasoline	100.1	2.503	2.50		mg/kg	03/06/1997	cjy	2113
Benzene	97.6	97.55	100.0		ug/kg	03/06/1997	cjy	2113
Toluene	94.2	94.20	100.0		ug/kg	03/06/1997	cjy	2113
Ethylbenzene	95.4	95.40	100.0		ug/kg	03/06/1997	cjy	2113
Xylenes (Total)	95.8	287.5	300.0		ug/kg	03/06/1997	cjy	2113
Methyl-tert-butyl ether	100.5	402.0	400.0		ug/kg	03/06/1997	cjy	2113
Bromofluorobenzene (SURR)	116.0	116	100		% Rec.	03/06/1997	cjy	2113
8015M - HEAVY SCAN								
as Diesel	97.9	979	1000		mg/kg	03/05/1997	vah	27
Ortho-terphenyl (SURR)	108.0	108	100		% Rec.	03/05/1997	vah	27
8015M - HEAVY SCAN								
as Diesel	109.4	1094	1000		mg/kg	03/07/1997	vah	28
Ortho-terphenyl (SURR)	111.0	111	100		% Rec.	03/07/1997	vah	28

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CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8010 (GC,Solid)								
Bromodichloromethane	106.8	42.7	40.0		ug/kg	03/05/1997	jde	712
Bromoform	96.0	38.4	40.0		ug/kg	03/05/1997	jde	712
Bromomethane	99.0	39.6	40.0		ug/kg	03/05/1997	jde	712
Carbon tetrachloride	106.0	42.4	40.0		ug/kg	03/05/1997	jde	712
Chlorobenzene	100.3	40.1	40.0		ug/kg	03/05/1997	jde	712
Chloroethane	101.0	40.4	40.0		ug/kg	03/05/1997	jde	712
2-Chloroethylvinyl ether	101.8	40.7	40.0		ug/kg	03/05/1997	jde	712
Chloroform	102.8	41.1	40.0		ug/kg	03/05/1997	jde	712
Chloromethane	100.0	40.0	40.0		ug/kg	03/05/1997	jde	712
Dibromochloromethane	99.5	39.8	40.0		ug/kg	03/05/1997	jde	712
1,2-Dichlorobenzene	102.0	40.8	40.0		ug/kg	03/05/1997	jde	712
1,3-Dichlorobenzene	100.3	40.1	40.0		ug/kg	03/05/1997	jde	712
1,4-Dichlorobenzene	101.5	40.6	40.0		ug/kg	03/05/1997	jde	712
Dichlorodifluoromethane	108.3	43.3	40.0		ug/kg	03/05/1997	jde	712
1,1-Dichloroethane	101.0	40.4	40.0		ug/kg	03/05/1997	jde	712
1,2-Dichloroethane	104.3	41.7	40.0		ug/kg	03/05/1997	jde	712
1,1-Dichloroethene	112.3	44.9	40.0		ug/kg	03/05/1997	jde	712
cis-1,2-Dichloroethene	102.5	41.0	40.0		ug/kg	03/05/1997	jde	712
trans-1,2-Dichloroethene	102.8	41.1	40.0		ug/kg	03/05/1997	jde	712
1,2-Dichloropropane	103.3	41.3	40.0		ug/kg	03/05/1997	jde	712
cis-1,3-Dichloropropene	104.5	41.8	40.0		ug/kg	03/05/1997	jde	712
trans-1,3-Dichloropropene	105.0	42.0	40.0		ug/kg	03/05/1997	jde	712
Freon 113	96.5	38.6	40.0		ug/kg	03/05/1997	jde	712
Methylene chloride	101.5	40.6	40.0		ug/kg	03/05/1997	jde	712
Ethylene dibromide	98.5	39.4	40.0		ug/kg	03/05/1997	jde	712
1,1,2,2-Tetrachloroethane	90.3	36.1	40.0		ug/kg	03/05/1997	jde	712
Tetrachloroethene	101.5	40.6	40.0		ug/kg	03/05/1997	jde	712
1,1,1-Trichloroethane	102.0	40.8	40.0		ug/kg	03/05/1997	jde	712
1,1,2-Trichloroethane	101.5	40.6	40.0		ug/kg	03/05/1997	jde	712
Trichloroethene	110.3	44.1	40.0		ug/kg	03/05/1997	jde	712
Trichlorofluoromethane	103.5	41.4	40.0		ug/kg	03/05/1997	jde	712
Vinyl chloride	104.8	41.9	40.0		ug/kg	03/05/1997	jde	712
1,4-Dichlorobutane (SURR)	101.0	101	100		% Rec.	03/05/1997	jde	712

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270(GCMS,Solid)								
Acenaphthene	89.8	89.8	100		ug/kg	03/01/1997	gec	775
Benzo(a)pyrene	93.8	93.8	100		ug/kg	03/01/1997	gec	775
1,4-Dichlorobenzene	102.0	102	100		ug/kg	03/01/1997	gec	775
Di-n-octyl phthalate	92.7	92.7	100		ug/kg	03/01/1997	gec	775
Fluoranthene	90.0	90.0	100		ug/kg	03/01/1997	gec	775
Hexachlorobutadiene	95.1	95.1	100		ug/kg	03/01/1997	gec	775
N-Nitrosodiphenylamine	84.8	84.8	100		ug/kg	03/01/1997	gec	775
4-Chloro-3-methylphenol	97.0	97.0	100		ug/kg	03/01/1997	gec	775
2,4-Dichlorophenol	100.0	100	100		ug/kg	03/01/1997	gec	775
2-Nitrophenol	90.8	90.8	100		ug/kg	03/01/1997	gec	775
Pentachlorophenol	99.2	99.2	100		ug/kg	03/01/1997	gec	775
Phenol	101.0	101	100		ug/kg	03/01/1997	gec	775
2,4,6-Trichlorophenol	93.3	93.3	100		ug/kg	03/01/1997	gec	775
Nitrobenzene-d5 (SURR)	91.2	91.2	100		% Rec.	03/01/1997	gec	775
2-Fluorobiphenyl (SURR)	84.5	84.5	100		% Rec.	03/01/1997	gec	775
p-Terphenyl-d14 (SURR)	82.2	82.2	100		% Rec.	03/01/1997	gec	775
Phenol-d5 (SURR)	86.0	86.0	100		% Rec.	03/01/1997	gec	775
2-Fluorophenol (SURR)	96.2	96.2	100		% Rec.	03/01/1997	gec	775
2,4,6-Tribromophenol (SURR)	89.6	89.6	100		% Rec.	03/01/1997	gec	775

Ref: Crosby,Heafey,Roach and May/Project No. 19-122

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270(GCMS,Solid)								
Acenaphthene	104.0	104	100		ug/kg	03/06/1997	gec	775
Benzo(a)pyrene	105.0	105	100		ug/kg	03/06/1997	gec	775
1,4-Dichlorobenzene	114.0	114	100		ug/kg	03/06/1997	gec	775
Di-n-octyl phthalate	99.9	99.9	100		ug/kg	03/06/1997	gec	775
Fluoranthene	111.0	111	100		ug/kg	03/06/1997	gec	775
Hexachlorobutadiene	107.0	107	100		ug/kg	03/06/1997	gec	775
N-Nitrosodiphenylamine	104.0	104	100		ug/kg	03/06/1997	gec	775
4-Chloro-3-methylphenol	115.0	115	100		ug/kg	03/06/1997	gec	775
2,4-Dichlorophenol	116.0	116	100		ug/kg	03/06/1997	gec	775
2-Nitrophenol	98.8	98.8	100		ug/kg	03/06/1997	gec	775
Pentachlorophenol	103.0	103	100		ug/kg	03/06/1997	gec	775
Phenol	107.0	107	100		ug/kg	03/06/1997	gec	775
2,4,6-Trichlorophenol	105.0	105	100		ug/kg	03/06/1997	gec	775
Nitrobenzene-d5 (SURR)	99.3	99.3	100		% Rec.	03/06/1997	gec	775
2-Fluorobiphenyl (SURR)	92.8	92.8	100		% Rec.	03/06/1997	gec	775
p-Terphenyl-d14 (SURR)	89.2	89.2	100		% Rec.	03/06/1997	gec	775
Phenol-d5 (SURR)	86.3	86.3	100		% Rec.	03/06/1997	gec	775
2-Fluorophenol (SURR)	93.9	93.9	100		% Rec.	03/06/1997	gec	775
2,4,6-Tribromophenol (SURR)	96.4	96.4	100		% Rec.	03/06/1997	gec	775

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Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
Percent Moisture	ND	0.10		%	03/03/1997	temp	106
Total Organic Carbon	ND	25		mg/kg	03/06/1997	djm	374
TPH (Gas/BTXE,Liquid)							
as Gasoline	ND	0.050		mg/L	03/03/1997	vah	3807
Benzene	ND	0.50		ug/L	03/03/1997	vah	3807
Toluene	ND	0.50		ug/L	03/03/1997	vah	3807
Ethylbenzene	ND	0.50		ug/L	03/03/1997	vah	3807
Xylenes (Total)	ND	0.50		ug/L	03/03/1997	vah	3807
Methyl-tert-butyl ether	ND	2.0		ug/L	03/03/1997	vah	3807
Bromofluorobenzene (SURR)	100			% Rec.	03/03/1997	vah	3807
8015M - HEAVY SCAN							
as Creosote	ND	0.50		mg/L	03/03/1997	vah	26
as Diesel	ND	0.050		mg/L	03/03/1997	vah	26
as Motor Oil	ND	0.50		mg/L	03/03/1997	vah	26
Ortho-terphenyl (SURR)	102			% Rec.	03/03/1997	vah	26
TPH (Gas/BTXE,Solid)							
as Gasoline	ND	1.0		mg/kg	03/03/1997	cjy	2112
Benzene	ND	2.5		ug/kg	03/03/1997	cjy	2112
Toluene	ND	2.5		ug/kg	03/03/1997	cjy	2112
Ethylbenzene	ND	2.5		ug/kg	03/03/1997	cjy	2112
Xylenes (Total)	ND	2.5		ug/kg	03/03/1997	cjy	2112
Methyl-tert-butyl ether	ND	10		ug/kg	03/03/1997	cjy	2112
Bromofluorobenzene (SURR)	107			% Rec.	03/03/1997	cjy	2112
TPH (Gas/BTXE,Solid)							
as Gasoline	ND	1.0		mg/kg	03/06/1997	cjy	2113
Benzene	ND	2.5		ug/kg	03/06/1997	cjy	2113
Toluene	ND	2.5		ug/kg	03/06/1997	cjy	2113
Ethylbenzene	ND	2.5		ug/kg	03/06/1997	cjy	2113
Xylenes (Total)	ND	2.5		ug/kg	03/06/1997	cjy	2113
Methyl-tert-butyl ether	ND	10		ug/kg	03/06/1997	cjy	2113
Bromofluorobenzene (SURR)	107			% Rec.	03/06/1997	cjy	2113
8015M - HEAVY SCAN							
as Creosote	ND	10		mg/kg	03/05/1997	vah	27
as Diesel	ND	1.0		mg/kg	03/05/1997	vah	27
as Motor Oil	ND	10		mg/kg	03/05/1997	vah	27
Ortho-terphenyl (SURR)	101			% Rec.	03/05/1997	vah	27
8015M - HEAVY SCAN							
as Creosote	ND	10		mg/kg	03/07/1997	vah	28
as Diesel	ND	1.0		mg/kg	03/07/1997	vah	28
as Motor Oil	ND	10		mg/kg	03/07/1997	vah	28
Ortho-terphenyl (SURR)	123			% Rec.	03/07/1997	vah	28

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Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8010 (GC,Solid)							
Bromodichloromethane	ND	2.0		ug/kg	03/05/1997	jde	712
Bromoform	ND	2.0		ug/kg	03/05/1997	jde	712
Bromomethane	5.5	2.0		ug/kg	03/05/1997	jde	712
Carbon tetrachloride	ND	2.0		ug/kg	03/05/1997	jde	712
Chlorobenzene	ND	2.0		ug/kg	03/05/1997	jde	712
Chloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
2-Chloroethylvinyl ether	ND	5.0		ug/kg	03/05/1997	jde	712
Chloroform	ND	2.0		ug/kg	03/05/1997	jde	712
Chloromethane	ND	2.0		ug/kg	03/05/1997	jde	712
Dibromochloromethane	ND	2.0		ug/kg	03/05/1997	jde	712
1,2-Dichlorobenzene	ND	2.0		ug/kg	03/05/1997	jde	712
1,3-Dichlorobenzene	ND	2.0		ug/kg	03/05/1997	jde	712
1,4-Dichlorobenzene	ND	2.0		ug/kg	03/05/1997	jde	712
Dichlorodifluoromethane	ND	2.0		ug/kg	03/05/1997	jde	712
1,1-Dichloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
1,2-Dichloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
1,1-Dichloroethene	ND	2.0		ug/kg	03/05/1997	jde	712
cis-1,2-Dichloroethene	ND	2.0		ug/kg	03/05/1997	jde	712
trans-1,2-Dichloroethene	ND	2.0		ug/kg	03/05/1997	jde	712
1,2-Dichloropropane	ND	2.0		ug/kg	03/05/1997	jde	712
cis-1,3-Dichloropropene	ND	2.0		ug/kg	03/05/1997	jde	712
trans-1,3-Dichloropropene	ND	2.0		ug/kg	03/05/1997	jde	712
Freon 113	ND	2.0		ug/kg	03/05/1997	jde	712
Methylene chloride	ND	50		ug/kg	03/05/1997	jde	712
Ethylene dibromide	ND	2.0		ug/kg	03/05/1997	jde	712
1,1,2,2-Tetrachloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
Tetrachloroethene	ND	2.0		ug/kg	03/05/1997	jde	712
1,1,1-Trichloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
1,1,2-Trichloroethane	ND	2.0		ug/kg	03/05/1997	jde	712
Trichloroethene	ND	2.0		ug/kg	03/05/1997	jde	712
Trichlorofluoromethane	ND	2.0		ug/kg	03/05/1997	jde	712
Vinyl chloride	ND	2.0		ug/kg	03/05/1997	jde	712
1,4-Dichlorobutane (SURR)	89			% Rec.	03/05/1997	jde	712

