HerSchy Environmental

July 19, 1999
Project A51-01.01

Mr. Don Hwang
Alameda County
Health Care Services Agency
Environmental Health Services
Environmental Protection (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Results of Phase II Soil Investigation, Alaska Gasoline Company, Oakland, California

Dear Mr. Hwang:

HerSchy Environmental is pleased to present the results of additional drilling, soil sampling, and laboratory analysis for continued investigation at the above-referenced site. The site is located at 6211 San Pablo Avenue, which is on the northwest corner of San Pablo Avenue and 62nd Street in Oakland, Alameda County, California. This report presents the results of implementation of the June 12, 1999 workplan prepared by HerSchy Environmental. Previous work included the drilling, sampling, and laboratory analysis of soil and groundwater from three soil borings (B-1 through B-3), as shown on Figure 1. Details of this investigation is contained in the April 22, 1999 *"Results of Underground Storage Tank (UST) Site Assessment, Alaska Gasoline Company, Oakland, California"*, prepared by HerSchy Environmental. Laboratory analytical results are summarized in Table 1 below. Groundwater was encountered during the initial assessment at a depth of approximately 10 feet. Groundwater gradient and flow direction beneath the site is believed to be to the west. Groundwater was sampled from one of the borings (B-1).

Table 1
Laboratory Analytical Results, April 16, 1999, Alaska Gasoline, Oakland

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B-1 @ 10'	440	2.3	4.8	7.4	31	3.7
B-1 @ 15'	74	1.4	1.6	1.6	6.3	4.8

P.O. Box 229 ◆ Bass Lake, CA 93604-0229 ◆ Phone: 559 • 641-7320 ◆ Fax: 559 • 641-7320

Table 1
(continued)

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B-2 @ 10'	290	3.6	9.0	5.8	24	2.0
B-3 @ 10'	460	3.8	18	7.6	37	86
B-1, GW	99,000	10,000	4,300	3,100	11,000	48,000

All results expressed in parts per million (ppm)
GW results expressed in parts per billion (ppb)

Significant concentrations of gasoline constituents are present in both soil and groundwater beneath the site. The purpose of the work described below was to provide additional information regarding the lateral extent of petroleum hydrocarbon-impacted soil and to evaluate groundwater conditions beneath the site. However, soil conditions beneath the site did not allow for the collection of groundwater samples using the methods preferred by the Alameda County Department of Environmental Health Services (ACDEHS).

1.0 Results of Investigation:

1.1 Drilling and Soil Sampling

Drilling and soil sampling was performed using a truck-mounted direct push drill rig on June 29, 1999. Direct push rods were steam cleaned prior to arriving on site. Five soil borings (B-4 through B-8), were drilled to evaluate subsurface conditions. Borings B-4 through B-8 were installed to evaluate the lateral extent and concentrations of gasoline constituents in soil and groundwater (Figure 1).

Relatively dense clay and silt soil that are prevalent at shallow depths beneath the site did not allow for the sampling of groundwater. Borings B-4, B-5, and B-7 collapsed up to first encountered groundwater behind the direct push rods upon removal. A sacrificial well point was used in boring B-8 in an attempt to collect groundwater directly through the push rods from that location, resulting in Geoprobe refusal at a depth of 12 feet. Boring B-6 resulted in Geoprobe refusal at a depth of 11 feet using a standard drive point. Mr. Don Hwang was present during much of the drilling and sampling operations as a representative of the ACDEHS.

Soil samples were collected at five feet and ten feet. The ten-foot sample is at or near the current capillary fringe of groundwater beneath the site. Soil samples were collected within one-inch steel sampling liners. The soil samples were sealed with teflon tape and end caps.

Samples were maintained in a cooler chest with frozen gel packs ("blue ice"), and maintained at a minimum of four degrees Celsius until delivered to the laboratory. Soil

samples were described in accordance with the Unified Soil Classification System by a California Registered Geologist. Drill cuttings were not generated during the direct push drilling operations.

Soil encountered during drilling consisted primarily of clay and silty clay (CL), and clayey silt and sandy silt (ML) from the surface to a depth of approximately 15 feet. Faint to distinct gasoline odors were detected in samples from each of the soil borings. Boring logs are presented in Appendix A.

