# erSchy Environmental, Inc.

Alamedia County FEB 1 7 2004 Environmenial Health

February 6, 2004 Project A51-01.03

RO 127

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

## Re: Results of Vapor Extraction, Air Sparging, and Groundwater Extraction Well Installation, Alaska Gasoline Company, Oakland, California

Dear Mr. Chan:

HerSchy Environmental, Inc. is pleased to present the results of drilling, soil sampling, and well installation 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 62<sup>nd</sup> Street in Oakland, Alameda County, California (Figure 1). This work was performed in accordance with the June 17, 2002 "*Results of Well Installation, Quarterly Groundwater Monitoring, and Interim Remedial Action Plan, Alaska Gasoline Company, Oakland, California*" prepared by HerSchy Environmental. This work was subsequently approved in the August 13, 2003 correspondence from your office regarding the site.

### **METHODS OF INVESTIGATION**

Drilling and Soil Sampling:

Drilling was performed using a truck-mounted drill rig equipped with eight-inch hollow stem augers. For the groundwater extraction well (EX-1), 10-inch hollow stem augers were used. Augers were steam cleaned prior to arriving on site. Thirteen vapor extraction wells (VE-1 through VE-13), five air sparging wells (AS-1 through AS-5), one groundwater extraction well (EX-1), and one replacement groundwater monitoring well (MW-1R) were drilled and sampled at the site (Figure 2). Vapor extraction borings were drilled to a depth of 14 feet, air sparging borings to 26 feet, the groundwater extraction boring to 30 feet, and the groundwater monitoring boring to 23 feet. Soil samples were collected using a California modified split spoon sampler equipped with brass liners. The samples were collected at the capillary fringe from each of the borings (three to six feet). Samples were collected by driving the sampler ahead of the drill bit. The sampler and liners were cleaned between sampling events.

Samples were placed in a cooler chest with frozen gel packs ("blue ice") and maintained at a temperature of four degrees Celsius or less until delivered to the laboratory. All samples were maintained, transported, and delivered 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 geologist working under the direction of a California registered geologist. Drill cuttings were stockpiled between plastic sheets and stored on site as directed by the property owner. Boring logs with well construction details are presented in Appendix A.

## Groundwater Extraction, Monitoring, Air Sparging, and Vapor Extraction Well Installation Procedures:

Well construction and annular materials were installed through the hollow stem augers. The groundwater monitoring well (MW-1R) was constructed with two-inch schedule 40 PVC well casing with screw joints. The screened interval was constructed with 20 feet of 0.020-inch factory slotted screen such that approximately12 to 15 feet of the screened interval is below first encountered groundwater. Blank casing was installed from the top of the screened interval to surface grade. The monitoring well was completed flush with surface grade in a traffic-rated well cover with a locking well cap.

The groundwater extraction well (EX-1) was constructed with four-inch schedule 40 PVC well casing with screw joints. The screened interval was constructed with 25 feet of 0.020-inch factory slotted screen to accommodate greater drawdown associated with groundwater extraction. Blank casing was installed from the top of the screened interval to surface grade. The groundwater extraction well was completed flush with surface grade in a traffic-rated well cover with a locking well cap.

Air sparge wells (AS-1 through AS-5) were constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals were constructed with five feet of 0.020-inch factory slotted screen at 21 to 26 feet below ground surface (BGS), such that the entire screened interval is well below first encountered groundwater. Blank casing was installed from the top of the screened interval to approximately one foot BGS in each of the air sparge wells.

Vapor extraction wells (VE-1 through VE-13) were constructed with two-inch schedule 40 PVC well casing with screw joints. The screened intervals were constructed with ten feet of 0.020-inch factory slotted screen. Blank casing was installed from the top of the screened interval to approximately one to two feet BGS.

Annular materials consist of #3 sand from the bottom of the borings to approximately two feet above the screened interval, followed by a minimum one-foot

bentonite seal, followed by concrete to the top of the well casing. In the case of the air sparge wells, the bentonite seal was followed by grout to the surface. With the exception of EX-1 and MW-1R, the top of the well casing was then covered by approximately six inches of #3 sand and then a concrete plug to the surface. This measure was taken to prevent the destruction of well casing during tank removal activities and subsequent repaving of the lot. Installation of horizontal piping will not take place until all tank removal and repaving activities are complete. A work plan for the installation of horizontal piping is included below.

#### Trenching and Pipe Installation Work Plan:

All of the piping for the SVES will be installed at a depth of 14 to 18 inches under concrete pavement. The pavement will be saw cut to accommodate a 14-inch wide trench. Pavement will be removed and taken to a pavement recycling facility. Pavement will be removed and trenching performed using a backhoe with a 14-inch trenching bucket. Two-inch schedule 40 PVC irrigation pipe will be used to install the horizontal piping of the SVES.

Horizontal piping will be attached to the vertical vapor extraction and air sparging wells with PVC "T's" and 90 degree elbows. Vapor extraction and air sparging lines will lead to two-inch above ground PVC ball valves within a fenced enclosure. The groundwater extraction well will be hooked into the horizontal PVC piping using 90 degree sweeps to accommodate hoses and electrical wiring for future installation of down-hole water extraction equipment at a later date. The water extraction piping will end above-ground within the equipment enclosure as a capped line.

Upon completion of trenching and installation of the horizontal lines, the trenches will be backfilled with native soil and compacted. The pavement will be replaced with concrete pavement. All of the vapor extraction and air sparge wells will be below ground beneath pavement.

#### **RESULTS OF INVESTIGATION**

#### Soil Conditions:

Soil beneath the site consists primarily of silty clay (CL) in the borings drilled during this investigation. Lesser intervals of silt, clayey silt, and very fine- to finegrained sand (ML), and silty sand (SM) were encountered in some of the borings. Clayey gravel (GC) was also encountered during drilling. Boring logs with soil descriptions are presented in Appendix A.

All of the soil samples were submitted for laboratory analysis. Soil samples were analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and for methyl tertiary butyl ether (MTBE). The two most contaminated samples (AS-2 at 5' and AS-5 at 5') were also analyzed for lead (Pb) content. Certified analytical reports are presented in Appendix B and summarized in Table 1 below:

			Table 1			
La	boratory	Analytical ]	Results-Soil,	Alaska Gasolin	e Company	
Sample	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
AS-1@6'	630	5.9	48	13	74	46
AS-2@5'	650	3.5	34	13	69	26
AS-3@5'	6.4	0.031	0.033	0.062	0.28	ND
AS-4@5'	370	2.7	24	7.2	44	85
AS-5@5'	3400	16	160	90	510	11
VE-1@4'	390	2.2	15	8.9	46	ND
VE-2@5'	590	4.5	29	14	73	1.3
VE-3@5'	32	0.84	1.1	0.82	4.4	18
VE-4@5'	52	0.28	1.6	1.2	6.3	0.99
VE-5@6'	83	2.2	9.5	1.7	10	59
VE-6@6'	390	1.6	14	9.8	56	5.3
VE-7@5'	500	1.5	20	9.9	57	43
VE-8@5'	170	0.39	2.4	3.0	18	6.2
VE-9@5'	200	0.43	2.4	4.5	22	5.5
VE-10@5'	26	0.13	0.11	0.42	2.0	8.7
VE-11@5'	270	1.3	0.67	6.9	35	20
VE-12@5'	270	2.1	16	6.1	36	33
VE-13@5'	410	2.7	22	9.2	53	47
EX-1@3'	230	2.2	13	5.5	27	4.6
MW-1R@5'	4.3	0.060	0.20	0.14	0.68	ND

All results presented in parts per million (ppm)

ND = below detectable limits

All of the soil samples collected during the most recent phase of drilling and sampling contained gasoline constituents. The highest concentrations were encountered in samples from AS-2 and AS-5, which were both collected at a depth of five feet. All of the samples contained detectable amounts of the fuel additive MTBE, with the exception of AS-3, VE-1, and MW-1R.