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Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270(GCMS,Solid)							
Acenaphthene	ND	330		ug/kg	03/01/1997	gec	775
Acenaphthylene	ND	330		ug/kg	03/01/1997	gec	775
Anthracene	ND	330		ug/kg	03/01/1997	gec	775
Benzidine	ND	1600		ug/kg	03/01/1997	gec	775
Benzo(a)anthracene	ND	330		ug/kg	03/01/1997	gec	775
Benzo(b&k)fluoranthene	ND	330		ug/kg	03/01/1997	gec	775
Benzo(a)pyrene	ND	330		ug/kg	03/01/1997	gec	775
Benzo(g,h,i)perylene	ND	330		ug/kg	03/01/1997	gec	775
Benzoic acid	ND	1600		ug/kg	03/01/1997	gec	775
Benyzl alcohol	ND	330		ug/kg	03/01/1997	gec	775
Butyl benzyl phthalate	ND	330		ug/kg	03/01/1997	gec	775
bis(2-Chloroethyl)ether	ND	330		ug/kg	03/01/1997	gec	775
bis(2-Chloroethoxy)methane	ND	330		ug/kg	03/01/1997	gec	775
bis(2-Chloroisopropyl)ether	ND	330		ug/kg	03/01/1997	gec	775
bis(2-Ethylhexyl)phthalate	ND	330		ug/kg	03/01/1997	gec	775
4-Bromophenyl phenyl ether	ND	330		ug/kg	03/01/1997	gec	775
4-Chloroanaline	ND	330		ug/kg	03/01/1997	gec	775
2-Chloronaphthalene	ND	330		ug/kg	03/01/1997	gec	775
4-Chlorophenyl phenyl ether	ND	330		ug/kg	03/01/1997	gec	775
Chrysene	ND	330		ug/kg	03/01/1997	gec	775
Dibenzo(a,h)anthracene	ND	330		ug/kg	03/01/1997	gec	775
Dibenzofuran	ND	330		ug/kg	03/01/1997	gec	775
Di-n-butylphthalate	ND	330		ug/kg	03/01/1997	gec	775
1,2-Dichlorobenzene	ND	330		ug/kg	03/01/1997	gec	775
1,3-Dichlorobenzene	ND	330		ug/kg	03/01/1997	gec	775
1,4-Dichlorobenzene	ND	330		ug/kg	03/01/1997	gec	775
3,3'-Dichlorobenzidine	ND	660		ug/kg	03/01/1997	gec	775
Diethylphthalate	ND	330		ug/kg	03/01/1997	gec	775
Dimethyl phthalate	ND	330		ug/kg	03/01/1997	gec	775
2,4-Dinitrotoluene	ND	330		ug/kg	03/01/1997	gec	775
2,6-Dinitrotoluene	ND	330		ug/kg	03/01/1997	gec	775
Di-n-octyl phthalate	ND	330		ug/kg	03/01/1997	gec	775
Fluoranthene	ND	330		ug/kg	03/01/1997	gec	775
Fluorene	ND	330		ug/kg	03/01/1997	gec	775
Hexachlorobenzene	ND	330		ug/kg	03/01/1997	gec	775
Hexachlorobutadiene	ND	330		ug/kg	03/01/1997	gec	775
Hexachlorocyclopentadiene	ND	330		ug/kg	03/01/1997	gec	775
Hexachloroethane	ND	330		ug/kg	03/01/1997	gec	775
Indeno(1,2,3-cd)pyrene	ND	330		ug/kg	03/01/1997	gec	775
Isophorone	ND	330		ug/kg	03/01/1997	gec	775
2-Methylnaphthalene	ND	330		ug/kg	03/01/1997	gec	775
Naphthalene	ND	330		ug/kg	03/01/1997	gec	775
2-Nitroaniline	ND	1600		ug/kg	03/01/1997	gec	775
3-Nitroaniline	ND	1600		ug/kg	03/01/1997	gec	775

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Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
4-Nitroaniline	ND	1600		ug/kg	03/01/1997	gec	775
Nitrobenzene	ND	330		ug/kg	03/01/1997	gec	775
N-Nitroso-Di-N-propylamine	ND	330		ug/kg	03/01/1997	gec	775
N-Nitrosodiphenylamine	ND	330		ug/kg	03/01/1997	gec	775
Phenanthrene	ND	330		ug/kg	03/01/1997	gec	775
Pyrene	ND	330		ug/kg	03/01/1997	gec	775
1,2,4-Trichlorobenzene	ND	330		ug/kg	03/01/1997	gec	775
4-Chloro-3-methylphenol	ND	330		ug/kg	03/01/1997	gec	775
2-Chlorophenol	ND	330		ug/kg	03/01/1997	gec	775
2,4-Dichlorophenol	ND	330		ug/kg	03/01/1997	gec	775
2,4-Dimethylphenol	ND	330		ug/kg	03/01/1997	gec	775
2,4-Dinitrophenol	ND	1600		ug/kg	03/01/1997	gec	775
4,6-Dinitro-2-methylphenol	ND	1600		ug/kg	03/01/1997	gec	775
2-Nitrophenol	ND	330		ug/kg	03/01/1997	gec	775
4-Nitrophenol	ND	1600		ug/kg	03/01/1997	gec	775
Pentachlorophenol	ND	1600		ug/kg	03/01/1997	gec	775
Phenol	ND	330		ug/kg	03/01/1997	gec	775
2,4,6-Trichlorophenol	ND	330		ug/kg	03/01/1997	gec	775
2-Methylphenol	ND	330		ug/kg	03/01/1997	gec	775
4-Methylphenol	ND	330		ug/kg	03/01/1997	gec	775
2,4,5-Trichlorophenol	ND	1600		ug/kg	03/01/1997	gec	775
Nitrobenzene-d5 (SURR)	82			% Rec.	03/01/1997	gec	775
2-Fluorobiphenyl (SURR)	79			% Rec.	03/01/1997	gec	775
p-Terphenyl-d14 (SURR)	97			% Rec.	03/01/1997	gec	775
Phenol-d5 (SURR)	82			% Rec.	03/01/1997	gec	775
2-Fluorophenol (SURR)	79			% Rec.	03/01/1997	gec	775
2,4,6-Tribromophenol (SURR)	77			% Rec.	03/01/1997	gec	775

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
Total Organic Carbon	75.1	60.3	21.9	100,451	32,800	108,211	92,879	*M	mg/kg	03/06/1997	374	272588
TPH (Gas/BTXE,Liquid)												272623
as Gasoline	94.8	92.4	2.6	0.50	0.05	0.524	0.512		mg/L	03/03/1997	3807	272623
Benzene	99.0	96.7	2.4	3.90	0.82	4.68	4.59		ug/L	03/03/1997	3807	272623
Toluene	99.4	96.9	2.5	34.83	0.79	35.42	34.53		ug/L	03/03/1997	3807	272623
Bromofluorobenzene (SURR)	108.0	106.0	2.0	100	108	106	105		% Rec.	03/03/1997	3807	272623
8015M - HEAVY SCAN												272605
as Diesel	80.0	105.0	26.9	2.0	19	20.6	21.1		mg/L	03/03/1997	26	272605
Ortho-terphenyl (SURR)	119.0	122.0	2.5	100	116	119	122		% Rec.	03/03/1997	26	272605
TPH (Gas/BTXE,Solid)												272610
as Gasoline	91.9	91.1	0.9	2.50	ND	2.297	2.278		mg/kg	03/03/1997	2112	272610
Benzene	93.4	92.2	1.3	37.35	ND	34.90	34.45		ug/kg	03/03/1997	2112	272610
Toluene	93.9	93.0	1.0	176.1	ND	165.4	163.8		ug/kg	03/03/1997	2112	272610
Bromofluorobenzene (SURR)	104.0	102.0	1.9	100	100	104	102		% Rec.	03/03/1997	2112	272610
TPH (Gas/BTXE,Solid)												273032
as Gasoline	97.2	95.7	1.6	2.50	ND	2.429	2.392		mg/kg	03/06/1997	2113	273032
Benzene	91.0	90.8	0.2	40.15	ND	36.55	36.45		ug/kg	03/06/1997	2113	273032
Toluene	93.0	67.4	31.9	182.4	ND	169.7	123		ug/kg	03/06/1997	2113	273032
Bromofluorobenzene (SURR)	107.0	106.0	0.9	100	102	107	106		% Rec.	03/06/1997	2113	273032
8015M - HEAVY SCAN												272965
as Diesel	89.2	83.2	7.0	16.7	9.3	24.2	23.2		mg/kg	03/05/1997	27	272965
Ortho-terphenyl (SURR)	118.0	120.0	1.7	100	113	118	120		% Rec.	03/05/1997	27	272965

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
8010 (GC,Solid)												272587
Chlorobenzene	116.0	114.3	1.5	60.0	ND	69.6	68.6		ug/kg	03/05/1997	712	272587
1,1-Dichloroethene	105.7	101.5	4.1	60.0	ND	63.4	60.9		ug/kg	03/05/1997	712	272587
Trichloroethene	112.7	117.2	3.9	60.0	ND	67.6	70.3		ug/kg	03/05/1997	712	272587
1,4-Dichlorobutane (SURR)	110.0	105.0	4.7	100	108	110	105		% Rec.	03/05/1997	712	272587

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
8270(GCMS,Solid)												272662
4-Chloro-3-methylphenol	84.0	86.5	2.9	6,670	ND	5,600	5,770		ug/kg	03/01/1997	775	272662
2-Chlorophenol	73.9	77.1	4.2	6,670	ND	4,930	5,140		ug/kg	03/01/1997	775	272662
4-Nitrophenol	100.4	104.3	3.8	6,670	ND	6,700	6,960		ug/kg	03/01/1997	775	272662
Pentachlorophenol	118.3	120.5	1.8	6,670	ND	7,890	8,037		ug/kg	03/01/1997	775	272662
Phenol	75.0	78.7	4.8	6,670	ND	5,000	5,250		ug/kg	03/01/1997	775	272662
Phenol-d5 (SURR)	85.0	87.0	2.3	100	80	85	87		% Rec.	03/01/1997	775	272662
2-Fluorophenol (SURR)	70.0	79.0	12.1	100	69	70	79		% Rec.	03/01/1997	775	272662
2,4,6-Tribromophenol (SURR)	87.0	90.0	3.4	100	82	87	90		% Rec.	03/01/1997	775	272662

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LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Rec.	DUP LCS % Rec.	RPD	LCS Amount Found	DUP LCS Amount Found	LCS Amount Exp.	Flags	Units	Date Analyzed	Analyst Initials	Run Batch
8015M - HEAVY SCAN											
as Diesel	96.0			0.96		1.0		mg/L	03/03/1997	vah	26
Ortho-terphenyl (SURR)	108.0			108		100		% Rec.	03/03/1997	vah	26
8015M - HEAVY SCAN											
as Diesel	98.2			16.4		16.7		mg/kg	03/05/1997	vah	27
Ortho-terphenyl (SURR)	108.0			108		100		% Rec.	03/05/1997	vah	27
8015M - HEAVY SCAN											
as Diesel	106.6	108.4	1.7	17.8	18.1	16.7		mg/kg	03/07/1997	vah	28
Ortho-terphenyl (SURR)	126.0	128.0	1.6	126	128	100		% Rec.	03/07/1997	vah	28

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LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Rec.	DUP LCS % Rec.	RPD	LCS Amount Found	DUP LCS Amount Found	LCS Amount Exp.	Flags	Units	Date Analyzed	Analyst Initials	Run Batch
8270(GCMS,Solid)											
Acenaphthene	86.5			2,880		3,330		ug/kg	03/01/1997	gec	775
1,4-Dichlorobenzene	86.5			2,880		3,330		ug/kg	03/01/1997	gec	775
2,4-Dinitrotoluene	84.4			2,810		3,330		ug/kg	03/01/1997	gec	775
N-Nitroso-Di-N-propylamine	89.8			2,990		3,330		ug/kg	03/01/1997	gec	775
Pyrene	98.8			3,290		3,330		ug/kg	03/01/1997	gec	775
1,2,4-Trichlorobenzene	85.0			2,830		3,330		ug/kg	03/01/1997	gec	775
4-Chloro-3-methylphenol	80.4			5,360		6,670		ug/kg	03/01/1997	gec	775
2-Chlorophenol	72.1			4,810		6,670		ug/kg	03/01/1997	gec	775
4-Nitrophenol	89.1			5,940		6,670		ug/kg	03/01/1997	gec	775
Pentachlorophenol	113.9			7,600		6,670		ug/kg	03/01/1997	gec	775
Phenol	80.2			5,350		6,670		ug/kg	03/01/1997	gec	775
Nitrobenzene-d5 (SURR)	80.0			80		100		% Rec.	03/01/1997	gec	775
2-Fluorobiphenyl (SURR)	75.0			75		100		% Rec.	03/01/1997	gec	775
p-Terphenyl-d14 (SURR)	98.0			98		100		% Rec.	03/01/1997	gec	775
Phenol-d5 (SURR)	75.0			75		100		% Rec.	03/01/1997	gec	775
2-Fluorophenol (SURR)	67.0			67		100		% Rec.	03/01/1997	gec	775
2,4,6-Tribromophenol (SURR)	79.0			79		100		% Rec.	03/01/1997	gec	775

