RZA AGRA Alaska, Inc.

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May 13, 1994 31-06924-02

Chevron USA P.O. Box 5004 San Ramon, California 94583 00094

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DEPARTMENT OF WIRONMENTAL CONSERVAT ADO

Attention: Mr. Robert Gondek

RE: Summary Report for Confirmation Soil Sampling - Chevron Station No. 2555, 9th & Gambell Streets - Anchorage, Alaska.

Dear Mr. Gondek:

RZA AGRA Alaska, Inc. (AGRA) is pleased to present this report summarizing the confirmation soil sampling activities and results at Chevron's former Station No. 2555. AGRA has been monitoring and operating a soil vapor extraction system (VES) at the project site since 1990. AGRA has reviewed the historical groundwater and VES analytical data and observed that the petroleum hydrocarbon levels which are extracted through the shallow horizontal VES arrays have achieved a point of diminishing returns.

Chevron operated a retail fueling facility/service station at 920 Gambell Street in Anchorage, Alaska. The station was demolished in June 1990. All underground storage tanks (USTs) and associated piping were removed and disposed of properly. Petroleum impacted soils were encountered during excavation activities. The Alaska Department of Environmental Conservation (ADEC) approved on-site remediation of the impacted soil excavated during the UST removal. Four horizontal vapor extraction arrays were installed in the UST excavation areas. Fertilizer was mixed with the hydrocarbon impacted soil and then the soil was placed in the excavation area around the arrays. A soil vapor extraction system consisting of six vertical vapor extraction wells and the four horizontal arrays began operations in January 1991. Air sparging technology was combined with the VES in December of 1992 to enhance the removal of hydrocarbons.

Presently, a network of monitoring wells and an air sparging/VES are located on-site. Monitoring wells MW-2, MW-3, MW-4, and MW-5 are utilized as air sparging wells. Volatile hydrocarbons are extracted from the subsurface soils through monitoring wells M-1, MW-6, and the four horizontal vapor extraction arrays. All other monitoring wells are utilized for obtaining groundwater data.

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Prior to the incorporation of air sparging into the remediation system, the average daily discharge from the VES was approximately 0.0023 lbs BTEX/day. Organic vapor concentrations from the VES, when vapors were being pulled from the horizontal arrays only, were non-detectable. After incorporation of air sparging, the VES emission rate increased to approximately 0.123 lbs BTEX/day. No increase in the organic vapor concentrations from the shallow horizontal arrays has been observed.

On February 11, 1994, AGRA advanced a series of soil borings into the impacted soil to confirm that the soil had been successfully remediated. Five (5) borings were advanced to approximately 15-feet below surface grade. These borings were placed in the areas previously excavated where the former USTs and pump island existed. Figure 1 is a site diagram showing the location of the monitoring wells, previous excavation areas, and the location of the confirmation soil borings. Soil boring logs are attached to this letter.

AGRA collected soil samples with a decontaminated, 2.5-foot long, 3-inch diameter splitspoon sampler from each boring at 2.5-5 (S-1), 7.5-10 (S-2), and 12.5-15-feet (S-3) below grade. All samples collected were submitted to GTEL Environmental Laboratories, Inc. (GTEL) in Concord, California. The samples were analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) by EPA Method 5030/8020, gasoline range petroleum hydrocarbons (GRPH) by EPA Method 5030/8015, and diesel range petroleum hydrocarbon (DRPH) by EPA Method 3550/8100. A copy of the analytical reports from GTEL are attached for your review. Analytical results were compared to the ADEC Cleanup Levels identified in the UST Regulations (18AAC78).

Using the ADEC matrix score sheet, this site has a matrix score of 42. The suggested cleanup level for this site is Level A. The following criteria was used to determine the cleanup level:

Depth to subsurface water (5-15 ft.)*8Mean annual precipitation (15-25 in.)3Soil type (coarse grained soil with fines)8Potential receptors (private well < 500 ft.)</td>15Volume of contaminated soil (100-500 cu. yd.)8Matrix Score42

 The lowest zone of impacted soil in the excavation area is 10-feet; depth to water is approximately 17 feet, thus, a depth of 7 feet to subsurface water was calculated.