Soil sampling was discontinued upon encountering groundwater, an estimated depth of ten feet. Attempts to collect groundwater samples were unsuccessful due to collapse of borings during direct push rod removal, or because of Geoprobe refusal. The borings were filled with cement slurry upon completion of drilling.

1.2 Laboratory Analysis:

Soil samples were analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). Analysis was performed using EPA method 8015 for gasoline-range TPH, and EPA method 8020 for BTEX and MTBE. Certified analytical reports and chain of custody documentation are presented in Appendix B and summarized in Table 2 below:

Table 2
Laboratory Analytical Results, Alaska Gasoline, Oakland, June 29, 1999

Sample	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
B-4 @ 5'	100	0.68	1.4	1.5	7.8	2.2
B-4 @ 10'	14	0.71	ND	0.23	0.11	9.3
B-5 @ 5'	5.7	0.068	0.0061	0.033	0.065	3.5
B-5 @ 10'	34	0.37	0.079	0.17	0.57	2.0
B-6 @ 5'	92	2.3	5.4	1.5	7.0	23
B-6 @ 10'	30	1.3	ND	ND	0.060	46
B-7 @ 5'	3.2	0.12	ND	0.073	0.14	0.023
B-7 @ 10'	280	0.57	0.56	2.8	14	ND
B-8 @ 5'	ND	ND	ND	ND	ND	ND
B-8 @ 10'	270	0.93	2.9	4.6	20	2.7

All results presented in ppm.
ND = below detectable concentrations.

1.3 Conclusions:

Based on the results of this investigation, it appears that the lateral extent of petroleum hydrocarbon-impacted soil has not been determined. Based on the results of

this investigation, it appears that additional assessment is warranted. The June 17, 1999 correspondence from the ACDEHS indicates that drilling and installation of groundwater monitoring wells is an expected next phase of work. The workplan for the installation of groundwater monitoring wells is presented below.

2.0 Workplan for Drilling, Sampling, and Well Installation:

2.1 Drilling and Soil Sampling

Drilling will be performed using a truck-mounted drill rig equipped with eight-inch hollow stem augers. Augers will be steam cleaned prior to arriving on site. Three soil borings will be drilled to evaluate subsurface conditions and to install groundwater monitoring wells (MW-1 through MW-3). Monitoring well MW-1 will be installed near the location of boring B-8, which in a presumed down gradient position relative to the USTs. Monitoring well MW-2 will be installed between the existing USTs and San Pablo Avenue. This is in a presumed up gradient location. The proximity of MW-2 to the USTs will help to evaluate for the presence of floating product. Monitoring well MW-3 will be located east of the office/store, and is in a somewhat down gradient location. Approximate monitoring well and boring locations are presented in the attached Figure 1.

Soil samples will be collected using a California modified split spoon sampler equipped with brass or stainless steel liners. The samples will be collected at five-foot intervals beginning at a depth of five feet in each of the three borings. Because of shallow groundwater, sampling intervals will be limited to five feet and at the capillary fringe of groundwater, an approximate depth of ten feet. All six of the soil samples will be retained for laboratory analysis. Samples will be collected by driving the sampler ahead of the drill bit. The sampler and liners will be cleaned between sampling events.

Soil samples will be field screened using a portable organic vapor analyzer (OVA) for the presence of volatile organic compounds (VOCs). Samples will be maintained in a cooler chest with frozen gel packs ("blue ice"), and maintained at a minimum of four degrees Celsius until delivered to the laboratory. At least two samples from each boring will be submitted to the laboratory regardless of field screening results under chain of custody documentation. Soil samples and drill cuttings will be described in accordance with the Unified Soil Classification System by a California Registered Geologist. Drill cuttings will be stored in DOT-approved 55-gallon drums, labeled, and stored on site for later handling.

Soil sampling will be discontinued upon encountering groundwater, an estimated depth of ten feet. The borings will be advanced to approximately ten feet below first encountered groundwater in preparation for well installation, an approximate total depth of 20 feet.

2.2 Monitoring Well Installation, Development, and Sampling Procedures:

Well construction and annular materials will be installed through the hollow stem augers. Groundwater monitoring wells will be constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals will be constructed with 15 feet of 0.020-inch factory slotted screen such that ten feet of the screened interval will be below first encountered groundwater. Blank casing will be installed from the top of the screened interval to surface grade. The monitoring well will be flush with surface grade in a traffic rated well cover with a locking well cap.