KEY TO RESULT FLAGS

*	: RPD between sample duplicates exceeds 30%.
*M	: RPD between sample duplicates or MS/MSD exceeds 20%.
+	: Correlation coefficient for the Method of Standard Additions is less than 0.995.
<	: Sample result is less than reported value.
B-I	: Value is between Method Detection Limit and Reporting Limit.
B-0	: Analyte found in blank and sample.
C	: The result confirmed by secondary column or GC/MS analysis.
CNA	: Cr+6 not analyzed; Total Chromium concentration below Cr+6 regulatory level.
COMP	: Sample composited by equal volume prior to analysis.
CV	: Parameter cannot be analyzed for in a preserved sample.
CWT	: Due to the sample matrix, constant weight could not be achieved.
D-	: The result has an atypical pattern for Diesel analysis.
D1	: The result for Diesel is an unknown hydrocarbon which consists of a single peak.
DB	: ND for hydrocarbons, non-discrete baseline rise detected.
DH	: The result appears to be a heavier hydrocarbon than Diesel.
DL	: The result appears to be a lighter hydrocarbon than Diesel.
DR	: Elevated Reporting Limit due to Matrix.
DS	: Surrogate diluted out of range.
DX	: The result for Diesel is an unknown hydrocarbon which consists of several peaks.
FA	: Compound quantitated at a 2X dilution factor.
FB	: Compound quantitated at a 5X dilution factor.
FC	: Compound quantitated at a 10X dilution factor.
FD	: Compound quantitated at a 20X dilution factor.
FE	: Compound quantitated at a 50X dilution factor.
FF	: Compound quantitated at a 100X dilution factor.
FG	: Compound quantitated at a 200X dilution factor.
FH	: Compound quantitated at a 500X dilution factor.
FI	: Compound quantitated at a 1000X dilution factor.
FJ	: Compound quantitated at a greater than 1000x dilution factor.
FK	: Compound quantitated at a 25X dilution factor.
FL	: Compound quantitated at a 250X dilution factor.
G-	: The result has an atypical pattern for Gasoline.
G1	: The result for Gasoline is an unknown hydrocarbon which consists of a single peak.
GH	: The result appears to be a heavier hydrocarbon than Gasoline.
GL	: The result appears to be a lighter hydrocarbon than Gasoline.
GX	: The result for Gasoline is an unknown hydrocarbon which consists of several peaks.
HT	: Analysis performed outside of the method specified holding time.
HTC	: Confirmation analyzed outside of the method specified holding time.
HTP	: Prep procedure performed outside of the method specified holding time.
HTR	: Received after holding time expired, analyzed ASAP after receipt.
HX	: Peaks detected within the quantitation range do not match standard used.
J	: Value is estimated.
MI	: Matrix Interference Suspected.
MSA	: Value determined by Method of Standard Additions.
MSA*	: Value obtained by Method of Standard Additions; Correlation coefficient is <0.995.
NI1	: Sample spikes outside of QC limits; matrix interference suspected.
NI2	: Sample concentration is greater than 4X the spiked value; the spiked value is considered insignificant.
NI3	: Matrix Spike values exceed established QC limits, post digestion spike is in control.
NI4	: MS/MSD outside of control limits, serial dilution within control.
P	: There is >40% difference between primary and confirmation analysis.
P7	: pH of sample > 2; sample analyzed past 7 days.
RSC	: Refer to subcontract laboratory report for QC data.
S2	: Matrix interference confirmed by repeat analysis.
SCN	: Thiocyanate not analyzed separately; total value is below the Reporting Limit for Free Cyanide.
TND	: Conc. of the total analyte ND; therefore this analyte is ND also.
UMDL	: Undetected at the Method Detection Limit.
UTD	: Unable to perform requested analysis.

3900

CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.

1144 65th Street, Suite C, Oakland, CA 94608
(510) 420-0700 Fax: (510) 420-9170

Emailed per Ann Crum 03-26-97 JK

CHAIN OF CUSTODY

Cambria Manager: Ann Crum
Cambria Sampler: Sam Rangarajan
Client: Crosby, Heafey, Roach and May (Lathrop Property)
Site Address: 5813-15, Shellmound St., Emeryville
Project Number: 19-122

LAB: Legend Analytical, Santa Rosa, CA

SAMPLE ID	DATE	TIME	MATRIX	# OF SAMPLES	ANALYSES: TPH9/BTEX/MTBE	TPH Creosote TPH motor oil TPH diesel	VOCs (8010)	SVOCs (8270) incl. PNAs	Moisture Content	TOC Organic Carbon Content	Kd for Naphthalene	Total Porosity			
C-4-5	02/25/97		Soil	1	✓	✓	✓	✓	✓			✓			Hold AC
C-4-10	"		"	1											Hold
C-4-15	"		"	1											Hold
SB-AA-5	"		"	1	✓	✓									Hold AC
SB-BB-5	"		"	1	✓	✓	✓	✓		✓	✓	✓			"
SB-AA(Temp)	"		"	1											"
SB-AA	02/25/97		Water	4 VOAs											Hold
SB-AA	"		"	1 liter amber											"
SB-BB	"		"	4 VOAs	✓										" AC
SB-BB	"		"	1-liter amber 600ml		✓									" AC

CUSTODY SEALED
Date 2-26-97 Time 1800 Initials JK
SEAL INTACT?
Yes ✓ No ____ Initials [illegible]

Relinquished by:	Relinquished by:	Relinquished by:	Relinquished by:
S. Rangarajan	Florence Rapp 2-26-97 1800		
Received by: Florence Rapp	Received by:	Received by:	Received by: [illegible]
Time/Date: 2-26-97 1345	Time/Date:	Time/Date:	Time/Date: 2/27/97 0820

TEMP.: 1.2°C

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS
POST OFFICE BOX 6172 SANTA ROSA, CA 95406
TELEPHONE (707) 528-3078 FACSIMILE (707) 528-2837

LETTER OF TRANSMITTAL

To: Legend Analytical Services, Inc.
3636 N. Laughlin Road, Suite 110
Santa Rosa, CA 95403

Date: March 12, 1997

Attention: Jennifer

Subject: Laboratory Testing for #98900/97.00396

Our Job No: 1641.4.12

Enclosed is the following:

Report — Plate 1

This is for your use and need not be returned.

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

Thank you,

GIBLIN ASSOCIATES

By: Roger
Roger Maslin, Laboratory Director

:nay

SUMMARY OF MATERIAL TEST RESULTS

CLIENT: LEGEND DATE: 3/12/97

PROJECT NO.: 98900/97.00396 SAMPLE NO.:

SAMPLED BY: CLIENT SAMPLE LOCATION:

SAMPLE DESCRIPTION: 272587 - BLACK GRAVELLY CLAYEY SAND (SC)

272588 - BLACK CLAYEY SAND (SC) W/FINE SAND

NOTES: PETROLEUM ODOR IN BOTH

GRADATION SIZE	%PASSING	SPEC.
3"		
2½"		
1½"		
1"		
3/4"		
1/2"		
3/8"		
#4		
#8		
#16		
#20		
#30		
#50		
#100		
#200		

TEST TYPE	RESULT	SPECS
Sand Equivalent		
"R" Value		
Plasticity Index		
Liquid Limit		
Cleanness Value		
Durability Index		
Fine		
Coarse		
LA Rattler Rev		
Rev		
Compaction Type		
Maximum		
Optimum		
	272587	272588
e = VOID RATIO —	0.470	0.643
η = POROSITY —	0.320	0.391

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1641.4.12
Date: 3/12/97
Appr: Roger

LABORATORY TEST DATA
LEGEND ANALYTICAL

PLATE 1

L E G E N D

Analytical Services

3636 N. Laughlin Road, Suite 110 Santa Rosa, California 95403 707.541.2313 707.541.2333 fax

Scott Macleod
Cambria Env. Technology
1144 65th Street
Suite C
Oakland, CA 94608

Date: 04/01/1997
LEGEND Client Acct. No: 98900
LEGEND Job No: 97.00585
Received: 03/21/1997

Client Reference Information

Lathrop/Project No. 19-122-13

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Result Flags" for definition of terms. Should you have questions regarding procedures or results, please feel free to call me at (707) 541-2313.

Submitted by:

Jennifer L. Roseberry
Quality Assurance Officer

Enclosure(s)

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-1
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273811

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	1						03/24/1997	3816
as Gasoline	ND		0.050	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	ND		0.50	ug/L	8020		03/24/1997	3816
Toluene	ND		0.50	ug/L	8020		03/24/1997	3816
Ethylbenzene	ND		0.50	ug/L	8020		03/24/1997	3816
Xylenes (Total)	0.6		0.50	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	88			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	1.0						03/25/1997	28
as Creosote	ND		0.50	mg/L	M8015		03/25/1997	28
as Diesel	0.59	DH	0.050	mg/L	M8015		03/26/1997	28
as Motor Oil	0.75	HX	0.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	123			% Rec.	M8015		03/25/1997	28

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-1
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273811

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Liquid)								
DILUTION FACTOR*	1	CV					03/24/1997	1130
Bromodichloromethane	ND		0.40	ug/L	8010		03/24/1997	1130
Bromoform	ND		0.40	ug/L	8010		03/24/1997	1130
Bromomethane	ND		0.40	ug/L	8010		03/24/1997	1130
Carbon tetrachloride	ND		0.40	ug/L	8010		03/24/1997	1130
Chlorobenzene	ND		0.40	ug/L	8010		03/24/1997	1130
Chloroethane	ND		0.40	ug/L	8010		03/24/1997	1130
2-Chloroethylvinyl ether	ND		1.0	ug/L	8010		03/24/1997	1130
Chloroform	ND		0.40	ug/L	8010		03/24/1997	1130
Chloromethane	ND		0.40	ug/L	8010		03/24/1997	1130
Dibromochloromethane	ND		0.40	ug/L	8010		03/24/1997	1130
1,2-Dichlorobenzene	ND		0.40	ug/L	8010		03/24/1997	1130
1,3-Dichlorobenzene	ND		0.40	ug/L	8010		03/24/1997	1130
1,4-Dichlorobenzene	ND		0.40	ug/L	8010		03/24/1997	1130
Dichlorodifluoromethane	ND		0.40	ug/L	8010		03/24/1997	1130
1,1-Dichloroethane	ND		0.40	ug/L	8010		03/24/1997	1130
1,2-Dichloroethane	ND		0.40	ug/L	8010		03/24/1997	1130
1,1-Dichloroethene	ND		0.40	ug/L	8010		03/24/1997	1130
cis-1,2-Dichloroethene	ND		0.50	ug/L	8010		03/24/1997	1130
trans-1,2-Dichloroethene	ND		0.40	ug/L	8010		03/24/1997	1130
1,2-Dichloropropane	ND		0.40	ug/L	8010		03/24/1997	1130
cis-1,3-Dichloropropene	ND		0.40	ug/L	8010		03/24/1997	1130
trans-1,3-Dichloropropene	ND		0.40	ug/L	8010		03/24/1997	1130
Freon 113	ND		1.0	ug/L	8010		03/24/1997	1130
Methylene chloride	ND		10	ug/L	8010		03/24/1997	1130
Ethylene dibromide	ND		0.40	ug/L	8010		03/24/1997	1130
1,1,2,2-Tetrachloroethane	ND		0.40	ug/L	8010		03/24/1997	1130
Tetrachloroethene	ND		0.40	ug/L	8010		03/24/1997	1130
1,1,1-Trichloroethane	ND		0.40	ug/L	8010		03/24/1997	1130
1,1,2-Trichloroethane	ND		1.0	ug/L	8010		03/24/1997	1130
Trichloroethene	ND		0.40	ug/L	8010		03/24/1997	1130
Trichlorofluoromethane	ND		0.40	ug/L	8010		03/24/1997	1130
Vinyl chloride	ND		0.40	ug/L	8010		03/24/1997	1130
SURROGATE RESULTS	--						03/24/1997	1130
1,4-Difluorobenzene (SURR)	NR			% Rec.			03/24/1997	1130
1,4-Dichlorobutane (SURR)	85			% Rec.			03/24/1997	1130

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-1
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273811

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270(GCMS,Liquid)						03/25/1997		
DILUTION FACTOR*	1						03/26/1997	799
BASE/NEUTRAL FRACTION	--						03/26/1997	799
Acenaphthene	ND		10	ug/L	8270		03/26/1997	799
Acenaphthylene	ND		10	ug/L	8270		03/26/1997	799
Anthracene	ND		10	ug/L	8270		03/26/1997	799
Benzidine	ND		44	ug/L	8270		03/26/1997	799
Benzo(a)anthracene	ND		10	ug/L	8270		03/26/1997	799
Benzo(b&k)fluoranthene	ND		10	ug/L	8270		03/26/1997	799
Benzo(a)pyrene	ND		10	ug/L	8270		03/26/1997	799
Benzo(g,h,i)perylene	ND		10	ug/L	8270		03/26/1997	799
Benzoic acid	ND		50	ug/L	8270		03/26/1997	799
Benzyl alcohol	ND		10	ug/L	8270		03/26/1997	799
Butyl benzyl phthalate	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroethyl)ether	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroethoxy)methane	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroisopropyl)ether	ND		10	ug/L	8270		03/26/1997	799
bis(2-Ethylhexyl)phthalate	ND		10	ug/L	8270		03/26/1997	799
4-Bromophenyl phenyl ether	ND		10	ug/L	8270		03/26/1997	799
4-Chloroaniline	ND		10	ug/L	8270		03/26/1997	799
2-Chloronaphthalene	ND		10	ug/L	8270		03/26/1997	799
4-Chlorophenyl phenyl ether	ND		10	ug/L	8270		03/26/1997	799
Chrysene	ND		10	ug/L	8270		03/26/1997	799
Dibenzo(a,h)anthracene	ND		10	ug/L	8270		03/26/1997	799
Dibenzofuran	ND		10	ug/L	8270		03/26/1997	799
Di-n-butylphthalate	ND		10	ug/L	8270		03/26/1997	799
1,2-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
1,3-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
1,4-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
3,3'-Dichlorobenzidine	ND		20	ug/L	8270		03/26/1997	799
Diethylphthalate	ND		10	ug/L	8270		03/26/1997	799
Dimethyl phthalate	ND		10	ug/L	8270		03/26/1997	799
2,4-Dinitrotoluene	ND		10	ug/L	8270		03/26/1997	799
2,6-Dinitrotoluene	ND		10	ug/L	8270		03/26/1997	799
Di-n-octyl phthalate	ND		10	ug/L	8270		03/26/1997	799
1,2-Diphenylhydrazine	ND		NA	ug/L	8270		03/26/1997	799
Fluoranthene	ND		10	ug/L	8270		03/26/1997	799
Fluorene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorobenzene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorobutadiene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorocyclopentadiene	ND		10	ug/L	8270		03/26/1997	799
Hexachloroethane	ND		10	ug/L	8270		03/26/1997	799
Indeno(1,2,3-cd)pyrene	ND		10	ug/L	8270		03/26/1997	799
Isophorone	ND		10	ug/L	8270		03/26/1997	799
2-Methylnaphthalene	ND		10	ug/L	8270		03/26/1997	799
Naphthalene	ND		10	ug/L	8270		03/26/1997	799
2-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 5

