District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

#### State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised October 10, 2003

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

			Rele	ease Notific	atio	on and Co	orrective A	ction			
						<b>OPERA</b>	ГOR	🖂 lni	tial Report		Final Report
Name of C	ompany: A	spen Operat	ting Co. L	LC		Contact: Mi	ke Wilson				
Address: 80	1 Cherry Str	eet Suite 810 Un	nit 23 FORT	WORTH ,TX 7610	2	Telephone 1	No.: Office: 817	7-882-9063, ext.	19		
Facility Na	me: Aspen	Gainer 1				Facility Typ	e: oil well				
Surface Ow	ner: Garth	A. Coombe	S	Mineral O	wner	: New Mexico	o State Land Of	fice Lease	No.: 1		
AP1#30-025-34201 LOCAT					TIC	ON OF REI	LEASE				
Unit Letter	Section	Township	Range	Feet from the	Nort	h/South Line	Feet from the	East/West Line		Cour	nty
D	22	105	36E	1294*		NORTH	39	WEST		LE	A
Provention of the second s		]	Latitude:	32.4363059850	746	Lon	gitude:-103.25	2897686452			
				NAT	URI	E OF REL	EASE				
Type of Rele	ease: produ	ce water & oil			CIG	Volume of	Release: Unknow	wn Volume	Recovered:	0	
Source of Re	elease: tank	overflow due	to mechan	ical failure at batt	ery	Date and H	lour of Occurrent	ce: Date an	d Hour of Di	scovery	y:
						1-17-13 / unknown 1-17-13 / unknown					
Was Immed	iate Notice	Given?	Yes [	No 🗌 Not Re	equired	d Geoffrey I	Whom? .eking				
By Whom?	Roy R. Ras	con Earth Tec	hnologies	of New Mexico In	IC.	Date and H	lour: 1-19-133:54	4pm			
Was a Water	rcourse Rea	ched?	Yes 🖂	No		If YES, Vo	olume Impacting	the Watercourse.			
Describe Car	use of Prob	lem and Reme	edial Action	n Taken.* overfl	ow of	tanks into tank	berm area, over	flow from tank be	m area into	pasture	south of tank
Describe Are battery and t leak area. Cl	ea Affected raveling pa	and Cleanup th along old re on will be dete	Action Tak eclaimed ro	cen.* area within ad area and finge er ETNM submits	tank b ring to	battery berm, w the west. ETN oved protocol b	ith overflow brea IM contracted by ov Aspen to NMC	king berm on eas Mike Wilson to DCD.	a. side and flo preform EM3	wing of 8 surve	ut to south of ey and sample
I hereby cert regulations a public health should their or the enviro federal, state	ify that the all operators operations for operation	information g s are required to ironment. The have failed to addition, NMO two and/or reg	iven above to report ar e acceptance adequately OCD accep ulations.	e is true and comp nd/or file certain r ce of a C-141 report investigate and r tance of a C-141	lete to elease ort by t emedia report	the best of my notifications a the NMOCD m ate contaminati does not reliev	knowledge and in nd perform corre arked as "Final F ion that pose a this re the operator of	understand that pr ctive actions for r Report" does not r reat to ground wa responsibility for	eleases which eleases which elieve the op- ter, surface w compliance	AOCD in the may ever erator of vater, his with an	rules and endanger of liability uman health ny other
Signature:	M	the	De	3			OIL CON	SERVATIO	N DIVISI	<u>ON</u>	Mar .
Printed Nam	e: Michael	Wilson				Approved by	District Superv	andread	L Speci	alist	0
Title: H	LOUCA	ION M	lona	SPR		Approval Da	te: 211/13	Environme Expiratio	n Date: 4	113	www.materian
E-mail Addr	ess: mwilso	on@aspen-oil.	com	bara: 917 992 00	162	Conditions of	Approval: FUI	HORIZOTALL	Attache	d 🗌	2903
Attach Add	itional She	ets If Neces	sary	none. o i /*002*90	105	PER RRA C-141 B	LS, SUBM	IT FINAL	15 111-2		<u> </u>

District 1 1628 N. French Dr., Habbs, NM 88240 District II 1301 W. Grand Avenue, Aureon, NM 58210 Instrict III 1618 Rev Higgar, Royal Actor, NAI 87410 District IV 1220 S. St. Francis Dr., Sunta Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

Form (\*.14) Revised October 10, 7003

**Oil Conservation Division** 1220 South St. Francis Dr. Santa Fe, NM 87505

Submit 2 Copies to appropriate District Unities in accordance with Rule 11b on back side of toma

**Release Notification and Corrective Action OPERATOR** Initial Report [] Final Report Contact: Mike Wilson Name of Company: Aspen Operating Co. LLC Telephone No.: Office: 817-882-9063, ex1.19 Address: \$01 Cherry Street Suite #10 Unit 23 FORT WORTH ,TX 76102 Facility Name: Aspen Gainer 1 Facility Type: oil well Surface Owner: Garth A. Coombes Mineral Owner: New Mexico State Land Office Lease No.: 1 AP1#30-025-34201 LOCATION OF RELEASE Unit Letter ection Township R.Hige Fect from the North South Line | Feet from the East West Line County 17 105 36F 1:94' NORTH WEST LEA 5) 19 Latitude: 32,4363059850746 Longitude:-103.252897686452 NATURE OF RELEASE Volume of Release: Unknown Volume Recovered: 0 Type of Release: produce water & oil Date and Hour of Discovery: Source of Release: tank overflow due to mechanical failure at battery Date and Hour of Occurrence: 1-17-13 / unknown 1-17-13 / unknown Was Immediate Notice Given? IFYES, To Whom? X Yes No Not Required Geoffrey Leking By Whom? Roy R. Rascon Earth Technologies of New Mexico Inc. Date and Hour: 1-19-133:54pm If YES, Volume Impacting the Watercourse. Was a Watercourse Reached? I Yes A No If a Watercourse was Impacted, Describe Fully.\* Describe Cause of Problem and Remedial Action Taken.\* overflow of tanks into tank berm area, overflow from tank berm area into pasture south of tank battery. Stop overflow, begin immediate cleanup of surrounding area within berm area, mix up solidify area in pasture area. Describe Area Affected and Cleanup Action Taken.\* area within tank battery berm, with overflow breaking berm on east side and flowing out to south of battery and traveling path along old reclaimed road area and fingering to the west. ETNM comracted by Mike Wilson to preform EM38 survey and sample leak area. Clean up action will be determined after ETNM submits approved protocol by Aspen to NMOCD. I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations **OIL CONSERVATION DIVISION** Signature: Approved by District Supervil Environmental Specialist Printed Name: Michael Wilson Expiration Date: 4/1/13 Approval Date: 211113 Title ATE THE RELEASE HORIZOTALLY Attached D AND YERTICALLY AND REMEDIATE IRP-2-13-2903 E-mail Address: mwilson@aspen-oil.com Phone: 817-882-9063 Date: 1-22-13 PER RRALS, SUBMIT FINAL

\* Attach Additional Sheets If Necessary

C-141 BY 4/1/13

ASPEN GRIMER #1	IRP-1998       - LJW - 11/7/8       12/29/8       ASPEN GRINER         300 PPW ON 10/29/08       250 BPW RECOVERED       #1         316/13       316/13         IRP-9-10-229/1AFF       280 BPW       320 BPW REC         7/30/09       - 9/7/9       11/09/09
	MIKE
	CALLING ABOUT THE ASOCN GAINER #1
MADE A COOD	APPRIELIATE THE INVESTIGNATION WORK DOWNE SO FAR
START HULEUS	HAVE YOU BERFLAMKED AWY MORE ?
15 MELEFARM	The Contract of the second
CAN A & PLANN	YOU NEED TO DO FUETIMER DE MERATION OF SITE
A C	YOU WEED TO REPEAR BORINGIS OF DUEP TRIANCHES
THUS SITE'S	VILLAGO TO SCHORLE MITTER REPRESENTATION
OF THE	ALLE SHUP IS SHARE IN THE BEICHT ALEA
C-141 15	HEDROL THE WHOLE FOOT AICINI OF AHE
04101113	NECEMBE
I WILL ALLOW	211112
BUT BY 04/01/13	STIDILS - SPOKE W/ THOMAS SONES-CONSULTANT FROM
OR BEFORE	PT WORTH - RECS HIRED - WILL BE IN
I WANT A PUAN	CONTRACT - WANT TO DO IT RIGHT-
SUFFICIENTLY	817-731-4141 - HE CALLED DUE TO MY
DELINGATE THE DULUGEE	CALL TO MIKE WILSON BARLIER TW
WIE MEANIE	MORNING - DID NOT NEED TO PROVIDE
	DIRECTIVE UNDERLINED ABOVE BITHIS TIME
1.34	
	and the second



PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

#### June 10<sup>th</sup>, 2014

#### HOBBS OCD

**Geoffrey Leking** New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau - District 1 1625 N. French Dr. Hobbs, NM 88240-9273

> **RE:** Corrective Action Plan (CAP) Aspen Gainer Unit #1 (1RP-2-13-2903) UL/D sec. 22 T10S R36E

Mr. Leking:

RECEIVED

JUN 1 0 2014

appreved w1 concertop addressing distrussed very adjacent to morthocent plan (Prior RPS) albergel Environmental Specialist NMOCD-DISTI

Aspen Operating Company (Aspen) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

#### **Background and Previous Work**

The site is located approximately 12.5 miles northeast of Tatum, New Mexico at UL/D sec. 22, T10S R36E. NM OSE and BLM records indicate that groundwater will likely be encountered at a depth of approximately 120 +/- feet.

the sw

On January 17<sup>th</sup>, 2013, Aspen noticed that the tank at the battery overflowed due to a mechanical failure releasing an unknown quantity of produced water and oil. The release affected 29,418 sq ft of battery, lease pad and pasture area. NMOCD was notified of the release on January 19th, 2013 and an initial C-141 was sent to NMOCD on January 22<sup>nd</sup>, 2013 (Appendix A).

RECS personnel were on site beginning on May 11<sup>th</sup>, 2013, to sample the release. Fifteen samples points were taken throughout the release and spoil piles and field tested for chlorides and organic vapors (Figure 1). Representative samples were taken to a commercial laboratory for analysis (Appendix B). Field and laboratory data showed evidence of elevated chlorides, Gasoline Range Organics (GRO) and Diesel Range Organics (DRO). To further delineate the site, two verticals were installed at Points 2 and 10 (Figure 2). The vertical at Pt. 2 was installed to a depth of 15 ft bgs and the vertical at Pt. 10 was installed to a depth of 7 ft bgs. As the verticals were installed, samples were taken every foot and field tested for chlorides and organic vapors. Representative samples from each vertical were taken to a commercial laboratory for analysis (Appendix C). The verticals indicated no decline in chloride levels as the bores were advanced; however, TPH values did declined with depth.

Given that the chloride levels in the verticals did not decline with depth, soil bores were installed at the site on June 20th, 2013 and September 26th, 2013 to determine the vertical extent of the release. A total of five soil bores were installed at the site over the two days (Figure 3). As the

# **Proposed Soil Bores**



6/18





# Aspen Gainer Unit #1 Unit Letter A, D, H, G, Section 22, T10S, R36E





Initial release south area, facing west



Initial release east area, facing west

3/11/12



3/11/13

Initial release south area, facing south

Initial release south area, facing north

3/11/13





CL-FIELD TITRATION, PID, SOIL CLASSIFICATION RESULTS ETNM INC.