## **CONCLUSIONS AND RECOMMENDATIONS**

The first phase of the interim remedial action plan (RAP) is now complete. Horizontal piping will be installed upon completion of tank removal activities and repaving of the lot. Once horizontal piping has been installed, the thermal oxidizer will be hooked up and the SVES will be initiated. A startup test will be conducted, measuring flow rates and influent/effluent concentrations of VOCs. One soil vapor sample will be collected from each vapor extraction well upon startup of the SVES. The unit will be monitored for influent/effluent concentrations and flow rates on a weekly basis, with additional vapor samples collected monthly. All soil vapor samples will be analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and for methyl tertiary butyl ether (MTBE). The SVES will run until the proposed cleanup levels are met or until asymptotic conditions occur. The proposed cleanup levels are: <100 ppm TPHg, <1.0 ppm benzene, <10 ppm toluene, <5 ppm ethylbenzene, <20 ppm xylenes, and <5 ppm MTBE. When the proposed cleanup levels are achieved according to vapor analyses, six soil samples will be collected at 5 feet from six boring locations to be selected at a later time. These soil samples will be used to confirm the effectiveness of the SVES. Reports evaluating the progress of the SVES will be submitted quarterly and upon completion of remediation. It is anticipated that soil remediation at the site will begin during the second quarter of 2004. Groundwater monitoring will continue on a quarterly basis.

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



With best regards, Herschy Enviromental, Inc.

Joshua A. Teves Geologist

Herman Schymiczek Registered Geologist #4165

pc: Mr. Pritpaul Sappal

Mr. Syed Nawab, Alaska Gasoline Company Mr. Hernan Gomez, Oakland Fire Services Agency Mrs. Susan M. Torrence, Deputy District Attorney





## APPENDIX A

## **BORING LOGS**

## WITH WELL CONSTRUCTION DETAILS

Her Envi	Schy E ronmental Bass	<b>Consul</b> P. O. Bo Lake, CA (559) 64	ronmental, ting and Remediati x 229 93604-0229 1-7320	INC. on	BORI TOT/	EHOI AL DE	LE NO.: EX-1 EPTH: 30'			
	PROJECT	INFOR	MATION		DR	LLIN	G INFORMAT	ION		
		Alas Oak	ka Gasoline Company land	DRILLIN SLOT S	IG CO.: SIZE:		Consolidat 0.020''	ed Testing		
OB NO.		A51-	-01.03	CASING	<b>TYPE</b>	•	4" Sch. 40	4" Sch. 40 PVC		
OGGEI	D BY:	J. T	eves	METHO	D OF D	RILL	ING: 10" Hollo	w Stem Auger		
ROJEC	CT MANAGE	R: <b>J. T</b>	eves	SAMPL	ING ME	THO	D: California	split spoon		
DATES	DRILLED:	1/12	2/04	GRAVE	L PAC	K:	#3 Sand			
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
0-1		[]	1	1				concrete		
-5 -		CL	<ul> <li>@5': CLAY, black and green, medium strength, plastic, strong fuel odor</li> <li>@10': CLAY, gravel-rich, pebbles up to 1/4", green, strong fuel odor</li> <li>@15': CLAY, sparse gravel, pebbles up to 1/4", green, strong fuel odor</li> <li>@15': CLAY, sparse gravel, pebbles up to 1/4", green, strong fuel odor</li> <li>@15': CLAY, sparse gravel, pebbles up to 1/4", green, strong fuel odor</li> </ul>	EX-103'				#3 sand		
-20 -		ML	grained sand, no odor @25': SILT, clayey, brown, n odor @30': SILT, sandy brown, ne	0						
	· animie e anime e anime	ЧML	odor	1	1			11		
								Deco 1 of		

PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California spin spion         DATES DRILLED:       1/12/04       GRAVEL PACK:       #3 Sand         DEPTH       SOIL       USCS       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         DEPTH       SOIL       USCS       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       -5       CL       @S: CLAY, green, pebbles       WH-1R85'       Image: Completion of the co	PROJECT: A SITE LOCATION: O JOB NO.: A LOGGED BY: A	Oakland A51-01.03 J. Teves	y DRILLIN SLOT S CASING METHO	DRI IG CO.: SIZE: S TYPE D OF E	RILL	G INFORMAT Consolidat 0.020'' 2'' Sch. 40 NG: 8'' Hollow	ION ed Testing PVC Stem Auger
DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Blows / ft. ppm     PID ppm     BORING COMPLETION     WELL DESCRIPTION       0     -5     -     CL     QST CLAY, green, pebbles up to 1*, strong fuel odor     MM-1885*     Image: Classical control of the seal     Concrete seal       -10     -     CL     Q10*; CLAY, coarse-grained earting pebbles up to 172*, plassic, strong fuel odor     MM-1885*     Image: Classical control of the seal     #3 sand       -15     -     CL     Q15*; CLAY, coarse-grained sand, pebbles up to 34*, green with charge, strong fuel odor     Image: Classical control of the seal     Image: Classical control of the seal     Image: Classical control of the seal       -20     -     CL     Q25*; CLAY, brown & green, up to 14*, high strength, no odor     Image: Classical control of the seal     Image: Classical control of the seal	PROJECT MANAGER: 0	J. Teves 1/12/04	GRAVE	EL PAC	K:	J. Camorina #3 Sand	shut shoon
CL Q25: CLAY, coarse-grained sand, pebbles up to 172, plastic, strong fuel odor CL Q15: CLAY, coarse-grained sand, pebbles up to 172, green w/ orange, strong fuel odor CL Q25: CLAY, brown & green, very coanse-grained sand, pebbles up to 3/4". green w/ orange, strong fuel odor CL Q25: CLAY, brown & green, very coanse-grained sand, pebbles up to 3/4". green w/ orange, strong fuel odor	DEPTH SYMBOLS US	CS SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
	$ \begin{array}{c} 0 \\ -5 \\ -5 \\ -10 \\ -10 \\ -15 \\ -20 \\ -2$	CLAY: @5": CLAY, green, pebbles up to 1", strong fuel odor @10": CLAY, coarse-grained sand, pebbles up to 1/2", plastic, strong fuel odor @15": CLAY, coarse-grained sand, pebbles up to 3/4", green w/ orange, strong fuel odor @20": CLAY, brown & green very coarse-grained sand, mild fuel odor @25": CLAY, brown, pebble up to 1/4", high strength, no odor	MW-1R05'				concrete seal #3 sand

HerSchy E Environmental Bass PROJECT PROJECT: SITE LOCATION: JOB NO.: LOGGED BY:	Consul P. O. Bo Lake, CA (559) 64 INFOR Alas Oak A51 J. T	ronmental, Iting and Remediat 229 93604-0229 1-7320 MATION Ka Gasoline Company dand -01.03 eves	DRILLIN SLOT S CASING METHO	BORI TOT/ DR IG CO.: SIZE: G TYPE	EHOI AL DE ILLIN	LE NO.: AS-1 EPTH: 26' G INFORMAT Consolidat 0.020" 2"Sch. 40 ING: 8" Hollow	TION ted Testing PVC y Stem Auger
PROJECT MANAGE	R: J. T 1/15	eves 5/04	GRAVE	EL PAC	K:	D. Camornia #3 Sand	shut shoon
DEPTH SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
	CL	CLAY: CLAY, green, high strength, sparse pebbles, strong fuel odor SILT: clayey, sparse pebbles soft, strong fuel odor	AS-106'				concrete plug
NOTES: Air Spare	ging We	11					Page 1 of 2