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-1
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273811

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
3-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799
4-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799
Nitrobenzene	ND		10	ug/L	8270		03/26/1997	799
N-Nitrosodimethylamine	ND		10	ug/L	8270		03/26/1997	799
N-Nitroso-Di-N-propylamine	ND		10	ug/L	8270		03/26/1997	799
N-Nitrosodiphenylamine	ND		10	ug/L	8270		03/26/1997	799
Phenanthrene	ND		10	ug/L	8270		03/26/1997	799
Pyrene	ND		10	ug/L	8270		03/26/1997	799
1,2,4-Trichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
ACID EXTRACTABLES	--						03/26/1997	799
4-Chloro-3-methylphenol	ND		10	ug/L	8270		03/26/1997	799
2-Chlorophenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dichlorophenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dimethylphenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dinitrophenol	ND		50	ug/L	8270		03/26/1997	799
4,6-Dinitro-2-methylphenol	ND		50	ug/L	8270		03/26/1997	799
2-Nitrophenol	ND		10	ug/L	8270		03/26/1997	799
4-Nitrophenol	ND		50	ug/L	8270		03/26/1997	799
Pentachlorophenol	ND		50	ug/L	8270		03/26/1997	799
Phenol	ND		10	ug/L	8270		03/26/1997	799
2,4,6-Trichlorophenol	ND		10	ug/L	8270		03/26/1997	799
2-Methylphenol	ND		10	ug/L	8270		03/26/1997	799
4-Methylphenol	ND		10	ug/L	8270		03/26/1997	799
2,4,5-Trichlorophenol	ND		50	ug/L	8270		03/26/1997	799
SURROGATE RESULTS	--						03/26/1997	799
Nitrobenzene-d5 (SURR)	80			% Rec.	8270		03/26/1997	799
2-Fluorobiphenyl (SURR)	83			% Rec.	8270		03/26/1997	799
p-Terphenyl-d14 (SURR)	74			% Rec.	8270		03/26/1997	799
Phenol-d5 (SURR)	27			% Rec.	8270		03/26/1997	799
2-Fluorophenol (SURR)	43			% Rec.	8270		03/26/1997	799
2,4,6-Tribromophenol (SURR)	95			% Rec.	8270		03/26/1997	799

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-2
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273812

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	1						03/24/1997	3816
as Gasoline	ND		0.050	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	ND		0.50	ug/L	8020		03/24/1997	3816
Toluene	ND		0.50	ug/L	8020		03/24/1997	3816
Ethylbenzene	ND		0.50	ug/L	8020		03/24/1997	3816
Xylenes (Total)	ND		0.50	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	97			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	1.0						03/25/1997	28
as Creosote	ND		0.50	mg/L	M8015		03/25/1997	28
as Diesel	0.59	DH	0.050	mg/L	M8015		03/26/1997	28
as Motor Oil	0.79	HX	0.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	107			% Rec.	M8015		03/25/1997	28

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 7

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-2
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273812

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Liquid)								
DILUTION FACTOR*	1						03/25/1997	1130
Bromodichloromethane	ND		0.40	ug/L	8010		03/25/1997	1130
Bromoform	ND		0.40	ug/L	8010		03/25/1997	1130
Bromomethane	ND		0.40	ug/L	8010		03/25/1997	1130
Carbon tetrachloride	ND		0.40	ug/L	8010		03/25/1997	1130
Chlorobenzene	ND		0.40	ug/L	8010		03/25/1997	1130
Chloroethane	ND		0.40	ug/L	8010		03/25/1997	1130
2-Chloroethylvinyl ether	ND		1.0	ug/L	8010		03/25/1997	1130
Chloroform	ND		0.40	ug/L	8010		03/25/1997	1130
Chloromethane	ND		0.40	ug/L	8010		03/25/1997	1130
Dibromochloromethane	ND		0.40	ug/L	8010		03/25/1997	1130
1,2-Dichlorobenzene	ND		0.40	ug/L	8010		03/25/1997	1130
1,3-Dichlorobenzene	ND		0.40	ug/L	8010		03/25/1997	1130
1,4-Dichlorobenzene	ND		0.40	ug/L	8010		03/25/1997	1130
Dichlorodifluoromethane	ND		0.40	ug/L	8010		03/25/1997	1130
1,1-Dichloroethane	ND		0.40	ug/L	8010		03/25/1997	1130
1,2-Dichloroethane	ND		0.40	ug/L	8010		03/25/1997	1130
1,1-Dichloroethene	ND		0.40	ug/L	8010		03/25/1997	1130
cis-1,2-Dichloroethene	0.9		0.50	ug/L	8010		03/25/1997	1130
trans-1,2-Dichloroethene	ND		0.40	ug/L	8010		03/25/1997	1130
1,2-Dichloropropane	ND		0.40	ug/L	8010		03/25/1997	1130
cis-1,3-Dichloropropene	ND		0.40	ug/L	8010		03/25/1997	1130
trans-1,3-Dichloropropene	ND		0.40	ug/L	8010		03/25/1997	1130
Freon 113	ND		1.0	ug/L	8010		03/25/1997	1130
Methylene chloride	ND		10	ug/L	8010		03/25/1997	1130
Ethylene dibromide	ND		0.40	ug/L	8010		03/25/1997	1130
1,1,2,2-Tetrachloroethane	ND		0.40	ug/L	8010		03/25/1997	1130
Tetrachloroethene	ND		0.40	ug/L	8010		03/25/1997	1130
1,1,1-Trichloroethane	ND		0.40	ug/L	8010		03/25/1997	1130
1,1,2-Trichloroethane	ND		1.0	ug/L	8010		03/25/1997	1130
Trichloroethene	ND		0.40	ug/L	8010		03/25/1997	1130
Trichlorofluoromethane	ND		0.40	ug/L	8010		03/25/1997	1130
Vinyl chloride	1.5		0.40	ug/L	8010		03/25/1997	1130
SURROGATE RESULTS	--						03/25/1997	1130
1,4-Difluorobenzene (SURR)	NR			% Rec.			03/25/1997	1130
1,4-Dichlorobutane (SURR)	93			% Rec.			03/25/1997	1130

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-2
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273812

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270(GCMS,Liquid)						03/25/1997		
DILUTION FACTOR*	1						03/26/1997	799
BASE/NEUTRAL FRACTION	--						03/26/1997	799
Acenaphthene	ND		10	ug/L	8270		03/26/1997	799
Acenaphthylene	ND		10	ug/L	8270		03/26/1997	799
Anthracene	ND		10	ug/L	8270		03/26/1997	799
Benzidine	ND		44	ug/L	8270		03/26/1997	799
Benzo(a)anthracene	ND		10	ug/L	8270		03/26/1997	799
Benzo(b&k)fluoranthene	ND		10	ug/L	8270		03/26/1997	799
Benzo(a)pyrene	ND		10	ug/L	8270		03/26/1997	799
Benzo(g,h,i)perylene	ND		10	ug/L	8270		03/26/1997	799
Benzoic acid	ND		50	ug/L	8270		03/26/1997	799
Benzyl alcohol	ND		10	ug/L	8270		03/26/1997	799
Butyl benzyl phthalate	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroethyl)ether	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroethoxy)methane	ND		10	ug/L	8270		03/26/1997	799
bis(2-Chloroisopropyl)ether	ND		10	ug/L	8270		03/26/1997	799
bis(2-Ethylhexyl)phthalate	ND		10	ug/L	8270		03/26/1997	799
4-Bromophenyl phenyl ether	ND		10	ug/L	8270		03/26/1997	799
4-Chloroaniline	ND		10	ug/L	8270		03/26/1997	799
2-Chloronaphthalene	ND		10	ug/L	8270		03/26/1997	799
4-Chlorophenyl phenyl ether	ND		10	ug/L	8270		03/26/1997	799
Chrysene	ND		10	ug/L	8270		03/26/1997	799
Dibenzo(a,h)anthracene	ND		10	ug/L	8270		03/26/1997	799
Dibenzofuran	ND		10	ug/L	8270		03/26/1997	799
Di-n-butylphthalate	ND		10	ug/L	8270		03/26/1997	799
1,2-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
1,3-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
1,4-Dichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
3,3'-Dichlorobenzidine	ND		20	ug/L	8270		03/26/1997	799
Diethylphthalate	ND		10	ug/L	8270		03/26/1997	799
Dimethyl phthalate	ND		10	ug/L	8270		03/26/1997	799
2,4-Dinitrotoluene	ND		10	ug/L	8270		03/26/1997	799
2,6-Dinitrotoluene	ND		10	ug/L	8270		03/26/1997	799
Di-n-octyl phthalate	ND		10	ug/L	8270		03/26/1997	799
1,2-Diphenylhydrazine	ND		NA	ug/L	8270		03/26/1997	799
Fluoranthene	ND		10	ug/L	8270		03/26/1997	799
Fluorene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorobenzene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorobutadiene	ND		10	ug/L	8270		03/26/1997	799
Hexachlorocyclopentadiene	ND		10	ug/L	8270		03/26/1997	799
Hexachloroethane	ND		10	ug/L	8270		03/26/1997	799
Indeno(1,2,3-cd)pyrene	ND		10	ug/L	8270		03/26/1997	799
Isophorone	ND		10	ug/L	8270		03/26/1997	799
2-Methylnaphthalene	ND		10	ug/L	8270		03/26/1997	799
Naphthalene	11		10	ug/L	8270		03/26/1997	799
2-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799

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LEGEND Job No: 97.00585 Page: 9

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-2
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273812

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
3-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799
4-Nitroaniline	ND		50	ug/L	8270		03/26/1997	799
Nitrobenzene	ND		10	ug/L	8270		03/26/1997	799
N-Nitrosodimethylamine	ND		10	ug/L	8270		03/26/1997	799
N-Nitroso-Di-N-propylamine	ND		10	ug/L	8270		03/26/1997	799
N-Nitrosodiphenylamine	ND		10	ug/L	8270		03/26/1997	799
Phenanthrene	ND		10	ug/L	8270		03/26/1997	799
Pyrene	ND		10	ug/L	8270		03/26/1997	799
1,2,4-Trichlorobenzene	ND		10	ug/L	8270		03/26/1997	799
ACID EXTRACTABLES	--						03/26/1997	799
4-Chloro-3-methylphenol	ND		10	ug/L	8270		03/26/1997	799
2-Chlorophenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dichlorophenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dimethylphenol	ND		10	ug/L	8270		03/26/1997	799
2,4-Dinitrophenol	ND		50	ug/L	8270		03/26/1997	799
4,6-Dinitro-2-methylphenol	ND		50	ug/L	8270		03/26/1997	799
2-Nitrophenol	ND		10	ug/L	8270		03/26/1997	799
4-Nitrophenol	ND		50	ug/L	8270		03/26/1997	799
Pentachlorophenol	ND		50	ug/L	8270		03/26/1997	799
Phenol	ND		10	ug/L	8270		03/26/1997	799
2,4,6-Trichlorophenol	ND		10	ug/L	8270		03/26/1997	799
2-Methylphenol	ND		10	ug/L	8270		03/26/1997	799
4-Methylphenol	ND		10	ug/L	8270		03/26/1997	799
2,4,5-Trichlorophenol	ND		50	ug/L	8270		03/26/1997	799
SURROGATE RESULTS	--						03/26/1997	799
Nitrobenzene-d5 (SURR)	90			% Rec.	8270		03/26/1997	799
2-Fluorobiphenyl (SURR)	89			% Rec.	8270		03/26/1997	799
p-Terphenyl-d14 (SURR)	66			% Rec.	8270		03/26/1997	799
Phenol-d5 (SURR)	48			% Rec.	8270		03/26/1997	799
2-Fluorophenol (SURR)	65			% Rec.	8270		03/26/1997	799
2,4,6-Tribromophenol (SURR)	103			% Rec.	8270		03/26/1997	799

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LEGEND Job No: 97.00585 Page: 10

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-3
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273813

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	10						03/24/1997	3816
as Gasoline	9.6		0.50	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	1,300	FF	50	ug/L	8020		03/25/1997	3818
Toluene	120		5.0	ug/L	8020		03/24/1997	3816
Ethylbenzene	170		5.0	ug/L	8020		03/24/1997	3816
Xylenes (Total)	150		5.0	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	97			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	5.0						03/25/1997	28
as Creosote	10		2.50	mg/L	M8015		03/25/1997	28
as Diesel	ND	NI2, MI	0.25	mg/L	M8015		03/25/1997	28
as Motor Oil	ND		2.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	138			% Rec.	M8015		03/25/1997	28