# LOCATION: Aspen Gainer #1

-			-	-			
	DRO				7360	9910	
01-03	GRO				8790	12000	
00190 (	CL-				720	560	
I-13 H3	Total BTEX				315	543	
TS 1-2	×				218	411	
RESUL	Щ				19.8	34.6	
LAB	Т				74.8	94.5	
	В				3.41	2.79	
	SOIL LITHOLOGY	water sample pulled from standing water remaing from leak approx. 8gals.	sandy sand damp hard caliche below	sandy sand damp hard caliche below oil in vial thin film	sandy sand damp hard caliche below oil in vial thin film	sandy clayey sand damp hard caliche below oil in vial thin film	sandy clayey sand damp hard caliche below oil in vial thin film
	DID	N/A	0.6	958.0	1073.0	1125.0	1125.0
I-13	CL-	34189	626	1603	2252	665	453
E: 1-2]	AGNO <sub>3</sub>	3.42	0.12	0.25	0.43	0.14	0.06
DAT	CF		2.61	3.21	2.62	2.38	3.78
	Water	1ml	31.3	34.0	31.7	29.7	34.4
	Soil		12.0	10.6	12.1	12.5	9.1
	Depth	puddle	0'>1'	0'>1'	0'>1'	6">1'	0'>1'
	Time	1030	1230	1245	1257	110	121
	Sample pt.	Leak Spill water puddle	SP1 200mS/m	SP2 500mS/m	SP3 800mS/m	SP4	SP5

DRO				265	
GRO				24.8	
cL-				1200	
Total BTEX				1.46	
Х				1.24	
ш				0.076	
T				0.142	
В				<0.050	
SOIL LITHOLOGY	sandy sand damp hard caliche below oil in vial thin film	sandy clayey sand damp hard caliche below oil in vial thin film	sandy sand damp	sandy sand w/caliche rocky mix damp	sandy sand damp
PID	1204.0	1185.0	546.0	366.0	80.4
CL-	190	338	811	1174	145
AGNO <sub>3</sub>	0.05	0.05	0.2	0.23	0.03
CF	1.90	3.38	2.03	2.55	2.42
Water	27.3	30.8	28.4	30.9	30.2
Soil	14.4	9.1	14.0	12.1	12.5
Depth	0'>1'	1'>2'	2'>3'	3'>4'	0'>1'
Time	132	137	142	149	156
Sample pt.		SDA	514		BCKGRD



bores were advanced, samples were taken every three feet and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for analysis (Appendix D). Based on the laboratory data, the chloride levels dropped below 250 mg/kg and the GRO and DRO dropped to non-detectable limits between 12 and 18 ft bgs in each bore, except in SB-2, where the DRO at the bottom of the bore at 12 ft bgs was 87.8 mg/kg.

To determine if the residual chlorides in the vadose zone pose a threat to groundwater quality, RECS ran the U.S. Environmental Protection Agency Exposure Assessment Multimedia Model (MULTIMED Version 1.5, 2005). Model outputs and the graph are included in Appendix E. With the impact area of 29,419 sq ft, the model output concludes that the peak concentration of chlorides in groundwater contributed by the vadose zone soils would be approximately 214.4 mg/L in 275 years. Since the estimated increase in chloride concentrations in groundwater from residual chloride migration is below the WQCC standard of 250 mg/L, no action is warranted for groundwater at this site.

#### **Corrective Action Plan**

The Corrective Actions will begin in March and be concluded by November 27<sup>th</sup>, 2014. Based on the sampling data, RECS plans to remediate the site in 4 phases:

Phase 1: The south berm of the battery will be removed and an area 274 ft x 60 ft south of the battery will be scraped down 2-4 ft to remove the contaminated soil (Figure 4). The soils 5 ft into the southern part of the battery will be scraped by hand and hydrovac to removed the majority of the contamination. The soil in the southwest corner of proposed excavation will be excavated to approximately 4 ft bgs and the excavated soil will be evaluated for use as backfill. And any soils requiring disposal will be properly disposed of at a NMOCD approved facility. The soil from the southwest corner that pass regulatory standards will be used as backfill to bring the 4 ft excavation to 2 ft bgs. The excavation will then be properly prepared, and a 30-mil poly liner will be installed and properly seated at the base of the excavations. The liner will be installed approximately 5 feet into the battery pad and anchored by clean, imported caliche.

A minimum of two foot high berms will be installed along the edge of the liner of the western, southern and eastern part of the liner. The liner will be placed over the 2 ft high berms and then key set at the exterior of the berms. Clean, imported caliche will be used to anchor the liner over the berms.

This area will be a secondary containment for the battery. In the event of future releases, the fluid will flow to the containment and held for disposal. This secondary containment will prevent future releases from the battery affecting the surrounding pasture area.

Phase 2: Inside the bermed battery, the area will be scraped by hand and by hydrovac to remove the highest contaminated soil. The battery pad, the lease road and the area to west of the pad will be scraped down to 1 ft bgs. The scrape in the west pasture area will be sampled after the scrape to determine that the scrape eliminated all constituents above regulatory standards. All excavated soils will be disposed of at a NMOCD approved facility. The scrapes on the pad and lease road will be backfilled with clean, imported caliche. The scrape to the west will be backfilled with clean, imported top soil. Soil amendments will be added to the west scrape as necessary and the area will be seeded with a blend of native vegetation.

Phase 3: In Phase 3, the northern portion of the pasture will be addressed. To mitigate any future impact to groundwater by the residual constituents in the vadose zone of the pasture area, the pasture will be excavated to 4 ft bgs. The base of the excavation will be padded with 6 inches of sand to protect the liner from punctures, and a 20-mil reinforced poly liner will be installed and properly seated at the base of the excavation. All excavated soils will be disposed of at a NMOCD approved facility. The 4 ft excavation will be backfilled with clean, imported soil to ground surface and then contoured to the surrounding area. Soil amendments will be added to the soil as necessary and the area will be seeded with a blend of native vegetation.

Phase 4: In Phase 4, the southern portion of the pasture will be addressed. The pasture will be excavated to 4 ft bgs. The base of the excavations will be padded with 6 inches of sand to protect the liner from punctures, and a 20-mil reinforced poly liner will be installed and properly seated at the base of the excavations. All excavated soils will be disposed of at a NMOCD approved facility. The 4 ft excavations will be backfilled with clean, imported soil to ground surface and then contoured to the surrounding area. Soil amendments will be added to the soil as necessary and the area will be seeded with a blend of native vegetation. All disturbed areas in the pasture will have soil amendments added as necessary and then seeded with a blend of native vegetation.

Once the CAP activities have been completed, Aspen will submit a 'remediation termination' request for site closure.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

ACW

Lara Weinheimer Project Scientist RECS (575) 441-0431

Attachments:

Figure 1 – Initial Sampling Data
Figure 2 – Vertical Installation Data
Figure 3 – Soil Bore Installation Data
Figure 4 – Proposed Scrapes and Liner Installation
Appendix A – Initial C-141
Appendix B – Initial Sampling Lab Data
Appendix C – Vertical Sampling Lab Data
Appendix D – Soil Bore Installation Documentation
Appendix E – Multimed Documentation

# Initial Sampling Data



# Vertical Installation Data



**T10S R36E** 

LEA COUNTY, NM

GPS date: 3/11/2013 Drawing date: 4/22/13 Drafted by: L. Weinheimer

# Soil Bore Installation

T

	Con Boro motanator	
SB-1 Depth CI- PID Lab CI- GRO DRO		
SS 7902 7.8 8400 <10 51.1 3 4343 47.3 1950 <10 184	Martin L	
6 584 12.9 9 541 28.1		
12 304 2.9 15 171 4.3 224 <10 <10		
18 147 6.2 256 <10 <10	SB-2	
SB-2 Depth CI- PID Lab CI- GRO DRC	SB-1	A MONTER ANALY
SS 13071 10.5 13000 <50 4470 3 735 17.9 944 <10 14.8		The state of the s
6 453 14.7 9 207 27.9 144 <10 <10		AN ANT
12 143 6.3 112 <10 87.8	SB-3	
Depth CI- PID Lab CI- GRO DRC SS 1047 422 1180 <10 8190	B T E X BTEX	1978 名人的新国际和X 644
3 587 55.9 6 1033 30 1070 <10 <10		The second second
9 514 3.3 12 223 16 5 112 <10 <10	SB-4	10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
15 38 41.8 114 <10 <10	·····································	and the second second
SB-4 Depth CI- PID Lab CI- GRO DRO	D B T E X BTEX	
SS 147 46.9 640 <10 <10 3 1006 17.4	and share the second	
6 1435 43 1250 <10 <10 9 607 206.8 624 <10 <10	<0.05 <0.05 <0.05 <0.15 <0.3	
12 144 39.9 15 147 23.1 64 <10 <10	SB-5	STREET, PROVIDENCE STREET, SAL
18 173 27 80 <10 <10		Legend S SOIL BORES
Depth CI- PID Lab CI- GRO DRO SS 149 2.2 <16 <10 44.3	Dennet Aller	DEADMAN
3 834 5 6 1428 3.7	and the second	ELECTRIC BOX     WELLHEAD
9 1865 4.2 1960 <10 <10 12 1011 4.2		FENCE
15 420 4 18 195 3.3 112 <10 <10		BERM ROAD SURFACE
21 227 3.4 176 <10 <10	THE REPORT OF A DURING THE PARTY OF A	SURFACE PIPELINE
Land Owner - Garth A. Coombe	is the second	SPOIL PILE STAIN Total Area -29,418 sg.ft.
DGW 120 ft	Source: Esri, DigitalGlobe, 0	TANK
1. A. S. C. C. S.	Getmapping, Aerogrid, IGN,	
RICE ENVIRONMENTAL	ASPEN	
DEDE	GAINER UNIT #1	V s
RELS	1RP-2-13-2903	0 60 120
OAL LC		
SULTING & SAFETY, L	LEGALS: UL/A,D,H,G - SEC 22 T10S R36E	GPS date: 9/26/13 Drawing date: 10/7/13

# Proposed Scrapes and Liner Installation



# Analytical Report 459438

for Aspen Operating Co., LLC.