Her Envi	Schy I ronmental	Envi Consul P. O. Bo	ronmental, Iting and Remediati x 229	Inc.	FIEI BORI	L <b>D</b> Ehoi Al Di	BOREHO LE NO.: AS-2 EPTH: 26'		
	Bass	Lake, CA (559) 64	. 93604-0229 1-7320						
	PROJECT	INFOR	MATION		DR	ILLIN	G INFORMAT	ION	
PROJEC	T:	Alas	ka Gasoline Company	DRILLIN	IG CO.:		Consolidated Testing		
SITE LO	CATION:	Oak	land	SLOT S	SIZE:		0.020"		
JOB NO		A51	-01.03	CASING	<b>S</b> TYPE	•	2"Sch. 40	PVC	
LOGGE	D BY:	J. T	eves	METHO	DOFE	RILL	ING: 8"Hollow	Stem Auger	
PROJEC	T MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	THO	D: California	split spoon	
DATES	DRILLED:	1/15	5/04	GRAVE		K:	#3 Sand		
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION	
0-7			r					Concrete plug	
-			CLAY, silty, sparse pebbles, green orange & yellow, strong fuel odor						
-5 -		CF	@10': CLAY, silty, sparse pebbles, dark green, strong fuel odor	AS-205'					
-			@15': CLAY, silty, soft, no pebbles, fuel odor, brownish green @20': CLAY, silty, brown,			a de la constante de la constan			
-10 -		CF	©25': CLAY, silty, brown soft sparse pebbles, slight fuel	i,				grout	
NOTE	S:Air Spare	ging We	 	 				Page 1 of 2	

ртн	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	DESCRIPTION
-15		CL	CLAY: high strength, g rich, fuel odor @20': CLAY, silty, bro gravel-rich, pockets of fuel odor	gravel- wn, f silt,				seal
-20		CL						#3 sand
-25		ML	SILT: gravel-rich, up i pebbles, brown, stror odor	to 1/2" ng fuel				

Hern Envir PROJEC SITE LO JOB NO.	Schy I ronmental Bass PROJECT CT: CATION:	Consul P. O. Bo Lake, CA (559) 64 INFOR Alas Oak A51	ronmental, Iting and Remediat 93604-0229 1-7320 MATION Ika Gasoline Compan Iand -01.03	Inc. ion DRILLIN SLOT S CASING METHO	FIEI BORI TOTA DRI NG CO.: SIZE: G TYPE DD OF E	LD EHOI AL DI ILLIN	BOREHO LE NO.: AS-3 EPTH: 26' IG INFORMAT Consolidat 0.020'' 2'' Sch. 40 ING: 8'' Hollow	LE LOG ION ed Testing PVC Stem Auger
PROJEC	T MANAGE	R: J. T	eves	SAMPL	ING ME	THO	D: California	split spoon
DATES	DRILLED:	1/14	/04	GRAVE	EL PAC	K:	#3 Sand	
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP.#	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
		CL	CLAY: @5': CLAY, gravel-rich, pebbles up to 1/2", green, high strength, strong fuel odo @10': CLAY, silty, sparse pebbles up to 1/2", green, soft, strong fuel odor @15': CLAY, Same as at 10' with brown color @20': CLAY, green and brown, high strength, sparse pebbles up to 1/4", fuel odor @25': Same as at 20'	AS-305'				grout
NOTE	<b>S</b> :Air Spar	ge Well						Page 1 of 2



Environmental Co P Bass Lake (55	nsulting and Remediat O. Box 229 e, CA 93604-0229 59) 641-7320	ion	BOR	ehoi Al di	LE NO.: <b>AS-</b> 4 EPTH: <b>26'</b>	1
PROJECT INF	ORMATION		DR	ILLIN	G INFORMAT	ΓΙΟΝ
PROJECT: SITE LOCATION: JOB NO.: LOGGED BY:	Alaska Gasoline Compan Oakland A51-01.03 J. Teves	7 DRILLIN SLOT S CASING METHC	ng Co. Size: G type D of [	: DRILL	Consolida 0.020'' 2'' Sch. 40 ING: 8'' Hollov	ted Testing ) PVC v Stem Auger
PROJECT MANAGER: DATES DRILLED:	J. Teves 1/14/04	SAMPL GRAVE	EL PAC	K:	D: Camornia #3 Sand	spiit spoon
DEPTH SYMBOLS US	SCS SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
	CLAY: @5": CLAY, green and orange, high strength, sparse very coarse-grained sand, strong fuel odor @10": CLAY, silty, green, sof strong fuel odor @15": CLAY, gravel-rich, pebbles up to 1/4", brown, pockets of silt-rich clay @20": CLAY, same as at 15" @25": CLAY, same as at 15" more orange	<b>t</b> AS-405'				concrete plug grout seal
					<u>, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	Page 1 of 2

ртн	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-15 -		CL						
-20		CF						sand
-25		CL						
	OTES: Air S	Sparge V	Well			<u></u>		Page 2 of

Her	Schv I	Envi	ronmental,	Inc.	FIE		BOKEHC	LE LUG
Envi	ronmental	Consu	lting and Remediati	on	BOR	EHOL	E NO.: AS-5	5
	Bass	P. O. Bo Lake, CA (559) 64	ox 229 . 93604-0229 11-7320		тоти	AL DE	EPTH: <b>26'</b>	
	PROJECT	INFOR	MATION		DR	ILLIN	G INFORMAT	ION
PROJEC	T:	Alas	ska Gasoline Company	DRILLIN	IG CO.:		Consolidat	ed Testing
SITE LO	CATION:	Oak	land	SLOT S	SIZE:		0.020''	
JOB NO.	*	A51	-01.03	CASING	<b>G</b> TYPE	:	2" Sch. 40	PVC
LOGGE	OBY:	J. T	'eves	METHC	D OF D	RILLI	NG: 8" Hollow	Stem Auger
PROJEC	T MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	THO	D: California	split spoon
DATES I	DRILLED:	1/14	1/04	GRAVE		K:	#3 Sand	
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Biows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
07		[	CLAY:	T				concrete plug
								ar Alian
			@5: CLAY, green with black,					
			consolidated, pebbles up to					
	ا با با در ا مانید از از مانید مانید از مانید برد		3/4", strong fuel odor					
-								
-5 -		CL	@10': CLAY, gravel-rich, pebbles up to 1/2", brown and	AS-505'				
			black, soft, strong fuel odor					
-								grout
			@15': CLAY, brown, soft,					
			pebbles up to 1/4", tuel odor					
					1			
-10 -		CL	@20': CLAY, same as at 15',					
			Hanning henning		1			
			Ø23'; CLAY, brown. soft.					
			sparse pebbles, fuel odor					
·			···				<u></u>	Page 1 of 2
NOTES	S:Air Sparg	je Well					19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	Faye I UI Z

