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

### 1RP-03-11-2691

State of New Mexico Energy Minerals and Natural Resources

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

Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

			Rel	ease Notific	catio	n and Co	orrective A	ction		
						<b>OPERA</b>	TOR	[	Initia	al Report
Name of Co	ompany: T	arga Midstr	eam Serv	vices, L.P.		Contact: Ca	al Wrangham			
Address: 6	Desta Dri	ve, Suite 320	00, Midla	and, Texas 7970			No.: (432) 688-			
Facility Na	me: R. D.	Sims 8" (W	est Locat	tion)		Facility Typ	e: Natural Gas	Pipeline	9	
Surface Ow	ner: Willi	am Sims		Mineral (	Owner				Lease N	No.
				LOCA	ATIO	N OF RE	LEASE			
Unit Letter L	Section 26	Township 22S	Range 37E	Feet from the	North	/South Line	Feet from the	East/W	est Line	County: Lea
				Latitude: N3	32.3592	2° Longitud	le: W103.1419°			
				NAT	TURE	OF REL				
Type of Rele		vorking on old	deita			Volume of	Release:		Volume I	Recovered:
Source of Re			1 SILC		* L <sub>k</sub>	Date and I	Hour of Occurrence	ce:	Date and	Hour of Discovery:
		21 0				N/A	****		N/A	
Was Immedi	ate Notice (		Yes [	No ⊠ Not R	equired	If YES, To	Whom?			
By Whom?						Date and I				
Was a Water	course Read		Yes 🛭	No		If YES, Vo	olume Impacting	the Water	rcourse.	
If a waterco	urse was im	pacted, Descr	ibe runy.							
				ion Taken.*□Twi					locations	(west and east) from corrosion.
Describe Are excavations cubic yards of bottom of the north side of excavation a feet bgs, resp from heater observed. The	ea Affected measures ap of contamin e east excave f the west of t 35' bgs. I pectively. C treater local PH in soil s il from offsi	and Cleanup oproximately ated soil was vation at apprexcavation at Highest chloride chloride in we ted about 100 stockpiles belote te source. A f	Action Ta 45'L x 65 excavated oximately approxim de in bott st excavate of feet nortow RRAL inal letter,	ken.* Two (2) lead of W x 27'D and the dand hauled to P of 15' bgs and is becaused in the day of 12 feet bgs om of east excavation is believed to the of the excavation and chloride rang, including photog	he east of drabo D elow RI s and do ation is be from on. The ges from graphs, v	c observed on excavation moving the property of the NAL of 1,000 ecreases to 4 123 mg/Kg at 14 inch PVC e PVC line con 23.1 to 260 will be submit	the same line appearance approximation of the desired approximation of the	oroximate ately 20'1 est in-situ comum obta reases to a sed by a tlase at about approval completic ately 20'1 est approval completic ately 20'1 est ately 20'1 est ately 20'1 est approval completic ately 20'1 est atel	L X 25'W TPH conchloride coainable sa 8.16 mg/k hird party out 3 feet 1 to fill ex on.	(west and east) apart. The west X 15°D. Approximately 1,624 incentration in 82.6 mg/Kg in the oncentration is 783 mg/Kg from ample depth) in bottom of west Kg and 11.7 mg/Kg at 21 and 24 to convey produced water south bgs where a dresser sleeve was accavations with soil from 5 piles
regulations a public health should their or the enviro	or the envious longerations longerations. In	are required ironment. The have failed to	to report ae accepta adequate	and/or file certaince of a C-141 rely investigate and	in release eport by remedia	the NMOCE ate contamina	ns and perform co marked as "Fina tion that pose a th	orrective al Report' hreat to g	actions for does not ground wa	pursuant to NMOCD rules and or releases which may endanger t relieve the operator of liability ter, surface water, human health of for compliance with any other
G:			7				OIL CON			DIVISION
Signature: Printed Nam	e: Mark J. l	Larson				Annroyed by	District Supervis		3-11-269	
	- 753	4	Associat	es, Inc. (Agent)		Approved by  Approval Da			xpiration	Date:
THE. SI. FIC	jeet ivialiage	or, Darson and	ASSOCIAL	es, me. (Agent)		ripprovai Da		E.	Apiration	Duit.
E-mail Addr Date: 04/03		laenvironmen	tal.com		200.0	Conditions of	f Approval:			Attached
Phone: (43	2) 687-0901			56-8656 (Cell)						
Attach Addi	tional She	ets If Necess	sary							

District I 1625 N. French Dr., Hobbs, NM 88240 District II
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### State of New Mexico **Energy Minerals and Natural Resources**

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

Form C-141 Revised October 10, 2003

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# Release Notification and Corrective Action