Client Name: Cambria Env. Technology Date: 04/01/1997
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Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-3
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273813

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Liquid)								
DILUTION FACTOR*	10	MI,CV					03/25/1997	1130
Bromodichloromethane	ND		4.0	ug/L	8010		03/25/1997	1130
Bromoform	ND		4.0	ug/L	8010		03/25/1997	1130
Bromomethane	ND		4.0	ug/L	8010		03/25/1997	1130
Carbon tetrachloride	ND		4.0	ug/L	8010		03/25/1997	1130
Chlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
Chloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
2-Chloroethylvinyl ether	ND		10	ug/L	8010		03/25/1997	1130
Chloroform	ND		4.0	ug/L	8010		03/25/1997	1130
Chloromethane	ND		4.0	ug/L	8010		03/25/1997	1130
Dibromochloromethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
1,3-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
1,4-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
Dichlorodifluoromethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1-Dichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1-Dichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
cis-1,2-Dichloroethene	ND		5.0	ug/L	8010		03/25/1997	1130
trans-1,2-Dichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichloropropane	ND		4.0	ug/L	8010		03/25/1997	1130
cis-1,3-Dichloropropene	ND		4.0	ug/L	8010		03/25/1997	1130
trans-1,3-Dichloropropene	ND		4.0	ug/L	8010		03/25/1997	1130
Freon 113	ND		10	ug/L	8010		03/25/1997	1130
Methylene chloride	ND		100	ug/L	8010		03/25/1997	1130
Ethylene dibromide	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,2,2-Tetrachloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
Tetrachloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,1-Trichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,2-Trichloroethane	ND		10	ug/L	8010		03/25/1997	1130
Trichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
Trichlorofluoromethane	ND		4.0	ug/L	8010		03/25/1997	1130
Vinyl chloride	ND		4.0	ug/L	8010		03/25/1997	1130
SURROGATE RESULTS	--						03/25/1997	1130
1,4-Difluorobenzene (SURR)	NR			% Rec.			03/25/1997	1130
1,4-Dichlorobutane (SURR)	90			% Rec.			03/25/1997	1130

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 12

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-3
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273813

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270(GCMS,Liquid)						03/25/1997		
DILUTION FACTOR*	5						03/26/1997	799
BASE/NEUTRAL FRACTION	--						03/26/1997	799
Acenaphthene	570		50	ug/L	8270		03/26/1997	799
Acenaphthylene	310		50	ug/L	8270		03/26/1997	799
Anthracene	140		50	ug/L	8270		03/26/1997	799
Benzidine	ND		200	ug/L	8270		03/26/1997	799
Benzo(a)anthracene	49	B-I	50	ug/L	8270		03/26/1997	799
Benzo(b&k)fluoranthene	110		50	ug/L	8270		03/26/1997	799
Benzo(a)pyrene	95		50	ug/L	8270		03/26/1997	799
Benzo(g,h,i)perylene	86		50	ug/L	8270		03/26/1997	799
Benzoic acid	ND		200	ug/L	8270		03/26/1997	799
Benzyl alcohol	ND		50	ug/L	8270		03/26/1997	799
Butyl benzyl phthalate	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroethyl)ether	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroethoxy)methane	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroisopropyl)ether	ND		50	ug/L	8270		03/26/1997	799
bis(2-Ethylhexyl)phthalate	ND		50	ug/L	8270		03/26/1997	799
4-Bromophenyl phenyl ether	ND		50	ug/L	8270		03/26/1997	799
4-Chloroaniline	ND		50	ug/L	8270		03/26/1997	799
2-Chloronaphthalene	ND		50	ug/L	8270		03/26/1997	799
4-Chlorophenyl phenyl ether	ND		50	ug/L	8270		03/26/1997	799
Chrysene	130		50	ug/L	8270		03/26/1997	799
Dibenzo(a,h)anthracene	ND		50	ug/L	8270		03/26/1997	799
Dibenzofuran	25	B-I	50	ug/L	8270		03/26/1997	799
Di-n-butylphthalate	ND		50	ug/L	8270		03/26/1997	799
1,2-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
1,3-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
1,4-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
3,3'-Dichlorobenzidine	ND		100	ug/L	8270		03/26/1997	799
Diethylphthalate	ND		50	ug/L	8270		03/26/1997	799
Dimethyl phthalate	ND		50	ug/L	8270		03/26/1997	799
2,4-Dinitrotoluene	ND		50	ug/L	8270		03/26/1997	799
2,6-Dinitrotoluene	ND		50	ug/L	8270		03/26/1997	799
Di-n-octyl phthalate	ND		50	ug/L	8270		03/26/1997	799
1,2-Diphenylhydrazine	ND		NA	ug/L	8270		03/26/1997	799
Fluoranthene	210		50	ug/L	8270		03/26/1997	799
Fluorene	170		50	ug/L	8270		03/26/1997	799
Hexachlorobenzene	ND		50	ug/L	8270		03/26/1997	799
Hexachlorobutadiene	ND		50	ug/L	8270		03/26/1997	799
Hexachlorocyclopentadiene	ND		50	ug/L	8270		03/26/1997	799
Hexachloroethane	ND		50	ug/L	8270		03/26/1997	799
Indeno(1,2,3-cd)pyrene	61		50	ug/L	8270		03/26/1997	799
Isophorone	ND		50	ug/L	8270		03/26/1997	799
2-Methylnaphthalene	360		50	ug/L	8270		03/26/1997	799
Naphthalene	12,000	FF	1000	ug/L	8270		03/27/1997	799
2-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-3
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273813

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
3-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799
4-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799
Nitrobenzene	ND		50	ug/L	8270		03/26/1997	799
N-Nitrosodimethylamine	ND		50	ug/L	8270		03/26/1997	799
N-Nitroso-Di-N-propylamine	ND		50	ug/L	8270		03/26/1997	799
N-Nitrosodiphenylamine	ND		50	ug/L	8270		03/26/1997	799
Phenanthrene	560		50	ug/L	8270		03/26/1997	799
Pyrene	240		50	ug/L	8270		03/26/1997	799
1,2,4-Trichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
ACID EXTRACTABLES	--						03/26/1997	799
4-Chloro-3-methylphenol	ND		50	ug/L	8270		03/26/1997	799
2-Chlorophenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dichlorophenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dimethylphenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dinitrophenol	ND		200	ug/L	8270		03/26/1997	799
4,6-Dinitro-2-methylphenol	ND		200	ug/L	8270		03/26/1997	799
2-Nitrophenol	ND		50	ug/L	8270		03/26/1997	799
4-Nitrophenol	ND		200	ug/L	8270		03/26/1997	799
Pentachlorophenol	ND		200	ug/L	8270		03/26/1997	799
Phenol	ND		50	ug/L	8270		03/26/1997	799
2,4,6-Trichlorophenol	ND		50	ug/L	8270		03/26/1997	799
2-Methylphenol	ND		50	ug/L	8270		03/26/1997	799
4-Methylphenol	ND		50	ug/L	8270		03/26/1997	799
2,4,5-Trichlorophenol	ND		200	ug/L	8270		03/26/1997	799
SURROGATE RESULTS	--						03/26/1997	799
Nitrobenzene-d5 (SURR)	121			% Rec.	8270		03/26/1997	799
2-Fluorobiphenyl (SURR)	102			% Rec.	8270		03/26/1997	799
p-Terphenyl-d14 (SURR)	74			% Rec.	8270		03/26/1997	799
Phenol-d5 (SURR)	37			% Rec.	8270		03/26/1997	799
2-Fluorophenol (SURR)	48			% Rec.	8270		03/26/1997	799
2,4,6-Tribromophenol (SURR)	107			% Rec.	8270		03/26/1997	799

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Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-4
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273814

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	10						03/24/1997	3816
as Gasoline	5.4		0.50	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	540	FD	10	ug/L	8020		03/25/1997	3818
Toluene	19		5.0	ug/L	8020		03/24/1997	3816
Ethylbenzene	62		5.0	ug/L	8020		03/24/1997	3816
Xylenes (Total)	87		5.0	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	98			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	10						03/25/1997	28
as Creosote	25		5.0	mg/L	M8015		03/25/1997	28
as Diesel	ND		0.50	mg/L	M8015		03/25/1997	28
as Motor Oil	ND		5.0	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	230	MI		% Rec.	M8015		03/25/1997	28

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-4
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273814

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8010 (GC,Liquid)								
DILUTION FACTOR*	10	MI,CV					03/25/1997	1130
Bromodichloromethane	ND		4.0	ug/L	8010		03/25/1997	1130
Bromoform	ND		4.0	ug/L	8010		03/25/1997	1130
Bromomethane	ND		10	ug/L	8010		03/25/1997	1130
Carbon tetrachloride	ND		4.0	ug/L	8010		03/25/1997	1130
Chlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
Chloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
2-Chloroethylvinyl ether	ND		10	ug/L	8010		03/25/1997	1130
Chloroform	ND		4.0	ug/L	8010		03/25/1997	1130
Chloromethane	ND		15	ug/L	8010		03/25/1997	1130
Dibromochloromethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
1,3-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
1,4-Dichlorobenzene	ND		4.0	ug/L	8010		03/25/1997	1130
Dichlorodifluoromethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1-Dichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1-Dichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
cis-1,2-Dichloroethene	ND		5.0	ug/L	8010		03/25/1997	1130
trans-1,2-Dichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
1,2-Dichloropropane	ND		4.0	ug/L	8010		03/25/1997	1130
cis-1,3-Dichloropropene	ND		4.0	ug/L	8010		03/25/1997	1130
trans-1,3-Dichloropropene	ND		4.0	ug/L	8010		03/25/1997	1130
Freon 113	ND		10	ug/L	8010		03/25/1997	1130
Methylene chloride	ND		100	ug/L	8010		03/25/1997	1130
Ethylene dibromide	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,2,2-Tetrachloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
Tetrachloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,1-Trichloroethane	ND		4.0	ug/L	8010		03/25/1997	1130
1,1,2-Trichloroethane	ND		10	ug/L	8010		03/25/1997	1130
Trichloroethene	ND		4.0	ug/L	8010		03/25/1997	1130
Trichlorofluoromethane	ND		4.0	ug/L	8010		03/25/1997	1130
Vinyl chloride	ND		4.0	ug/L	8010		03/25/1997	1130
SURROGATE RESULTS	--						03/25/1997	1130
1,4-Difluorobenzene (SURR)	NR			% Rec.			03/25/1997	1130
1,4-Dichlorobutane (SURR)	94			% Rec.			03/25/1997	1130

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SAMPLE DESCRIPTION: C-4
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273814

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
8270 (GCMS, Liquid)						03/25/1997		
DILUTION FACTOR*	5						03/26/1997	799
BASE/NEUTRAL FRACTION	--						03/26/1997	799
Acenaphthene	2,400	FD	200	ug/L	8270		03/26/1997	799
Acenaphthylene	880	FD	200	ug/L	8270		03/26/1997	799
Anthracene	1,600	FD	200	ug/L	8270		03/26/1997	799
Benzidine	ND		200	ug/L	8270		03/26/1997	799
Benzo(a)anthracene	1,300	FD	200	ug/L	8270		03/26/1997	799
Benzo(b&k)fluoranthene	2,300	FD	200	ug/L	8270		03/26/1997	799
Benzo(a)pyrene	1,800	FD	200	ug/L	8270		03/26/1997	799
Benzo(g,h,i)perylene	1,700	FD	200	ug/L	8270		03/26/1997	799
Benzoic acid	ND		200	ug/L	8270		03/26/1997	799
Benzyl alcohol	ND		50	ug/L	8270		03/26/1997	799
Butyl benzyl phthalate	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroethyl)ether	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroethoxy)methane	ND		50	ug/L	8270		03/26/1997	799
bis(2-Chloroisopropyl)ether	ND		50	ug/L	8270		03/26/1997	799
bis(2-Ethylhexyl)phthalate	ND		50	ug/L	8270		03/26/1997	799
4-Bromophenyl phenyl ether	ND		50	ug/L	8270		03/26/1997	799
4-Chloroaniline	ND		50	ug/L	8270		03/26/1997	799
2-Chloronaphthalene	ND		50	ug/L	8270		03/26/1997	799
4-Chlorophenyl phenyl ether	ND		50	ug/L	8270		03/26/1997	799
Chrysene	2,000	FD	200	ug/L	8270		03/26/1997	799
Dibenzo(a,h)anthracene	260		50	ug/L	8270		03/26/1997	799
Dibenzofuran	110		50	ug/L	8270		03/26/1997	799
Di-n-butylphthalate	ND		50	ug/L	8270		03/26/1997	799
1,2-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
1,3-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
1,4-Dichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
3,3'-Dichlorobenzidine	ND		100	ug/L	8270		03/26/1997	799
Diethylphthalate	ND		50	ug/L	8270		03/26/1997	799
Dimethyl phthalate	ND		50	ug/L	8270		03/26/1997	799
2,4-Dinitrotoluene	ND		50	ug/L	8270		03/26/1997	799
2,6-Dinitrotoluene	ND		50	ug/L	8270		03/26/1997	799
Di-n-octyl phthalate	ND		50	ug/L	8270		03/26/1997	799
1,2-Diphenylhydrazine	ND		NA	ug/L	8270		03/26/1997	799
Fluoranthene	5,400	FF	1000	ug/L	8270		03/26/1997	799
Fluorene	1,100	FD	200	ug/L	8270		03/26/1997	799
Hexachlorobenzene	ND		50	ug/L	8270		03/26/1997	799
Hexachlorobutadiene	ND		50	ug/L	8270		03/26/1997	799
Hexachlorocyclopentadiene	ND		50	ug/L	8270		03/26/1997	799
Hexachloroethane	ND		50	ug/L	8270		03/26/1997	799
Indeno(1,2,3-cd)pyrene	1,200	FD	200	ug/L	8270		03/26/1997	799
Isophorone	ND		50	ug/L	8270		03/26/1997	799
2-Methylnaphthalene	500		50	ug/L	8270		03/26/1997	799
Naphthalene	13,000	FF	1000	ug/L	8270		03/26/1997	799
2-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799