-15       -       CL       Seal         -20       -       CL       Seal         -20       -       CL       Seal         -25       -       Seal       Seal	ртн	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	DESCRIPTION
-20 - CL CL GRAVEL: clayey, brown, saturated	-15 -		CL						seal
-25 - GC GRAVEL: clayey, brown, saturated	-20		CL						#3 sand
	-25		GC	GRAVEL: clayey, bro saturated	wn,				
	NC	DTES: Air S	parge W	ell				·	Page 2 o

Her!	Schv E	Envi	ronmental,	Inc.	FIE		BURENC		
Envir	onmental	Consul	lting and Remediat	ion	BOR	EHOL	E NO.: VE-]	l	
	Bass	P. O. Bo Lake, CA (559) 64	x 229 93604-0229 1-7320						
	PROJECT	INFOR	MATION		DR	ILLIN	G INFORMAT	ION	
PROJECT	Г:	Alas	ka Gasoline Company	by DRILLING CO.: Consolidated Testing					
SITE LOC	CATION:	Oak	land	SLOT S	SIZE:		0.020''		
JOB NO.:		A51-	-01.03	CASING	G TYPE	:	2" Sch. 40	PVC	
LOGGED	BY:	J. T	eves	METHO	D OF D	RILL	NG: 8" Hollow	Stem Auger	
PROJEC	T MANAGEI	R: <b>J. T</b>	eves	SAMPL	ING ME	THO	D: California	split spoon	
DATES D	RILLED:	1/13	6/04	GRAVE	EL PAC	K:	#3 Sand		
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION	
0-7		·	CLAY:	Т				concrete plug	
-5-		CL	@4': CLAY, pebbles up to 1/4", blue green, high strength, strong fuel odor	VE-104'				seal #3 sand	
-10 -		СГ	@10': CLAY, same as at 4', w/ brown mottling, gravel-rick strong odor @13': CLAY, dark green, crame very coarse grained	n,					
		CL	sand, pebbles present, stron fuel odor	g					
NOTES	:Vapor Ext	cractio	n Well	<u> </u>				Page 1 of 1	

He	rSchv l	Envi	ronmental,	Inc.	FIE	LD	BOREHC	ルヒリ	LUG
Env	ironmental	Consu	lting and Remediat	tion	BOR	EHO	LE NO.: VE-2	2	
	Bass	P. O. Bo Lake, CA (559) 64	x 229 93604-0229 1-7320		тот	AL D	EPTH: 13'		
	PROJECT	INFOR	MATION		DR	ILLIN	IG INFORMAT	TION	
PROJE	CT:	Alas	ka Gasoline Compan	y DRILLIN	IG CO.		Consolidat	ted Test	ing
SITE L	OCATION:	Oak	land	SLOT S	SIZE:		0.020''		
JOB NO	D.:	A51	-01.03	CASIN	G TYPE		2" Sch. 40	PVC	
LOGG	ED BY:	J. T	eves	METHC	D OF C	RILL	ING: 8" Hollow	v Stem A	luger
PROJE	CT MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	ETHO	D: California	split sp	00N
DATES	BORILLED:	1/13	6/04	GRAVE	L PAC	K:	#3 Sand		
					<b>.</b>				
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	DES	NELL CRIPTION
0-		I	I <u>I</u>	- <b>T</b>	1	[]		concre	te plug
			CLAY:					seal	-here-
1									
-5-		СТ	@5: CLAY, pebbles present up to 3/4", green w/ brown,	VE-205'				sand	
			strong fuel odor						
1									
-10 -		CT.	@10': CLAY, gravel-rich, pebbles up to 1/2", green and	d					
			prown, strong tuel odor						
			II	I	I	11		11	
NOTI	ES:Vapor Ext	traction	n Well	<u></u>				F	Page 1 of 1

HerSchy Environmenta Bas PROJECT PROJECT: SITE LOCATION: JOB NO.: LOGGED BY: PROJECT MANAGE DATES DRILLED:	Envi I Consu P. O. Bo s Lake, CA (559) 64 T INFOR Alas Oak A51 J. T ER: J. T 1/13	ronmental, Iting and Remediat 229 93604-0229 1-7320 MATION ska Gasoline Company cland -01.03 'eves 'eves 'eves	DRILLIN SLOT S CASING METHO SAMPL GRAVE	Ion       BOREHOLE NO.: VE-3 TOTAL DEPTH: 13'         DRILLING INFORMATION         DRILLING INFORMATION         DRILLING CO.:       Consolidated Testing         SLOT SIZE:       0.020"         CASING TYPE:       2" Sch. 40 PVC         METHOD OF DRILLING:       8" Hollow Stem Auger         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand					
DEPTH SYMBOLS	USCS	SOIL DESCRIPTION	I SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
	CL	CLAY: @5": CLAY, sparse pebbles, high plasticity, medium strength, black and green, strong fuel odor	VE-305'				concrete plug seal #3 sand		
NOTES: Vapor E	CL	SAND: clayey, green and black, strong fuel odor CLAY: same as at 5', with more green color n Well					Page 1 of 1		

Her	Schy l	Envi	ronmental,	Inc.	FIE	LU	BUKERL	
Envi	ronmental	Consu	lting and Remediat	tion	BOR	EHO	LE NO.: VE-	4
	Bass	P. O. Bo Lake, CA (559) 64	ox 229 \ 93604-0229  1-7320		тот	al di	EPTH: <b>13.5</b>	•
	PROJECT	INFOR	MATION		DR	ILLIN	IG INFORMAT	ΓΙΟΝ
PROJEC	DT:	Alas	ska Gasoline Compan	y DRILLI	NG CO.		Consolida	ted Testing
SITE LO	CATION:	Oak	dand	SLOT	SIZE:		0.020"	
JOB NO	.:	A51	-01.03	CASIN	G TYPE		2" Sch. 40	) PVC
LOGGE	D BY:	J. T	'eves	METHO	D OF D	RILL	ING: 8" Hollow	v Stem Auger
PROJEC	CT MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	THO	D: California	split spoon
DATES	DRILLED:	1/13	3/04	GRAVI	EL PAC	K:	#3 Sand	
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0 - 1		r		- <u>r</u>	1	[ <b></b> ]		concrete plug
5		CL	@5': CLAY, high strength, green w/ brown, sparse pebbles up to 1/2", strong fue odor	N VE-405'				seal *
-10 -		CT	@10': CLAY, same as at 5', with pebbles up to 1/4" @13': CLAY, brown green, plastic, sparse very coarse- grained sand, fuel odor					
	S:Vapor Ext	ractio	n Well	- 	-			Page 1 of 1
								······································