Project Manager: Bruce Baker Gainer Unit #1

#### 25-MAR-13

Collected By: Client





#### 12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Lakeland: Florida (E84098) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)

Final 1.000





25-MAR-13

Project Manager: **Bruce Baker** Aspen Operating Co., LLC. 210 W. 6th St., Suite 301 Ft. Worth, TX 76102

Reference: XENCO Report No(s): 459438 Gainer Unit #1 Project Address: Fort Worth

#### Bruce Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 459438. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 459438 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Nicholas Straccione Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies. A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



# Sample Cross Reference 459438



# Aspen Operating Co., LLC., Ft. Worth, TX

Gainer Unit #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Sample PT 3 Surface	S	03-11-13 10:15		459438-001
Sample PT 8 Surface	S	03-11-13 10:43		459438-002
Sample PT 10 Surface	S	03-11-13 11:07		459438-003
Sample PT 11 Surface	S	03-11-13 11:15		459438-004



#### CASE NARRATIVE

Client Name: Aspen Operating Co., LLC. Project Name: Gainer Unit #1



Project ID: Work Order Number(s): 459438 Report Date: 25-MAR-13 Date Received: 03/15/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None

00	tories
New Y	Labora

Contact: Bruce Baker

Project Id:

Project Location: Fort Worth

Certificate of Analysis Summary 459438 Aspen Operating Co., LLC., Ft. Worth, TX

Project Name: Gainer Unit #1



Fri Mar-15-13 11:20 am	
Date Received in Lab:	

25-MAR-13	Nicholas Straccione			
Report Date:	Project Manager:	459438-004	Sample PT 11 Surface	
		459438-003	Sample PT 10 Surface	
		459438-002	Sample PT 8 Surface	
			ace	

	Lab Id:	459438-001	459438-002	459438-003	459438-004	
Auntucic Damacted	Field Id:	Sample PT 3 Surface	Sample PT 8 Surface	Sample PT 10 Surface	Sample PT 11 Surface	
naisanhay sistinuy	Depth:					
	Matrix:	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Mar-11-13 10:15	Mar-11-13 10:43	Mar-11-13 11:07	Mar-11-13 11:15	
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-22-13 10:00	Mar-22-13 10:00	Mar-22-13 10:00	Mar-22-13 10:00	
	Analyzed:	Mar-22-13 15:04	Mar-22-13 15:47	Mar-22-13 16:09	Mar-22-13 16:31	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		621 10.3	61.5 2.85	5.94 2.84	161 2.70	
Percent Moisture	Extracted:					
	Analyzed:	Mar-20-13 17:00	Mar-20-13 17:00	Mar-20-13 17:00	Mar-20-13 17:00	-
	Units/RL:	% RL	% RL	% RL	% RL	
Percent Moisture		3.32 1.00	6.62 1.00	6.25 1.00	1.56 1.00	
TPH By SW8015B Mod	Extracted:	Mar-20-13 09:00	Mar-20-13 09:00	Mar-20-13 09:00	Mar-20-13 09:00	
	Analyzed:	Mar-20-13 15:07	Mar-20-13 15:57	Mar-20-13 13:01	Mar-20-13 13:26	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
C6-C10 Gasoline Range Hydrocarbons		1050 77.3	1510 80.5	1990 79.9	191 75.9	
C10-C28 Diesel Range Hydrocarbons		23500 77.3	20800 80.5	17900 79.9	17300 75.9	
Total TPH		25000 77.3	22600 80.5	19900 79.9	17800 75.9	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. In turepretations and reuses expressed throughout this analytical represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount inviced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Nicholas Straccione Nul Ch

Project Manager

Final 1.000



# **Flagging Criteria**

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

\* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit

PQL Practical Quantitation Limit MQL Method Quantitation Limit

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies.

LOD Limit of Detection

LOQ Limit of Quantitation

A Small Business and Minority Status Company that delivers SERVICE and QUALITY Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

	Phone	Fax
4143 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	

Final 1.000



# Form 2 - Surrogate Recoveries

#### Project Name: Gainer Unit #1

Vork Orders : 459438	Sample: 459438-003 / SMP	Bate	Project I	D: c:Soil		
Units: mg/kg	Date Analyzed: 03/20/13 13:01	SU	RROGATE R	ECOVERY	STUDY	
ТРН Н	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1 Chlorooctane	Analytes	100	00.0	100	70.125	
o-Terphenyl		43.9	50.0	88	70-135	
Lab Batab #: 909487	Sample: 459438-004 / SMP	Pata	h. 1 Matrix	r Soil		
Units: mg/kg	Date Analyzed: 03/20/13 13:26	SU	RROGATE R	ECOVERY	STUDY	
TPH F	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
1 Chlorostore	Analytes	105	00.(	105	70.125	
1-Chlorooctane		105	99.6	105	70-135	
0-Terphenyi		40.9	49.0	02	70-155	
Lab Batch #: 909487	Sample: 459438-001 / SMP	Bate	h: 1 Matrix	ECOVERY	STUDY	
TPH F	But Mulyzen 05/20/15 15:07	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1 Chlorooctane	Analytes	108	00.6	109	70.135	
o-Terphenyl		54.1	49.8	108	70-135	
Lab Batab # 000487	Sample: 459438-002 / SMP	Pata	h. 1 Matrix	r Soil		
Lab Batch #: 909467	Data Analyzed: 03/20/13 15:57	SU	RROGATE R	ECOVERY	STUDY	
TPH I	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes	[]		[D]		
1-Chlorooctane		110	100	110	70-135	
o-Terphenyl		43.9	50.1	88	70-135	
Lab Batch #: 909487	Sample: 635423-1-BLK / BL	.K Batc	h: 1 Matrix	c: Solid		
Units: mg/kg	Date Analyzed: 03/20/13 10:56	SU	RROGATE R	ECOVERY	STUDY	199-5
TPH I	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		102	100	102	70-135	
o-Terphenyl		51.3	50.1	102	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B

All results are based on MDL and validated for QC purposes.



# Form 2 - Surrogate Recoveries

# Project Name: Gainer Unit #1

<b>Ork Orders :</b> 459438, (ab Batch #: 909487 Sample: 6	35423-1-BKS / BK	S Bate	Project II	Solid		
Units: mg/kg Date Analyzed: 0.	3/20/13 10:04	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015B Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		102	100	102	70-135	
o-Terphenyl		58.7	50.1	117	70-135	
Lab Batch #: 909487 Sample: 6	35423-1-BSD / BSI	) Bate	h: 1 Matrix	Solid		
Units: mg/kg Date Analyzed: 0.	3/20/13 10:30	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015B Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		98.7	100	99	70-135	
o-Terphenyl		54.1	50.2	108	70-135	
Lab Batch #: 909487 Sample: 4	59439-001 S / MS	Bate	h: 1 Matrix	Soil		
Units: mg/kg Date Analyzed: 0.	3/20/13 19:00	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015B Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		98.1	99.9	98	70-135	
o-Terphenyl		57.5	50.0	115	70-135	1.11
Lab Batch #: 909487 Sample: 4	59439-001 SD / MS	D Bate	h: 1 Matrix	Soil		
Units: mg/kg Date Analyzed: 0.	3/20/13 19:28	SU	RROGATE RI	ECOVERY	STUDY	17.1
TPH By SW8015B Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		100	99.9	100	70-135	1
1-Chioroceane						

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B

All results are based on MDL and validated for QC purposes.

**XENCO** Laboratories

**BS / BSD Recoveries** 

Notes that the second s

Project Name: Gainer Unit #1

Work Order #: 459438							Pro	iect ID:			
Analyst: AMB	Da	te Prepar	ed: 03/22/201	3			Date A	nalyzed: (	3/22/2013		
Lab Batch ID: 909765 Sample: 635609-1-	-BKS	Batcl	1 #: 1					Matrix: S	solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	S YNK S	PIKE DUPI	ICATE	RECOVI	ERY STUD	Y	
Inorganic Anions by EPA 300/300.1	Blank Sample Result	Spike Added	Blank Spike	Blank Spike	Spike Added	Blank Spike Durdicato	Blk. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	<u>[v]</u>	[B]	[C]	[0]	[E]	Result [F]	[6]	0/	N0/	U 110/	
Chloride	<2.00	50.0	51.4	103	50.0	51.4	103	0	80-120	20	
Analyst: KEB	Da	te Prepar	ed: 03/20/201	3			Date A	nalyzed: (	3/20/2013		
Lab Batch ID: 909487 Sample: 635423-1-	-BKS	Batch	1 #: 1					Matrix: S	solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	S YNK S	PIKE DUPI	ICATE	RECOVI	ERY STUD	Y	
TPH By SW8015B Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Dunlicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[	[B]	[C]		[E]	Result [F]	[6]	2			
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	985	66	1000	959	96	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1030	103	1000	1010	101	2	70-135	35	

Relative Percent Difference RPD = 200\*[(C-F)/(C+F)] Blank Spike Recovery [D] = 100\*(C)/[B] Blank Spike Duplicate Recovery [G] = 100\*(F)/[E] All results are based on MDL and Validated for QC Purposes Final 1.000



# Form 3 - MS Recoveries



Project Name: Gainer Unit #1

#### Work Order #: 459438 Lab Batch #: 909765

Date Analyzed: 03/22/2013 

Date Prepared	: 03/22/2013

**Project ID:** 

Analyst: AMB

QC- Sample ID: 459738-005 S	<b>Batch #:</b> 1		1	Matrix: So	oil	
Reporting Units: mg/kg	MATE	UX / MA	<b>FRIX SPIKE</b>	RECOV	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes		[D]				
Chloride	5.07	107	116	104	80-120	

fatrix Spike Percent Recovery  $[D] = 100^{(C-A)/B}$ Relative Percent Difference  $[E] = 200^{(C-A)/(C+B)}$ All Results are based on MDL and Validated for QC Purposes

RL - Below Reporting Limit

aboratories

Project Name: Gainer Unit #1

Form 3 - MS / MSD Recoveries

Flag %RPD Control Limits 35 35 Control Limits 70-135 70-135 %R MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY RPD % 4 4 Spiked Dup. %R Matrix: Soil 104 98 Project ID: Spiked Sample Duplicate Result [F] 1140 1080 1 KEB Spike Added 1100 1100 Analyst: Batch #: E Sample Spiked Sample Spiked %R [D] 100 95 Result 1100 1040 QC- Sample ID: 459439-001 S Date Prepared: 03/20/2013 Added Spike 1100 1100 [B] **Parent** Sample Result <16.5 <16.5 [Y] TPH By SW8015B Mod C6-C10 Gasoline Range Hydrocarbons C10-C28 Diesel Range Hydrocarbons Analytes Date Analyzed: 03/20/2013 Work Order #: 459438 Lab Batch ID: 909487 Reporting Units: mg/kg

Matrix Spike Percent Recovery [D] = 100\*(C-A)/B Relative Percent Difference RPD = 200\*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

**Final 1.000** 

Page 11 of 14



Work Order #: 459438

# Sample Duplicate Recovery



#### Project Name: Gainer Unit #1

Lab Batch #: 909467 Date Analyzed: 03/20/2013 17:00 QC- Sample ID: 459439-001 D	Date Prepar Batch	ed: 03/20/2013	Ana Mat	Project I lyst: WRU trix: Soil	D:	
Reporting Units: %		SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		8.98	9.20	2	20	

Spike Relative Difference RPD 200 \* | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