					OPE	RATOR		Initia	al Repor	rt 🔲 Final Report
Name of Co	mpany: T	arga Midstr	eam Serv	ices L P					huck Tol	sma 575.631.6026
		9 Eunice, NI	M 88231				No. (575) 394-2			
Facility Nar	ne: Eunic	e Gas Plant				Facility Typ	e: Natural Gas	Gathering	System	
Surface Ow	ner: Bill S	ims		Mineral C	wner:			I	Lease N	0.
				LOCAT	TON	OF REL	EASE			
Unit Letter	Section	Township	Range	Feet from the	North	South Line	Feet from the	East/Wes	t Line	County
	27	228	37E							Lea
				Latitude 32						
				NATU	REC	FRELE		1 50		
Type of Relea		working on ol	d sites			Volume of	Release:	V	olume R	ecovered:
Source of Rei	ease:					Date and F	lour of Occurrence	e: Da		Hour of Discovery
Was Immedia	te Notice C					If YES, To	Whom?			
		Yes	□ No	Not Req	uired					
By Whom?		- 40				Date and I				
Was a Water	zourse Reac					If YES, Vo	olume Impacting t	the Waterco	mrse.	•
			Yes	No No						
If a Watercon	rse was Im	pacted, Descri	ibe Fully.							
Describe Cau Twin 8 inch r	se of Proble	em and Reme	dial Action	n Taken. * ed leaks from corre	osion. I	ines were sh	ut in and 300 feet	of 6 inch p	oly line	was inserted into each of
the steel lines	Contamir	nated soil will	be excava	ated and disposed	of in an	OCD approv	ed landfarm.			
Describe Are							*			
		es are used for OCD guideling		r the 6 inch poly l	mes. A	reas of contai	mination will be a	ddressed ar	ad excav	ated and sampled to
										ant to NMOCD rules and
regulations al	operators	are required to	o report as	nd/or file certain re	elease n	otifications a	nd perform correct	tive actions	s for rele	ases which may endanger eve the operator of
liability shoul	d their one	rations have fi	acceptant	equately investiga	ate and a	emediate con	ntamination that o	eport does ose a threat	to groun	nd water, surface water,
human health	or the envi	rooment. In a	ddition, N	IMOCD acceptant						nsibility for compliance
with any othe	r federal, st	ate, or local la		regulations.						
Signature:	Van	- En	In				OIL CONSI	ERVATI	ON D	IVISION
Printed Name	: Don Emb		(	1		Approved by	District Supervis	or:		
Title: Trainin	g Specialist					Approval Dat	te:	Exp	iration I	Date:
E-mail Addre	ss: dembrey	y@targaresou	rces.com			Conditions of	f Approval:			Attached
Date: Decemb	per 1, 2010	Phone: (432)	688-0546	<u> </u>		_				

<sup>\*</sup> Attach Additional Sheets If Necessary

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Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

# Release Notification and Corrective Action

					OP	ERATOR		Initial Repo	rt 🔲 F	inal Repor
Name of Co	mpany: 7	arga Midstr	eam Serv	rices L P	1-9-4	Contact: G	ary Maricle 575.3	94.2534, Chuck To	lama 575.631	.6026
		9 Eunice, N					No. (575) 394-2			
		e Gas Plant				Pacility Typ	e: Natural Gas	<b>Gathering System</b>	1	
Sames O	nor Dill C	lima		Mineral C	Imman	1/2		Lease N	Jo.	
Surface Ow	ucr. bill S	шв		TATHICIST C	JWHCT.	-	-	Loase	10.	
				LOCAT	TION	OF REL	EASE			
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	East/West Line	County	
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									Lea	
				Latitude 32.	35927	Longitud	103.1419			
						OF RELE				
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		working on oi	ld sites			1014110		7 444		
				A 10			let's en			
Source of Re	lease:			115			Hour of Occurren		Hour of Disc	overy
		a				NA TOTAL	*Y75 C	NA NA		
Was Immedi	ate Notice			Tel.		If YES, T	whom?			
		Yes	N	o E Not Rec	quired					
By Whom?		7.317			-	Date and		*		
Was a Water	course Rea	ched?			18 1			the Watercourse.		
		Г	Yes	№ No						
Twin 8 inch	natural gas	em and Remo gathering line nated soil wil	es develop	on Taken. * ed leaks from corr ated and disposed	rosion. I of in a	Lines were sl an OCD appro	nut in and 300 fee wed landfarm.	t of 6 inch poly line	was inserted	into each o
The two 8 is	ich steel lin	and Cleanup les are used fo OCD guidelin	or casing fo	ken.* or the 6 inch poly	lines.	Areas of conta	mination will be	addressed and exca	vated and san	apled to
regulations a public healti liability show human healt	all operators or the envi ald their open h or the env	s are required ironment. The erations have vironment. In	to report a e acceptant failed to a addition,	nd/or file certain ace of a C-141 rep dequately investig	release ort by t	notifications of the NMOCD red remediate co	and perform corre- narked as "Final I ntamination that p	understand that pur ective actions for re- Report" does not re- pose a threat to grow the operator of resp	eases which nieve the open and water, sur	nay endang ator of face water,
Signature:	Om	- &	la	5			OIL CONS	ERVATION I	DIVISION	230
Printed Nam	e: Don En	nbrey		9		Approved by	District Supervi	sor:		1
Title: Traini	ng Speciali	st				Approval Da	nte:	Expiration	Date:	
E-mail Add	ess: dembr	ey@targareso	arces.com	11.00		Conditions	of Approval:		Attached	
Date: Decen	ber 1, 2010	Phone: (432	2) 688-054	16						4 1