PROJECT MANAGER: J. Teves       SAMPLING METHOD: California split spoon         DATES DRILLED:       1/13/04         SOIL       1/13/04         GRAVEL PACK:       #3 Sand         DEPTH       SOIL         SYMBOLS       USCS         SOIL       DESCRIPTION         SAMP.       Blows         PID       BORING         O       SAND:         -5       SM         GHC:SAND, silv, green, trace       VE-586*         VE-586*       SM         GHC:SAND, silv, blue       GHC: SAND, silv, blue         GHC:SAND       GHC: SAND, silv, blue         GHC:SAND       GHC: SAND, si	HerSchy En Environmental Co P. ( Bass Lake (55 PROJECT INF PROJECT INF PROJECT: SITE LOCATION: JOB NO.: LOGGED BY:	evironmental, nsulting and Remediati O. Box 229 e, CA 93604-0229 59) 641-7320 FORMATION Alaska Gasoline Company Oakland A51-01.03 J. Teves	DRILLIN SLOT S CASING METHO	FIEI BORI TOTA DRI IG CO.: SIZE: STYPE D OF D	LD	BOREHO E NO.: VE-5 PTH: 13.5 G INFORMAT Consolidat 0.020'' 2'' Sch. 40	DLE LOG TON Ted Testing PVC Stem Auger		
DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Blows /ft.     PID ppm     BORING COMPLETION     WELL DESCRIPTION       -5	PROJECT MANAGER: DATES DRILLED:	J. Teves 1/13/04	SAMPLING METHOD: California split spool GRAVEL PACK: #3 Sand						
0       SAND:         -5       SM         266: SAND, silly, green, trace clay, strong fuel odor       VE-586*         -10       SM         9       910": SAND, silly, blue green, some clay, strong fuel odor         0       910": SAND, silly, blue green, some clay, strong fuel odor         0       910": SAND, silly, blue green, some clay, strong fuel odor         0       910": SAND, silly, blue green, some clay, strong fuel odor         0       910": SAND, silly, blue green, some clay, strong fuel odor	DEPTH SYMBOLS US	SCS SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
	0 -5 -10 -10 -10 -10 -10 -10 -10 -10	SAND: Control of the second s	e VE-506'				concrete plug seal #3 sand		

PROJECT INFORMATION       DRILLING INFORMATION         PROJECT:       Alaska Gasoline Company       DRILLING CO.:       Consolidated Testing         SITE LOCATION:       Oakland       SLOT SIZE:       0.020"         JOB NO.:       A51-01.03       CASING TYPE:       2" Sch. 40 PVC         LOGGED BY:       J. Teves       METHOD OF DRILLING:       8" Hollow Stem Auger         PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California split spoon         DATES DRILLED:       1/13/04       GRAVEL PACK:       #3 Sand         DEPTH       SOIL       USCS       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       SILT: sandy, 4" clay layer       present, dark green and black, strong fuel odor       SILT: sandy, 4" clay layer       seal       concrete p.		,	.E NO.: VE-6 PTH: 13.5	ehol Al de	BORI TOT/	on	ting and Remediati x 229 93604-0229 1-7320	Consult P. O. Box Lake, CA 9 (559) 641	ronmental ( Bass )	Envi
PROJECT:       Alaska Gasoline Company       DRILLING CO.:       Consolidated Testing         SITE LOCATION:       Oakland       SLOT SIZE:       0.020"         JOB NO.:       A51-01.03       CASING TYPE:       2" Sch. 40 PVC         LOGGED BY:       J. Teves       METHOD OF DRILLING: 8" Hollow Stem Auger         PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand       Score 3.5 (3.5)         DEPTH       SOIL       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       SILT: sandy, 4" clay layer       present, dark green and black, strong fuel odor       Stall resent       concrete p.       seal		ION	G INFORMAT	ILLIN	DR		MATION	INFORM	PROJECT	
SITE LOCATION:       Oakland       SLOT SIZE:       0.020"         JOB NO.:       A51-01.03       CASING TYPE:       2" Sch. 40 PVC         LOGGED BY:       J. Teves       METHOD OF DRILLING:       8" Hollow Stem Auger         PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California split spoon         DATES DRILLED:       1/13/04       GRAVEL PACK:       #3 Sand         DEPTH       SOIL       USCS       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       SILT: sandy, 4" clay layer       present, dark green and       black, strong fuel odor       Seal       concrete p.		ed Testing	Consolidat		IG CO.:	DRILLIN	ka Gasoline Company	Alasl	T:	PROJEC
JOB NO.:       A51-01.03       CASING TYPE:       2" Sch. 40 FVC         LOGGED BY:       J. Teves       METHOD OF DRILLING: 8" Hollow Stem Auger         PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California split spoon         DATES DRILLED:       1/13/04       GRAVEL PACK:       #3 Sand         DEPTH       SOIL       USCS       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor       SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor       Concrete p.       seal		DVC	0.020" 0" Sh. 40		SIZE:	SLOT S	land	Oakl	CATION:	SITE LO
LOGGED BY:       J. Teves         PROJECT MANAGER:       J. Teves         DATES DRILLED:       1/13/04         METHOD OF DRILLING:       8" Hollow Stem Auger         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand         Solic       Solic         DEPTH       SOIL         SYMBOLS       USCS         Solic Concrete present, dark green and black, strong fuel odor		PVC	2" Sch. 40	•	S TYPE	CASING	-01.03	A51-	••	JOB NO
PROJECT MANAGER:       J. Teves       SAMPLING METHOD:       California split spoon         DATES DRILLED:       1/13/04       GRAVEL PACK:       #3 Sand         DEPTH       SOIL       SOIL DESCRIPTION       SAMP. #       Blows       PID       BORING       WELL         0       SILT: sandy, 4" clay layer       SILT: sandy, 4" clay layer       fit.       present, dark green and       seal	r	Stem Auger	NG: 8" Hollow	RILL	DOFE	METHO	eves	J. Te	D BY:	LOGGE
DATES DRILLED:       1/13/04       GRAVEL PACK:       #3 Sand         GRAVEL PACK:       #3 Sand         Schen 3.5/3.5         DEPTH       SOIL SYMBOLS       USCS       SOIL DESCRIPTION       SAMP. #       Blows / ft.       PID ppm       BORING COMPLETION       WELL DESCRIPTION         0       Image: Concrete place       SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor       Image: Concrete place       Image: Concrete place		split spoon	D: California	THO	ING ME	SAMPL	eves	R: <b>J. Te</b>	CT MANAGER	PROJE
SOIL SYMBOLS       USCS       SOIL DESCRIPTION       SAMP. #       Blows / ft.       PID ppm       BORING COMPLETION       WELL DESCRIP         0       SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor       SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor       Concrete p.			#3 Sand	K:	L PAC	GRAVE	j <b>/04</b>	1/13/	DRILLED:	DATES
DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Blows / ft.     PID ppm     BORING COMPLETION     WELL DESCRIP       0	- COMM -	3.5-13.5)	(screen '							
0     SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor     concrete p.	L PTION	WELL DESCRIPTI	BORING COMPLETION	PID ppm	Blows / ft.	SAMP. #	SOIL DESCRIPTION	USCS	SOIL SYMBOLS	DEPTH
-5- -5- -10- -10- -10- -10- -10- -10- -1	)lug	<pre>concrete plu seal #3 sand</pre>				VE-606'	SILT: sandy, 4" clay layer present, dark green and black, strong fuel odor CLAY: @10': CLAY, sandy, sparse pebbles up to 1", green, soft, fuel odor @13': Same as at 10'	SM		0
NOTES: Vapor Extraction Well Page	∋ 1 of 1	Page 1					 	traction	<b>ES</b> : Vapor Ext	NOTE

Envir PROJEC SITE LOO JOB NO. LOGGEI PROJEC DATES I	ronmental Bass PROJECT T: CATION: : DBY: CT MANAGEI DRILLED:	Consul P. O. Bo Lake, CA (559) 64 INFOR Alas Oak A51 J. To I. To 1/13	ting and Remediati x 229 93604-0229 1-7320 MATION ka Gasoline Company land -01.03 eves eves /04	iation       BOREHOLE NO.: VE-7 TOTAL DEPTH: 14'         DRILLING INFORMATION         any       DRILLING CO.:         SLOT SIZE:       0.020''         CASING TYPE:       2'' Sch. 40 PVC         METHOD OF DRILLING:       8'' Hollow Stem Auger         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand						
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP.#	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION		
		CL SM CL CL	CLAY: @5': CLAY, black, high plasticity, medium strength, strong fuel odor SAND: 4" silty sand layer CLAY: @10': CLAY, green, pebbles present up to 1", high strength, low plasticisty, fuel odor	VE-705'				concrete plug seal #3 sand		
NOTE	S:Vapor Ex	tractio	on Well					Page 1 of 1		