Annular materials will consist of #3 sand from the bottom of the boring to approximately two feet above the screened interval, followed by a minimum two-foot bentonite seal, followed by a sand-cement grout to the surface. Monitoring well elevations will be surveyed to the nearest .01 feet after installation. Depth to groundwater measurements will be made to the nearest .01 feet prior to sampling using an electric sounder.

The groundwater monitoring wells will be developed by pumping and surging until the discharge is relatively clear and free of sand. Well development will be performed using a two-inch submersible pump. Physical characteristics (pH, electrical conductivity, and temperature) will be measured and recorded during well development. If sampling is performed more than 24 hours after well development, a minimum of four casing volumes will be purged from the well prior to sampling. Physical characteristics will be measured before purging and again prior to sampling. Groundwater samples will be stored, transported, and handled in a similar manner as described for soil above. In the absence of floating product, development and purge water will be discharged an appropriate distance from the well head. Monitoring wells that contain floating product will not be sampled.

1.3 Laboratory Analysis:

Soil and groundwater samples will be analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). Analytical methods used will be EPA method 8015 for gasoline-range TPH, and EPA method 8020 for BTEX and MTBE.

1.4 Report Preparation:

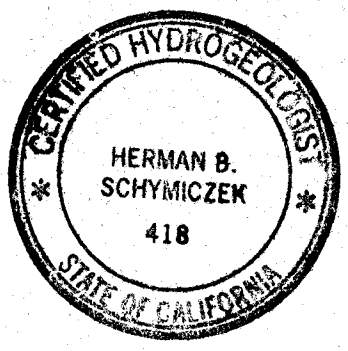
A report will be prepared documenting the results of the investigation. The report will include borings logs, well construction details, certified analytical reports, and maps showing the site location, and of monitoring wells indicating groundwater flow direction and gradient. Based on the results of the investigation, recommendations will be made for additional investigation and/or remediation as appropriate.

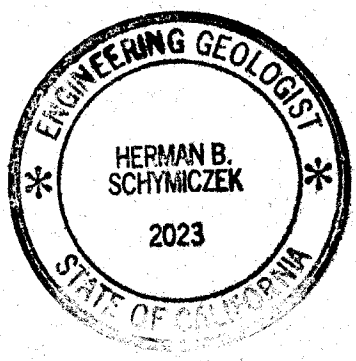
If you have any questions or need additional information, please contact me at the letterhead address or at (559) 641-7320.

With best regards,

Herman Schymiczek
CHG #418, CEG #2023

pc: Mr. Pritpaul Sappal, Alaska Gasoline Company
Mr. Hernan Gomez, Oakland Fire Services Agency