### HOBBS OCD

JUN 2 4 2011

<u>District I</u> 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

### 1RP-03-11-2691

State of New Mexico Energy Minerals and Natural Resources RECEIVED

Revised October 10, 2003

Form C-141

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

				Sa	nta F	e, NM 8750	)5					
			Rel	ease Notifi	catio	on and Co	orrective A	ction				
						OPERA'	TOR		Initia	al Report		epor
Name of C	ompany:	Targa Midstr	eam Serv	vices, L.P.		Contact: Ca	al Wrangham					
				nd, Texas 7970	5		No.: (432) 688-	0452				
		Sims 8" (W					e: Natural Gas					
					_							
Surface Ov	vner: Will	iam Sims		Mineral (	Owner				Lease N	10.		
				LOCA	ATIC	ON OF RE	LEASE					
Unit Letter	Section	Township	Range	Feet from the	Nort	h/South Line	Feet from the	East/We	est Line	County: Le	a	
L	26	22S	37E									
	1			Y - 424 - 3 - 21	22.250	20 Y						
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Source of Re	rease. Tipe	illo Deak				N/A	iour or occurrent		N/A	riour or Disco	very.	
Was Immedi	ate Notice (					If YES, To	Whom?					
			Yes [	No Not R	equired	i						
By Whom?						Date and F						
Was a Water	course Read		5			If YES, Vo	olume Impacting t	the Water	course.			
			Yes 🗵	No								
If a Watercon	urse was Im	pacted, Descr	ibe Fully.	*								
Describe Car	ise of Prob	lem and Rem	edial Acti	ion Taken.* Tw	in 8" n	atural gas line	s developed leak	s at two 1	locations	(west and eas	t) from corros	sion.
							o each of the stee					
							mately 45'L x 65					
							ed and disposed a et bgs and below					
							feet bgs. Chloric					
(404 mg/Kg)	at approxir	nately 35 feet	bgs and<	16.6 mg/Kg in ea	st exac	ction at 21 feet	bgs. Highest TP	H and chl	loride in s	soil piles is 19	.8 mg/Kg and	260
mg/Kg, respe	ctively, fro	m Pile #1. Tr	iassic Chi	nle formation (red	d bed) a	at approximate	ly 38 feet bgs wit	h no grou	ndwater p	resent. Targa	requests appr	roval
from OCD to	close exca	vations with	soil from	soil piles and cle	an soil	from offsite s	ource. A final le	tter will b	e submitt	ed to OCD u	pon completio	on of
backfilling, in												
I hereby cert	ify that the	information g	given abo	ve is true and coi	mplete	to the best of	my knowledge a	nd unders	stand that	pursuant to N	MOCD rules	and
							s and perform co marked as "Fina					
							tion that pose a th					
							elieve the operato	_				
federal, state,										•		
	1	/	1				OIL CON	SERVA	ATION	DIVISION	1	
Ciamatuma	100	1//						1RP-03-	-11-2691			
Signature:	uch	will	-	<b>2</b>								
Printed Name	: Cal Wran	igham				Approved by	District Supervis	or:				
***				I D				-		Deter		
Title: EHS M	anager, Tar	ga midstream	Services,	L.P.		Approval Dat	e:	Ex	piration l	Date:		
E-mail Addre	ss: CWrang	ham@targare	sources.c	om	7	Conditions of	Approval:			Austra		
Date: 06/23/							* *			Attached		
Phone: (432	() 688-0542	(Office)	(432) 42	25-7072 (Cell)								

Phone: (432) 688-0542 (Office) \* Attach Additional Sheets If Necessary

### 1.0 EXECUTIVE SUMMARY

This report is submitted to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs, New Mexico, for investigation and remediation of a natural gas liquid (NGL) release at the R.D. Sims 8 inch pipeline segment operated by Targa Midstream Services, L.P. (Targa) in Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East in Lea County, New Mexico. As operator for Versado Gas Processors, LLC, on December 1, 2010, Targa reported two releases (west and east) at the location while inserting a polyethylene line inside the 8 inch steel pipe. Targa submitted the initial C-141 and OCD assigned remediation project (RP) number 1RP-03-11-2691. This report is for the west location. Targa will remediate the east location upon filling the west excavation. The geodetic position is north 33° 21′ 32.55″ and west 103° 08′ 28.80″.

On March 2, 2011, Larson & Associates, Inc. (LAI) personnel used stainless steel sample trowels to collect 13 discrete soil samples from the bottom of the excavation at approximately 27 feet below ground surface (bgs) and sidewalls (east, south, west and north) at approximately 20, 12 and 6 feet bgs, in ascending order. Four 5-spot composite samples were collected from 4 soil piles that resulted from benching the excavation to satisfy workplace safety concerns. The soil samples were placed in clean 4-ounce glass jars that were filled to near zero headspace, labeled, chilled in an ice filled chest and delivered under chain of custody control to Xenco Environmental Laboratories, located in Odessa, Texas. The laboratory analyzed the samples for total petroleum hydrocarbons (TPH), including gasoline (GRO), diesel (DRO) and oil range organics, and chloride by EPA methods SW-8015M and 300, respectively. A portion of each sample was collected in a clean 8-ounce glass jar that was partially filled, sealed with aluminum foil, capped and allowed to reach ambient temperature before testing with a calibrated photoionization detector (PID). The highest PID reading was 13.9 parts per million (ppm) in the north sidewall sample from approximately 12 feet bgs.

The highest TPH concentration in the excavation samples was 22.4 milligram per kilogram (mg/Kg) from the south sidewall at approximately 12 feet bgs. TPH was less than the method detection limit of 16.2 mg/Kg in the bottom sample from approximately 27 feet bgs. The highest chloride concentration in the excavation samples was 783 mg/Kg at approximately 12 feet bgs from the north sidewall and decreased to 660 mg/Kg in the bottom sample from approximately 27 feet bgs. The highest TPH concentration in the soil pile samples was 19.8 mg/Kg from Pile #1. The highest and lowest chloride concentrations in the soil pile samples were 260 mg/Kg (Pile #1) and 41.20 mg/Kg (Pile #3).

