HerSchy Environmental

99 DEC 28 PM 3:08

December 21, 1999
Project A51-03.01

Mr. Larry Seto
Alameda County
Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577

Re: Results of Drilling, Sampling, and Monitoring Well Installation, Alaska Gasoline Company, Alameda, California

Dear Mr. Seto:

HerSchy Environmental is pleased to present this hydrogeologic assessment report for the above-referenced site. The site is located at 1310 Central Avenue, which is at the intersection of Central Avenue and Encinal Avenue (California Highway 61) in Alameda, California (Figure 1). This document presents the results of the implementation of the March 24, 1999 workplan prepared by All Environmental with revisions requested in the August 13, 1999 letter from HerSchy Environmental. The requested revision was to reduce the scope of work from installing five monitoring wells, two of them off site, to three on site wells. The requested revisions were approved in the August 17, 1999 correspondence from your office.

Previous work included the collection of soil samples from beneath former underground storage tanks (USTs) during their replacement in May, 1996, and drilling, sampling, and laboratory analysis of soil and groundwater from 14 soil borings. Details of this investigation is contained in the December 14, 1998 *"Phase II Subsurface Investigation Report"* prepared by All Environmental. Concentrations of gasoline-range total petroleum hydrocarbons (TPHg) were reported up to 5,900 parts per million (ppm) and up to 120,000 parts per billion (ppb) in groundwater. The purpose of this correspondence is to present the results of drilling, sampling, and well installation at three locations on the property (Figure 2).

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

1.0 Methods of Investigation:

1.1 Drilling and Soil Sampling

Drilling was performed on October 11, 1999, using a truck-mounted drill rig equipped with eight-inch hollow stem augers. Augers were steam cleaned prior to arriving on site. Three soil borings were drilled to evaluate subsurface conditions which were then used to install groundwater monitoring wells (MW-1 through MW-3). Monitoring well MW-1 was installed east of and adjacent to the existing canopy and dispensers. Monitoring well MW-2 was installed west of and adjacent to the store/garage. Monitoring well MW-3 west of the existing and previous USTs (Figure 2).

Soil samples were collected using a California modified split spoon sampler equipped with brass liners. The samples were collected from the anticipated capillary fringe above groundwater, and estimated depth of five feet. There was no sample recovery in the boring used for installation of MW-3. Samples were collected by driving the sampler ahead of the drill bit. The sampler and liners were cleaned between sampling events.

Soil samples were field screened using a portable organic vapor analyzer (OVA) for the presence of volatile organic compounds (VOCs). Soil samples were collected from a depth of four feet in MW-1, and from five feet in MW-2 and submitted to the laboratory for analysis.

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. A total of two soil samples were submitted to the laboratory under chain of custody documentation. Soil samples and drill cuttings were described in accordance with the Unified Soil Classification System by a California Registered Geologist. Drill cuttings were contained in DOT-approved 55-gallon drums and stored on site as directed by the owner. Soil sampling was discontinued below an approximate depth of five feet. Boring logs and well construction details are presented in Appendix A.

1.2 Monitoring Well Installation, Development, and Sampling Procedures:

Well construction and annular materials were installed through the hollow stem augers. Groundwater monitoring wells were constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals were constructed with 15 feet of 0.020-inch factory slotted screen such that approximately 12 feet of the screened interval is below first encountered groundwater in each of the monitoring wells. Blank casing was installed from the top of the screened interval to surface grade. The monitoring wells were completed flush with surface grade in a traffic rated well cover with a locking well cap. Well construction details are presented in Appendix A.

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

The groundwater monitoring wells were developed by pumping and surging until the discharge was clear. Well development was performed using a two-inch submersible pump. Physical characteristics (pH, electrical conductivity, and temperature) were measured and recorded during well development. Physical characteristics were measured before development and again prior to sampling. Groundwater samples were stored, transported, and handled in a similar manner as described for soil above. In the absence of floating product, development and purge water was discharged an appropriate distance from the well head. Groundwater sampling field data sheets are presented in Appendix B.

1.3 Laboratory Analysis:

Soil and groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPHg), diesel-range total petroleum hydrocarbons (TPHd), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). Samples were analyzed using EPA method 8015 for TPHg, EPA method 8020 for BTEX and MTBE, and the California LUFT method for TPHd. Certified analytical reports are presented in Appendix C.

2.0 Results of Investigation:

2.1 Soil Profile:

Soil samples were collected at an approximate depth of five feet in each of the borings used for well installation. There was no sample recovery in monitoring well MW-3. Drill cuttings and soil samples were described in accordance with the Unified Soil Classification System by a California Registered Geologist. Soil consists of very fine- to fine-grained sand (ML) from the surface to and approximate depth of three feet. This is followed by an interval of silty very fine- to medium-grained sand (SM) to the total depth drilled of 18 feet in each boring.

Laboratory analytical results for soil samples indicate relatively low to below detectable of concentrations of fuel constituents in soil. Certified analytical reports are presented in Appendix C and summarized in Table 1 below:

Table 3
Laboratory Analytical Results for Groundwater, Alaska Gasoline, Alameda

Well No.	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-1	5,700	8,700	170	59	22	85	20,000
MW-2	6,000	70	1,300	92	50	400	6,800
MW-3	43,000	870	860	70	ND	65	120,000

All results presented in parts per billion (ppb)

3.0 Conclusions and Recommendations

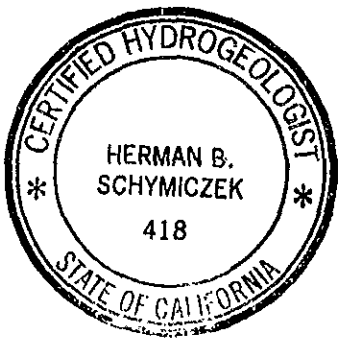
All of the site monitoring wells contain relatively high concentrations of gasoline constituents. The lateral extent of impacted soil has not been completely evaluated. The lateral extent of impacted groundwater has not been determined. It is recommended that at least one additional quarterly sampling event be performed to evaluate for seasonal variation in groundwater flow direction. This information will be used to recommend additional monitoring wells to evaluate the lateral extent of petroleum hydrocarbon-impacted groundwater. The next quarterly sampling is scheduled for February 7, 2000.