PROJECT INFORMATION     DRILLING INFORMATION       PROJECT:     Ataska Gasoline Company     DRILLING CO.:     Consolidated Testing       SITE LOCATION:     Oakland     SLOT SIZE:     0.020"       JOB NO.:     A51-01.03     CASING TYPE:     2" Sch. 40 PVC       LOGGED BY:     J. Teves     METHOD OF DRILLING: 8" Hollow Stem Auger       PROJECT MANAGER:     J. Teves     SAMPLING METHOD:     California split spoon       DATES DRILLED:     1/13/04     GRAVEL PACK:     #3 Sand	Envi	ronmental Bass	<b>Consu</b> P. O. Bo Lake, CA (559) 64	Iting and Remediat x 229 93604-0229 1-7320	ion	BOR	ehoi Al di	LE NO.: VE-8 EPTH: 14'	8
PROJECT:       Alaska Gasoline Company       DRILLING CO.:       Consolidated Testing         SITE LOCATION:       Oakland       SLOT SIZE:       0.020''         JOB NO.:       A51-01.03       CASING TYPE:       2" Sch. 40 PVC         LOGGED BY:       J. Teves       METHOD OF DRILLING: 8" Holow Stem Auger         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand         DEPTH       SOIL       SOIL DESCRIPTION         SOIL       SOIL DESCRIPTION       SAMP. #         BIOWS       PID       COMPLETION         VE-885'       Sent Description         GT_       @F: CLAY, green w/ brown, present w/ brown, present of plastength         -5-       CL       @f: CLAY, green, soft, plastength         -10-       CL       @f: SCLAY, green, soft, plastength         CL       @f: S	<u> </u>	PROJECT	INFOR	MATION		DR	ILLIN	IG INFORMAT	ION
SITE LOCATION: Oakland JOB NO.: A51-01.03 LOGGED BY: J. Teves PROJECT MANAGER: J. Teves DATES DRILLED: 1/13/04 DEPTH SYMBOLS USCS SOIL DESCRIPTION SAMP. # Blows PID SOIL SYMBOLS USCS SOIL DESCRIPTION SAMP. # Blows PID CL. @S: CLAY, green w/ brown, grave-siton, pebles up to pasidity, high strength CL. @JIS: CLAY, green, soft, placitic, fiel door CL. @JIS: CLAY, green, soft, placitic, fiel door	PROJEC	CT:	Alas	ka Gasoline Company	DRILLIN	IG CO.		Consolidat	ed Testing
JOB NO.:       A51-01.03         LOGGED BY:       J. Teves         PROJECT MANAGER:       J. Teves         DATES DRILLED:       1/13/04         CASING TYPE:       2" Sch. 40 PVC         METHOD OF DRILLING:       8" Hollow Stem Auger         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand         DEPTH       SOIL         SYMBOLS       USCS         SOIL DESCRIPTION       SAMP. #         Biows       PID         BORNO       WELL         DEPTH       SOIL         SOIL DESCRIPTION       SAMP. #         Biows       PID         BORNO       WELL         DEPTH       SOIL         CLAY:       PROVECANY         GE       CLAY:         GL       GE: CLAY, green w/ brown, gravel-tch, pebbles up to 3-region         gravel.tch, pebbles up to 7.       Fis and         GL       GIO: CLAY, green, soft, pastice, fael odor         GL       GIO: CLAY, green, soft, pastice, fael odor         GL       GII SI: CLAY, gravel-tch, pastice, fael odor         GL       GII SI: CLAY, gravel-tch, pastice odor         GL       GII SI: CLAY, gravel-tch, pebbles up to 7.	SITE LO	CATION:	Oak	land	SLOT S	SIZE:		0.020"	
LOGGED BY: J. Teves PROJECT MANAGER: J. Teves DATES DRILLED: 1/13/04 DEPTH SOIL SOIL CL. CL. CL. CL. CL. CL. CL. CL	JOB NO		A51	-01.03	CASING	<b>3</b> TYPE	•	2'' Sch. 40	PVC
PROJECT MANAGER: J. Teves       SAMPLING METHOD: California split spoon         DATES DRILLED:       1/13/04         SAMPLING METHOD:       California split spoon         GRAVEL PACK:       #3 Sand         DEPTH       SOIL         SYMBOLS       USCS         SOIL DESCRIPTION       SAMP. #         Blows       PID         Popm       COMPLETION         O       CLAY:         CI       @SF: CLAY, green w/ brown, grave-fich, pebbles up to 1, prown, soft, plactic, fuel door, low         -5-       CI         CI       @SF: CLAY, green, soft, plactic, fuel door, low         grave-fich, fuel door       VE-885.1         CI       @13.5": CLAY, green, soft, plactic, fuel door         CI       @13.5": CLAY, green, soft, plactic, fuel door         CI       @13.5": CLAY, green, soft, plactic, fuel door	LOGGE	D BY:	J. T	eves	METHC	D OF [	RILL	ING: 8" Hollow	Stem Auger
DATES DRILLED:     1/13/04     GRAVEL PACK:     #3 Sand       DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Blows /ft.     PID ppm     BORING COMPLETION     WELL DESCRIPTIC       0     CL     CLAY:	PROJE	CT MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	THO	D: California	split spoon
DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Blows /ft     PID ppm     BORING COMPLETION     WELL DESCRIPTION       0     CLAY:     CLAY:     CLAY:     Seal     Seal     Seal       -5-     CL     @5: CLAY, green w/ brown, gravel-ich, pebbles up to 3d*, strong that down, we passion, high strength     VE-865'     Image: CLAY strength     Image: CLAY strength       -10-     CL     @10: CLAY, green, soft, plactic, fuel odor     Image: CLAY, gravel-rich, pebbles up to 15, brown, soft, plactic, fuel odor     Image: CLAY, gravel-rich, pebbles up to 15, brown, soft,     Image: CLAY, gravel-rich, pebbles up to 15, brown, soft,	DATES	DRILLED:	1/13	5/04	GRAVE	L PAC	K:	#3 Sand	
DEPTH     SOIL SYMBOLS     USCS     SOIL DESCRIPTION     SAMP. #     Biows /ft.     PID ppm     BORING COMPLETION     WELL DESCRIPTION       0									
CL Q5: CLAY, green w/ brown, gravel-rich, pebbles up to 1", brown, soft, plactic, fuel odor	DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10 - CL @10': CLAY, green, soft, plactic, fuel odor @13.5': CLAY, gravel-rich, pebbles up to 1", brown, soft, fuel odor	-5-		CL	CLAY: @5': CLAY, green w/ brown, gravel-rich, pebbles up to 3/4", strong fuel odor, low plasticity, high strength	VE-805'				concrete plug seal #3 sand
	-10 -		CL	@10': CLAY, green, soft, plactic, fuel odor @13.5': CLAY, gravel-rich, nebbles up to 1", brown, soft					
			CL	fuel odor	" <b> </b>	l			II