The chloride is believed to be from a 4 inch PVC line that a third party previously used to convey produced water from a heater treater located about 100 feet north of the Site. The PVC line extended across the west excavation and was not identified during utility notification. However, the PVC line was encountered about 3 feet bgs near the center of the west excavation where a dresser sleeve was observed on the line.

Since soil has been remediated below the OCD recommended remediation action level (RRAL) for TPH (1,000 mg/Kg), Targa respectfully requests approval to fill the excavation with soil from the piles and clean soil from an offsite source. Targa will commence cleanup at the east location upon filling the west exaction and submit a separate report to the OCD.

### 2.0 INTRODUCTON

In November 2010, while inserting a polyethylene pipe inside the 8 inch steel pipeline, Targa Midstream Services, L.P. (Targa) identified two locations (west and east) where natural gas liquid (NGL) had leaked from south pipeline of two 8" pipelines known as the R.D. Sims 8" (Site) located in Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East, Lea County, New Mexico. On December 1, 2010, Targa submitted the initial C-141 to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs, New Mexico and was assigned remediation project (RP) number 1RP-03-11-2691. Environmental Plus, Inc. (EPI), Eunice, New Mexico, excavated approximately 1,624 cubic yards of soil which was disposed at the Parabo Disposal Facility (NM-01-0003) operated by Sundance Services, Inc. and located east of Eunice, New Mexico.

On February 3, 2011, Larson & Associates, Inc. (LAI) was retained to investigate the release, collect soil samples for field and laboratory analysis and prepare a report. This report presents the results of soil samples collected from the west location and soil piles on March 2, 2011. The geodetic position is north 33° 21′ 32.55″ and west 103° 08′ 28.80″. Figure 1 presents a location and topographic map. Figure 2 presents an aerial photograph.

# 2.1 Chronology

2.1 Chronology	
November 2010	Targa identified two leak locations (west and east) on the R.D. Sims 8" pipeline while inserting a polyethylene pipe inside the steel pipe. The leaks were repaired and Targa began excavating soil for disposal at the Parabo Disposal Facility located near Eunice, New Mexico;
November 30, 2010	Targa personnel collected initial soil samples from the bottom and sidewalls of the west excavation for TPH (8015M) and chloride (SM4500CI-B) analysis by Cardinal Laboratories, located in Hobbs, New Mexico;
December 1, 2010	Targa submitted the initial C-141 to the OCD District 1 in Hobbs, New Mexico;
December 15, 2010	Targa excavated additional soil and collected soil samples from the bottom and sidewalls of the west location for TPH (8015M) and chloride (SM4500CI-B) analysis by Cardinal Laboratories, located in Hobbs, New Mexico;
January 28, 2011	Landowner contracted Basin Environmental Service Technologies, Inc., to collect soil samples from the north side of the west location for chloride analysis by field method (Hach Quantab);

March 2, 2011 LAI personnel collected soil samples from the bottom and sidewalls of

the west excavation for TPH (SW-8015M) and chloride (SW-300)

analysis by Xenco Laboratories, located in Odessa, Texas.

March 22, 2011 LAI personnel used a Terraprobe® direct push sample rig to collect samples from the bottom of the west excavation for chloride analysis

and grab samples from the bottom and sidewalls of the east excavations for TPH (SW-8015M) and chloride (Standard Method 300) by Xenco

Laboratories, located in Odessa, Texas.

# 2.2 Setting

The Site is located about 5 miles southeast of Eunice, in rural Lea County, New Mexico. The surface elevation is approximately 3,315 feet above mean sea level (MSL) and slopes gently to the southeast. The soil is designated "Simona fine sandy loam, 0 to 3 percent slopes" with color from pale brown to grayish brown and fine sandy loam with fragments of hard caliche. The "c" layer is comprised of white caliche that is indurated to strongly cemented. The soil is used for range, wildlife and recreation. The nearest surface water feature is Monument Draw which is located about 1.3 miles (6,800 feet) southeast of the Site.

According to the *Geologic Map of New Mexico* and the *Geologic Atlas of Texas, Hobbs Sheet* the surface geology is comprised of Holocene to mid-Pleistocene age wind-blown sand. This material covers the eastern flank of the Pecos River valley and derived principally from reworking the underlying Tertiaryaged Ogallala formation of the Southern High Plains. The Ogallala formation is comprised of fluvial sand, silt, clay and localized gravel, with indistinct to massive crossbeds. The Ogallala sand is generally fine- to medium-grained quartz, and is known to contain arsenic, barium and other heavy metals.

In the Eunice area, the Ogallala formation consists mainly of unconsolidated to poorly consolidated, very fine to medium-grained quartz sand and gravel, with minor amount of silt and clay. An upper-most unit, the Blackwater Draw formation, consists of reddish brown, very fine to fine grained eolian sand with minor amounts of clay and caliche. Locally the "c" horizon of the Simona fine sandy loam, 0 to 3 percent slopes, is called the caprock caliche. The caprock is a hard, erosion resistant, pedogenic calcrete that is typically five to ten feet thick but may exceed 20 feet in some areas.

Groundwater occurs in the Ogallala formation at approximately 70 feet below ground surface (bgs) based on records of water levels from Office of the New Mexico State Engineer. The regional groundwater flow direction is to the southeast and the nearest well was observed about 2,000 feet southwest (cross gradient) from the Site. This well is used for livestock watering. Figure 1 presents approximate water well locations and depth to groundwater based on records from the Office of the New Mexico State Engineer.