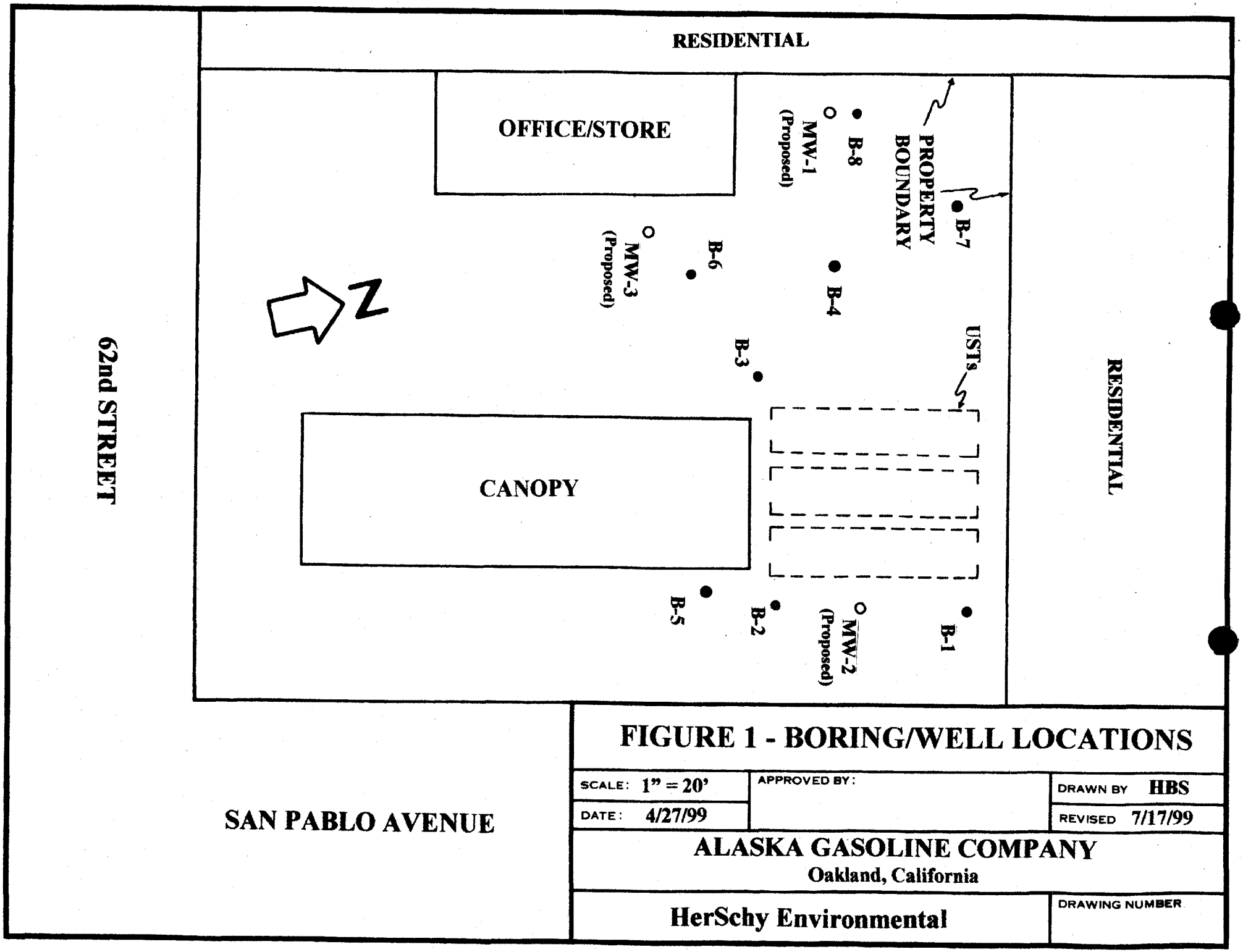


FIGURE 1 - BORING/WELL LOCATIONS

SCALE: 1" = 20'	APPROVED BY:	DRAWN BY HBS
DATE: 4/27/99		REVISED 7/17/99

ALASKA GASOLINE COMPANY
Oakland, California

HerSchy Environmental

DRAWING NUMBER

APPENDIX A

BORING LOGS

HerSchy Environmental — WELL / BORING LOG

WELL/ NA
BORING B-4
PAGE 1 OF 1

CLIENT Alaska Gasoline Co.
DATE DRILLED 6/29/99
LOCATION Oakland
HOLE DIAMETER 1.5"
HOLE DEPTH 15'
WELL DEPTH NA
WELL DIAMETER NA
ELEVATION not surveyed

LOGGED BY H. Schymiczek
DRILLED BY West Hazmat
DRILLING METHOD Geoprobe
SAMPLING METHOD direct push
CASING TYPE NA
SLOT SIZE NA
GRAVEL PACK NA

WELL COMPLETION DETAIL	MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
			0				Approx. 2" asphalt.
	dmp		5			CL	Clay, greenish-grey, trace silt, distinct gasoline odor, no stain.
	dmp		10			CL	Clay, lt. brown, scattered pebbles to 0.25", faint gasoline odor, no Stain.
			15				T.D. = 15'