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Cleanup standards:	Level A	Level B		
Benzene	0.1 ppm	0.5 ppm		
BTEX	10 ppm	15 ppm		
GRPH	50 ppm	100 ppm		
DRPH	100 ppm	200 ppm		

Of the fifteen soil samples collected, three had detectable levels of BTEX and GRPH, and ten had detectable levels of DRPH. Two samples (CSB-1\S2 & CSB-2\S1) had benzene and GRPH concentrations above Level A cleanup standards. None of the soil samples analyzed for BTEX exceeded Level A cleanup standards. Four samples, CSB-1\S1, CSB-2\S1, CSB-4\S1 & S2, had DRPH levels above Level A standards. Table 1 is a summary of the analytical results.

The objective of this sampling event was to determine if petroleum hydrocarbon concentrations in the upper 10-feet of the subsurface soil were below the ADEC cleanup levels identified for the site. Several of the soil samples analyzed during this program are above targeted cleanup levels for this site at this time.

The ADEC has identified a possible drinking water well within 500-feet northeast of the project site. However, it is our understanding that the well is not currently in use and the land is for sale. The sale is pending based on negotiations for municipal water hook-up. If and when that well is abandoned the matrix score could be changed to 39 which would indicate a Level B cleanup level for this site. (NO) 41 SHIL Level A,

RZA AGRA Alaska, Inc. appreciates the opportunity to provide services to you. If you have any questions or comments please call me at 276-6480.

Respectfully submitted, RZA AGRA Alaska, Inc. Muhael a) Trans

Michael D. Travis, P.E. Vice President

Enclosures:	Figure 1 - Monitoring Well Location Map
	Table 1 - Soil Boring Analytical Summary Table
	Soil Boring Logs
	Laboratory Analytical Reports
copy:	Phil Briggs, Chevron U.S.A.

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TABLE 1 - SOIL BORING ANALYTICAL SUMMARY TABLE

SAMPLE	CSB-1		and the second	CSB-2				
IDENTIFICATION	S-1	S-2	S-3	S-1	S-2	S-3		
SAMPLE DATE	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94		
SAMPLE DEPTH	2.5-5	7.5-10	17.5-15	2.5-5	7.5-10	17.5-15		
BENZENE	< 0.020	0.56	< 0.005	0.15	< 0.005	< 0.005		
TOLUENE	0.16	0.95	< 0.005	0.82	< 0.005	< 0.005		
ETHYLBENZENE	0.22	0.52	< 0.005	1.0	< 0.005	< 0.005		
TOTAL XYLENE	4.7	3.4	< 0.015	5.2	< 0.015	< 0.015		
TOTAL BTEX	5.08	5.43	ND	7.17	ND	ND		
GRPH	39	100	<1	220	<1	<1		
DRPH	160	30	< 10	160	23	< 10		

SAMPLE	CSB-3			CSB-4					
IDENTIFICATION	S-1	S-2	S-3	S-1	S-2	S-3			
SAMPLE DATE	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94			
SAMPLE DEPTH	2.5-5	7.5-10	17.5-15	2.5-5	7.5-10	17.5-15			
BENZENE	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			
TOLUENE	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			
ETHYLBENZENE	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			
TOTAL XYLENE	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015			
TOTAL BTEX	ND	ND	ND	ND	ND	ND			
GRPH	<1	<1	<1	<1	<1	<1			
DRPH	75	39	<10	230	180	< 10			

SAMPLE	CSB-5	CSB-5									
IDENTIFICATION	S-1	S-2	S-3								
SAMPLE DATE	2/11/94	2/11/94	2/11/94								
SAMPLE DEPTH	2.5-5	7.5-10	17.5-15								
BENZENE	< 0.005	< 0.005	< 0.005								
TOLUENE	< 0.005	< 0.005	< 0.005								
ETHYLBENZENE	< 0.005	< 0.005	< 0.005								
TOTAL XYLENE	< 0.015	< 0.015	< 0.015								
TOTAL BTEX	ND	ND	ND								
GRPH	<1	<1	<1								
DRPH	12	90	< 10								