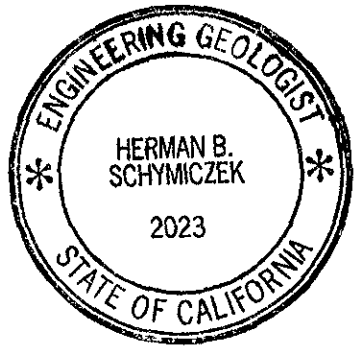
If you have any questions or need additional information, please contact me at the letterhead address or at (559) 641-7320.

With best regards,

Herman Schymiczek
CHG #418, CEG #2023

pc: Mr. Pritpaul Sappal, Alaska Gasoline Company





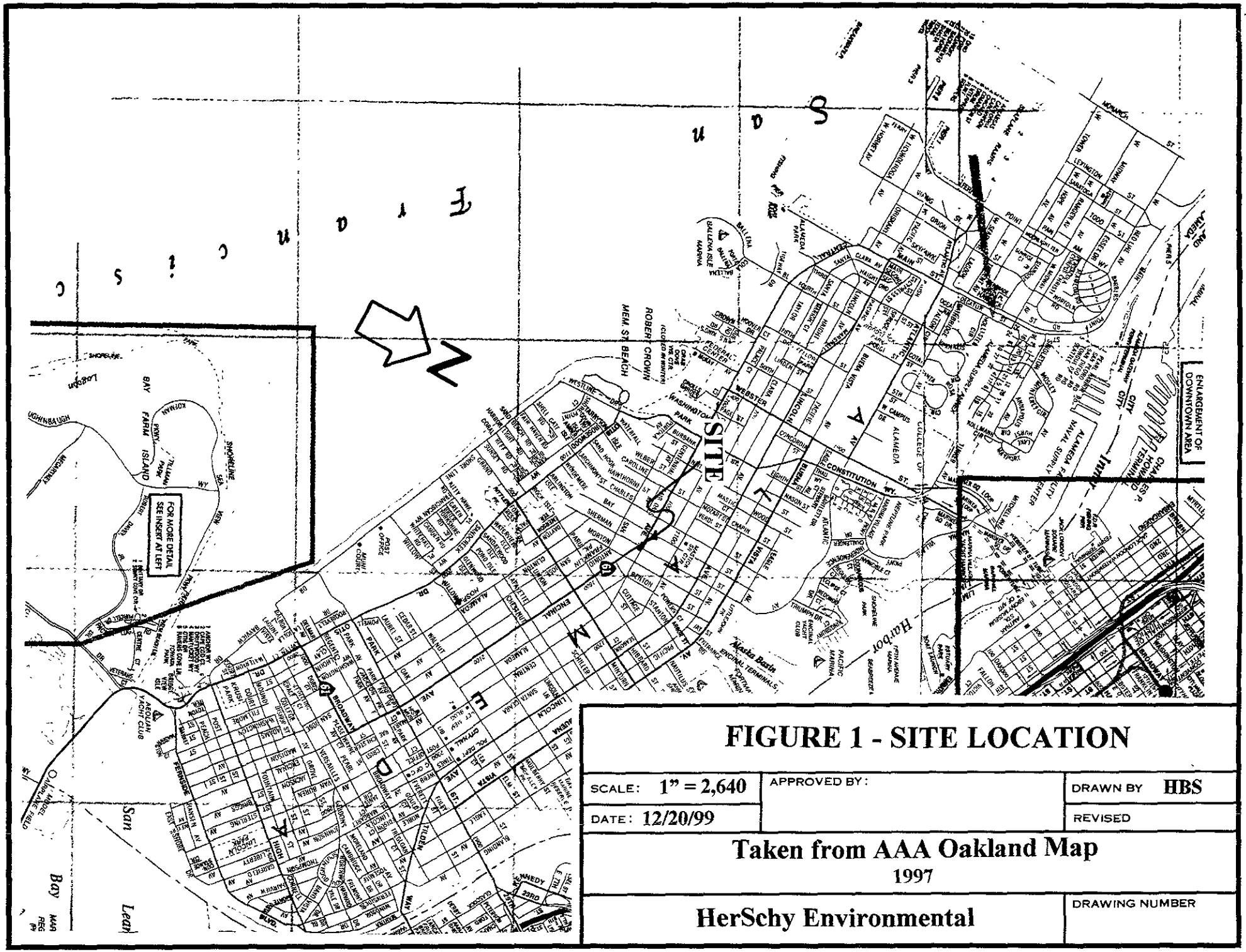


FIGURE 1 - SITE LOCATION

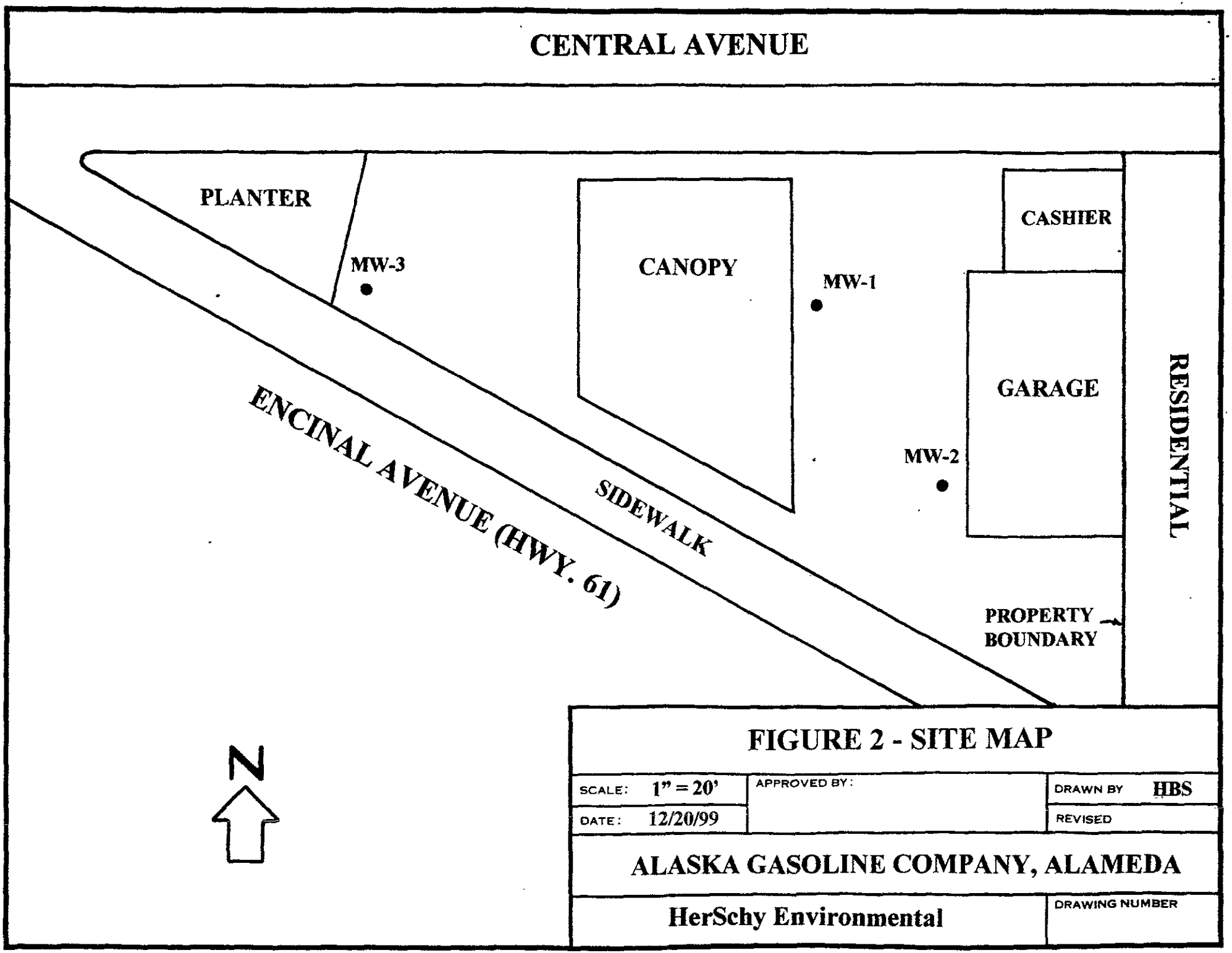
SCALE: 1" = 2,640	APPROVED BY:	DRAWN BY HBS
DATE: 12/20/99		REVISED

Taken from AAA Oakland Map
1997

HerSchy Environmental

DRAWING NUMBER

8½ X 11 PRINTED ON NO. 1000H CLEARPRINT ®


CENTRAL AVENUE
PLANTER
MW-3
CANOPY
MW-1
CASHIER
GARAGE
MW-2
RESIDENTIAL
ENCINAL AVENUE (HWY. 61)
SIDEWALK
PROPERTY BOUNDARY
N
FIGURE 2 - SITE MAP
SCALE: 1" = 20'
APPROVED BY:
DRAWN BY HBS
DATE: 12/20/99
REVISED
ALASKA GASOLINE COMPANY, ALAMEDA
HerSchy Environmental
DRAWING NUMBER