### 3.0 REMEDIATION

Between November and December 2010, EPI excavated approximately 1,624 cubic yards of soil which was disposed at the Parabo Disposal Facility (NM-01-003) operated by Sundance Services, Inc., located east of Eunice, New Mexico. In February 2011, EPI excavated about 400 cubic yards of soil while benching the west excavation for safety concerns.

On March 2, 2011, LAI personnel collected soil samples from the bottom of the west excavation at approximately 27 feet bgs and sidewalls (east, west, south and north) at approximately 20, 12 and 6 feet bgs, in ascending order. Four 5-spot composite samples were collected from 4 soil piles that resulted from benching activities.

On March 22, 2011, LAI personnel used a Terraprobe® direct push rig to collect soil samples from the bottom of the west excavation to approximately 35 feet bgs. These samples were analyzed for chloride using Standard Method 300. Also, on March 22, 2011, LAI personnel collected grab samples from the bottom and sidewalls of the east excavation for laboratory analysis of total petroleum hydrocarbon (TPH) analysis by method SW-8015 and chloride by Standard Method 300. A 5-part composite sample of soil excavated from the soil wall of the east excavation (Pile #5) was also collected and analyzed for TPH and chloride.

The grab and composite samples were collected using stainless steel sample trowels that were decontaminated between uses by washing with a solution of laboratory grade (Alconox) detergent and water and rinsed with distilled water. The Terraprobe® samples were collected with a 4-foot long stainless steel core barrel that was equipped with disposable polyethylene liners. The samples were placed in 4-ounce clean glass sample jars that were filled to near zero headspace, labeled, chilled in an ice filled chest and hand delivered under chain of custody control to Xenco Laboratories, Inc., located in Odessa, Texas. Figure 3 presents the approximate sample locations.

A portion of each grab and composite sample was collected in a clean 8 ounce glass jars for headspace vapor analysis. The jars were partially filled, sealed with aluminum foil before securing the cap. After approximately 30 minutes at ambient temperature the headspace vapor concentration was measured using a calibrated Thermo Environmental instruments Model 580B organic vapor meter (OVM) photoionization detector (PID). The highest PID reading was 13.9 parts per million (ppm) from the north sidewall at approximately 12 feet bgs. Since all PID readings were below 100 ppm the laboratory analyzed the samples for total petroleum hydrocarbons (TPH), including gasoline (GRO), diesel (DRO) and oil range organics, and chloride by EPA methods SW-8015M and 300, respectively. Table 1 presents a summary of the laboratory analysis. Appendix A presents the laboratory report.

The following criteria were used to calculate recommended remediation action levels for the release:

Ranking Criteria	Result	Ranking Score
Depth-to-Groundwater	50 to 99 feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
From the Control of t	Total Score:	10

The following RRAL were calculated for 1RP-03-11-2691:

 Benzene:
 10 mg/Kg

 BTEX:
 50 mg/Kg

 TPH:
 1,000 mg/Kg

### 4.0 CONCLUSIONS

The highest TPH in the excavation samples was 82.8 mg/Kg from the bottom of the east excavation at approximately 15 feet bgs. The TPH decreased to less than the method detection limit of 16.6 mg/Kg in the east excavation bottom from approximately 18 feet bgs. The laboratory analysis demonstrates that TPH at the release was remediated below the OCD recommended remediation action level of 1,000 mg/Kg.

The highest chloride in the west excavation soil samples was 783 mg/Kg from the north sidewall at approximately 12 feet bgs. Chloride was 660 mg/Kg in the bottom sample from approximately 27 feet bgs and decreased to 404 mg/Kg in the sample from 35 feet bgs.

The highest chloride in the east excavation soil samples was 638 mg/Kg from the west sidewall at approximately 6 feet bgs. Chloride was 123 mg/Kg in the bottom sample from approximately 18 feet bgs and decreased to 8.16 mg/Kg, and 11.7 mg/Kg, in samples from 21 and 24 feet bgs, respectively.

The highest TPH concentration in the soil pile samples was 19.8 mg/Kg from Pile #1. The highest and lowest chloride concentrations in the soil pile samples were 260 mg/Kg (Pile #1) and 23.1 mg/Kg (Pile #5).

A 4 inch polyvinyl chloride (PVC) line that crossed the west excavation from north to south is believed to be the source for the chloride. A third party previously used the PVC line, which is out of service, to convey produced water south of the Site from a heater treater located about 100 feet north of the Site. The PVC line was not identified during the utility notification but was encountered near the center of the west excavation at approximately 3 feet bgs where a dresser sleeve was observed. The PVC pipe joints were glued and the line was capped near the south side of the excavation.

### 5.0 RECOMMENDATIONS

Since TPH was remediated below the RRAL of 1,000 mg/Kg, Targa respectfully requests approval from OCD to fill the excavation with soil from the piles and clean soil from an offsite source. Targa will commence cleanup at the east location upon filling the west location. A separate report will be submitted to the OCD upon completion of remediation at the east location. Appendix B presents photographs. Appendix C presents the initial and final C-141.