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SAMPLE DESCRIPTION: C-4
Date Taken: 03/19/1997
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Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
3-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799
4-Nitroaniline	ND		200	ug/L	8270		03/26/1997	799
Nitrobenzene	ND		50	ug/L	8270		03/26/1997	799
N-Nitrosodimethylamine	ND		50	ug/L	8270		03/26/1997	799
N-Nitroso-Di-N-propylamine	ND		50	ug/L	8270		03/26/1997	799
N-Nitrosodiphenylamine	ND		50	ug/L	8270		03/26/1997	799
Phenanthrene	7,300	FF	1000	ug/L	8270		03/26/1997	799
Pyrene	6,400	FF	1000	ug/L	8270		03/26/1997	799
1,2,4-Trichlorobenzene	ND		50	ug/L	8270		03/26/1997	799
ACID EXTRACTABLES	--						03/26/1997	799
4-Chloro-3-methylphenol	ND		50	ug/L	8270		03/26/1997	799
2-Chlorophenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dichlorophenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dimethylphenol	ND		50	ug/L	8270		03/26/1997	799
2,4-Dinitrophenol	ND		200	ug/L	8270		03/26/1997	799
4,6-Dinitro-2-methylphenol	ND		200	ug/L	8270		03/26/1997	799
2-Nitrophenol	ND		50	ug/L	8270		03/26/1997	799
4-Nitrophenol	ND		200	ug/L	8270		03/26/1997	799
Pentachlorophenol	ND		200	ug/L	8270		03/26/1997	799
Phenol	ND		50	ug/L	8270		03/26/1997	799
2,4,6-Trichlorophenol	ND		50	ug/L	8270		03/26/1997	799
2-Methylphenol	ND		50	ug/L	8270		03/26/1997	799
4-Methylphenol	ND		50	ug/L	8270		03/26/1997	799
2,4,5-Trichlorophenol	ND		200	ug/L	8270		03/26/1997	799
SURROGATE RESULTS	--						03/26/1997	799
Nitrobenzene-d5 (SURR)	95			% Rec.	8270		03/26/1997	799
2-Fluorobiphenyl (SURR)	112			% Rec.	8270		03/26/1997	799
p-Terphenyl-d14 (SURR)	69			% Rec.	8270		03/26/1997	799
Phenol-d5 (SURR)	41			% Rec.	8270		03/26/1997	799
2-Fluorophenol (SURR)	60			% Rec.	8270		03/26/1997	799
2,4,6-Tribromophenol (SURR)	111			% Rec.	8270		03/26/1997	799

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Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
TPH (Gas/BTXE,Liquid)								
as Gasoline	105.2	0.526	0.50		mg/L	03/24/1997	aal	3816
Benzene	93.6	18.72	20.0		ug/L	03/24/1997	aal	3816
Toluene	88.3	17.66	20.0		ug/L	03/24/1997	aal	3816
Ethylbenzene	92.3	18.46	20.0		ug/L	03/24/1997	aal	3816
Xylenes (Total)	91.1	54.65	60.0		ug/L	03/24/1997	aal	3816
Bromofluorobenzene (SURR)	96.0	96	100		% Rec.	03/24/1997	aal	3816
TPH (Gas/BTXE,Liquid)								
as Gasoline	102.4	0.512	0.50		mg/L	03/25/1997	aal	3818
Benzene	93.1	18.62	20.0		ug/L	03/25/1997	aal	3818
Toluene	88.2	17.64	20.0		ug/L	03/25/1997	aal	3818
Ethylbenzene	91.4	18.28	20.0		ug/L	03/25/1997	aal	3818
Xylenes (Total)	90.8	54.49	60.0		ug/L	03/25/1997	aal	3818
Bromofluorobenzene (SURR)	97.0	97	100		% Rec.	03/25/1997	aal	3818
8015M - HEAVY SCAN								
as Diesel	96.5	965	1000		mg/L	03/24/1997	vah	28
Ortho-terphenyl (SURR)	105.0	105	100		% Rec.	03/24/1997	vah	28
8015M - HEAVY SCAN								
as Diesel	91.1	911	1000		mg/L	03/26/1997	aal	28
Ortho-terphenyl (SURR)	101.0	101	100		% Rec.	03/26/1997	aal	28
as Motor Oil	98.9	989	1000		mg/L	03/24/1997	aal	28
as Creosote	92.0	1839	2000		mg/L	03/25/1997	aal	28

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CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8010 (GC,Liquid)								
Bromodichloromethane	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
Bromoform	105.0	12.6	12.0		ug/L	03/24/1997	cjy	1130
Bromomethane	100.0	12.0	12.0		ug/L	03/24/1997	cjy	1130
Carbon tetrachloride	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
Chlorobenzene	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
Chloroethane	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
2-Chloroethylvinyl ether	100.0	12.0	12.0		ug/L	03/24/1997	cjy	1130
Chloroform	100.0	12.0	12.0		ug/L	03/24/1997	cjy	1130
Chloromethane	97.5	11.7	12.0		ug/L	03/24/1997	cjy	1130
Dibromochloromethane	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
1,2-Dichlorobenzene	97.5	11.7	12.0		ug/L	03/24/1997	cjy	1130
1,3-Dichlorobenzene	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
1,4-Dichlorobenzene	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
Dichlorodifluoromethane	104.2	12.5	12.0		ug/L	03/24/1997	cjy	1130
1,1-Dichloroethane	102.5	12.3	12.0		ug/L	03/24/1997	cjy	1130
1,2-Dichloroethane	95.0	11.4	12.0		ug/L	03/24/1997	cjy	1130
1,1-Dichloroethene	105.0	12.6	12.0		ug/L	03/24/1997	cjy	1130
cis-1,2-Dichloroethene	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
trans-1,2-Dichloroethene	105.0	12.6	12.0		ug/L	03/24/1997	cjy	1130
1,2-Dichloropropane	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
cis-1,3-Dichloropropene	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
trans-1,3-Dichloropropene	100.8	12.1	12.0		ug/L	03/24/1997	cjy	1130
Freon 113	104.2	12.5	12.0		ug/L	03/24/1997	cjy	1130
Methylene chloride	95.8	11.5	12.0		ug/L	03/24/1997	cjy	1130
Ethylene dibromide	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
1,1,2,2-Tetrachloroethane	94.2	11.3	12.0		ug/L	03/24/1997	cjy	1130
Tetrachloroethene	100.8	12.1	12.0		ug/L	03/24/1997	cjy	1130
1,1,1-Trichloroethane	104.2	12.5	12.0		ug/L	03/24/1997	cjy	1130
1,1,2-Trichloroethane	98.3	11.8	12.0		ug/L	03/24/1997	cjy	1130
Trichloroethene	99.2	11.9	12.0		ug/L	03/24/1997	cjy	1130
Trichlorofluoromethane	103.3	12.4	12.0		ug/L	03/24/1997	cjy	1130
Vinyl chloride	104.2	12.5	12.0		ug/L	03/24/1997	cjy	1130
1,4-Difluorobenzene (SURR)	108.0	108	100		% Rec.	03/24/1997	cjy	1130
1,4-Dichlorobutane (SURR)	99.0	99	100		% Rec.	03/24/1997	cjy	1130

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Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270(GCMS,Liquid)								
Acenaphthene	96.7	96.7	100		ug/L	03/26/1997	gec	799
Benzo(a)pyrene	104.0	104	100		ug/L	03/26/1997	gec	799
1,4-Dichlorobenzene	105.0	105	100		ug/L	03/26/1997	gec	799
Di-n-octyl phthalate	105.0	105	100		ug/L	03/26/1997	gec	799
Fluoranthene	93.1	93.1	100		ug/L	03/26/1997	gec	799
Hexachlorobutadiene	108.0	108	100		ug/L	03/26/1997	gec	799
N-Nitrosodiphenylamine	97.5	97.5	100		ug/L	03/26/1997	gec	799
4-Chloro-3-methylphenol	105.0	105	100		ug/L	03/26/1997	gec	799
2,4-Dichlorophenol	111.0	111	100		ug/L	03/26/1997	gec	799
2-Nitrophenol	101.0	101	100		ug/L	03/26/1997	gec	799
Pentachlorophenol	107.0	107	100		ug/L	03/26/1997	gec	799
Phenol	100.0	100	100		ug/L	03/26/1997	gec	799
2,4,6-Trichlorophenol	104.0	104	100		ug/L	03/26/1997	gec	799
Nitrobenzene-d5 (SURR)	100.0	100	100		% Rec.	03/26/1997	gec	799
2-Fluorobiphenyl (SURR)	89.9	89.9	100		% Rec.	03/26/1997	gec	799
p-Terphenyl-d14 (SURR)	93.4	93.4	100		% Rec.	03/26/1997	gec	799
Phenol-d5 (SURR)	95.5	95.5	100		% Rec.	03/26/1997	gec	799
2-Fluorophenol (SURR)	110.0	110	100		% Rec.	03/26/1997	gec	799
2,4,6-Tribromophenol (SURR)	112.0	112	100		% Rec.	03/26/1997	gec	799

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CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270(GCMS,Liquid)								
Acenaphthene	97.5	97.5	100		ug/L	03/27/1997	gec	799
Benzo(a)pyrene	110.0	110	100		ug/L	03/27/1997	gec	799
1,4-Dichlorobenzene	104.0	104	100		ug/L	03/27/1997	gec	799
Di-n-octyl phthalate	101.0	101	100		ug/L	03/27/1997	gec	799
Fluoranthene	97.8	97.8	100		ug/L	03/27/1997	gec	799
Hexachlorobutadiene	109.0	109	100		ug/L	03/27/1997	gec	799
N-Nitrosodiphenylamine	98.2	98.2	100		ug/L	03/27/1997	gec	799
4-Chloro-3-methylphenol	98.0	98.0	100		ug/L	03/27/1997	gec	799
2,4-Dichlorophenol	110.0	110	100		ug/L	03/27/1997	gec	799
2-Nitrophenol	93.5	93.5	100		ug/L	03/27/1997	gec	799
Pentachlorophenol	108.0	108	100		ug/L	03/27/1997	gec	799
Phenol	98.3	98.3	100		ug/L	03/27/1997	gec	799
2,4,6-Trichlorophenol	104.0	104	100		ug/L	03/27/1997	gec	799
Nitrobenzene-d5 (SURR)	96.2	96.2	100		% Rec.	03/27/1997	gec	799
2-Fluorobiphenyl (SURR)	99.6	99.6	100		% Rec.	03/27/1997	gec	799
p-Terphenyl-d14 (SURR)	105.0	105	100		% Rec.	03/27/1997	gec	799
Phenol-d5 (SURR)	102.0	102	100		% Rec.	03/27/1997	gec	799
2-Fluorophenol (SURR)	111.0	111	100		% Rec.	03/27/1997	gec	799
2,4,6-Tribromophenol (SURR)	112.0	112	100		% Rec.	03/27/1997	gec	799

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METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
TPH (Gas/BTXE,Liquid)							
as Gasoline	ND	0.050		mg/L	03/24/1997	aal	3816
Benzene	ND	0.50		ug/L	03/24/1997	aal	3816
Toluene	ND	0.50		ug/L	03/24/1997	aal	3816
Ethylbenzene	ND	0.50		ug/L	03/24/1997	aal	3816
Xylenes (Total)	ND	0.50		ug/L	03/24/1997	aal	3816
Bromofluorobenzene (SURR)	101			% Rec.	03/24/1997	aal	3816
TPH (Gas/BTXE,Liquid)							
as Gasoline	ND	0.050		mg/L	03/25/1997	aal	3818
Benzene	ND	0.50		ug/L	03/25/1997	aal	3818
Toluene	ND	0.50		ug/L	03/25/1997	aal	3818
Ethylbenzene	ND	0.50		ug/L	03/25/1997	aal	3818
Xylenes (Total)	ND	0.50		ug/L	03/25/1997	aal	3818
Bromofluorobenzene (SURR)	100			% Rec.	03/25/1997	aal	3818
8015M - HEAVY SCAN							
as Creosote	ND	0.50		mg/L	03/24/1997	vah	28
as Diesel	ND	0.050		mg/L	03/24/1997	vah	28
as Motor Oil	ND	0.50		mg/L	03/24/1997	vah	28
Ortho-terphenyl (SURR)	97			% Rec.	03/24/1997	vah	28