Final 1.000

CENCO Houston: 4143 Greenbriar Dr. Staffo Noratorics Hobbs: 4008 N Grimes Hobbs, NM		101010	0010	1		1		と語いてきたというないないないで、「なないない」	「「「「「「「「」」」」」」」」」」」」」」」」」」」」」」」」」」」」」」
boratorics Houton: 4143 Greenbriar Dr. Staffo	CHAIN OF	CUSTOL	NY RECO	SD	Page	of 3		VA Vial Amber ES Encon	e Sampler
mentilei Aubentus Ricitlochemistry	ord, TX 77477 (281)240-4200 88240 (575)392-7550	Odessa: 12600 Wes	t I-20 East Odessa, TX	79765 (432)563-1800	LAB W.O#	112	9438	VC Vial Clear TS Terrac VP Vial Pre-preserved AC Air Ca GA Glass Amber TB Tedla GC Glass Colear ZB ZpLLC PA Plastic Amber PC Plastic	Core Sampler Inister r Bag ock Bag ic Clear
Dany: Aspen Openating Co	DLC Phone:	(631)5157	TAT Work Day	s = D Need results	by: 5+0 5	7 Tim		PC Plastic Clear Other	
ess Bol Cherry Streets Stile	# 10 untas Fax		Std (5-1	7D) 5Hrs 1D 2D 3D	4D 5D 7D 10D	14D Other		Size(s): 202, 402, 802, 1602, 3202 , 1G	al
Fort worth	State: TX Zip: 70	2010		SYLVS	ES REQUESI	(ED)		* Preservative Type	Codes
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et D: GAINER Wuit #1	R :#Od	batten@rice.ecsi	Prostrate B.1			Coll Materia		B. HNU3 F. MeUH J. MCAR C. H <sub>2</sub> SO4 G. Na <sub>2</sub> S <sub>2</sub> O3 K. ZnAc6 D. NaOH H. NaHSO4 L. Asbc.	&NaOH Acid&NaOH
e To:	Quote #		0.00	818		n d " 44	HV0	0. A Matrix Tuna Co	dae
oler Signature:	ne Event: Cally Weekly	Monthly	eller % %% £PA3	1087			unsi alduis	GW Ground Water S Soil/Se WW Water Water W Wine	diment/Solid
Sample D Collection Dates	<ul> <li>Semi-Annual Annual</li> <li>Sollesi</li> <li>Mainta</li> </ul>	NA 2004 2004 2006 2006 2006 2006 2006 2006 2006 2006 2007 20	hioride by E Volstilles I Volstilles	TPH by SV			((च)तान SID94	DW Drinking Water A Air DW Surface Water A Air SW Surface Water O Oil OW Ocean/Sea Water T Tissue PL Product-Liquid U Unine PS Product-Solid B Blood	. *
	07 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)		C C			_	3))	SL Sludge Outer RFMARKS	
Sample Pt 3 surface 3-11-1	13 10:15 Am		×	×					
SAMPLE Pt. 8 sunface 3-11-1	13 10: 43 Am		1						
Sample Pt. 10 surface 3-11-	11:07.4m		/	1					
Sample Pt. 11 surface 3-11-1	13 H: 15Am	1	1						
கில் சிழையா / கோசும் திர் 🥂 இரி	TE lor Corts & Regs	EARCE Lavel	& Gamileation F	EDDS	COC 2 Labels	Coolers	Ferrio Cato	The Leab User Only Care with the WE	S NO NIA
TRRP DW NPDES LPST DYCIN FL TX G	SA NC SC NJ PA OK MM Other:	1 2 3 4 CLP	AFCEE QAPP Other:	ADaPT SEDD ERPIMS XLS Other:	Match incomplete Absent Unclear	19.502	36.0	Non-Conformances found? Samples intact upon arrival?	
Power Pacher	RECS	3-15-13	11:20 AM	Shee Butte	AMILIATION	3-15-13	(120	Received on Wet Ica? Labeled with proper preservatives? Received within holding time?	    /K /
				X hauredmen	Nonco	5119113	10:00	Custody seals intact? VOCs recid w/o headspace?	
								Proper containers used? pH verified-acceptable, excl VOCs?	2
An Addition and the second								Received on time to meet HTs?	X

Revision Date: Nov 12, 2009

untri pard in full. All taboratory analytical data and reports generated by Xenco remain the exclusive property of Xenco until invoices for such data are paid in full. ind ero



#### **XENCO** Laboratories



#### Prelogin/Nonconformance Report- Sample Log-In

Client: Aspen Operating Co., LLC.Acceptable Temperature Range: 0 - 6 degCDate/ Time Received: 03/15/2013 11:20:00 AMAir and Metal samples Acceptable Range: AmbientWork Order #: 459438Temperature Measuring device used :

#1 *Temperature of cooler(s)?6#2 *Shipping container in good condition?Yes#3 *Samples received on ice?Yes#4 *Custody Seals intact on shipping container/ cooler?Yes#5 Custody Seals intact on sample bottles?Yes#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NAASO2+NaOH, ZnAc+NaOH?Yes		Sample Receipt Checklist		Comments
#2 *Shipping container in good condition?Yes#3 *Samples received on ice?Yes#4 *Custody Seals intact on shipping container/ cooler?Yes#5 Custody Seals intact on sample bottles?Yes#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody agrees with sample label(s)?Yes#11 Chain of Custody agrees with sample label(s)?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NAAsO2+NaOH, ZnAc+NaOH?Yes	#1 *Temperature of cooler(s)?		6	
#3 *Samples received on ice?Yes#4 *Custody Seals intact on shipping container/ cooler?Yes#5 Custody Seals intact on sample bottles?Yes#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody agrees with sample label(s)?Yes#11 Chain of Custody agrees with sample label(s)?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NAASO2+NaOH, ZnAc+NaOH?	#2 *Shipping container in good condition?	?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?Yes#5 Custody Seals intact on sample bottles?Yes#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody agrees with sample label(s)?Yes#11 Chain of Custody agrees with sample label(s)?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NAASO2+NaOH, ZnAc+NaOH?	#3 *Samples received on ice?		Yes	
#5 Custody Seals intact on sample bottles?Yes#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#4 *Custody Seals intact on shipping con	tainer/ cooler?	Yes	
#6 *Custody Seals Signed and dated?Yes#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#5 Custody Seals intact on sample bottle	s?	Yes	
#7 *Chain of Custody present?Yes#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#6 *Custody Seals Signed and dated?		Yes	
#8 Sample instructions complete on Chain of Custody?Yes#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#7 *Chain of Custody present?		Yes	
#9 Any missing/extra samples?No#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#8 Sample instructions complete on Chai	n of Custody?	Yes	
#10 Chain of Custody signed when relinquished/ received?Yes#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#9 Any missing/extra samples?		No	
#11 Chain of Custody agrees with sample label(s)?Yes#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#10 Chain of Custody signed when reling	uished/ received?	Yes	
#12 Container label(s) legible and intact?Yes#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#11 Chain of Custody agrees with sample	e label(s)?	Yes	
#13 Sample matrix/ properties agree with Chain of Custody?Yes#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	#12 Container label(s) legible and intact?		Yes	
#14 Samples in proper container/ bottle?Yes#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with No3,HCL, H2SO4?	#13 Sample matrix/ properties agree with	Chain of Custody?	Yes	
#15 Samples properly preserved?Yes#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#14 Samples in proper container/ bottle?		Yes	
#16 Sample container(s) intact?Yes#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#15 Samples properly preserved?		Yes	
#17 Sufficient sample amount for indicated test(s)?Yes#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#16 Sample container(s) intact?		Yes	
#18 All samples received within hold time?Yes#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#17 Sufficient sample amount for indicate	ed test(s)?	Yes	
#19 Subcontract of sample(s)?Yes#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#18 All samples received within hold time	?	Yes	
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?Yes#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	#19 Subcontract of sample(s)?		Yes	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?Yes#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?Yes	#20 VOC samples have zero headspace	(less than 1/4 inch bubble)?	Yes	
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH? Yes	#21 <2 for all samples preserved with HN	O3,HCL, H2SO4?	Yes	
	#22 >10 for all samples preserved with Na	aAsO2+NaOH, ZnAc+NaOH?	Yes	

\* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:

Date: 03/18/2013

Checklist reviewed by:

Date: 03/18/2013

# Analytical Report 461177

for Aspen Operating Co., LLC.

Project Manager: Bruce Baker Gainer Unit #1

#### 19-APR-13

Collected By: Client





#### 12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135) Louisiana (04176), USDA (P330-07-00105)

> Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900) Xenco-Lakeland: Florida (E84098) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX) Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



19-APR-13

Project Manager: **Bruce Baker** Aspen Operating Co., LLC. 210 W. 6th St., Suite 301 Ft. Worth, TX 76102

Reference: XENCO Report No(s): 461177 Gainer Unit #1 Project Address: Fort Worth

#### Bruce Baker:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 461177. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 461177 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Keith Anding Project Manager

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# Sample Cross Reference 461177



#### Aspen Operating Co., LLC., Ft. Worth, TX

Gainer Unit #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Vertical 1 @ 3'	S	04-08-13 10:15		461177-001
Vertical 1 @ 7'	S	04-08-13 10:40		461177-002
Vertical 2 @ 2'	S	04-08-13 10:50		461177-003
Vertical 2 @ 8'	S	04-08-13 11:20		461177-004
Vertical 2 @ 15'	S	04-08-13 12:00		461177-005


# CASE NARRATIVE

Client Name: Aspen Operating Co., LLC. Project Name: Gainer Unit #1



Project ID: Work Order Number(s): 461177 Report Date: 19-APR-13 Date Received: 04/11/2013

# Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

## None

**Analytical non conformances and comments:** Batch: LBA-911642 TPH By SW8015B Mod SW8015B NM

Batch 911642, 1-Chlorooctane recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis Samples affected are: 461177-005 S.

# SW8015B\_NM

Batch 911642, C10-C28 Diesel Range Hydrocarbons recovered above QC limits in the Matrix Spike. Samples affected are: 461177-003, -001, -004, -002, -005. The Laboratory Control Sample for C10-C28 Diesel Range Hydrocarbons is within laboratory Control Limits

-	0	ics
	UZ Z	rator
	No. of Concession, name	

Certificate of Analysis Summary 461177 Aspen Operating Co., LLC., Ft. Worth, TX

Project Name: Gainer Unit #1



Project Id:		rroject r	value: Galiller Ull	11 H T			
Contact: Bruce Baker				Da	te Received in Lab:	Thu Apr-11-13 09:20 am	
Project Location Fort Worth					Report Date:	19-APR-13	
tojet totation. Tot worth					<b>Project Manager:</b>	Nicholas Straccione	
	Lab Id:	461177-001	461177-002	461177-003	461177-004	461177-005	
Aunticia Documented	Field Id:	Vertical 1 @ 3'	Vertical 1 @ 7'	Vertical 2 @ 2'	Vertical 2 @ 8'	Vertical 2 @ 15'	
naisanhay sistimuty	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Apr-08-13 10:15	Apr-08-13 10:40	Apr-08-13 10:50	Apr-08-13 11:20	Apr-08-13 12:00	
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-17-13 10:00	Apr-17-13 10:00	Apr-17-13 10:00	Apr-17-13 10:00	Apr-17-13 10:00	
	Analyzed:	Apr-18-13 03:16	Apr-18-13 03:59	Apr-18-13 04:21	Apr-18-13 04:42	Apr-18-13 05:04	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		393 21.7	945 42.0	1660 43.9	836 21.8	1860 43.6	

Auducic Domoctod	Field Id:	Vertical 1 @ 3'	Vertical 1 @ 7'	Vertical 2 @ 2'	Vertical 2 @ 8'	Vertical 2 @ 15'	
naican have sistimute	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Apr-08-13 10:15	Apr-08-13 10:40	Apr-08-13 10:50	Apr-08-13 11:20	Apr-08-13 12:00	
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-17-13 10:00					
	Analyzed:	Apr-18-13 03:16	Apr-18-13 03:59	Apr-18-13 04:21	Apr-18-13 04:42	Apr-18-13 05:04	
	Units/RL:	mg/kg RL					
Chloride		393 21.7	945 42.0	1660 43.9	836 21.8	1860 43.6	
Percent Moisture	Extracted:	-					
	Analyzed:	Apr-15-13 17:00					
	Units/RL:	% RL					
Percent Moisture		7.97 1.00	4.82 1.00	8.81 1.00	8.14 1.00	8.28 1.00	
TPH By SW8015B Mod	Extracted:	Apr-17-13 14:45					
	Analyzed:	Apr-18-13 10:01	Apr-18-13 00:12	Apr-18-13 00:44	Apr-18-13 01:15	Apr-18-13 01:44	
	Units/RL:	mg/kg RL					
C6-C10 Gasoline Range Hydrocarbons		2380 81.4	31.3 15.7	1610 16.4	21.3 16.3	ND 16.3	
C10-C28 Diesel Range Hydrocarbons		9750 81.4	621 15.7	4740 16.4	389 16.3	85.4 16.3	
Total TPH		12100 81.4	652 15.7	6350 16.4	410 16.3	85.4 16.3	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Project Manager Keith Anding