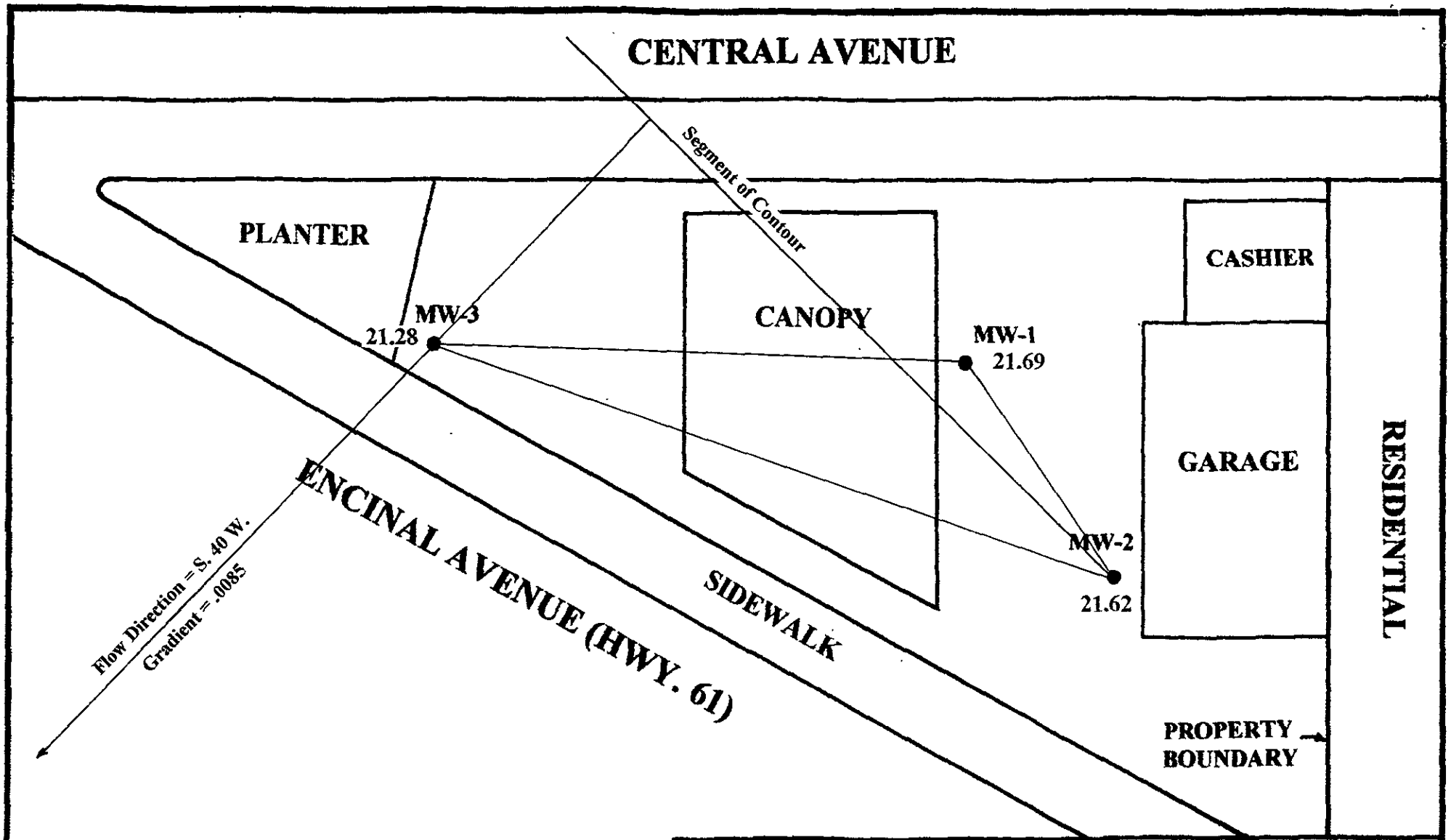


FIGURE 3 - GROUNDWATER CONDITIONS

SCALE: 1" = 20'	APPROVED BY:	DRAWN BY HBS
DATE: 12/20/99		REVISED

ALASKA GASOLINE COMPANY, ALAMEDA

HerSchy Environmental | DRAWING NUMBER

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION DETAILS

Table 1
Laboratory Analytical Results for Soil, Alaska Gasoline, Alameda

Sample	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-1 @ 4'	ND	ND	ND	ND	ND	ND	ND
MW-2 @ 5'	ND	6.8	ND	ND	ND	ND	ND

All results presented in parts per million (ppm)

Laboratory analytical results indicate that below detectable concentrations of gasoline constituents are present in soil at the locations of MW-1 and MW-2, and relatively low concentrations of TPHd at the location of MW-2.

2.2 Groundwater Conditions:

Groundwater is present beneath the site at an average depth of 4.91 feet below the surveyed well elevations. The elevation of groundwater beneath the site averaged 22.53 feet above mean sea level at the time of sampling. Groundwater gradient was S. 40 degrees W. at a gradient of .0085. Groundwater conditions are summarized in Table 2 and presented graphically in Figure 3.

Table 2
Groundwater Conditions, November 6, 1999, Alaska Gasoline, Alameda

Well Number	Elevation	Depth to GW	GW Elevation
MW-1	26.85	5:16	21.69
MW-2	27.18	5.56	21.62
MW-3	25.30	4.02	21.28
Flow Direction = S. 40 W.; Gradient = .0085			

Groundwater flow direction is toward San Francisco Bay, located approximately 0.75 miles southwest of the site. Regional groundwater flow appears to parallel the surface grade in the area.

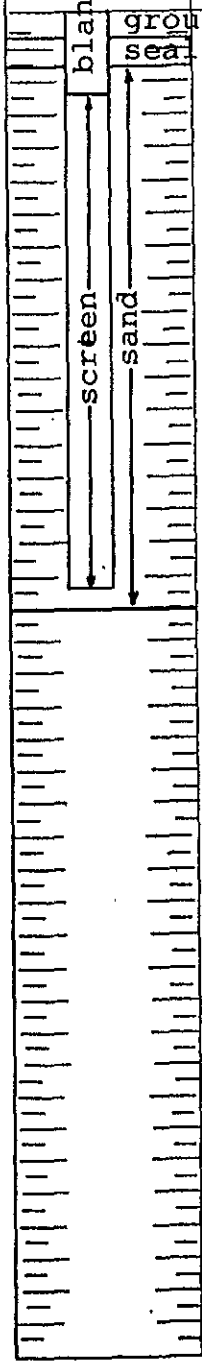
2.3 Groundwater Quality:

All of the site monitoring wells contained petroleum hydrocarbon-impacted groundwater. The highest overall concentrations are present in MW-3 which is directly down gradient relative to the location of the USTs. Relatively high concentrations of fuel constituents are also present in the other two monitoring wells. the fuel oxygenate MTBE was detected at relatively high concentrations in all of the wells, particularly in down gradient well MW-3. Certified analytical reports are presented in Appendix C and are summarized in Table 3 on the following page:

HerSchy Environmental — WELL / BORING LOG

WELL/ MW-1
BORING NA
PAGE 1 OF 1

CLIENT	Alaska Gasoline Co.	LOGGED BY	H. Schymiczek
DATE DRILLED	10-11-99	DRILLED BY	West Hazmat
LOCATION	Alameda	DRILLING METHOD	HSA
HOLE DIAMETER	8"	SAMPLING METHOD	Split Spoon
HOLE DEPTH	18'	CASING TYPE	Sch. 40PVC
WELL DEPTH	17.35'	SLOT SIZE	0.020"
WELL DIAMETER	2"	GRAVEL PACK	#3 Sand
ELEVATION	26.85		



MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
		0				Approx. 2" asphalt.
					ML	Sand, dk.brown, v.fine - to fine-grained, trace silt.
	2					
	2	5			SM	Silty sand, brown, v.fine - to med.-grained, no odor or stain; OVA=0
	3					
		10				
		15				
					SM	Silty sand, brown, v.fine - to med.-grained.
		20				T.D.=18'
		25				
		30				
		35				
		40				

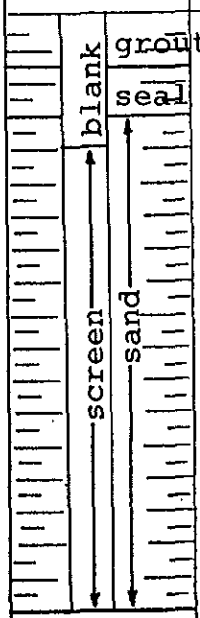
BORINGP2 DW2

HerSchy Environmental

WELL / BORING LOG

WELL/ MW-2
BORING NA
PAGE 1 OF 1

CLIENT	Alaska Gasoline Co.	LOGGED BY	H. Schymiczek
DATE DRILLED	10-11-99	DRILLED BY	West Hazmat
LOCATION	Alameda	DRILLING METHOD	HSA
HOLE DIAMETER	8"	SAMPLING METHOD	Split Spoon
HOLE DEPTH	18'	CASING TYPE	Sch. 40PVC
WELL DEPTH	17.90'	SLOT SIZE	0.020"
WELL DIAMETER	2"	GRAVEL PACK	#3 Sand
ELEVATION	27.18'		



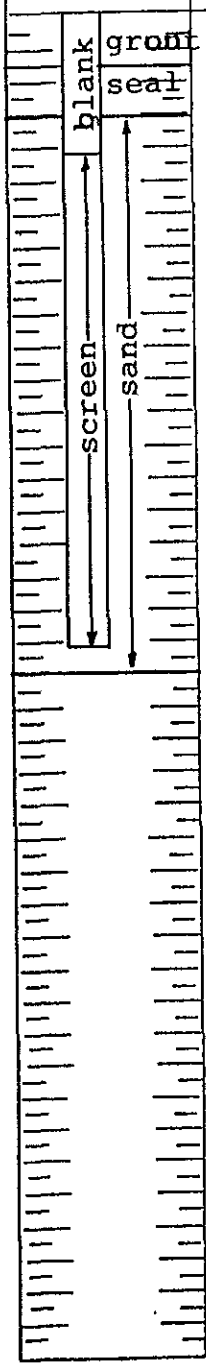
MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
		0			ML	Approx. 2" asphalt. Sand, dk. brown, v.fine - to fine-grained, trace silt.
	4 5 6	5			SM	Silty sand, brown, v.fine - to med.-grained, no odor or stain; OVA=0
		10				
		15				
					SM	Silty sand, brown, v.fine - to med.-grained, trace clay.
		20				T.D.=18'
		25				
		30				
		35				
		40				

BORINGP2 DW2

HerSchy Environmental — WELL / BORING LOG

WELL/ MW-3
BORING NA
PAGE 1 OF 1

CLIENT	Alaska Gasoline Co.	LOGGED BY	H. Schymiczek
DATE DRILLED	10-11-99	DRILLED BY	WEST Hazmat
LOCATION	Alameda	DRILLING METHOD	HSA
HOLE DIAMETER	8"	SAMPLING METHOD	Split Spoon
HOLE DEPTH	20'	CASING TYPE	Sch. 40PVC
WELL DEPTH	19.05'	SLOT SIZE	0.020"
WELL DIAMETER	2"	GRAVEL PACK	#3 Sand
ELEVATION	25.30		



MOISTURE CONTENT	BLOWS/FOOT	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
		0			ML	Approx. 2" asphalt Sand, dk. brown, v.fine - to fine-grained
	2 2 2	5				No recovery after two attempts.
					SM	Silty sand, grey, v.fine - to med.-grained.
		10				
		15				
		20				T.D.=20'
		25				
		30				
		35				
		40				

BORINGP2.DW2

APPENDIX B

GROUNDWATER FIELD SAMPLING DATA SHEETS

HerSchy **Environmental**

WATER SAMPLE FIELD DATA SHEET

Client Name: Alco Casting Co. Location: [illegible]

Purged By: [illegible] Sampled By: L. Schymanski

Sample ID: MW-1 Type: Groundwater X Surface Water ___ Other ___

Casing Diameter (inches): 2 X 3 ___ 4 ___ 5 ___ 6 ___ Other ___

Casing Elevation (feet/MSL): 26.85 Volume in Casing (gal.): 2.04

Depth of Well (feet): 17.35 Calculate Purge Volume (gal.): 8.16

Depth to Water (feet): 5.16 Actual Purge Volume (gal.): ~25

Date Purged: 11-6-99 Date Sampled: 11-6-99

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
3:10	—	7.19	617	69.9	muddy
3:30	~25	7.15	197	68.4	muddy

Other Observations: ___ Odor: faint H_2S

Purging Equipment: Purger ES-60

Sampling Equipment: " " "

Remarks: Sampled after well development; pumped dry 5 times in 30 min. at ~2 gal/min.