Enviro F PROJECT:	nmental Bass PROJECT	Consu P. O. Bo Lake, CA (559) 64 INFOR Alas	Iting and Remediat 229 93604-0229 1-7320 MATION ska Gasoline Company	DRILLIN	BOR TOT/ DR NG CO.	EHOI AL DE ILLIN	LE NO.: VE-9 EPTH: 14' IG INFORMAT Consolidat	TION ted Testing
SITE LOCA	ATION:	Oak	land	SLOT S	SIZE:		0.020" 21 Sab 40	DVC
JOB NO.:		A51	-01.03	CASING	3 TYPE		2" Scii. 40	
LOGGED I	BY:	J. T	eves	METHO			ING: 8" Hollow	Stem Auger
PROJECT	MANAGE	R: J. T	eves	SAMPL		LIHU V	D: California	spiit spoon
DATES DF	RILLED:	1/13	6/04	GRAVE		n.	#5 Sand	
DEDTH	SOIL	LISCS	SOIL DESCRIPTION	SAMP.#	Blows	PID		WELL
DEPIN	SYMBOLS	0000			/ 11.	ppm		
05		CL	CLAY: @5': CLAY, green w/ brown mottling, high strength, low plasticity, strong fuel odor	VE-905'				concrete plug seal #3 sand
-10 -		CL	@10': CLAY, green and brown, soft, pebbles up to 3/4", strong fuel odor SAND: silty, green, strong fue odor	ei				
NOTES:	Vapor Ext	ractio	n Well	-	-			Page 1 of 1

Envi	ronmental Bass PROJECT	Consu P. O. Bo Lake, CA (559) 64	Iting and Remediat x 229 . 93604-0229 1-7320 MATION	ion	BOR TOT	ehoi Al Di Illin	LE NO.: VE- EPTH: 14'	10 TION
PROJEC	CT:	Alas	ika Gasoline Compan		NG CO.		Consolida	ted Testing
SITE LO	CATION:	Oak	land	SLOT S	SIZE:		0.020''	
JOB NO		A51	-01.03	CASIN	G TYPE	:	2" Sch. 40	) PVC
LOGGE	D BY:	J. T	eves	METHO	D OF D	ORILL	ING: 8" Hollow	v Stem Auger
PROJEC	CT MANAGE	R: <b>J.</b> T	eves	SAMPL	ING ME	ETHO	D: California	split spoon
DATES	DRILLED:	1/13	6/04	GRAVE	EL PAC	K:	#3 Sand	
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		,				17		concrete plug
-5		CL	CLAY: @5': CLAY, green with browr gravel-rich, pebbles up to 1", high strength, strong fuel odo	, ve−1005' r				seal #3 sand
-10 -		CL	@10': CLAY, same as at 5' @14': CLAY, brown, soft, les gravel than at 10', strong fue odor	16 1				
NOTE	S:Vapor Ext	tractio	n Well					Page 1 of 1

Envi	ronmental Bass	Consu P. O. Bo Lake, CA (559) 64	Iting and Remediati 229 23604-0229 1-7320	on	BORI TOT/	ehoi Al di	LE NO.: <b>VE-</b> ] EPTH: <b>14'</b>	11
<u></u>	PROJECT	INFOR	MATION		DR	ILLIN	IG INFORMAT	ION
PROJEC		Alas	ska Gasoline Company	DRILLIN SLOT S	IG CO.: SIZE:		Consolidat 0.020''	ed Testing
		451	_01 03	CASING	<b>TYPE</b>	:	2" Sch. 40	PVC
LOGGE	n BY	LT	eves	METHO	D OF D	RILL	ING: 8" Hollow	Stem Auger
PROJEC	T MANAGE	R: <b>J.T</b>	eves	SAMPL		THO	D: California	split spoon
DATES	DRILLED:	1/14	1/04	GRAVE	L PAC	K:	#3 Sand	
			1	[	Biours	חום	BORING	WE! 1
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	/ ft.	ppm	COMPLETION	DESCRIPTION
0		CL	CLAY: @5": CLAY, green & orange, high strength, sparse pebbles up to 1/2", strong fuel odor	VE-11@5' notable sheen on augers				concrete plug seal #3 sand
		Cr	@10': CLAY, gravel-rich, pebbles up to 1/2", green, strong fuel odor @14': CLAY, same as at 10', but brown color					
NOTE	S:Vapor Ext	tractio	n Well					Page 1 of 1

Enviro F PROJECT: SITE LOCA JOB NO.: LOGGED I PROJECT	PROJECT ATION: BY: MANAGE	Ital Consulting and Remediation P. O. Box 229 Bass Lake, CA 93604-0229 (559) 641-7320BOREHOLE NO.: VE-12 TOTAL DEPTH: 14'COTAL DEPTH: 14'OTAL DEPTH: 14'CONSOLIDATIONDRILLING INFORMATIONAlaska Gasoline CompanyOakland A51-01.03 J. TevesCASING TYPE:Oakland AGER: J. TevesCASING TYPE:O:1/14/04California split spoor GRAVEL PACK:							
DATES DF		1/14	/////						
DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION	
0		CL	CLAY: @5': CLAY, gravel-rich, pebbles up to 1/2", green, strong fuel odor @10': CLAY, green w/ brown soft, sparse pebbles, strong fuel odor @14': CLAY, same as at 10'	VE-1205'				concrete plug seal #3 sand	
NOTES:	Vapor Ext	tractio	n Well					Page 1 of 1	

Environmenta Bas	l Consu P. O. B s Lake, CA (559) 64	Ilting and Remediati ox 229 A 93604-0229 41-7320	on	BOR TOT	eho Al d	LE NO.: VE- EPTH: 14'	13	
PROJEC		RMATION		DR	ILLIN	IG INFORMA	ΓΙΟΝ	
PROJECT:	Ala	ska Gasoline Company	DRILLIN	IG CO.		Consolida	ted Testing	
SITE LOCATION:	Oal	dand	SLOT S	SIZE:		0.020"		
JOB NO.:	A51	-01.03	CASING TYPE: 2" Sch. 40 PVC					
LOGGED BY:	J. T	eves	METHO	D OF E	ORILL	ING: 8" Hollov	v Stem Auger	
PROJECT MANAGE	ER: <b>J.</b> T	'eves	SAMPL	ING ME	THO	D: California	split spoon	
DATES DRILLED:	1/14	4/04	GRAVE	EL PAC	K:	#3 Sand		
DEPTH SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION	
-5-	CL	CLAY: @5': CLAY, green w/ orange, high strength, sparse pebbles up to 1/2", strong fuel odor	VE-1305'				concretè plug seal #3 sand	
	CL	@10': CLAY, green, soft, strong fuel odor @14': CLAY, gravel-rich, pebbles up to 1/2", strong fuel odor						
	CT							

## **APPENDIX B**

## **CERTIFIED LABORATORY ANALYTICAL REPORTS**

## WITH CHAIN OF CUSTODY

Environmental Testing Services Certificate # 2480	2333 Shuttle Drive, Atwater. CA 95301	Fax: (209) 384-1507
HerSchy Environmental P.O. Box 229 Bass Lake, CA 93604 Attn: Joshua Teves	Client Project ID: Alaska Gasoline - Oakland Reference Number: 6538 Sample Description: Soli Sample Prep/Analysis Method: EPA 5030/8015M, 8020 Lab Numbers: 6538-15, 25, 35, 45, 55	Sampled: See Below Received: 01-16-04 Extracted: 01-20-04 Analyzed: 01-21-04 Reported: 01-30-04

#### TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT	SAMPLE ID AS-1 @ 5' (mg/kg)	SAMPLE ID AS-2 @ 5' (mg/kg)	SAMPLE ID AS-3 @ 5' (mg/kg)	SAMPLE ID AS-4 @ 5' (mg/kg)	SAMPLE ID AS-5 @ 5' (mg/kg)	
MTBE	0.010	46	26	ND	85	11	
BENZENE	0.0050	5.9	3.5	0.031	2.7	16	
TOLUENE	0.0050	48	34	0.033	24	160	
ETHYLBENZENE	0.0050	13	13	0.062	7.2	90	
TOTAL XYLENES	0.0050	74	69	0.28	44	510	
GASOLINE RANGE HYDROCARBONS	1.0	630	650	6.4	370	3400	
Report Limit Multiplication	Factor:	100	50	1	100	500	
Date Sampled:		01-15-04	01-15-04	01-14-04	01-14-04	01-14-04	

Surrogate % Recovery:	19A	NA	PiD: 103% / PiD: 95.2%	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 Quantilation Limit Practical Quantilation Limit = Reporting Limit x Report Limit Multiplication Factor

ØK. ANALYST: APPROVED BY: Clari J. Cone James C. Phillips Laboratory Director

Environmental Testing Services Certificate # 2480	2333 Shuttle Drive, Atwater, CA 95301	Phone: (209) 384-2930 Fax: (209) 384-1507	
	Alland Britesh D. Alasha Darating Dalland		
norschy Environmental	Client Project IU: Alaska Gasolina - Uakland	Sampled: See Below	
P.O. Dox 229	Reference Number: 6538	Received: 01-16-04	
Bass Lake, CA 93604	Sample Description: Soil	Extracted: 01-20-04	
Attn: Joshua Teves	Sample Prep/Analysis Method: EPA 5030/8015M, 8020	Analyzed: 01-21-04	
	Lab Numbers: 6538-65, 7S, 8S, 9S, 10S	Reported: 01-30-04	

#### TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT	SAMPLE ID EX-1 @ 3' (ma/ka)	SAMPLE ID MW-1R @ 5' (mg/kg)	SAMPLE ID VE-1 @ 4' (mg/kg)	SAMPLE ID VE-2 @ 5 <sup>-</sup> (700/kg)	SAMPLE ID VE-3 @ 5' (ma/ka)	
MTBE	0.010	46	ND	ND	((i)g/kg)	(119/Kg)	
	, -				1.5	10	
BENZENE	0.0050	2.2	0.060	2.2	4.5	0.84	
TOLUENE	0.0050	13	0.20	15	29	1.1	
ETHYLBENZENE	0.0050	5.5	0.14	8.9	14	0.82	
TOTAL XYLENES	0.0050	27	0.68	46	73	4.4	
GASOLINE RANGE HYDROCARBONS	1.0	230	4.3	390	590	32	
Report Limit Multiplication Report Limit Multiplication	Factor: Factor for MTBE only:	20	1	50	50 20	20	
Date Sempled:		01-12-04	01-12-04	01-13-04	01-13-04	01-13-04	

Surrogate % Recovery:	NA	PID: 105%/PID: 311%	NA	NA	NΛ	
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. Cona James C. Phillips Laboratory Director

Environmental Testing Services Certificate # 2480	2333 Shutle Drive, Atwater, CA 95301	Phone: (209) 384-2930 Fax: (209) 384-1507		
HerSchy Environmental P.O. Box 229 Bass Lake, CA 93604 Attn: Joshua Teves	Client Project ID: Alaska Gasoline - Oakland Reference Number: 6538 Sample Description: Soll Sample Prep/Analysis Method: EPA 5030/8015M, 8020 Lab Numbers: 6538-11S. 12S, 13S, 14S, 15S	Sampled: 01-13-04 Received: 01-16-04 Extracted: 01-20-04 Analyzed: 01-21-04 Reported: 01-30-04		

#### TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE WITH BTEX DISTINCTION

		,					
ANALYTE	REPORTING LIMIT	SAMPLE ID VE-4 @ 5' (ma/ka)	SAMPLE ID VE-5 @ 6' (mo/ko)	SAMPLE ID VE-6 @ 6' (mg/kg)	SAMPLE ID VE-7 @ 5' (mg/kg)	SAMPLE ID VE-8 @ 5' (ma/ka)	
MTRE	0.010	0.09	50 50	63	43	(inging)	`
101.02		0.00	55	5.5	40	0.2	
BENZENE	0.0050	0.28	2.2	1,6	1.5	0.39	
TOLUENE	0.0050	1.6	9.5	14	20	2.4	
ETHYLBENZENE	0.0050	1.2	1,7	9.8	9.9	3.0	
TOTAL XYLENES	0.0050	6.3	10	56	57	18	
GASOLINE RANGE HYDROCARBONS	1.0	52	83	390	500	170	
Report Limit Multiplication I	Factor:	10	10	50	100	20	

Surragate % Recovery:	NA	NA	NA	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

Clari J. Cone m ANALYST: APPROVED BY: James C. Phillips Laboratory Director

Environmental Testing Services Certificate # 2480	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: Joshua Teves	Client Project ID: Alaska Gasoline - Oakland Reference Number: 6538 Sample Description: Soll Sample Prep/Analysis Method; EPA 5030/8015M, 8020 Lab Numbers: 6538-16S, 17S, 18S, 19S, 20S	Sampled: See Below Recaived: 01-16-04 Extracted: 01-20-04 Analyzed: 01-21-04 Reported: 01-30-04		

## TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT	SAMPLE ID VE-9 @ 5' (mg/kg)	SAMPLE ID VE-10 @ 5' (mg/kg)	SAMPLE ID VE-11 @ 5' (mg/kg)	SAMPLE 1D VE-12 @ 5' (mg/kg)	SAMPLE (D VE-13 @ 5' (mc/kg)	
MTBE	0.010	5.5	8.7	20	33	47	
BENZENE	0.0050	0.43	0.13	1.3	2.1	2.7	
TOLUENE	0.0050	2.4	0.11	0.67	16	22	
ETHYLBENZENE	0.0050	4.5	0.42	6.9	6.1	9.2	
TOTAL XYLENES	0.0050	22	2.0	35	36	53	
GASOLINE RANGE HYDROCARBONS	1.0	200	26	270	270	410	
Report Limit Multiplication Fa	actor:	20	20	20	50	50	
Date Sampled:		01-13-04	01-13-04	01-14-04	01 <b>-14-0</b> 4	01-14-04	

Stirrogate % Recovery:	NA	NA	NA	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: K. APPROVED BY: Cone James & Phillips Laporatory Director

# CASTLE ANALYTICAL LABORATORY - PORTERVILLE

Environmental Testing Services	2780 Yowlumne Ave., Suite C	Phone:	(559) 781-6099
Certificate No. 2551	Porterville, CA 93258	Fax:	(559) 781-6091
Her Schy Environmental P.O. Box 229 Bass Lake. CA 93604 Attn: Joshua Teves	Client Project ID: Alaska Gasoline - Oakland Reference Number: P238 / 6538 Sample Description: SOIL Lab Numbers: P238-1S, 2S	Sampled: Received Prepared Analyzed Reported	See Below 01-23-04 01-23-04 01-23-04 01-23-04 01-30-04

#### **ICP Metals - EPA SW6010C**

ANALYTE	REPORTING LIMIT (mg/kg)	SAMPLE ID AS-2@5 (mg/kg)	SAMPLE 1D AS-5@5 (mg/kg)	
LEAD (Pb)	5.0	ND	ND	
Report Limit Multiplication Factor:		1	1	

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

APPROVED BY: Japies C. Phillips Laboratory Director