All results are reported in parts per million

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	ELEVATION REFERENCE: ON SITE REFERENCE DATI GROUND SURFACE ELEVATION: FEET CAS	-	GRAPHIC LOG						
DEPTH (feet) 0	SOIL DESCRIPTION	SAMPLE	SAMPLE NUMBER	SAMPLE RECOVERY	PENETRATION RESISTANCE TAP NO.	OVM READING	ANALYTICAL	GROUND	° 0099
					<u>a</u>				C GROUND SURFACE
 _5	Very loose, damp, brown, SW. Well graded SAND with gravel. (Fill)	I	S-1		2	0.9	8020 8015 8100		5
 _10	Very loose, damp, brown, SW. Well	T	S-2		5	0.3	8020		
	Medium dense, moist, grev-brown.						8100		
	Poorly sorted SAND with gravel. (F	ill)	2-2		20	0.3	8020 8015 8100		15
20									20
	TOTAL DEPTH = 13.5 FEET								30
LEGEND Observed groundwater level at time of drilling (ATD) Contact Gravel Sand I 2-inch 0.D. split-spoon somple ANALYTICAL METHODS or Inferred Doshed Where some contact Sand Sand Sitt 2" Split Spoon 2" Split Spoon I 200 = BTEX B020 = BTEX B100 = DRPH Orgonics Cloy Orgonics Date StarteD: 2/11/94 DATE STARTED: 2/11/94									
RZA ENC & E 711 Sui	A AGRA Alaska, Inc. <i>CINEERING, GEOTECHNICAL</i> <i>ENVIRONMENTAL SERVICES</i> H Street te: 450 chorage, Alaska 99501	W.O. FILE DRAWN SCALE LOGGED	_31 _CS _2- _AS _JB	-69 585 -18- 5 NO 8	2 4 —02 94 FED		CI	ievi g Sol	RON STATION NO. 9-2555 20 GAMBELL STREET ANCHORAGE, ALASKA L BORING NO. CSB-5 DRILL LOG

	ELEVATION REFERENCE: ON SITE REFERENCE DATUM GROUND SURFACE ELEVATION: FEET CASIM	GRAPHIC LOG										
DEPTH (feet) 0	SOIL DESCRIPTION	SAMPLE	TYPE	NUMBER	SAMPLE RECOVERY	ENETRATION RESISTANCE TAP NO.	OVM	ANALYTICAL METHODS	GROUND WATER	~ 0100		
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										6		
	Medium dense, damp, brown, SW. W	 Vell	гΙ.	5-1	П	18						
5	graded SAND with gravel. (Fill)	-	L '		U		0.5	8020 8015 8100		5		
—								(<u> </u>		- 0.0		
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10	Medium dense, damp, brown, SW. W graded SAND with gravel (Fill)	Vell-	1	5-2	_	22		8020				
<u> </u>	graded stars with graves. (rm)	-	-					8015 8100				
		1								0.0		
	Loose, damp, brown, SW. Well-grad	ed –	Γls	5-3	П	8	1.9	8020				
	SAND with gravel. (Fill)		L		П			8015 8100		6 7 6 7 F		
<u>15</u>										15		
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—	TOTAL DEPTH = 13.5 FEET									<u></u>		
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	LEGEND					N	OTE	S:				
X	Grab Sample V Observed groundwater Conta	ict		Grave	н	1	. 86	51, 4	1/4	" Hollow Stem Auger,		
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L L	split-spoon somple	м <u>///</u>		Silt Clav								
	8100 - DRPH			Organ	nics	0475						
P7/	ACRA Alaska Inc.						514	RIEU: 2	./ 11/9	UNIE COMPLEIED: 2/11/94		
FNC	NEEPING GEOTEONIUGH	V.O.	-	31	-692	4-02		CH	EVE	RON STATION NO. 9-2555		
& E	INVIRONMENTAL SERVICES	FILE <u>CSB4</u>							920 GAMBELL STREET			
711	H Street	DRAWN	-	2-	18-1	94	_		ANCHORAGE, ALASKA			
Sui	te 450	SCALE	-	AS	NOT	ED	_		SOI	IL BORING NO. CSB-4		
Anc	horage, Alaska 99501	JOGGEI	_ ט	JB	B					DRILL LOG		

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6	ELEVATION REFERENCE: ON SITE REFERENCE DATU GROUND SURFACE ELEVATION: FEET CAS	GRAPHIC LOG									
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		-					8100		0 0		
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BIOD = GRPH 8100 = DRPH Organics											
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& E	ENVIRONMENTAL SERVICES	FILE	CS	5 B 3			920 GAMBELL STREET				
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Anc	horage, Alaska 99501	LOGGED	_JB	B				DRILL LOG			

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	GROUND SURFACE ELEVATION: FEET CASI	M 100.00 FEE	T : N/	^						GRAPHIC LOG
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II	2-inch 0.D. ANALYTICAL METHODS or Inferr	ed	Silt							
	8015 = GRPH 8100 = DRPH		Clay							
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RZ	A AGRA Alaska, Inc.	WO					CH	IFVI	RUN	STATION NO 0-2555
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