Samplers Signature: Herman L. Schymanski

HerSchy Environmental

WATER SAMPLE FIELD DATA SHEET

Client Name: Alaska Gasoline Co. Location: Alameda

Purged By: S. Schmieder Sampled By: S. Schmieder

Sample ID: MW-2 Type: Groundwater X Surface Water ____ Other ____

Casing Diameter (inches): 2 X 3 ____ 4 ____ 5 ____ 6 ____ Other ____

Casing Elevation (feet/MSL): 27.18 Volume in Casing (gal.): 2.06

Depth of Well (feet): 17.90 Calculate Purge Volume (gal.): 8.24

Depth to Water (feet): 5.56 Actual Purge Volume (gal.): ~85

Date Purged: 11-6-99 Date Sampled: 11-6-99

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
2:20	—	8.91	564	69.8	muddy
2:50	~85	7.31	532	69.6	cloudy

Other Observations: ____ Odor: none

Purging Equipment: Purger ES-60

Sampling Equipment: " " "

Remarks: Sampled after well development

Samplers Signature: Susan Schmieder

HerSchy Environmental

WATER SAMPLE FIELD DATA SHEET

Client Name: [illegible] Location: [illegible]

Purged By: [illegible] Sampled By: [illegible]

Sample ID: MW-3 Type: Groundwater X Surface Water ___ Other ___

Casing Diameter (inches): 2 X 3 ___ 4 ___ 5 ___ 6 ___ Other ___

Casing Elevation (feet/MSL): 25.30 Volume in Casing (gal.): 2.45

Depth of Well (feet): 19.05 Calculate Purge Volume (gal.): 9.8

Depth to Water (feet): 4.02 Actual Purge Volume (gal.): ~85

Date Purged: 11-6-99 Date Sampled: 11-6-99

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
3:50	—	6.86	1,028	70.1	muddy
4:20	~85	7.15	537	69.0	cloudy

Other Observations: ___ Odor: faint H_2S

Purging Equipment: Purger ES-60

Sampling Equipment: " " "

Remarks: ___

Samplers Signature: [signature]

APPENDIX C

CERTIFIED ANALYTICAL REPORTS

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 - Alameda	Sampled: 10-11-99
P.O. Box 229	Reference Number: 2529	Received: 10-13-99
Bass Lake, CA 93604	Sample Description: Soil	Extracted: 10-14-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: EPA 5030/8015M, 8020	Analyzed: 10-15-99
	Lab Numbers: 2529-1S, 2S	Reported: 10-28-99

TOTAL PETROLEUM HYDROCARBONS - GASOLINE
BTEX DISTINCTION

ANALYTE	REPORTING LIMIT (mg/kg)	SAMPLE ID MW-1 @ 4' (mg/kg)	SAMPLE ID MW-2 @ 5' (mg/kg)
MTBE	0.010	ND	ND
BENZENE	0.0050	ND	ND
TOLUENE	0.0050	ND	ND
ETHYLBENZENE	0.0050	ND	ND
TOTAL XYLENES	0.0050	ND	ND
GASOLINE RANGE HYDROCARBONS	1.0	ND	ND
Report Limit Multiplication Factor:		1	1

Surrogate % Recovery:	FID: 62.6% / PID: 62.6%	FID: 66.7% / PID: 66.4%
Instrument ID:	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 J. Cone
Clari J. Cone

APPROVED BY:
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 - Alameda	Method: EPA 5030/8015M,8020
P.O. Box 229	Reference Number: 2529	Instrument ID: Var-GC1
Bass Lake, CA 93604	Matrix: Soil	Prepared: 10-14-99
Attn: Herman Schymiczek	Analyst: Clari Cone	Analyzed: 10-15-99
		Reported: 10-28-99

QUALITY CONTROL DATA REPORT

ANALYTE	Gasoline	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
Spike Concentration:	2.20	42.1	30.1	150	36.5	179
Units:	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
LCS Batch #:	VS-0149	VS-0149	VS-0149	VS-0149	VS-0149	VS-0149
LCS % Recovery:	95.4%	92.1%	81.0%	92.6%	96.9%	87.4%
Surrogate Recovery:	92.3%	89.1%	89.1%	89.1%	89.1%	89.1%
Control Limits:	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VS-0149	VS-0149	VS-0149	VS-0149	VS-0149	VS-0149
MS % Recovery:	58.3%	82.7%	57.0%	65.8%	68.3%	62.2%
Surrogate Recovery:	68.0%	66.0%	66.0%	66.0%	66.0%	66.0%
MSD % Recovery:	53.1%	62.0%	58.1%	64.9%	66.5%	61.3%
Surrogate Recovery:	68.4%	66.5%	66.5%	66.5%	66.5%	66.5%
Relative % Difference:	7.37%	26.1%	1.59%	1.46%	2.52%	1.33%
Methanol Blank :	ND	ND	ND	ND	ND	ND
Surrogate Recovery:	89.0%	88.2%	88.2%	88.2%	88.2%	88.2%

Please Note:
The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

ANALYST: Clari J. Cone

APPROVED BY: 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 - Alameda	Sampled: 10-11-99
P.O. Box 229	Lab Reference Number: 2529	Received: 10-13-99
Bass Lake, CA 93604	Sample Description: Soil	Extracted: 10-18-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: LUFT/EPA 8015B	Analyzed: 10-18-99
	Lab Numbers: 2529-1S, 2S	Reported: 10-28-99

TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE

ANALYTE	REPORTING LIMIT (mg/kg)	SAMPLE ID MW-1 @ 4' (mg/kg)	SAMPLE ID MW-2 @ 5' (mg/kg)
DIESEL RANGE HYDROCARBONS C10-C28	1.0	ND	6.8
Report Limit Multiplication Factor:		1	1
			heavier hydrocarbons also present
Instrument ID:		HP-GC1	HP-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 J. Cone*
Clari J. Cone

APPROVED BY:
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 - Alameda	Method: TPH-Diesel
P.O. Box 229	Lab Reference Number: 2529	Instrument ID: HP-GC1
Bass Lake, CA 93604	Matrix: Soil	Prepared: 10-18-99
Attn: Herman Schymiczek	Analyst: Clari Cone	Analyzed: 10-18-99
		Reported: 10-28-99