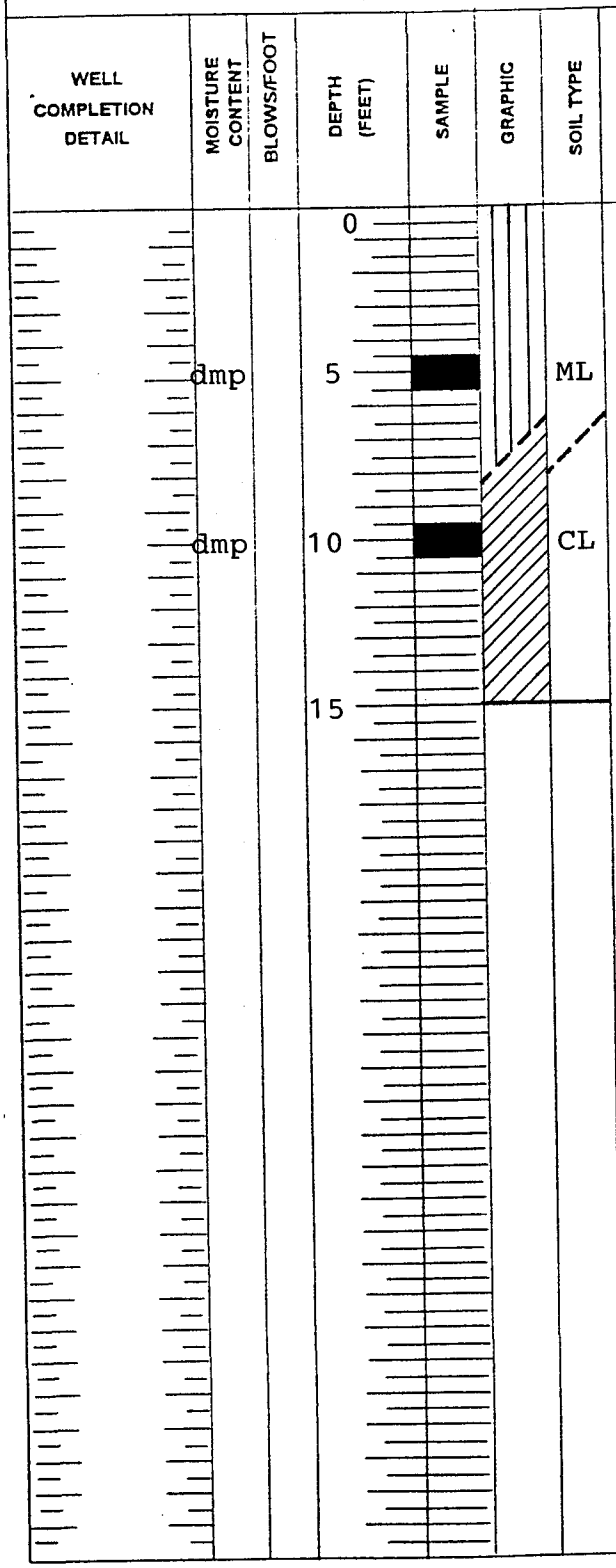
BORINGP2.DW2

HerSchy Environmental — WELL / BORING LOG

WELL/ NA
BORING B-5
PAGE 1 OF 1

CLIENT Alaska Gasoline Co.
DATE DRILLED 6/29/99
LOCATION Oakland
HOLE DIAMETER 1.5"
HOLE DEPTH 15'
WELL DEPTH NA
WELL DIAMETER NA
ELEVATION not surveyed

LOGGED BY H. Schymiczek
DRILLED BY West Hazmat
DRILLING METHOD Geoprobe
SAMPLING METHOD direct push
CASING TYPE NA
SLOT SIZE NA
GRAVEL PACK NA



LITHOLOGY / REMARKS	SOIL TYPE
Approx. 2" asphalt.	
Clayey Silt, greenish-grey, faint gasoline odor, no stain.	ML
Silty clay, lt. brown, scattered pebbles to 0.20", distinct gasoline odor, no stain.	CL
T.D. = 15'	