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METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8010 (GC,Liquid)							
Bromodichloromethane	ND	0.40		ug/L	03/24/1997	cjy	1130
Bromoform	ND	0.40		ug/L	03/24/1997	cjy	1130
Bromomethane	2.0	0.40	P	ug/L	03/24/1997	cjy	1130
Carbon tetrachloride	ND	0.40		ug/L	03/24/1997	cjy	1130
Chlorobenzene	ND	0.40		ug/L	03/24/1997	cjy	1130
Chloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
2-Chloroethylvinyl ether	ND	1.0		ug/L	03/24/1997	cjy	1130
Chloroform	ND	0.40		ug/L	03/24/1997	cjy	1130
Chloromethane	0.5	0.40	P	ug/L	03/24/1997	cjy	1130
Dibromochloromethane	ND	0.40		ug/L	03/24/1997	cjy	1130
1,2-Dichlorobenzene	ND	0.40		ug/L	03/24/1997	cjy	1130
1,3-Dichlorobenzene	ND	0.40		ug/L	03/24/1997	cjy	1130
1,4-Dichlorobenzene	ND	0.40		ug/L	03/24/1997	cjy	1130
Dichlorodifluoromethane	ND	0.40		ug/L	03/24/1997	cjy	1130
1,1-Dichloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
1,2-Dichloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
1,1-Dichloroethene	ND	0.40		ug/L	03/24/1997	cjy	1130
cis-1,2-Dichloroethene	ND	0.50		ug/L	03/24/1997	cjy	1130
trans-1,2-Dichloroethene	ND	0.40		ug/L	03/24/1997	cjy	1130
1,2-Dichloropropane	ND	0.40		ug/L	03/24/1997	cjy	1130
cis-1,3-Dichloropropene	ND	0.40		ug/L	03/24/1997	cjy	1130
trans-1,3-Dichloropropene	ND	0.40		ug/L	03/24/1997	cjy	1130
Freon 113	ND	1.0		ug/L	03/24/1997	cjy	1130
Methylene chloride	ND	10		ug/L	03/24/1997	cjy	1130
Ethylene dibromide	ND	0.40		ug/L	03/24/1997	cjy	1130
1,1,2,2-Tetrachloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
Tetrachloroethene	ND	0.40		ug/L	03/24/1997	cjy	1130
1,1,1-Trichloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
1,1,2-Trichloroethane	ND	0.40		ug/L	03/24/1997	cjy	1130
Trichloroethene	ND	0.40		ug/L	03/24/1997	cjy	1130
Trichlorofluoromethane	ND	0.40		ug/L	03/24/1997	cjy	1130
Vinyl chloride	ND	0.40		ug/L	03/24/1997	cjy	1130
1,4-Difluorobenzene (SURR)	107			% Rec.	03/24/1997	cjy	1130
1,4-Dichlorobutane (SURR)	81			% Rec.	03/24/1997	cjy	1130

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METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
8270 (GCMS,Liquid)							
Acenaphthene	ND	10		ug/L	03/26/1997	gec	799
Acenaphthylene	ND	10		ug/L	03/26/1997	gec	799
Anthracene	ND	10		ug/L	03/26/1997	gec	799
Benzidine	ND	44		ug/L	03/26/1997	gec	799
Benzo(a)anthracene	ND	10		ug/L	03/26/1997	gec	799
Benzo(b&k)fluoranthene	ND	10		ug/L	03/26/1997	gec	799
Benzo(a)pyrene	ND	10		ug/L	03/26/1997	gec	799
Benzo(g,h,i)perylene	ND	10		ug/L	03/26/1997	gec	799
Benzoic acid	ND	50		ug/L	03/26/1997	gec	799
Benzyl alcohol	ND	10		ug/L	03/26/1997	gec	799
Butyl benzyl phthalate	ND	10		ug/L	03/26/1997	gec	799
bis(2-Chloroethyl)ether	ND	10		ug/L	03/26/1997	gec	799
bis(2-Chloroethoxy)methane	ND	10		ug/L	03/26/1997	gec	799
bis(2-Chloroisopropyl)ether	ND	10		ug/L	03/26/1997	gec	799
bis(2-Ethylhexyl)phthalate	ND	10		ug/L	03/26/1997	gec	799
4-Bromophenyl phenyl ether	ND	10		ug/L	03/26/1997	gec	799
4-Chloroaniline	ND	10		ug/L	03/26/1997	gec	799
2-Chloronaphthalene	ND	10		ug/L	03/26/1997	gec	799
4-Chlorophenyl phenyl ether	ND	10		ug/L	03/26/1997	gec	799
Chrysene	ND	10		ug/L	03/26/1997	gec	799
Dibenzo(a,h)anthracene	ND	10		ug/L	03/26/1997	gec	799
Dibenzofuran	ND	10		ug/L	03/26/1997	gec	799
Di-n-butylphthalate	ND	10		ug/L	03/26/1997	gec	799
1,2-Dichlorobenzene	ND	10		ug/L	03/26/1997	gec	799
1,3-Dichlorobenzene	ND	10		ug/L	03/26/1997	gec	799
1,4-Dichlorobenzene	ND	10		ug/L	03/26/1997	gec	799
3,3'-Dichlorobenzidine	ND	20		ug/L	03/26/1997	gec	799
Diethylphthalate	ND	10		ug/L	03/26/1997	gec	799
Dimethyl phthalate	ND	10		ug/L	03/26/1997	gec	799
2,4-Dinitrotoluene	ND	10		ug/L	03/26/1997	gec	799
2,6-Dinitrotoluene	ND	10		ug/L	03/26/1997	gec	799
Di-n-octyl phthalate	ND	10		ug/L	03/26/1997	gec	799
1,2-Diphenylhydrazine	ND	NA		ug/L	03/26/1997	gec	799
Fluoranthene	ND	10		ug/L	03/26/1997	gec	799
Fluorene	ND	10		ug/L	03/26/1997	gec	799
Hexachlorobenzene	ND	10		ug/L	03/26/1997	gec	799
Hexachlorobutadiene	ND	10		ug/L	03/26/1997	gec	799
Hexachlorocyclopentadiene	ND	10		ug/L	03/26/1997	gec	799
Hexachloroethane	ND	10		ug/L	03/26/1997	gec	799
Indeno(1,2,3-cd)pyrene	ND	10		ug/L	03/26/1997	gec	799
Isophorone	ND	10		ug/L	03/26/1997	gec	799
2-Methylnaphthalene	ND	10		ug/L	03/26/1997	gec	799
Naphthalene	ND	10		ug/L	03/26/1997	gec	799
2-Nitroaniline	ND	50		ug/L	03/26/1997	gec	799

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METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Flags	Units	Date Analyzed	Analyst Initials	Run Batch Number
3-Nitroaniline	ND	50		ug/L	03/26/1997	gec	799
4-Nitroaniline	ND	50		ug/L	03/26/1997	gec	799
Nitrobenzene	ND	10		ug/L	03/26/1997	gec	799
N-Nitrosodimethylamine	ND	10		ug/L	03/26/1997	gec	799
N-Nitroso-Di-N-propylamine	ND	10		ug/L	03/26/1997	gec	799
N-Nitrosodiphenylamine	ND	10		ug/L	03/26/1997	gec	799
Phenanthrene	ND	10		ug/L	03/26/1997	gec	799
Pyrene	ND	10		ug/L	03/26/1997	gec	799
1,2,4-Trichlorobenzene	ND	10		ug/L	03/26/1997	gec	799
4-Chloro-3-methylphenol	ND	10		ug/L	03/26/1997	gec	799
2-Chlorophenol	ND	10		ug/L	03/26/1997	gec	799
2,4-Dichlorophenol	ND	10		ug/L	03/26/1997	gec	799
2,4-Dimethylphenol	ND	10		ug/L	03/26/1997	gec	799
2,4-Dinitrophenol	ND	50		ug/L	03/26/1997	gec	799
4,6-Dinitro-2-methylphenol	ND	50		ug/L	03/26/1997	gec	799
2-Nitrophenol	ND	10		ug/L	03/26/1997	gec	799
4-Nitrophenol	ND	50		ug/L	03/26/1997	gec	799
Pentachlorophenol	ND	50		ug/L	03/26/1997	gec	799
Phenol	ND	10		ug/L	03/26/1997	gec	799
2,4,6-Trichlorophenol	ND	10		ug/L	03/26/1997	gec	799
2-Methylphenol	ND	10		ug/L	03/26/1997	gec	799
4-Methylphenol	ND	10		ug/L	03/26/1997	gec	799
2,4,5-Trichlorophenol	ND	50		ug/L	03/26/1997	gec	799
Nitrobenzene-d5 (SURR)	87			% Rec.	03/26/1997	gec	799
2-Fluorobiphenyl (SURR)	93			% Rec.	03/26/1997	gec	799
p-Terphenyl-d14 (SURR)	64			% Rec.	03/26/1997	gec	799
Phenol-d5 (SURR)	40			% Rec.	03/26/1997	gec	799
2-Fluorophenol (SURR)	57			% Rec.	03/26/1997	gec	799
2,4,6-Tribromophenol (SURR)	101			% Rec.	03/26/1997	gec	799

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
TPH (Gas/BTXE,Liquid)												273811
as Gasoline	106.2	106.0	0.2	0.50	ND	0.531	0.530		mg/L	03/24/1997	3816	273811
Benzene	103.7	104.2	0.5	6.48	ND	6.72	6.75		ug/L	03/24/1997	3816	273811
Toluene	100.3	100.7	0.4	35.08	ND	35.17	35.33		ug/L	03/24/1997	3816	273811
Bromofluorobenzene (SURR)	103.0	105.0	1.9	100	88	103	105		% Rec.	03/24/1997	3816	273811
TPH (Gas/BTXE,Liquid)												273857
as Gasoline	99.4	97.6	1.8	0.50	ND	0.497	0.488		mg/L	03/25/1997	3818	273857
Benzene	96.0	94.3	1.8	6.28	ND	6.03	5.92		ug/L	03/25/1997	3818	273857
Toluene	97.8	95.8	2.1	34.29	ND	33.52	32.86		ug/L	03/25/1997	3818	273857
Bromofluorobenzene (SURR)	99.0	96.0	3.1	100	96	99	96		% Rec.	03/25/1997	3818	273857
8015M - HEAVY SCAN												273813
as Diesel	0.0	0.0	0.0	1.0	ND			NI2,MI	mg/L	03/25/1997	28	273813
Ortho-terphenyl (SURR)				100	138				% Rec.	03/25/1997	28	273813

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
8010 (GC,Liquid)												273361
Chlorobenzene	96.7	100.8	4.1	12.0	ND	11.6	12.1		ug/L	03/24/1997	1130	273361
1,1-Dichloroethene	99.2	91.7	7.9	12.0	6.2	18.1	17.2		ug/L	03/24/1997	1130	273361
Trichloroethene	95.0	97.5	2.6	12.0	0.7	12.1	12.4		ug/L	03/24/1997	1130	273361
1,4-Difluorobenzene (SURR)	106.0	109.0	2.8	100	103	106	109		% Rec.	03/24/1997	1130	273361
1,4-Dichlorobutane (SURR)	86.0	89.0	3.4	100	85	86	89		% Rec.	03/24/1997	1130	273361

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike % Rec.	Matrix Spike Dup % Rec.	RPD	Spike Amount	Sample Conc.	Matrix Spike Conc.	Matrix Spike Dup. Conc.	Flags	Units	Date Analyzed	Run Batch	Sample Spiked
8270(GCMS,Liquid)												273732
Acenaphthene	87.0	91.5	5.0	100	ND	87.0	91.5		ug/L	03/26/1997	799	273732
1,4-Dichlorobenzene	68.7	74.4	8.0	100	ND	68.7	74.4		ug/L	03/26/1997	799	273732
2,4-Dinitrotoluene	88.2	91.2	3.3	100	ND	88.2	91.2		ug/L	03/26/1997	799	273732
N-Nitroso-Di-N-propylamine	71.0	77.5	8.8	100	ND	71.0	77.5		ug/L	03/26/1997	799	273732
Pyrene	96.1	94.5	1.7	100	ND	96.1	94.5		ug/L	03/26/1997	799	273732
1,2,4-Trichlorobenzene	70.0	80.9	14.4	100	ND	70.0	80.9		ug/L	03/26/1997	799	273732
4-Chloro-3-methylphenol	86.0	93.0	7.8	200	ND	172	186		ug/L	03/26/1997	799	273732
2-Chlorophenol	75.0	78.0	3.9	200	ND	150	156		ug/L	03/26/1997	799	273732
4-Nitrophenol	63.5	68.0	6.8	200	ND	127	136		ug/L	03/26/1997	799	273732
Pentachlorophenol	110.5	116.0	4.9	200	ND	221	232		ug/L	03/26/1997	799	273732
Phenol	50.0	60.0	18.2	200	ND	99.9	120		ug/L	03/26/1997	799	273732
Nitrobenzene-d5 (SURR)	88.0	89.0	1.1	100	81	88	89		% Rec.	03/26/1997	799	273732
2-Fluorobiphenyl (SURR)	93.0	93.0	0.0	100	84	93	93		% Rec.	03/26/1997	799	273732
p-Terphenyl-d14 (SURR)	67.0	69.0	2.9	100	66	67	69		% Rec.	03/26/1997	799	273732
Phenol-d5 (SURR)	47.0	50.0	6.2	100	31	47	50		% Rec.	03/26/1997	799	273732
2-Fluorophenol (SURR)	70.0	84.0	18.2	100	50	70	84		% Rec.	03/26/1997	799	273732
2,4,6-Tribromophenol (SURR)	99.0	102.0	2.9	100	86	99	102		% Rec.	03/26/1997	799	273732

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LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Rec.	DUP LCS % Rec.	RPD	LCS Amount Found	DUP LCS Amount Found	LCS Amount Exp.	Flags	Units	Date Analyzed	Analyst Initials	Run Batch
8015M - HEAVY SCAN											
as Diesel	96.0			0.96		1.0		mg/L	03/24/1997	vah	28
Ortho-terphenyl (SURR)	109.0			109		100		% Rec.	03/24/1997	vah	28

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LABORATORY CONTROL SAMPLE REPORT