QUALITY CONTROL DATA REPORT

ANALYTE	TPH-Diesel
Spike Concentration:	5.0
Units:	mg/kg
LCS Batch #:	TPHD-0189
LCS % Recovery:	105%
Control Limits:	60-130 %
MS/MSD Batch #:	TPHD-0189
MS % Recovery:	79.2%
MSD % Recovery:	51.8%
Relative % Difference:	20.8%

Please Note:
The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

ANALYST: 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

PAGE 1 OF 1

Customer: Alaska Gasoline Co.
Address: Alameda
City/State/ZIP:
Phone / FAX:
Proj # / P.O. #:
Report Attention:
Sampler Signature: Herman Schymiczek
Printed: Herman Schymiczek

Lab ID#	SAMPLE ID	DATE	TIME	DESCRIPTION/LOCATION	SAMPLE TYPE (g) grab (c) composite (d) discrete	SAMPLE MATRIX (s) solid (l) liquid (o) other	BTEX/TPH-GAS	MTBE	TPH-DIESEL	TRPH 418.1M	NUMBER OF CONTAINERS	OBSERVATIONS/REMARKS
2529-1S	MW-1@4'	10/11/99	5:00		d	S	X	X	X			
↓ -2S	MW-2@5'	"	4:05		"	"	X	X	X			

Method of Shipment:

Notes:

	Signature	Printed Name	Date	Time	Company Name
Relinquished by:	Herman Schymiczek	Herman Schymiczek	10/13/99	1:30	HerSchy Environmental
Received by:					
Relinquished by:					
Received by:					
Relinquished by:					
Received by:	Clarissa Cone	Clarissa Cone	10/13/99	1:30	CASTLE

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

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 - Alameda	Sampled: 11-6-99
P.O. Box 229	Reference Number: 2581	Received: 11-8-99
Bass Lake, CA 93604	Sample Description: Water	Extracted: 11-9-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: EPA 5030/8015M, 8020	Analyzed: 11-9-99
	Lab Numbers: 2581-1W, 2W, 3W	Reported: 11-17-99

TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT µg/L	SAMPLE ID MW-1 (µg/L)	SAMPLE ID MW-2 (µg/L)	SAMPLE ID MW-3 (µg/L)
MTBE	0.50	ND	2.3	1600
BENZENE	0.50	160	11	480
TOLUENE	0.50	230	1.5	21
ETHYL BENZENE	0.50	900	7.9	110
TOTAL XYLENES	0.50	5400	8.4	380
GASOLINE RANGE HYDROCARBONS	50	43000	92	5800
Report Limit Multiplication Factor:		100	1	10
Report Limit Multiplication Factor MTBE only:				100

Surrogate % Recovery:	FID.117% / PID.106%	FID.111% / PID.102%	FID.184% / PID:123%
Instrument ID:	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 J. Cone*

APPROVED BY: *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 - Alameda	Method: EPA 5030/8015M,8020
P.O. Box 229	Reference Number: 2581	Instrument ID: Var-GC1
Bass Lake, CA 93604	Matrix: Water	Prepared: 11-9-99
Attn: Herman Schymiczek	Analyst: Jim Phillips	Analyzed: 11-9-99
		Reported: 11-17-99

QUALITY CONTROL DATA REPORT

ANALYTE	Gasoline	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
Spike Concentration:	110	2.22	1.34	7.82	1.84	9.48
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS Batch #:	VW-N089	VW-N089	VW-N089	VW-N089	VW-N089	VW-N089
LCS % Recovery:	104%	95.7%	115%	92.4%	99.3%	87.9%
Surrogate Recovery:	102%	100%	100%	100%	100%	100%
Control Limits:	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VW-N089	VW-N089	VW-N089	VW-N089	VW-N089	VW-N089
Spike Concentration:	110	2.22	1.34	7.82	1.84	9.48
MS % Recovery:	93.8%	131%	97.3%	89.6%	96.9%	86.9%
Surrogate Recovery:	102%	102%	102%	102%	102%	102%
MSD % Recovery:	110%	117%	97.7%	88.6%	94.7%	87.6%
Surrogate Recovery:	108%	105%	105%	105%	105%	105%
Relative % Difference:	15.9%	10.3%	0.420%	1.04%	2.19%	0.863%
Methanol Blank :	ND	ND	ND	ND	ND	ND
Surrogate Recovery:	98.0%	93.5%	93.5%	93.5%	93.5%	93.5%

The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

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

CASTLE ANALYTICAL LABORATORY

Environmental Testing Services
Certificate No. 2079
2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930
Fax: (209) 384-1507

HerSchy Environmental
P.O. Box 229
Bass Lake, CA 93604
Attn: Herman Schymiczek

Client Project ID: Alaska Gasoline - Alameda
Lab Reference Number: 2581
Sample Description: Water
Sample Prep/Analysis Method: LUFT/EPA 8015B
Lab Numbers: 2581-1W, 2W, 3W

Sampled: 11-6-99
Received: 11-8-99
Extracted: 11-9-99
Analyzed: 11-9-99
Reported: 11-17-99

TOTAL PETROLEUM HYDROCARBONS -DIESEL RANGE

ANALYTE	REPORTING LIMIT (µg/L)	SAMPLE ID MW -1 (µg/L)	SAMPLE ID MW -2 (µg/L)	SAMPLE ID MW-3 (µg/L)
DIESEL RANGE HYDROCARBONS C10->C28	50	8700	70	870
Report Limit Multiplication Factor:		30	1	1
		non-diesel pattern	non-diesel pattern	heavier hydrocarbons also present
Instrument ID:		HP-GC1	HP-GC1	HP-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 No. 2079
2333 Shuttle Drive Atwater, CA 95301
Phone: (209) 384-2930
Fax: (209) 384-1507

HerSchy Environmental	Client Project ID: Alaska Gasoline - Alameda	Method: TPH-Diesel
P.O. Box 229	Lab Reference Number: 2581	Instrument ID: HP-GC1
Bass Lake, CA 93604	Matrix: Water	Prepared: 11-9-99
Attn: Herman Schymiczek	Analyst: Jim Phillips	Analyzed: 11-9-99
		Reported: 11-17-99

QUALITY CONTROL DATA REPORT

ANALYTE	TPH-Diesel
Spike Concentration:	250
Units:	ug/L
LCS Batch #:	TPHDW-N099
LCSA % Recovery:	78.2%
LCSB % Recovery:	104%
Control Limits:	55-130 %
Relative % Difference:	28.2%
MS/MSD Batch #:	TPHDW-N099
MS % Recovery:	See Note
MSD % Recovery:	See Note
Relative % Difference:	See Note

Note: Insufficient sample material to prepare MS/MSD samples. LCS samples prepared in duplicate.