BORINGP2.DW2

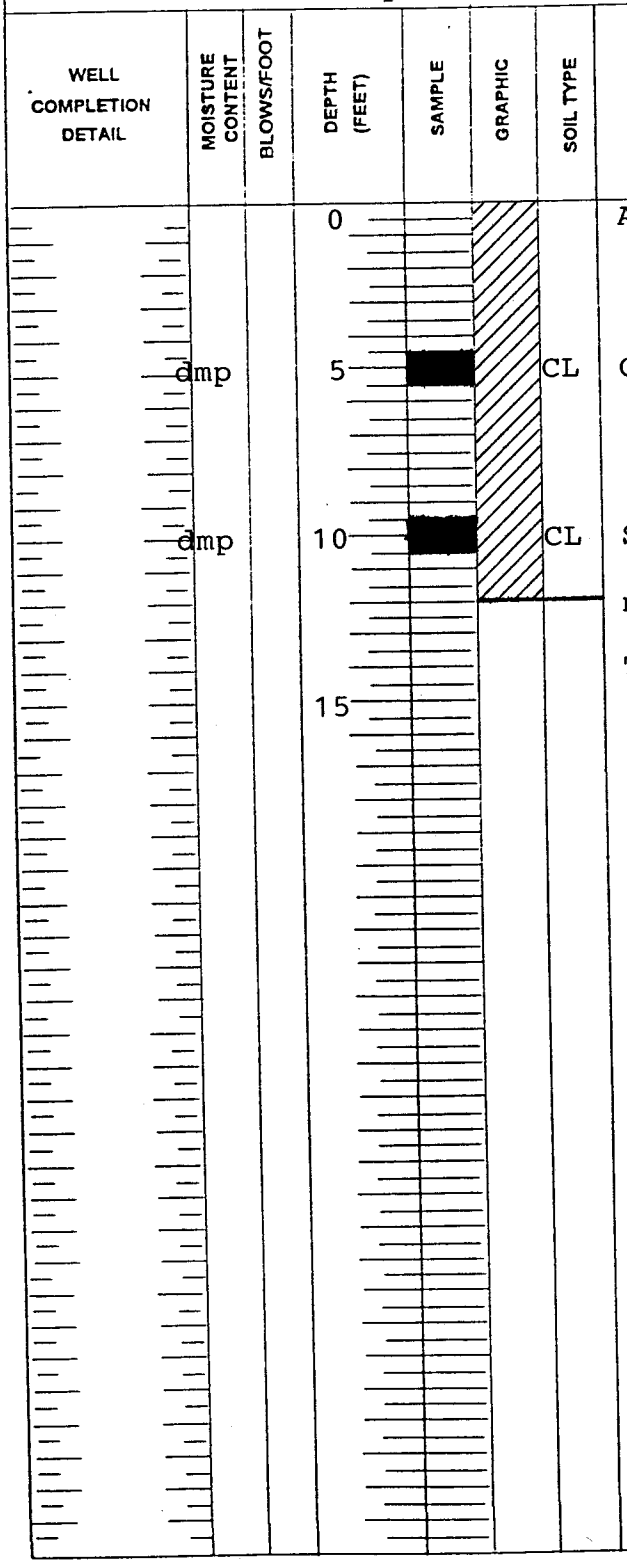
HerSchy Environmental

WELL / BORING LOG

WELL/ NA
BORING B-6
PAGE 1 OF 1

CLIENT Alaska Gasoline Co.
DATE DRILLED 6/29/99
LOCATION Oakland
HOLE DIAMETER 1.5"
HOLE DEPTH 12'
WELL DEPTH NA
WELL DIAMETER NA
ELEVATION not surveyed

LOGGED BY H. Schymiczek
DRILLED BY West Hazmat
DRILLING METHOD Geoprobe
SAMPLING METHOD direct push
CASING TYPE NA
SLOT SIZE NA
GRAVEL PACK NA



LITHOLOGY / REMARKS

Approx. 2" asphalt.

Clay, greenish-grey, faint gasoline odor, no stain.

S.A.A., faint gasoline odor, no stain.

note: Geoprobe refusal @ 12'.

T.D. = 12'