RACC

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# **Flagging Criteria**

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit

MQL Method Quantitation Limit PQL Practical Quantitation Limit

LOD Limit of Detection

LOQ Limit of Quantitation

Ph

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(770) 449-8800	(770) 449-5477
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# Form 2 - Surrogate Recoveries

# Project Name: Gainer Unit #1

<b>Vork Orders :</b> 461177	, Sample: 461177-002 / SMP	Bate	Project I	D: Soil		
Units: mg/kg	Date Analyzed: 04/18/13 00:12	SU	RROGATE R	ECOVERY	STUDY	
ТРН В	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		97.1	99.7	97	70-135	
o-Terphenyl		49.4	49.9	99	70-135	
Lab Batch #: 911642	Sample: 461177-003 / SMP	Batc	h: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 04/18/13 00:44	SU	RROGATE R	ECOVERY S	STUDY	
ТРН В	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
1 Chloroostono	Analytes	124	00.6	124	70.125	
o-Terphenyl		52.2	49.8	124	70-135	
Lab Datab # 011642	Sample: 461177-004 / SMP	Bata	h. 1 Matrix	r Soil	10 155	
Units: mg/kg	Date Analyzed: 04/18/13 01:15	SU	RROGATE R	ECOVERY S	STUDY	
ТРН В	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes			[D]		
1-Chlorooctane		96.0	99.7	96	70-135	
o-Terphenyl		49.1	49.9	98	70-135	
Lab Batch #: 911642	Sample: 461177-005 / SMP	Bate	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 04/18/13 01:44	SU	RROGATE R	ECOVERY	STUDY	
ТРН Е	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes			[D]		
1-Chlorooctane		99.9	99.6	100	70-135	
o-Terphenyl		51.8	49.8	104	70-135	1
Lab Batch #: 911642	Sample: 461177-001 / SMP	Batc	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 04/18/13 10:01	SU	RROGATE R	ECOVERY	STUDY	
ТРН Е	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane	· · · · ·	128	99.9	128	70-135	
o-Terphenyl		49.7	50.0	99	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B

All results are based on MDL and validated for QC purposes.



# Form 2 - Surrogate Recoveries

# Project Name: Gainer Unit #1

Lab Batch #: 911642	Sample: 636783-1-BLK / BI	K Batch:	1 Matrix	: Solid		
Units: mg/kg	Date Analyzed: 04/17/13 23:10	SURI	ROGATE R	ECOVERY	STUDY	
ТРН Н	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		91.2	99.6	92	70-135	
o-Terphenyl		47.7	49.8	96	70-135	
Lab Batch #: 911642	Sample: 636783-1-BKS / BB	KS Batch:	1 Matrix	:Solid		
Units: mg/kg	Date Analyzed: 04/17/13 22:08	SURI	ROGATE R	ECOVERY	STUDY	
ТРН Е	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
	Analytes			נשן		
1-Chlorooctane		122	100	122	70-135	
o-Terphenyl		54.3	50.1	108	70-135	
Lab Batch #: 911642	Sample: 636783-1-BSD / BS	SD Batch:	1 Matrix	c:Solid		
Units: mg/kg	Date Analyzed: 04/17/13 22:38	SURI	ROGATE R	ECOVERY	STUDY	
ТРН Е	By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		117	99.6	117	70-135	
o-Terphenyl		51.9	49.8	104	70-135	
Lab Batch #: 911642	Sample: 461177-005 S / MS	Batch:	1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 04/18/13 09:00	SURF	ROGATE R	ECOVERY	STUDY	
ТРН Н	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		161	99.6	162	70-135	**
o-Terphenyl		58.8	49.8	118	70-135	
Lab Batch #: 911642	Sample: 461177-005 SD / M	SD Batch:	1 Matrix	: Soil	1.2	
Units: mg/kg	Date Analyzed: 04/18/13 09:31	SURF	ROGATE R	ECOVERY S	STUDY	
TPH F	By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		111	99.9	111	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / BAll results are based on MDL and validated for QC purposes.

XENCO Laboratories

**BS / BSD Recoveries** 

Flag Flag Control %RPD Control Limits %RPD Limits 35 35 20 BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY Date Analyzed: 04/18/2013 Date Analyzed: 04/17/2013 70-135 Control Limits Control 70-135 80-120 Limits %R %R Matrix: Solid Matrix: Solid Project ID: RPD % RPD % 0 4 3 Blk. Spk Blk. Spk Dup. %R [G] Dup. %R [G] 106 100 96 Duplicate Result [F] Duplicate Result [F] Blank Spike Spike Blank 1060 955 50.1 Spike Spike 50.0 966 966 Ε Ε Project Name: Gainer Unit #1 Spike Blank Blank Spike 109 %R 100 %R [D] 66 Date Prepared: 04/17/2013 Date Prepared: 04/17/2013 Spike Result Spike Result Blank Blank 1090 49.9 993 C <u>[</u>] Batch #: 1 Batch #: Spike Spike Added 1000 1000 50.0 [B] B Sample Result Sample Result <15.0 <15.0 <2.00 Blank Blank [V] Sample: 636783-1-BKS Sample: 636828-1-BKS Inorganic Anions by EPA 300/300.1 TPH By SW8015B Mod C6-C10 Gasoline Range Hydrocarbons C10-C28 Diesel Range Hydrocarbons Work Order #: 461177 Lab Batch ID: 911642 Lab Batch ID: 911725 Analyst: AMB Units: mg/kg Units: mg/kg Analyst: KEB Analytes Analytes Chloride

Relative Percent Difference RPD = 200\*((C-F)/(C+F)| Blank Spike Recovery [D] = 100\*(C)/[B] Blank Spike Duplicate Recovery [G] = 100\*(F)/[E] All results are based on MDL and Validated for QC Purposes Page 9 of 14

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# Form 3 - MS Recoveries



Project Name: Gainer Unit #1

# Work Order #: 461177 Lab Batch #: 911725 Date Analyzed: 04/18/2013

# Date Prepared: 04/17/2013

# Project ID: Analyst: AMB

QC- Sample ID: 461177-001 S Batch #: 1 Matrix: Soil MATRIX / MATRIX SPIKE RECOVERY STUDY Reporting Units: mg/kg Parent Spiked Sample Control **Inorganic Anions by EPA 300** %R Sample Spike Result Limits Flag Result Added [D] %R [C] [A] [B] Analytes Chloride 393 543 980 108 80-120

fatrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative Percent Difference [E] = 200\*(C-A)/(C+B)All Results are based on MDL and Validated for QC Purposes

RL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Þ

Project Name: Gainer Unit #1

Work Order #: 461177

Date Analyzed: 04/18/2013 Lab Batch ID: 911642 Reporting Units: mg/kg

QC- Sample ID: 461177-005 S Date Prepared: 04/17/2013

Analyst: KEB

Matrix: Soil

1

Batch #:

Project ID:

Reporting Units: mg/kg		M	ATRIX SPIKI	E/MAT	<b>SIX SPI</b>	KE DUPLICAT	TE RECO	VERY S	STUDY		
TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<16.3	1090	1420	130	1090	1020	94	33	70-135	35	
C10-C28 Diesel Range Hydrocarbons	85.4	1090	1610	140	1090	1140	67	34	70-135	35	Х

Relative Percent Difference RPD = 200\* (C-F)/(C+F) Matrix Spike Percent Recovery [D] = 100\*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

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Page 11 of 14



Work Order #: 461177

# Sample Duplicate Recovery



# Project Name: Gainer Unit #1

Lab Batch #: 911378 Date Analyzed: 04/15/2013 17:00 QC- Sample ID: 461058-001 D	Date Prepar Batcl	•ed:04/15/2013	Ana Mat	Project I lyst:WRU trix: Soil	D:	
Reporting Units: %		SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		1-1	[ <b>B</b> ]			
Percent Moisture		<1.00	<1.00	0	20	U

Spike Relative Difference RPD 200 \* | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

Value         Value <th< th=""><th>Time: Dec Plastic Clear</th><th>other Size(s): 202, 402, 802, 1602, 2002, 1Gal</th><th>** Preservative Type Codes</th><th>A None E. HCL 1. Ice</th><th>C. H.SOQ, G. NaSCA, T. MCCAR, T. MCCAR, C. H.SOQ, G. NaSCA, SA, K. ZIAC&amp;NAOH D. NaOH, H. NaHSO<sub>4</sub> L. Asbc Acid&amp;NaOH</th><th>o.e Solo Solo Solo Solo Solo Solo Solo Sol</th><th>E R B Ground Water S soil/Sedimen/Vsoid</th><th>The Share Say Surgary water 7 Our The Share OW Coean/See Water 7 Tissue The Product-Liquid U Unine Product-Solid B Blood SL Sludge SL Sludge</th><th>Other REMARKS</th><th>empil Results</th><th>to Thomas O Jowes</th><th>tej @the liewaroup 1 C</th><th>hemeler @ rice -ecs .c c</th><th>bhaker Oriceres. com</th><th></th><th></th><th></th><th></th><th></th><th>DECE TREAT OF TREAT USED ON A TREAT NO MARK</th><th>antipose material and an antiverse and an antiverse and antiverse and antiverse and antiverse and antiverse and antiverse antiverse antiverse antipose antiverse antiverse antipose ant</th><th>13 81.5 Concernent with holding time?</th><th>Not the second with the second s</th><th></th></th<>	Time: Dec Plastic Clear	other Size(s): 202, 402, 802, 1602, 2002, 1Gal	** Preservative Type Codes	A None E. HCL 1. Ice	C. H.SOQ, G. NaSCA, T. MCCAR, T. MCCAR, C. H.SOQ, G. NaSCA, SA, K. ZIAC&NAOH D. NaOH, H. NaHSO <sub>4</sub> L. Asbc Acid&NaOH	o.e Solo Solo Solo Solo Solo Solo Solo Sol	E R B Ground Water S soil/Sedimen/Vsoid	The Share Say Surgary water 7 Our The Share OW Coean/See Water 7 Tissue The Product-Liquid U Unine Product-Solid B Blood SL Sludge SL Sludge	Other REMARKS	empil Results	to Thomas O Jowes	tej @the liewaroup 1 C	hemeler @ rice -ecs .c c	bhaker Oriceres. com						DECE TREAT OF TREAT USED ON A TREAT NO MARK	antipose material and an antiverse and an antiverse and antiverse and antiverse and antiverse and antiverse and antiverse antiverse antiverse antipose antiverse antiverse antipose ant	13 81.5 Concernent with holding time?	Not the second with the second s	
East Odessa, TX 79765 (432)563-1800 LAB W.O # : 4 Field billable Hrs :	T Work Days = D Need results by:	(Std (5-70) 5Hrs 1D 2D 3D 4D 5D 7D 10D 14D 0	ANALYSES REQUESTED			0000 300.0 812	Aq∃ vd 08W2 08W2 v	Voledic	GONG Lab Only:			X X	x x	× ×						E QAPP ADAPT SEDD ERPINS Match Incomplete 16		18 an Vale Jan Hills 4-11-	MOULHOUNDANDINO 412-1	
TX 77477 (281)240-4200 Odessa: 12600 West I-20 :40 (575)392-7550	LLC Phone: Yeal-5157 TA	fe#10 4 123	State: TX ZIP: 76162	Email: 400 Che the 1' way way	PO#:	2.2.C	Event: Oáliy Weekly Monthly Semi-Annual Annual N/A	Celler Collection Coll	1.36 POV X 2	10:15 Am 50:1 1	10:404m 50;1 1	10:50m Soil 1	11:20 4m Soil 1	12:00/m Soil F						IDT CERTS CRAEGES 10 2000 LEVEL 3 (C NC SC NJ PA OK 1 2 3 4 CLP AFCE Other NFI AC DAD-FIAD Other		RECS 4-11-13 8	REC/ 7. 1.1.1. 7.	
aboratorics Hobbs: 4008 N Grimes Hobbs, NM 88:	npany: Aspen Operating Co	Iress. Boi Chevry Street Su	" Fert Worth	Attn:	jectid: GAINEN UWIT #1	Dice To: ASDEN ODENATINE Co	npler Signature: Circle One Circle One	Sample D Dece	213000 0010000 0010000000000000000000000	1 Vertical 1 2 31 418/13	2 Vertical 1@ 71 418/13	3 Vertical 20 2' 4/8/13	4 Vertical 20 8' 4/8/13	5 Vertical 2@ 151 4/8/13	Q	2	8	0	0	a TRRP DW NPDES LPST DryCin FL TX GA	re re ru	Pance Pacher	Brown Nover	