### Table 1

West and East Excavation Soil Sample Analytical Summary
Targa Midstream Services, L.P., R. D. Sims 8" Pipeline Release
Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East
Lea County, New Mexico
1RP-03-11-2691

Location	Depth	Date	Status	PID	Chloride	GRO	DRO	Oil	Total TPH
(West)	Feet BGS			(ppm)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg 1,000
				V	/est Excavation	on			1,000
Bottom	27	03/02/2011	Insitu	4.0	660	<16.2	<16.2	<16.2	<16.2
(SD-1)	28 - 29.5	03/22/2011	Insitu		649				
(SP-1)	32 - 33.5	03/22/2011	Insitu		671				
(SP-1)	35	03/22/2011	Insitu		404				
Fast Side	33	03/22/2011	1113114						
East Side	6	03/02/2011	Insitu	3.9	10	<16.8	<16.8	<16.8	<16.8
	12	03/02/2011	Insitu	13.1	330	<17.4	17.5	<17.4	17.5
	20	03/02/2011	Insitu	3.0	281	<15.6	<15.6	<15.6	<15.6
West Side	6	03/02/2011	Insitu	2.2	12	<21.1	<21.1	<21.1	<21.1
	12	03/02/2011	Insitu	2.2	69.9	<17.1	<17.1	<17.1	<17.1
	20	03/02/2011	Insitu	2.2	644	<15.4	21.6	<15.4	21.6
South Side	6	03/02/2011	Insitu	3.3	324	<16.5	<16.5	<16.5	<16.5
	12	03/02/2011	Insitu	3.3	71.1	<16.6	22.4	<16.6	22.4
	20	03/02/2011	Insitu	2.7	299	<16.2	<16.2	<16.2	<16.2
North Side	6	03/02/2011	Insitu	2.6	13.4	<16.2	<16.2	<16.2	<16.2
	12	03/02/2011	Insitu	13.9	783	<16.7	<16.7	<16.7	<16.7
	20	03/02/2011	Insitu	3.9	336	<15.5	<15.5	<15.5	<15.5
	NIA I'M			E	ast Excavation	on			
Bottom	15	03/22/2011	Insitu	1.2	36.8	<17.2	<17.2	<17.2	<17.2
	18	03/22/2011	Insitu	1.2	123	<17.4	82.6	<17.4	82.6
	21	03/22/2011	Insitu	1.2	8.16	<16.6	<16.6	<16.6	<16.6
	24	03/22/2011	Insitu	1.1	11.7	<16.1	<16.1	<16.1	<16.1
								1 2 3 19	2 Janes St.
East Side	6	03/22/2011	Insitu	1.6	16.9	<15.5	<15.5	<15.5	<15.5
	12	03/22/2011	Insitu	1.6	15.5	<15.6	<15.6	<15.6	<15.6
								8	
West Side	6	03/22/2011	Insitu	1.1	638	<16.1	<16.1	<16.1	<16.1
	12	03/22/2011	Insitu	1.8	21.4	<16.5	<16.5	<16.5	<16.5
14 17 27		- #							

### Table 1

West and East Excavation Soil Sample Analytical Summary
Targa Midstream Services, L.P., R. D. Sims 8" Pipeline Release
Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East
Lea County, New Mexico
1RP-03-11-2691

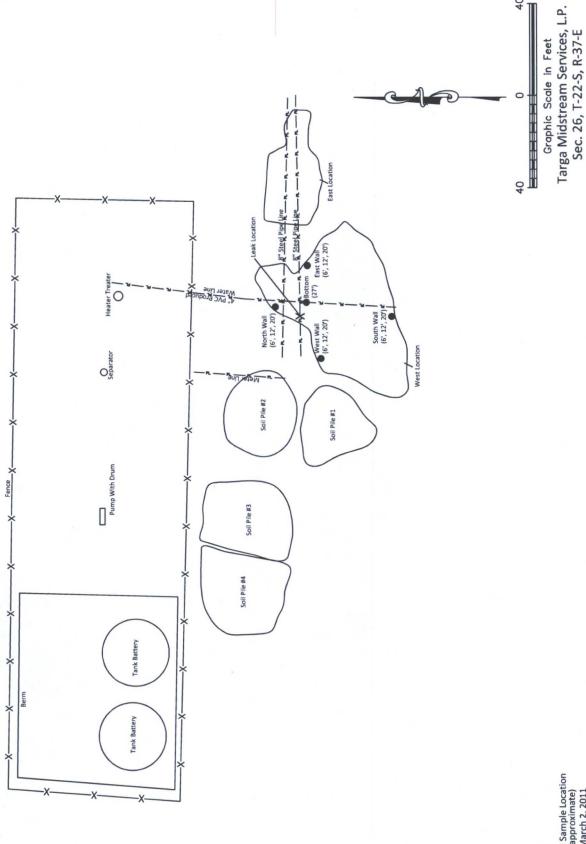
Location (West)	Depth Feet BGS	Date	Status	PID (ppm)	Chloride mg/Kg	GRO mg/Kg	DRO mg/Kg	Oil mg/Kg	Total TPH mg/Kg
RRAL:									1,000
South Side	6	03/22/2011	Insitu	1.0	21.1	<17.3	<17.3	<17.3	<17.3
	12	03/22/2011	Insitu	1.4	8.24	<18.9	<18.9	<18.9	<18.9
North Side	6	03/22/2011	Insitu	1.2	61.5	<16.2	<16.2	<16.2	<16.2
	12	03/22/2011	Insitu	1.2	12.7	<18.9	<18.9	<18.9	<18.9
		7 to 1			Soil Piles		1		
Pile #1		03/02/2011	Excavated	3.3	260	<16.7	19.8	<16.7	19.8
Pile #2		03/02/2011	Excavated	2.2	49.7	<16.6	<16.6	<16.6	<16.6
Pile #3		03/02/2011	Excavated	2.2	41.2	<16.3	<16.3	<16.3	<16.3
Pile #4		03/02/2011	Excavated	2.2	105	<16.6	<16.6	<16.6	<16.6
Pile #5		03/22/2011	Excavated	1.2	23.1	<16.7	<16.7	<16.7	<16.7

#### Notes

Samples analyzed via EPA method SW-8015M (TPH) and SW-300 (chloride).