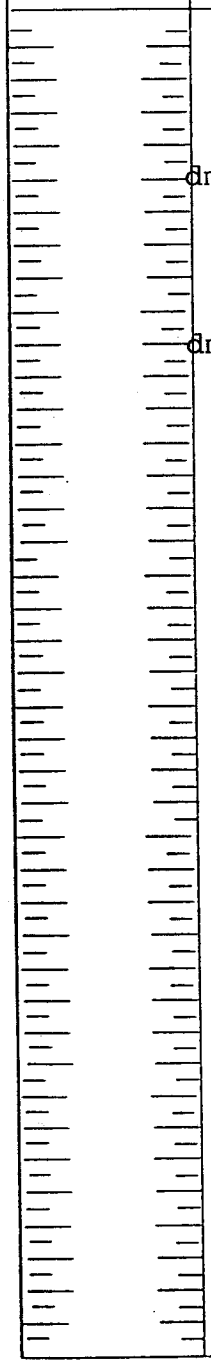
BORINGP2 DW2

HerSchy Environmental — WELL / BORING LOG

WELL/ NA
BORING B-7
PAGE 1 OF 1

CLIENT Alaska Gasoline Co.
DATE DRILLED 6/29/99
LOCATION Oakland
HOLE DIAMETER 1.5"
HOLE DEPTH 15'
WELL DEPTH NA
WELL DIAMETER NA
ELEVATION not surveyed

LOGGED BY H. Schymiczek
DRILLED BY West Hazmat
DRILLING METHOD Geoprobe
SAMPLING METHOD direct push
CASING TYPE NA
SLOT SIZE NA
GRAVEL PACK NA



WELL COMPLETION DETAIL	MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
			0				Approx. 2" asphalt.
	dmp		5			CL	Clay, greenish-grey, scattered coarse sand grains, faint gasoline odor, no stain.
	dmp		10			ML	Sandy silt, greenish-grey, v. fine- to coarse-grained, scattered pebbles to 0.25", trace clay, distinct gasoline odor, no stain.
			15				T.D. = 15'

BORINGP2.DW2

HerSchy Environmental

WELL / BORING LOG

WELL/ NA
BORING B-8
PAGE 1 OF 1

CLIENT Alaska Gasoline Co.
DATE DRILLED 6/29/99
LOCATION Oakland
HOLE DIAMETER 1.5"
HOLE DEPTH 11'
WELL DEPTH NA
WELL DIAMETER NA
ELEVATION not surveyed

LOGGED BY H. Schymiczek
DRILLED BY West Hazmat
DRILLING METHOD Geoprobe
SAMPLING METHOD direct push
CASING TYPE NA
SLOT SIZE NA
GRAVEL PACK NA

WELL COMPLETION DETAIL	MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
			0				Approx. 2" asphalt
	dmp		5			CL	Silty clay, dk. brown, no odor or stain.
	dmp		10			ML	Sandy silt, greenish-grey, v. fine- to fine-grained, scattered pebbles to 0.25", distinct gasoline odor, no stain.
			15				note: Geoprobe refusal @ 11' with sacrificial well point.
							T.D. = 11'

BORINGP2.DWG

APPENDIX B

CERTIFIED ANALYTICAL RESULTS

CASTLE ANALYTICAL LABORATORY

Environmental Testing Services
Certificate #2079
2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930
Fax: (209) 384-1507

HerSchy Environmental	Client Project ID: Alaska Gasoline Company - Oakland	Sampled: 6-29-99
P.O. Box 229	Reference Number: 2341	Received: 6-30-99
Bass Lake, CA 93604	Sample Description: Soil	Extracted: 7-5-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: EPA 5030/8015M, 8020	Analyzed: 7-5-99
	Lab Numbers: 2341-1S, 2S, 3S, 4S, 5S	Reported: 7-9-99

TOTAL PETROLEUM HYDROCARBONS - GASOLINE
BTEX DISTINCTION

ANALYTE	REPORTING LIMIT (mg/kg)	SAMPLE ID B-4 @ 5' (mg/kg)	SAMPLE ID B-4 @ 10' (mg/kg)	SAMPLE ID B-5 @ 5' (mg/kg)	SAMPLE ID B-5 @ 10' (mg/kg)	SAMPLE ID B-6 @ 5' (mg/kg)
MTBE	0.010	2.2	9.3	3.5	2.0	23
BENZENE	0.0050	0.68	0.71	0.068	0.37	2.3
TOLUENE	0.0050	1.4	ND	0.0061	0.079	5.4
ETHYLBENZENE	0.0050	1.5	0.23	0.033	0.17	1.5
TOTAL XYLENES	0.0050	7.8	0.11	0.065	0.57	7.0
GASOLINE RANGE HYDROCARBONS	1.0	100	14	5.7	34	92
Report Limit Multiplication Factor:		20	10	1	10	50
Report Limit Multiplication Factor MTBE only:				10		