vecution of this document by client creates a legal and binding agreement between client and Xenco for analytical and testing services provided by Xenco to client under Xenco's standard terms and conditions unless previously agreed in writing. Terms of payment are Net 30 days, and all st due amounts shall accure interest at 1.5% per month until paid in full. All laboratory analytical data and reports generated by Xenco remain the exclusive property of Xenco until invoices for such data are paid in full. Revision Date: Nov 12, 2009



# **XENCO Laboratories**



# Prelogin/Nonconformance Report- Sample Log-In

Client: Aspen Operating Co., LLC. Acceptable Temperature Range: 0 - 6 degC Date/ Time Received: 04/11/2013 09:20:00 AM **Temperature Measuring device used :** Work Order #: 461177

Air and Metal samples Acceptable Range: Ambient

	Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?		1	
#2 *Shipping container in good cond	ition?	Yes	
#3 *Samples received on ice?		Yes	
#4 *Custody Seals intact on shipping	g container/ cooler?	Yes	
#5 Custody Seals intact on sample b	oottles?	Yes	
#6 *Custody Seals Signed and dated	1?	Yes	
#7 *Chain of Custody present?		Yes	
#8 Sample instructions complete on	Chain of Custody?	Yes	
#9 Any missing/extra samples?		No	
#10 Chain of Custody signed when r	elinquished/ received?	Yes	
#11 Chain of Custody agrees with sa	ample label(s)?	Yes	
#12 Container label(s) legible and in	tact?	Yes	
#13 Sample matrix/ properties agree	with Chain of Custody?	Yes	
#14 Samples in proper container/ bo	ttle?	Yes	
#15 Samples properly preserved?		Yes	
#16 Sample container(s) intact?		Yes	
#17 Sufficient sample amount for inc	licated test(s)?	Yes	
#18 All samples received within hold	time?	Yes	
#19 Subcontract of sample(s)?		Yes	
#20 VOC samples have zero headsp	bace (less than 1/4 inch bubble)?	Yes	
#21 <2 for all samples preserved wit	h HNO3,HCL, H2SO4?	Yes	
#22 >10 for all samples preserved w	ith NaAsO2+NaOH, ZnAc+NaOH?	Yes	

\* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:

Date:

Checklist reviewed by:

Date:

Logger:		k	Kyle Norm	ian	SB-2		RICE		ATTAL ST
Driller:		Harriso	on & Coo	per, Inc.	SB-1		CONSUL	TING & SAFE	Y. LLC
Drilling N	lethod:		Air rotar	у			Asper	ı	Well ID:
Start Date	e:		6/20/201	3	SB-3		Gainer Un	it #1	SB-1
End Date	:		6/20/201	3	1999、1999年4月1日 - 1999年1999年1999年1999年1999年1999年1999年19	Pro	oject Consul	tant: RE	CS
Comme	nts: All	samp	les wer	e from (	cuttings.	Lo	cation: UL/H	sec. 22	T-10-S R-36-E
	TD	= 18	DRAF	TED BY:	L. Weinheimer GW = 120  ft	La	t: 33°26'9.789	9"N 1.456"W	County: Lea
Depth (feet)	Chlor field to	ride	LAB	PID	Description		Lithology	We	Il Construction
			CL		Caliche				
SS	790	2	8400	7.8					
			<10						
			DRO 51.5		Brown Sand With Hydrocarbon Smell				
3 ft	434	3	Cl- 1950	47.3					
199			GRO			1			
			DRO						
6 ft	584	4	104	12.9	Caliche/Sandstone Mix				
					Calibric/Calibric Mix				
									bentonite
9 ft	54	1		28.1					seal
	N								
12 ft	304	4		2.9					
	1	-	Cl-						
15 ft	17	1	224	4.3	Medium Sandstone With Caliche				
			<10						
		4	DRO <10						
18 ft	14	7	Cl- 256	6.2					
	1-1		GRO	5.2					
			DRO						
			<10						

Logger: Driller:		Harris	Kyle Norm on & Coo	nan per, Inc.	SB-1 SB-1		R		, ue
Drilling M Start Dat End Date	Method: te:		Air rotar 6/20/201 6/20/201	у З З	SB-3	Dr	Aspen Gainer Unit	#1	Well ID: SB-2
Comme	ents: A	l Il sam	ples we	re from	n cuttings.	Lo	cation: UL/E s	ec. 22 T	-10-S R-36-E
	TC	) = 12	DRAF 2 ft	TED BY	': L. Weinheimer GW = 120 ft	La Lo	t:33℃6'9.961" ng: 103°15'10	N .607"W	County: Lea State: NM
Depth (feet)	Chlo field t	ride tests	LAB	PID	Description		Lithology	Wel	Construction
SS	130	071	CI- 13000	10.5	Caliche				
			GRO <50 DRO 4470		Sandstone With Some Brown Sand				
3 ft	73	5	CI- 944 GRO <10 DRO	17.9	Caliche Sandstone Mix				
6 ft	45	3	14.8	14.7					seal
			CI-						
9 ft	20	)7	144 GRO <10 DRO	27.9	Sandstone With Some Caliche				
12 ft	14	.3	<10 CI- 112	6.3					
			<10 DRO 87.8						

Logger:		ĸ	(yle Norm	an	SB-2 SB-1		F	RE	CS			
Driller:		Harriso	on & Coo	per, Inc.			¢					
Drilling N	Method:		Air rotar	y			Aspen			Well ID:		
Start Dat	te:		6/20/201	3	SB-3		Gainer Ur	nit #1		SB-3		
End Date	e:		6/20/201	3	Son Containing Prov. And	Pro	ject Consu	ltant	: RECS	6		
Comme	ents: Al	l sam	ples we	re from	cuttings.	Lo	cation: UL/E	sec	22 T-1	0-S R-36-E		
			DRAF	TED BY	: L. Weinheimer	Lat	: 33°26'9.12	4"N		County: Lea		
	TD	= 15	5 ft		GW = 120 ft	Lo	ng: 103°15'1	0.8"	N	State: NM		
Depth (feet)	Chlor field to	ride ests	LAB	PID	Description		Lithology		Well C	construction		
					Brown Sand							
		47	CI-	100								
55	1,04	47	1180 GRO	422 DRO								
B <0.0	05 T <0	0.05	<10	8190								
E <0.0	05 X <	0.15	BTEX	< 0.3								
3 ft	58	7		55.9								
				00.0								
			CI-									
6 ft	1,03	33	1070 GBO	30.0								
			<10							bentonite		
	1		DRO <10					1		seal		
Q ft	51	4		33	Caliche							
511		-		0.0								
-												
Tor A			CI-									
12 ft	22	3	112 GBO	16.5								
			<10									
			DRO <10									
25 4	10	8	CI-	11 0								
2311	13	0	GRO	41.0								
			<10									
			<10							)		

Logger: Driller:	E	dward Ces son & Coo	sareo per, Inc.	SB-4		Solid Contract	RE	CS SAFETY. L	e.
Drilling N	Aethod:	Air rotar	y		Pro	oject Name:		,	Well ID:
Start Dat	e:	9/26/201	3	SB-5	A	spen Gaine	er Un	it #1	SB-4
Comme	ents: All san	nples we	sere from	cuttings.	Lo	cation: UL/E	Esec	. 22 T1	0S R36E
DRAFTED BY: L. Weir				': L. Weinheimer GW – 120 ft	Lat	Lat: 33°26'8.198"N Con			County: Lea
Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology	10.7	Well C	Construction
						South L			
		CI		BROWN SAND					
SS	147	640	46.9						
		GRO <10							
		DRO							
3 ft	1006		17.4						
				CALICHE/SANDSTONE					
6 ft	1435	CI- 1250	43						
		GRO <10 DRO							
0.ft	607	<10 Cl-	206.8						bentonite
511	007	024	GRO						Sedi
В	3 <0.05 T <0.0	05	<10 DRO						
E <0.05	5 X <0.15 BT	EX <0.3	<10 39.9						
12 11	144		00.0	CALICUE					
				GALICHE					
15 ft	147	CI- 64	23.1						
		GRO							
		DRO							
		<10 Cl-							
18 ft	173	80 GRO	27						
		<10 DRO							1. 180
		<10							D

Logger: Driller:	Har	Edward Ces rison & Coo	areo per, Inc.	SB-4		and the second s	RE	CCS	ie ie		
Drilling N	Method:	Air rotar	у			oject Name:			Well ID:		
Start Dat	e:	9/26/201	3	SB-5		spen Gaine	r U	nit #1	SB-5		
End Date	e:	9/26/201	3	1996 - 1996 (MARCON) - 1997 (MARCON)							
Comme	ents: All sa	mples we	re from	cuttings.	LO	cation: UL/H	- se	c. 22 11	0S R36E		
	TD = 2	DRAI 21 ft	FTED BY	': L. Weinheimer GW = 120 ft	La Lo	t: 33 °26'6.5 ng: 103 °15'	73"N 11.5	N 567"W	County: Lea State: NM		
Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology Well (			Construction		
		CI-		BROWN SAND							
SS	149	<16	2.2								
		<10									
		DRO 44.3									
3 ft	834		5.0	CALICHE/SANDSTONE							
6 ft	1428		3.7								
	1005	CI-									
9 11	1865	GRO	4.2								
1		<10 DBO					4		bentonite		
-		<10							seal		
12 ft	1011		4.2								
15 ft	420		4.0	CALICHE							
18 ft	195	CI- 112 GRO	3.3								
		DRO <10									
21 ft	227	CI- 176 GRO	3.4								
		<10 DRO <10									



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 27, 2013

BRUCE BAKER RICE ENVIRONMENTAL CONSULTING & SAFETY LLC 419 W. CAIN HOBBS, NM 88240

RE: GAINER UNIT #1

Enclosed are the results of analyses for samples received by the laboratory on 06/21/13 9:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celeg D. Keine

Celey D. Keene Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	06/21/2013	Sampling Date:	06/20/2013
Reported:	06/27/2013	Sampling Type:	Soil
Project Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