The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

ANALYST: *Clan J. Cone* APPROVED BY: *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 - Alameda	Sampled: 11-6-99
P.O. Box 229	Reference Number: 2581	Received: 11-8-99
Bass Lake, CA 93604	Sample Description: Water	Extracted: 11-11-99
Attn: Herman Schymiczek	Sample Prep/Analysis Method: EPA 5030/8010	Analyzed: 11-11-99
	Lab Number: 2581-2W	Reported: 11-17-99
	Client Sample ID: MW-2	

VOLATILE HALOCARBONS - EPA METHOD 8010

ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE RESULT (ug/L)	ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE RESULT (ug/L)
Bromobenzene	0.50	ND	1,2-Dichloroethane (1,2-DCA)	0.50	ND
Bromodichloromethane	0.50	ND	1,1-Dichloroethene (1,1-DCE)	0.50	ND
Bromoform	0.50	ND	cis-1,2-Dichloroethene	0.50	ND
Bromomethane	0.50	ND	trans-1,2-Dichloroethene	0.50	ND
Carbon tetrachloride	0.50	ND	1,2-Dichloropropane	0.50	ND
Chlorobenzene	0.50	ND	cis-1,3-Dichloropropene	0.50	ND
Chloroethane	0.50	ND	trans-1,3-Dichloropropene	0.50	ND
Chloroform	0.50	ND	Methylene Chloride	1.0	ND
Chloromethane	0.50	ND	1,1,2,2-Tetrachloroethane	0.50	ND
Dibromochloromethane	0.50	ND	1,1,1,2-Tetrachloroethane	0.50	ND
1,2-Dibromoethane (EDB)	0.50	ND	Tetrachloroethene (PCE)	0.50	ND
Dibromomethane	0.50	ND	1,1,1-Trichloroethane (1,1,1-TCA)	0.50	ND
1,2-Dichlorobenzene	0.50	ND	1,1,2-Trichloroethane (1,1,2-TCA)	0.50	ND
1,3-Dichlorobenzene	0.50	ND	Trichloroethene (TCE)	0.50	ND
1,4-Dichlorobenzene	0.50	ND	Trichlorofluoromethane (Freon-11)	0.50	ND
Dichlorodifluoromethane	0.50	ND	Vinyl Chloride	0.50	ND
1,1-Dichloroethane (1,1-DCA)	0.50	ND			

Dilution Factor: 1

Surrogate Recovery	
1-Chloro-3-fluorobenzene (ELCD)	100%

Analytes reported as ND were not detected or below the reporting limit
µg/L = micrograms per liter or parts per billion (ppb)

ANALYST: Clari J. Cone

APPROVED BY: *James C. Phillips*
Environmental Lab Director

CASTLE ANALYTICAL LABORATORY

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

HerSchy Environmental	Client Project ID: Alaska Gasoline - Alameda	Method: EPA 601/602
P.O. Box 229	Reference Number: 2581	Instrument ID: HP Series II
Bass Lake, CA 93604	Matrix: Water	Prepared: 11-11-99
Attn: Herman Schymiczek	Analyst: Clari J. Cone	Analyzed: 11-11-99
		Reported: 11-17-99

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-DCE	TCE	Chlorobenzene
Spike Concentration:	5.0	5.0	5.0
Units:	ug/L	ug/L	ug/L
LCS Batch #:	VOCW-N119	VOCW-N119	VOCW-N119
LCS % Recovery:	114%	108%	111%
Surrogate Recovery:	110%	110%	110%
Control Limits:	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VOCW-N119	VOCW-N119	VOCW-N119
Spike Concentration:	5.0	5.0	5.0
MS % Recovery:	119%	114%	103%
Surrogate Recovery:	113%	113%	113%
MSD % Recovery:	109%	107%	98.6%
Surrogate Recovery:	116%	116%	116%
Relative % Difference:	8.58%	6.28%	3.65%
Methanol Blank :	ND	ND	ND
Surrogate Recovery:	93.2%	93.2%	93.2%

Please Note:
The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

ANALYST: Clari J. 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

PAGE 1 OF 1

Customer: @Alaska Gasoline, Alameda
Address:
City/State/ZIP:
Phone / FAX:
Proj # / P.O. #:
Report Attention:
Sampler Signature: Herman Schymiczek
Printed: Herman Schymiczek

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	Volatile Halocarbons	NUMBER OF CONTAINERS	OBSERVATIONS/REMARKS
2581-1W	MW-1	11-6-99	3:30		d	L	X	X	X			3	
-2W	MW-2	"	2:50		"	"	X	X	X	X	X	5	
-3W	MW-3	"	4:20		"	"	X	X	X			3	

Method of Shipment:

Notes:

	Signature	Printed Name	Date	Time	Company Name
Relinquished by:	Herman Schymiczek	Herman Schymiczek	11/8/99	12:45	HerSchy Environmental
Received by:					
Relinquished by:					
Received by:					
Relinquished by:					
Received by:	Clari Cone	Clari Cone	11/8/99	12:45	Castle

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