Parameter	LCS % Rec.	DUP LCS % Rec.	RPD	LCS Amount Found	DUP LCS Amount Found	LCS Amount Exp.	Flags	Units	Date Analyzed	Analyst Initials	Run Batch
8270(GCMS,Liquid)											
Acenaphthene	92.7			92.7		100		ug/L	03/26/1997	gec	799
1,4-Dichlorobenzene	76.9			76.9		100		ug/L	03/26/1997	gec	799
2,4-Dinitrotoluene	89.6			89.6		100		ug/L	03/26/1997	gec	799
N-Nitroso-Di-N-propylamine	78.9			78.9		100		ug/L	03/26/1997	gec	799
Pyrene	95.6			95.6		100		ug/L	03/26/1997	gec	799
1,2,4-Trichlorobenzene	82.7			82.7		100		ug/L	03/26/1997	gec	799
4-Chloro-3-methylphenol	92.0			184		200		ug/L	03/26/1997	gec	799
2-Chlorophenol	80.0			160		200		ug/L	03/26/1997	gec	799
4-Nitrophenol	42.3			84.6		200		ug/L	03/26/1997	gec	799
Pentachlorophenol	109.5			219		200		ug/L	03/26/1997	gec	799
Phenol	38.5			77.0		200		ug/L	03/26/1997	gec	799
Nitrobenzene-d5 (SURR)	94.0			94		100		% Rec.	03/26/1997	gec	799
2-Fluorobiphenyl (SURR)	101.0			101		100		% Rec.	03/26/1997	gec	799
p-Terphenyl-d14 (SURR)	65.0			65		100		% Rec.	03/26/1997	gec	799
Phenol-d5 (SURR)	40.0			40		100		% Rec.	03/26/1997	gec	799
2-Fluorophenol (SURR)	57.0			57		100		% Rec.	03/26/1997	gec	799
2,4,6-Tribromophenol (SURR)	106.0			106		100		% Rec.	03/26/1997	gec	799

KEY TO RESULT FLAGS

*	: RPD between sample duplicates exceeds 30%.
*M	: RPD between sample duplicates or MS/MSD exceeds 20%.
+	: Correlation coefficient for the Method of Standard Additions is less than 0.995.
<	: Sample result is less than reported value.
B-I	: Value is between Method Detection Limit and Reporting Limit.
B-0	: Analyte found in blank and sample.
C	: The result confirmed by secondary column or GC/MS analysis.
CNA	: Cr+6 not analyzed; Total Chromium concentration below Cr+6 regulatory level.
COMP	: Sample composited by equal volume prior to analysis.
CV	: Parameter cannot be analyzed for in a preserved sample.
CWT	: Due to the sample matrix, constant weight could not be achieved.
D-	: The result has an atypical pattern for Diesel analysis.
D1	: The result for Diesel is an unknown hydrocarbon which consists of a single peak.
DB	: ND for hydrocarbons, non-discrete baseline rise detected.
DH	: The result appears to be a heavier hydrocarbon than Diesel.
DL	: The result appears to be a lighter hydrocarbon than Diesel.
DR	: Elevated Reporting Limit due to Matrix.
DS	: Surrogate diluted out of range.
DX	: The result for Diesel is an unknown hydrocarbon which consists of several peaks.
FA	: Compound quantitated at a 2X dilution factor.
FB	: Compound quantitated at a 5X dilution factor.
FC	: Compound quantitated at a 10X dilution factor.
FD	: Compound quantitated at a 20X dilution factor.
FE	: Compound quantitated at a 50X dilution factor.
FF	: Compound quantitated at a 100X dilution factor.
FG	: Compound quantitated at a 200X dilution factor.
FH	: Compound quantitated at a 500X dilution factor.
FI	: Compound quantitated at a 1000X dilution factor.
FJ	: Compound quantitated at a greater than 1000x dilution factor.
FK	: Compound quantitated at a 25X dilution factor.
FL	: Compound quantitated at a 250X dilution factor.
G-	: The result has an atypical pattern for Gasoline.
G1	: The result for Gasoline is an unknown hydrocarbon which consists of a single peak.
GH	: The result appears to be a heavier hydrocarbon than Gasoline.
GL	: The result appears to be a lighter hydrocarbon than Gasoline.
GX	: The result for Gasoline is an unknown hydrocarbon which consists of several peaks.
HT	: Analysis performed outside of the method specified holding time.
HTC	: Confirmation analyzed outside of the method specified holding time.
HTP	: Prep procedure performed outside of the method specified holding time.
HTR	: Received after holding time expired, analyzed ASAP after receipt.
HX	: Peaks detected within the quantitation range do not match standard used.
J	: Value is estimated.
MI	: Matrix Interference Suspected.
MSA	: Value determined by Method of Standard Additions.
MSA*	: Value obtained by Method of Standard Additions; Correlation coefficient is <0.995.
NI1	: Sample spikes outside of QC limits; matrix interference suspected.
NI2	: Sample concentration is greater than 4X the spiked value; the spiked value is considered insignificant.
NI3	: Matrix Spike values exceed established QC limits, post digestion spike is in control.
NI4	: MS/MSD outside of control limits, serial dilution within control.
P	: There is >40% difference between primary and confirmation analysis.
P7	: pH of sample > 2; sample analyzed past 7 days.
RSC	: Refer to subcontract laboratory report for QC data.
S2	: Matrix interference confirmed by repeat analysis.
SCN	: Thiocyanate not analyzed separately; total value is below the Reporting Limit for Free Cyanide.
TND	: Conc. of the total analyte ND; therefore this analyte is ND also.
UMDL	: Undetected at the Method Detection Limit.
UTD	: Unable to perform requested analysis.

4086

CHAIN OF CUSTODY RECORD

Company: CAMBRIA ENVIRONMENTAL
1144 65TH ST. SUITE B
OAKLAND, CA 94608

REPORT TO: ADAM SEU
BILL TO: 19-122-13
PHONE NO.: (510) 420-9183
FAX NO.: (510) 420-~~9182~~ 9170
PROJECT NO.: 19-122-13
PROJECT NAME: LATHROP
PROJECT LOCATION: 5913 STELLMOND ST. EMERYVILLE, CA

TURN AROUND TIME: [ ] RUSH [ ] 24 HOUR [ ] 48 HOUR [X] 5 DAY

SAMPLE ID	LOCATION	SAMPLING DATE	SAMPLING TIME	# CONTAINERS	TYPE CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCL	HNO3	ICE	OTHER
C-1		3/19/97		3	VOA	X					X			
C-1				2	1l	X								
C-1				1	1l	X								
C-1				3	VOA	X								
C-2				3	VOA	X					X			
C-2				2	1l	X								
C-2				1	1l	X								
C-2				3	VOA	X								
C-3				3	VOA	X					X			
C-3				2	1l	X								
C-3				1	1l	X								
C-3				3	VOA	X								

ANALYSIS REQUEST

BTEX & TPH as Gasoline (602/8020 & 8015)	TPH as Diesel (8015) TPH mo. TPH CREEK	Total Petroleum Oil & Grease (5520 E&F/5520 B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010 (VOC'S)	BTEX & MTBE	EPA 608/8080	EPA 608/8080 - PCBs Only	EPA 624/8240/8260	EPA 625/8270	CAM - 17 Metals	EPA - Priority Pollutant Metals	LUFT Metals	LEAD (7240/7421/239.2/8010)	ORGANIC LEAD	RCI	OTHER: SVOC (INCL. PNA's) 8270	COMMENTS
X																	
	X																
				X												X	
X																	
	X																
				X											X		
X																	
	X																
				X												X	

CUSTODY SEALED
Date 3/20/97 Time 1200 Initials
SEAL INTACT?
Yes ✓ No ____ Initials

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
	3/20/97	12:00	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
	3/20/97	0008	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY LABORATORY:
	3/21/97	0815	

VIA CO's

REMARKS:

4086

CHAIN OF CUSTODY RECORD

COMPANY: CAMBRIA

TURN AROUND TIME: ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

REPORT TO: A. SEVI

BILL TO: 19-122-13

PHONE NO.:

FAX NO.:

PROJECT NO.: 19-122-13

PROJECT NAME: LATHROP

PROJECT LOCATION: 5813 SHELLMONT ST., EMERYVILLE, CA

SAMPLE ID	LOCATION	SAMPLING DATE	SAMPLING TIME	# CONTAINERS	TYPE CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCL	HNO_3	ICE	OTHER
C-4		3/19		3	VOA	X					X			
C-4				2	1l	X								
C-4				1	1l	X								
C-4				3	VOA	X								

ANALYSIS REQUEST

BTEX & TPH as Gasoline (602/8020 & 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/5520 B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010 (VOL'S)	BTEX & MTBE	EPA 608/8080	EPA 608/8080 – PCBs Only	EPA 624/8240/8260	EPA 625/8270	CAM – 17 Metals	EPA – Priority Pollutant Metals	LUFT Metals	LEAD (7240/7421/239.2/8010)	ORGANIC LEAD	RCI	OTHER: 3 VOC 8270	COMMENTS
X	X			X												X	

CUSTODY SEALED
Date 3/20/97 Time 1930 Initials
SEAL INTACT?
Yes ✓ No Initials

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
	3/20/97	12:00	Florence Rapp
RELINQUISHED BY: Florence Rapp	3/20/97	1800	RECEIVED BY:
RELINQUISHED BY:	3/21/97	0815	RECEIVED BY LABORATORY:

VIA FAX

REMARKS:

LEGEND

Analytical Services

3636 N. Laughlin Road, Suite 110 Santa Rosa, California 95403 707.526.7200 Fax 707.541.2333 E-Mail: info@legendlab.com

Scott Macleod
Cambria Env. Technology
1144 65th Street
Suite C
Oakland, CA 94608

Date: 04/01/1997
LEGEND Client Acct. No: 98900
LEGEND Job No: 97.00585
Received: 03/21/1997
Revised pgs. 2,6,10,14:
05/05/1997

Client Reference Information

Lathrop/Project No. 19-122-13

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Result Flags" for definition of terms. Should you have questions regarding procedures or results, please feel free to call me at (707) 541-2313.

Submitted by:

Jennifer L. Rosebery
Quality Assurance Officer

Enclosure(s)

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 2

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-1
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273811

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	1						03/24/1997	3816
as Gasoline	ND		0.050	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	ND		0.50	ug/L	8020		03/24/1997	3816
Toluene	ND		0.50	ug/L	8020		03/24/1997	3816
Ethylbenzene	ND		0.50	ug/L	8020		03/24/1997	3816
Xylenes (Total)	0.6		0.50	ug/L	8020		03/24/1997	3816
Methyl-tert-butyl ether	ND		2.0	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	88			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	1.0						03/25/1997	28
as Creosote	ND		0.50	mg/L	M8015		03/25/1997	28
as Diesel	0.59	DH	0.050	mg/L	M8015		03/26/1997	28
as Motor Oil	0.75	HX	0.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	123			% Rec.	M8015		03/25/1997	28

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 6

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-2
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273812

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	1						03/24/1997	3816
as Gasoline	ND		0.050	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	ND		0.50	ug/L	8020		03/24/1997	3816
Toluene	ND		0.50	ug/L	8020		03/24/1997	3816
Ethylbenzene	ND		0.50	ug/L	8020		03/24/1997	3816
Xylenes (Total)	ND		0.50	ug/L	8020		03/24/1997	3816
Methyl-tert-butyl ether	ND		2.0	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	97			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	1.0						03/25/1997	28
as Creosote	ND		0.50	mg/L	M8015		03/25/1997	28
as Diesel	0.59	DH	0.050	mg/L	M8015		03/26/1997	28
as Motor Oil	0.79	HX	0.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	107			% Rec.	M8015		03/25/1997	28

Client Name: Cambria Env. Technology Date: 04/01/1997
Client Acct: 98900 ELAP Cert: 2193
LEGEND Job No: 97.00585 Page: 10

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-3
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273813

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	10						03/24/1997	3816
as Gasoline	9.6		0.50	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	1,300	FF	50	ug/L	8020		03/25/1997	3818
Toluene	120		5.0	ug/L	8020		03/24/1997	3816
Ethylbenzene	170		5.0	ug/L	8020		03/24/1997	3816
Xylenes (Total)	150		5.0	ug/L	8020		03/24/1997	3816
Methyl-tert-butyl ether	ND		20	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	97			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	5.0						03/25/1997	28
as Creosote	10		2.50	mg/L	M8015		03/25/1997	28
as Diesel	ND	NI2, MI	0.25	mg/L	M8015		03/25/1997	28
as Motor Oil	ND		2.50	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	138			% Rec.	M8015		03/25/1997	28

Client Name: Cambria Env. Technology
Client Acct: 98900
LEGEND Job No: 97.00585

Date: 04/01/1997
ELAP Cert: 2193
Page: 14

Ref: Lathrop/Project No. 19-122-13

SAMPLE DESCRIPTION: C-4
Date Taken: 03/19/1997
Time Taken:
LEGEND Sample No: 273814

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed	Run Batch No.
TPH (Gas/BTXE,Liquid)								
5030/M8015	--						03/24/1997	3816
DILUTION FACTOR*	10						03/24/1997	3816
as Gasoline	5.4		0.50	mg/L	5030		03/24/1997	3816
8020 (GC,Liquid)	--						03/24/1997	3816
Benzene	540	FD	10	ug/L	8020		03/25/1997	3818
Toluene	19		5.0	ug/L	8020		03/24/1997	3816
Ethylbenzene	62		5.0	ug/L	8020		03/24/1997	3816
Xylenes (Total)	87		5.0	ug/L	8020		03/24/1997	3816
Methyl-tert-butyl ether	ND		20	ug/L	8020		03/24/1997	3816
SURROGATE RESULTS	--						03/24/1997	3816
Bromofluorobenzene (SURR)	98			% Rec.	5030		03/24/1997	3816
8015M - HEAVY SCAN						03/21/1997		
DILUTION FACTOR*	10						03/25/1997	28
as Creosote	25		5.0	mg/L	M8015		03/25/1997	28
as Diesel	ND		0.50	mg/L	M8015		03/25/1997	28
as Motor Oil	ND		5.0	mg/L	M8015		03/25/1997	28
SURROGATE RESULTS	--						03/25/1997	28
Ortho-terphenyl (SURR)	230	MI		% Rec.	M8015		03/25/1997	28

Attachment D

Standard Procedures for Monitoring Well Installation

STANDARD FIELD PROCEDURES FOR MONITORING WELLS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or push technologies such as the Geoprobe. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Ground water monitoring wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack

stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

G:\TEMPLATE\SOPS\WELLS-GW.WPD