### Sample ID: SB 1 @ SURFACE (H301438-01)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8400	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	ed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/22/2013	ND	213	107	200	5.16	
DRO >C10-C28	51.1	10.0	06/22/2013	ND	218	109	200	9.40	
Surrogate: 1-Chlorooctane	9 <u>3</u> .8	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	100	% 63 6-15	4						

## Sample ID: SB 1 @ 3' (H301438-02)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: DW					Sec. 1
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1950	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyzed By: MS						1.1.1
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/22/2013	ND	213	107	200	5.16	
DRO >C10-C28	184	10.0	06/22/2013	ND	218	109	200	9.40	
Surrogate: 1-Chlorooctane	93.5	% 65.2-14	0					-	
Surrogate: 1-Chlorooctadecane	98.1	% 63.6-15	4						

#### **Cardinal Laboratories**

#### \*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

Page 2 of 11



RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:06/21/2013Reported:06/27/2013Project Name:GAINER UNIT #1Project Number:NONE GIVENProject Location:NOT GIVEN

Sampling Date: Sampling Type: Sampling Condition: Sample Received By: 06/20/2013 Soil Cool & Intact Jodi Henson

# Sample ID: SB 1 @ 15' (H301438-03)

Chloride, SM4500CI-B Analyzed By: DW mg/kg Method Blank True Value QC RPD Qualifier **Reporting Limit** Analyzed BS % Recovery Analyte Result 16.0 06/24/2013 ND 416 104 400 3.77 Chloride 224 mg/kg **TPH 8015M** Analyzed By: MS True Value QC RPD Qualifier Reporting Limit Analyzed Method Blank BS % Recovery Analyte Result GRO C6-C10 <10.0 10.0 06/24/2013 ND 204 102 200 1.58 DRO >C10-C28 <10.0 10.0 06/24/2013 ND 205 102 200 2.73 Surrogate: 1-Chlorooctane 65.2-140 88.6% 85.2 % 63.6-154 Surrogate: 1-Chlorooctadecane

# Sample ID: SB 1 @ 18' (H301438-04)

Chloride, SM4500CI-B	mg/kg		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg/kg		Analyzed By: MS				in.	1	1-144
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
DRO >C10-C28	<10.0	10.0	06/24/2013	ND	205	102	200	2.73	
Surrogate: 1-Chlorooctane	96.5	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	93.7	% 63.6-15	4						

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Celey D. Keine



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BS

% Recovery

Received:	06/21/2013	Sampling Date:	06/20/2013
Reported:	06/27/2013	Sampling Type:	Soil
Project Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

## Sample ID: SB 2 @ SURFACE (H301438-05)

 Chloride, SM4500CI-B
 mg/kg
 Analyzed By: DW

 Analyte
 Result
 Reporting Limit
 Analyzed

	Chloride	13000	16.0	06/24/2013	ND	416	104	400	3.77		
	TPH 8015M	mg/	kg	Analyze	d By: MS					S-06	
	Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Į	GRO C6-C10	<50.0	50.0	06/24/2013	ND	204	102	200	1.58		
1	DRO >C10-C28	4470	50.0	06/24/2013	ND	205	102	200	2.73		
	Surrogate: 1-Chlorooctane	97.7 9	65.2-14	0							
	Surrogate: 1-Chlorooctadecane	198 %	63.6-15	4							

### Sample ID: SB 2 @ 3' (H301438-06)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: DW						200
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	944	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: MS					1 Aller
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
DRO >C10-C28	14.8	10.0	06/24/2013	ND	205	102	200	2.73	
Surrogate: 1-Chlorooctane	92.8	65.2-14	10						
Surrogate: 1-Chlorooctadecane	91.6	63.6-15	54						

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RPD

True Value QC

Qualifier

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager

# CARDINAL

# Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	06/21/2013	Sampling Date:	06/20/2013
Reported:	06/27/2013	Sampling Type:	Soil
Project Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

## Sample ID: SB 2 @ 9' (H301438-07)

Chloride, SM4500CI-B mg/kg Analyzed By: DW Method Blank Qualifier Reporting Limit BS True Value QC RPD Analyte Result Analyzed % Recovery Chloride 144 16.0 06/24/2013 ND 400 3.77 416 104 TPH 8015M mg/kg Analyzed By: MS Qualifier Analyte Result **Reporting Limit** Analyzed Method Blank BS % Recovery True Value QC RPD GRO C6-C10 <10.0 10.0 06/24/2013 ND 204 102 200 1.58 DRO >C10-C28 <10.0 06/24/2013 ND 102 10.0 205 200 2.73 Surrogate: 1-Chlorooctane 65.2-140 99.7% Surrogate: 1-Chlorooctadecane 98.6 % 63.6-154

## Sample ID: SB 2 @ 12' (H301438-08)

Chloride, SM4500Cl-B	mg	/kg	Analyze	ed By: DW				1.	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: MS				e per d	he offer
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
DRO >C10-C28	87.8	10.0	06/24/2013	ND	205	102	200	2.73	
Surrogate: 1-Chlorooctane	97.5	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	102	% 63.6-15	4						

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#### \*=Accredited Analyte

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	06/21/2013	Sampling Date:	06/20/2013
Reported:	06/27/2013	Sampling Type:	Soil
Project Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

#### Sample ID: SB 3 @ SURFACE (H301438-09)

BTEX 8021B	mg	/kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	06/25/2013	ND	1.87	93.7	2.00	6.85	
Toluene*	<0.050	0.050	06/25/2013	ND	2.01	101	2.00	6.48	
Ethylbenzene*	< 0.050	0.050	06/25/2013	ND	2.17	108	2.00	6.77	
Total Xylenes*	<0.150	0.150	06/25/2013	ND	6.57	109	6.00	6.16	
Total BTEX	<0.300	0.300	06/25/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL 114% 89.4-126

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1180	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: MS			1.1.1	1.1	S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
000 - 010 020	8190	10.0	06/24/2013	ND	205	102	200	2.73	

Surrogate: 1-Chlorooctadecane

293 % 63.6-154

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#### \*=Accredited Analyte

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RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	06/21/2013	Sampling Date:	06/20/2013
Reported:	06/27/2013	Sampling Type:	Soil
Project Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

# Sample ID: SB 3 @ 6' (H301438-10)

Chloride, SM4500CI-B	mg	/kg	Analyze	ed By: DW			,		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1070	16.0	06/24/2013	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: MS				4	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
DRO >C10-C28	<10.0	10.0	06/24/2013	ND	205	102	200	2.73	
Surrogate: 1-Chlorooctane	92.9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	95.8	% 63.6-15	4						

# Sample ID: SB 3 @ 12' (H301438-11)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: DW					11111
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/24/2013	ND	432	108	400	3.77	
TPH 8015M	mg	/kg	Analyze	d By: MS				P	1
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/24/2013	ND	204	102	200	1.58	
DRO >C10-C28	<10.0	10.0	06/24/2013	ND	205	102	200	2.73	
Surrogate: 1-Chlorooctane	94.7	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	97.9	% 63.6-15	4						

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RICE ENVIRONMENTAL CONSULTING & SAFETY BRUCE BAKER 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

R	leceived:	06/21/2013	Sampling Date:	06/20/2013
R	eported:	06/27/2013	Sampling Type:	Soil
P	roject Name:	GAINER UNIT #1	Sampling Condition:	Cool & Intact
P	roject Number:	NONE GIVEN	Sample Received By:	Jodi Henson
P	roject Location:	NOT GIVEN		

#### Sample ID: SB 3 @ 15' (H301438-12)

Chloride, SM4500CI-B mg/kg Analyzed By: DW Analyte Method Blank Result **Reporting Limit** Analyzed BS % Recovery True Value QC RPD Qualifier Chloride 144 16.0 06/24/2013 ND 432 108 400 3.77 **TPH 8015M** mg/kg Analyzed By: MS Qualifier Analyzed Method Blank Analyte **Reporting Limit** BS True Value QC RPD Result % Recovery GRO C6-C10 <10.0 10.0 06/24/2013 ND 204 102 200 1.58 DRO >C10-C28 <10.0 10.0 06/24/2013 ND 205 102 200 2.73 103 % 65.2-140 Surrogate: 1-Chlorooctane 102 % 63.6-154 Surrogate: 1-Chlorooctadecane

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#### **Notes and Definitions**

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04 ·	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

Page 9 of 11

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**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST** 

ANALYSIS REQUEST 13/2/2/20 101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020 P.O. #: Project Manager: Bruce Baker Company Name: Aspen

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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-24/76

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Page 11 of 11



October 04, 2013

KYLE NORMAN RICE ENVIRONMENTAL CONSULTING & SAFETY LLC 419 W. CAIN HOBBS, NM 88240

RE: ASPEN GAINER UNIT #1

Enclosed are the results of analyses for samples received by the laboratory on 09/30/13 10:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="http://www.tceq.texas.gov/field/qa/lab\_accred\_certif.html">www.tceq.texas.gov/field/qa/lab\_accred\_certif.html</a>.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY KYLE NORMAN 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Soil
Project Name:	ASPEN GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

# Sample ID: SB #4 SURFACE (H302364-01)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/02/2013	ND	432	108	400	7.69	
TPH 8015M	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2013	ND	186	93.2	200	4.28	
DRO >C10-C28	<10.0	10.0	10/01/2013	ND	185	92.5	200	0.113	
Surrogate: 1-Chlorooctane	116	% 65.2-14	0				1		
Surrogate: 1-Chlorooctadecane	119	% 63 6-15	4						

# Sample ID: SB #4 6' (H302364-02)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	10/02/2013	ND	432	108	400	7.69	
TPH 8015M	mg,	/kg	Analyze	d By: MS					1 1 1
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/01/2013	ND	186	93.2	200	4.28	
DRO >C10-C28	<10.0	10.0	10/01/2013	ND	185	92.5	200	0.113	
Surrogate: 1-Chlorooctane	85.6	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	90.9	% 63.6-15	4						

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# CARDINAL

# Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY KYLE NORMAN 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Soil
Project Name:	ASPEN GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

#### Sample ID: SB #4 9' (H302364-03)

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	10/01/2013	ND	1.99	99.3	2.00	0.254	
Toluene*	< 0.050	0.050	10/01/2013	ND	2.02	101	2.00	0.364	
Ethylbenzene*	<0.050	0.050	10/01/2013	ND	2.04	102	2.00	0.293	
Total Xylenes*	<0.150	0.150	10/01/2013	ND	6.27	105	6.00	0.651	
Total BTEX	<0.300	0.300	10/01/2013	ND					
Surrogate: 4-Bromofluorobenzene (PIL	113	% 89.4-12	6						1.12
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	10/02/2013	ND	432	108	400	7.69	
TPH 8015M	mg/	/kg	Analyze	d By: MS			1.1.4		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

ND

ND

186

185

93.2

92.5

200

200

4.28

0.113

10/01/2013

10/01/2013

Surrogate: 1-Chlorooctane84.2 %65.2-140Surrogate: 1-Chlorooctadecane92.4 %63.6-154

<10.0

<10.0

10.0

10.0

#### **Cardinal Laboratories**

GRO C6-C10

DRO >C10-C28

#### \*=Accredited Analyte

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# CARDINAL

# Analytical Results For:

RICE ENVIRONMENTAL CONSULTING & SAFETY KYLE NORMAN 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Soil
Project Name:	ASPEN GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