Depth measurements are in feet below ground surface (bgs).

All concentrations are in milligrams per kilogram (mg/Kg) equivalent to parts per million (ppm).



Legend

**4 ™** 

Lea County, New Mexico

N 33° 21' 32.55" W 103° 08' 28.80"

Aarson & Inc.

Soil Sample Location (approximate)
 March 2, 2011

Figure 3 - Site Map

# **Analytical Report 410646**

for Larson & Associates

Project Manager: Alexis Johnson

R.D. Sims 8" Site

11-0103-01

24-MAR-11



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Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL01273):

Florida(E86240), South Carolina(96031001), Louisiana(04154), Georgia(917)

North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





24-MAR-11

Project Manager: Alexis Johnson Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 410646

R.D. Sims 8" Site Project Address:

#### Alexis Johnson:

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 410646. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 410646 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,

Brent Barron, II

Odessa Laboratory Manager

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# **Sample Cross Reference 410646**



# Larson & Associates, Midland, TX

R.D. Sims 8" Site

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
Pile # 5	S	Mar-22-11 12:05		410646-001
SS-Bottom (15')	S	Mar-22-11 12:40		410646-002
SS-East (12')	S	Mar-22-11 12:43		410646-003
SS-East (6')	S	Mar-22-11 12:45		410646-004
SS-West (12')	S	Mar-22-11 12:50		410646-005
SS-West (6')	S	Mar-22-11 12:53		410646-006
SS-South (12')	S	Mar-22-11 12:55		410646-007
SS-South (6')	S	Mar-22-11 12:58		410646-008
SS-North (12')	S	Mar-22-11 13:00		410646-009
SS-North (6')	S	Mar-22-11 13:03		410646-010
SS-Bottom (18')	S	Mar-22-11 13:12		410646-011
SS-Bottom (21')	S	Mar-22-11 13:20		410646-012
SS-Bottom(24')	S	Mar-22-11 13:30		410646-013

### **CASE NARRATIVE**



Client Name: Larson & Associates Project Name: R.D. Sims 8" Site



Project ID: 11-0103-01 Work Order Number: 410646 Report Date: 24-MAR-11 Date Received: 03/22/2011

### Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

### Analytical Non Conformances and Comments:

Batch: LBA-849014 TPH By SW8015 Mod

SW8015MOD\_NM

Batch 849014, 1-Chlorooctane recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis

Samples affected are: 410646-013 S.



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

# Certificate of Analysis Summary 410646 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site



Tue Mar-22-11 05:00 pm Date Received in Lab:

Report Date: 24-MAR-11

					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	410646-001	410646-002	410646-003	410646-004	410646-005	410646-006
Accelerate December of	Field Id:	Pile#5	SS-Bottom (15')	SS-East (12')	SS-East (6')	SS-West (12')	SS-West (6')
Analysis Nequesieu	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-22-11 12:05	Mar-22-11 12:40	Mar-22-11 12:43	Mar-22-11 12:45	Mar-22-11 12:50	Mar-22-11 12:53
Anions by E300	Extracted:						
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.1 4.70	36.8 4.79	15.5 8.75	16.9 8.64	21.4 9.27	638 18.1
Percent Moisture	Extracted:						
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		10.6 1.00	12.4 1.00	4.02 1.00	2.80 1.00	9.37 1.00	7.09 1.00
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45
	Analyzed:	Mar-23-11 14:06	Mar-23-11 14:36	Mar-23-11 15:05	Mar-23-11 15:34	Mar-23-11 16:04	Mar-23-11 16:33
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
C12-C28 Diesel Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
C28-C35 Oil Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
Total TPH		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1

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 warmany 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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Odessa Laboratory Manager Breht Barron, II



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

# Certificate of Analysis Summary 410646 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site



Date Received in Lab: Tue Mar-22-11 05:00 pm

Report Date: 24-MAR-11

					Project Manager: Brent Barron, II	Brent Barron, 11	
	Lab Id:	410646-007	410646-008	410646-009	410646-010	410646-011	410646-012
	Field Id:	SS-South (12')	SS-South (6')	SS-North (12')	SS-North (6')	SS-Bottom (18')	SS-Bottom (21')
Analysis Kequesiea	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-22-11 12:55	Mar-22-11 12:58	Mar-22-11 13:00	Mar-22-11 13:03	Mar-22-11 13:12	Mar-22-11 13:20
Anions by E300	Extracted:						
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		8.24 5.32	21.1 4.84	12.7 5.28	61.5 4.53	123 9.71	8.16 4.63
Percent Moisture	Extracted:						
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		21.1 1.00	13.2 1.00	20.5 1.00	7.35 1.00	13.5 1.00	9.31 1.00
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45
	Analyzed:	Mar-23-11 17:01	Mar-23-11 17:32	Mar-23-11 18:01	Mar-23-11 18:30	Mar-23-11 19:29	Mar-23-11 19:59
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	ND 17.4	ND 16.6
C12-C28 Diesel Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	82.6 17.4	ND 16.6
C28-C35 Oil Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	ND 17.4	ND 16.6
Total TPH		ND 18.9	ND 17.3	ND 18.9	ND 16.2	82.6 17.4	ND 16.6