Surrogate % Recovery:	NA	NA	FID:76.6% / PID:76.4%	NA	NA
Instrument ID:	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1

Analytes reported as ND were not detected or below the Practical Quantitation Limit
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

ANALYST: _____ APPROVED BY: _____
Clari J. Cone
James C. Phillips
Environmental Lab Director

CASTLE ANALYTICAL LABORATORY

Environmental Testing Services
Certificate #2079
2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930
Fax: (209) 384-1507

HerSchy Environmental	Client Project ID: Alaska Gasoline Company - Oakland	Sampled: 6-29-99
P.O. Box 229	Reference Number: 2341	Received: 6-30-99
Bass Lake, CA 93604	Sample Description: Soil	Extracted: 7-5-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: EPA 5030/8015M, 8020	Analyzed: 7-5-99
	Lab Numbers: 2341-6S, 7S, 8S, 9S, 10S	Reported: 7-9-99

TOTAL PETROLEUM HYDROCARBONS - GASOLINE
BTEX DISTINCTION

ANALYTE	REPORTING LIMIT (mg/kg)	SAMPLE ID B-7 @ 5' (mg/kg)	SAMPLE ID B-7 @ 10' (mg/kg)	SAMPLE ID B-8 @ 5' (mg/kg)	SAMPLE ID B-8 @ 10' (mg/kg)	SAMPLE ID B-6 @ 10' (mg/kg)
MTBE	0.010	0.023	ND	ND	2.7	46
BENZENE	0.0050	0.12	0.57	ND	0.93	1.3
TOLUENE	0.0050	ND	0.56	ND	2.9	ND
ETHYLBENZENE	0.0050	0.073	2.8	ND	4.6	ND
TOTAL XYLENES	0.0050	0.14	14	ND	20	0.060
GASOLINE RANGE HYDROCARBONS	1.0	3.2	280	ND	270	30
Report Limit Multiplication Factor:		1	100	1	100	10
Report Limit Multiplication Factor MTBE only:						100

Surrogate % Recovery:	PID:79.2% / PID:73.5%	NA	PID:69.5% / PID:64.1%	NA	NA
Instrument ID:	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1

Analytes reported as ND were not detected or below the Practical Quantitation Limit
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

ANALYST: Clari Cone
Clari J. Cone

APPROVED BY:
James C. Phillips
Environmental Lab Director

CASTLE ANALYTICAL LABORATORY

CHAIN OF CUSTODY

Location: 2333 Shuttle Drive, Bldg 908/909, Atwater, CA 95301
Mailing Address: 2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930 - Fax: (209) 384-1507

Certificate No. 2079

Customer: Alaska Gasoline Company
Address: Oakland
City/State/ZIP:
Phone / FAX:
Proj # / P.O. #:
Report Attention: Herman Shymcek
Sampler Signature:
Printed:

Lab ID#	SAMPLE ID	DATE	TIME	DESCRIPTION/LOCATION	SAMPLE TYPE (g) grab (c) composite (d) discrete	SAMPLE MATRIX (s) solid (l) liquid (o) other	REQUESTED ANALYSES: BTEX/TPH-GAS	MTBE	TPH-DIESEL	TRPH 418.1M	NUMBER OF CONTAINERS	OBSERVATIONS/REMARKS
	B-4 @ 5'	6/29/99	3:40		d	s	X	X				
	B-4 @ 10	"	3:50									
	B-5 @ 5'	"	4:10									
	B-5 @ 10	"	4:15									
	B-6 @ 5'	"	3:00									
	B-7 @ 5'	"	1:55									
	B-7 @ 10'	"	2:05									
	B-8 @ 5'	"	2:20									
	B-8 @ 10	"	2:30		↓	↓	↓	↓				

Method of Shipment:

Notes:

	Signature	Printed Name	Date	Time	Company Name
Relinquished by:		Herman Shymcek	6/30/99	1:55	Hart Sky Environmental
Received by:		James Phillips	6/30/99	1:55	Castle Analytical
Relinquished by:					
Received by:					
Relinquished by:					
Received by:					

Total number of containers submitted to the laboratory

Note: All special requests (e.g. quick turn times) must be cleared through authorized laboratory personnel .

RESULTS DUE : _____

☐ VERBAL ☐ WRITTEN