## Sample ID: SB #4 15' (H302364-04)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/02/2013	ND	432	108	400	7.69	
ТРН 8015М	mg/kg		Analyzed By: MS					1.1.	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/02/2013	ND	206	103	200	0.565	
DRO >C10-C28	<10.0	10.0	10/02/2013	ND	203	102	200	4.45	
Surrogate: 1-Chlorooctane	106	% 65.2-14	0						15.00
Surrogate: 1-Chlorooctadecane	109	% 63 6-15	4						

# Sample ID: SB #4 18' (H302364-05)

Chloride, SM4500Cl-B		mg	/kg	Analyze	d By: AP	-		and the state		
Analyte		Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride		80.0	16.0	10/02/2013	ND	432	108	400	7.69	
TPH 8015M		mg	mg/kg		Analyzed By: MS			1.1.1	29	a de la
Analyte		Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10		<10.0	10.0	10/02/2013	ND	206	103	200	0.565	
DRO >C10-C28		<10.0	10.0	10/02/2013	ND	203	102	200	4.45	
Surrogate: 1-Chlorooctan	ne	97.9	% 65.2-14	0						
Surrogate: 1-Chlorooctad	decane	98.7	% 63.6-15	4						

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY KYLE NORMAN 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Soil
Project Name:	ASPEN GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

#### Sample ID: SB #5 SURFACE (H302364-06)

Chloride, SM4500CI-B Analyzed By: AP mg/kg Analyte Result Reporting Limit Analyzed Method Blank BS % Recovery True Value QC RPD Qualifier 10/02/2013 ND Chloride <16.0 16.0 432 108 400 7.69 Analyzed By: MS **TPH 8015M** mg/kg Reporting Limit Analyzed Method Blank BS True Value QC RPD Qualifier Analyte Result % Recovery GRO C6-C10 <10.0 10.0 10/02/2013 ND 206 103 200 0.565 DRO >C10-C28 44.3 10/02/2013 ND 203 102 200 4.45 10.0 102 % 65.2-140 Surrogate: 1-Chlorooctane 105 % Surrogate: 1-Chlorooctadecane 63.6-154

# Sample ID: SB #5 9' (H302364-07)

Chloride, SM4500CI-B	mg/kg		Analyze	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1960	16.0	10/02/2013	ND	432	108	400	7.69		
TPH 8015M	mg/kg		Analyzed By: MS						1.0	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/02/2013	ND	206	103	200	0.565		
DRO >C10-C28	<10.0	10.0	10/02/2013	ND	203	102	200	4.45		
Surrogate: 1-Chlorooctane	102	% 65.2-14	10						1	
Surrogate: 1-Chlorooctadecane	99.2	% 63.6-15	4							

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



RICE ENVIRONMENTAL CONSULTING & SAFETY KYLE NORMAN 419 W. CAIN HOBBS NM, 88240 Fax To: (575) 397-1471

Received:	09/30/2013	Sampling Date:	09/27/2013
Reported:	10/04/2013	Sampling Type:	Soil
Project Name:	ASPEN GAINER UNIT #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

## Sample ID: SB #5 18' (H302364-08)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/02/2013	ND	432	108	400	7.69	
TPH 8015M	mg	/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/02/2013	ND	206	103	200	0.565	
DRO >C10-C28	<10.0	10.0	10/02/2013	ND	203	102	200	4.45	
Surrogate: 1-Chlorooctane	105	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	106	% 63.6-15	4						

# Sample ID: SB #5 21' (H302364-09)

Chloride, SM4500CI-B	mg/kg			Analyzed By: AP						- and
Analyte	Resu	lt Rep	orting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	5	16.0	10/02/2013	ND	432	108	400	7.69	
ТРН 8015М		mg/kg		Analyzed By: MS				1.1.1		192
Analyte	Resu	lt Rep	orting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.	.0	10.0	10/02/2013	ND	206	103	200	0.565	
DRO >C10-C28	<10.	.0	10.0	10/02/2013	ND	203	102	200	4.45	
Surrogate: 1-Chlorooctane		112 %	65.2-140	)						
Surrogate: 1-Chlorooctadecane		113 %	63.6-154	<i>t</i>						

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Celey D. Keine



# **Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.

Insufficient time to reach temperature.

ND

Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager

Page 7 of 8



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 1575) 393-2326 FAX (575) 393-2476

lueinheimer Drice-ecs.com ecesareo a) rice-ecs.com ANALYSIS REQUEST Knorman as rice - ecs, com hearder a ricesud com 
 Tes
 No
 Add'l Phone #:

 Tes
 No
 Add'l Fax #:
 XJI ଚ Hdl ess made in writing and received by Cardinal within 30 days after completion of the applicable business interruptions, loss of use, or loss of profits incurred by client, its subsidiantes, CHLORIDES Phone Result: Fax Result: REMARKS: int paid by the client for the 01:10 10:30 11:00 SHIP 00;0 à 22-13 9:30 50:11 9:55 TIME 10145 SAMPLING BILLTO DATE any of the above stated DBY: Zip: † Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-1926 PRESERV : ABHTO MENDON Company: Address: ICE / COOF Phone #: P.O. #: Fax #: Attn: State: ACID/BASE: City: : ABHTO Sample Condition Cool Intact SLUDGE MATRIX 710 TIOS ABTAWBTSAW ceived By ASPEN COAINER AN IT # 1 -11.8% RECOUNDWATER Company Name: ASPEN OPERATING CO. # CONTAINERS 0 Zip: S 0 00 9 (G)RAB OR (C)OMP. 9 edy for any cla he and any other cause whatsoever shall be deen (575) 393-2326 FAX (575) 393-2476 Project Owner: sertice herean when EDWARN CESAREZ of : Quint State: Project Manager: Kyle Norman Fax #: uctace Time: Date: Surface Sample I.D. 00 Sampler - UPS - Bus - Other: Delivered By: (Circle One) plue 28414 58444 SB#4 5844 SBHU SBHS SB# analyses. All claims including those for negl 50# ervice. In no event shell Cardinal Project Location: Sampler Name: 8 0 FOR LAB USE ONLY Project Name: H307364 M S 5 Lab I.D. PLEASE NOTE: Lial Project #: Address: Phone #: City:

Page 8 of 8

U.S. ENVIRONMENTAL PROTECTION AGENCY

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MULTIMEDIA MODEL

MULTIMED (Version 1.50, 2005)

un options

spen Gainer Unit #1

RP-2-13-2903 hemical simulated is Chloride

Saturated and unsaturated zone models DETERMIN nfiltration Specified By User: 3.048E-02 m/yr aussian source used in saturated zone model eject runs if Y coordinate outside plume eject runs if Z coordinate outside plume ell Times: Entered Explicitly un was transient ption Chosen un was

NSATURATED ZONE FLOW MODEL PARAMETERS input parameter description and value) P - Total number of nodal points MAT - Number of different porous materials PROP - Van Genuchten or Brooks and Corey MSHGN - Spatial discretization option VFLAYR - Number of layers in flow model

240

PTIONS CHOSEN

an Genuchten functional coefficients ser defined coordinate system ayer information

MATERIAL PROPERTY

DATA FOR MATERIAL

-
VADOSE TRANSPORT VARIABLES H 

MAX -999.0 -999. -999. LIMITS -999. MIN -999. -999. STD DEV -999. -9999. PARAMETERS MEAN 0.250 0.700 32.0 3.60 DISTRIBUTION CONSTANT CONSTANT CONSTANT CONSTANT cm/hr UNITS ł 8 8 Saturated hydraulic conductivity Air entry pressure head Depth of the unsaturated zone VARIABLE NAME Unsaturated zone porosity 

VADOSE ZONE MATERIAL VARIABLES

DATA FOR MATERIAL  VADOSE ZONE FUNCTION VARIABLES

							1
VARIABLE NAME	UNITS	DISTRIBUTION	PARA	METERS	LJ.	MITS	
			MEAN	STD DEV	NIM	MAX	
							1
Residual water content	-	CONSTANT	0.116	-999.	-999.	-999.	
Brook and Corev exponent, EN	1	CONSTANT	- 666 -	-999.	-999.	-999.	
ALFA coefficient	1/cm	CONSTANT	0.500E-0	2 -999.	-999.	-999.	
Van Genuchten exponent, ENN	1	CONSTANT	1.09	-999.	-999.	-999.	

NSATURATED ZONE TRANSPORT MODEL PARAMETERS

LAY	4	Number of different layers used	Ч
TSTPS	I	Number of time values concentration calc	40
XMMU	I	Not presently used	Ч
SOL	I	Type of scheme used in unsaturated zone	2
	I	Stehfest terms or number of increments	18
TEL	1	Points in Lagrangian interpolation	e
GPTS	1	Number of Gauss points	104
LI	T	Convolution integral segments	2
BOUND	1	Type of boundary condition	m
TSGEN	T	Time values generated or input	Ч
MAX	1	Max simulation time	0.0
TFUN	1	Weighting factor	1.2

PTIONS CHOSEN -----

onvolution integral approach

xponentially decaying continuous source omputer generated times for computing concentrations

DATA FOR LAYER

EV MIN MAX	. 666 . 666 	EV MIN MAX	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	EV MIN MAX	
ARAMETERS N STD D		PARAMETERS		PARAMETERS	5E-01 -999. 5E+04 -999. -9999. -9999. -9999. E+01 0.000 7E+04 -999. 38 -999.
Personal P Personal Personal P				I MEA	0.305 0.305 0.273 50.0 -999 0.000 0.250 0.127 52.3
DISTRIBUTION	CONSTANT CONSTANT DERIVED CONSTANT CONSTANT CONSTANT AL SPECIFIC VARI	DISTRIBUTION	DERIVED DERIVED DERIVED DERIVED CONSTANT	DISTRIBUTION	CONSTANT CONSTANT CONSTANT DERIVED DERIVED CONSTANT CONSTANT CONSTANT DERIVED
STINU	m m g/cc 1/yr CHEMIC	UNITS	e) 1/yr 1/yr 1/yr 1/yr 1/yr c ml/g e) 1/yr cm2/s enmm Hg atm-m^3/M sOUR	STINU	m/Yr m^2 yr yr m/Yr mg/1 m
VARIABLE NAME	Thickness of layer Longitudinal dispersivity of layer Percent organic matter Bulk density of soil for layer Biological decay coefficient	VARIABLE NAME	Solid phase decay coefficient Dissolved phase decay coefficient Overall chemical decay coefficient Acid catalyzed hydrolysis rate Neutral hydrolysis rate constant Base catalyzed hydrolysis rate Reference temperature Normalized distribution coefficient Distribution coefficient (sat. zon Air diffusion coefficient (sat. zon Air diffusion coefficient Reference temperature for air diffus: Mole fraction of solute Henry's law constant Not currently used Not currently used	VARIABLE NAME	Infiltration rate Area of waste disposal unit Duration of pulse Spread of contaminant source Recharge rate Source decay constant Initial concentration at landfill Length scale of facility

AULFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAM MEAN	ETERS STD DEV	MIN	IMITS MAX
Particle diameter	Cm	CONSTANT				-999.
Aquifer porosity	1	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	n H	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)	1	CONSTANT	0.300E-02	-999.	-999.	- 666-
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient		DERIVED	-999.	-999.	-999.	- 666-
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	- 666-
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-666-
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	U	CONSTANT	20.0	-999.	-999.	- 666 -
Hd	-	CONSTANT	7.00	-999.	-999.	-666-
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	- 666-
Well distance from site	ш	CONSTANT	1.00	-999.	-999.	- 666 -
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