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Odessa Laboratory Manager Brent Barron, II



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

# Certificate of Analysis Summary 410646 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site

Date Received in Lab: Tue Mar-22-11 05:00 pm

Project Manager: Brent Barron, II



	Lab Id:	410646-013		
Laboration Dannage	Field Id:	SS-Bottom(24')		
Analysis nequesieu	Depth:			
	Matrix:	SOIL		
	Sampled:	Mar-22-11 13:30		
Anions by E300	Extracted:			
	Analyzed:	Mar-23-11 09:34		
	Units/RL:	mg/kg RL		
Chloride		11.7 4.52		
Percent Moisture	Extracted:			
	Analyzed:	Mar-23-11 17:00		
	Units/RL:	% RL		
Percent Moisture		7.06 1.00		
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45		
	Analyzed:	Mar-23-11 20:29		
	Units/RL:	mg/kg RL		
C6-C12 Gasoline Range Hydrocarbons		ND 16.1		
C12-C28 Diesel Range Hydrocarbons		ND 16.1		
C28-C35 Oil Range Hydrocarbons		ND 16.1		4
Total TPH		ND 16.1		

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 warmany 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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Odessa Laboratory Manager Brefit Barron, II



# **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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

**POL** Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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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
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Project ID: 11-0103-01

Lab Batch #: 849014

Sample: 598767-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 03/23/11 12:38	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	47.8	50.1	95	70-135	

Lab Batch #: 849014

Sample: 598767-1-BSD / BSD

Batch: 1

Matrix: Solid

Units: mg/kg Date Analyzed: 03/23/11 13:08	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	97.8	100	98	70-135		
o-Terphenyl	43.4	50.2	86	70-135		

Lab Batch #: 849014

Sample: 598767-1-BLK / BLK

Batch: 1

Matrix: Solid

Units: mg/kg Date Analyzed: 03/23/11 13:37	SU	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	98.6	99.8	99	70-135			
o-Terphenyl	48.3	49.9	97	70-135			

Lab Batch #: 849014

Sample: 410646-001 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 14:06	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	103	99.6	103	70-135			
o-Terphenyl	50.1	49.8	101	70-135			

Lab Batch #: 849014

Sample: 410646-002 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 14:36	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	98.6	100	99	70-135		
o-Terphenyl	47.3	50.2	94	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Project ID: 11-0103-01

Lab Batch #: 849014

Sample: 410646-003 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 15:05	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
Analytes			[D]			
1-Chlorooctane	106	99.5	107	70-135		
o-Terphenyl	50.3	49.8	101	70-135		

Lab Batch #: 849014

Sample: 410646-004 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 15:34 SURROGATE RECOVERY STUDY						
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		129	101	128	70-135	
o-Terphenyl	745	61.1	50.3	121	70-135	

Lab Batch #: 849014

Sample: 410646-005 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/23/11 16:04	SURROGATE RECOVERY STUDY					
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	2	101	99.5	102	70-135		
o-Terphenyl	3 J. 1	47.6	49.8	96	70-135		

Lab Batch #: 849014

Sample: 410646-006 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 16:33	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	114	100	114	70-135		
o-Terphenyl	54.3	50.0	109	70-135		

Lab Batch #: 849014

Sample: 410646-007 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 17:01	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	111	99.6	111	70-135		
o-Terphenyl	54.9	49.8	110	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

**Project ID:** 11-0103-01

Lab Batch #: 849014

Sample: 410646-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 17:32 SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 849014

Sample: 410646-009 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/23/11 18:01	SU	RROGATE RI	ECOVERY S	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		108	100	108	70-135	
o-Terphenyl		52.4	50.2	104	70-135	

Lab Batch #: 849014

Sample: 410646-010 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 18:30	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.1	100	97	70-135	
o-Terphenyl	46.9	50.1	94	70-135	

Lab Batch #: 849014

Sample: 410646-011 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 19:29	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	51.2	50.1	102	70-135	

Lab Batch #: 849014

Sample: 410646-012 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23	/11 19:59	URROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	101	115	70-135	1-2
o-Terphenyl	55.8	50.3	111	70-135	1000

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Lab Batch #: 849014

**Project ID:** 11-0103-01

Sample: 410646-013 / SMP

Matrix: Soil Batch:

Units: mg/kg Date Analyzed: 03/23/11 20:29	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.5	112	70-135	
o-Terphenyl	52.5	49.8	105	70-135	17

Lab Batch #: 849014

Sample: 410646-013 S / MS

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 22:00	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	148	99.6	149	70-135	*
o-Terphenyl	66.6	49.8	134	70-135	

Lab Batch #: 849014

Sample: 410646-013 SD / MSD

Batch: 1

Matrix: Soil

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 03/23/11 22:31	SU	RROGATE RI	ECOVERY S	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	45.3	50.0	91	70-135	

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# BS / BSD Recoveries



Project Name: R.D. Sims 8" Site

Work Order #: 410646

Analyst: LATCOR Lab Batch ID: 848925

Date Prepared: 03/23/2011

**Project ID:** 11-0103-01 **Date Analyzed:** 03/23/2011

Sample: 848925-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg		BLAN	LANK/BLANKS	PIKE / B	BLANK SPIKE D	PIKE DUPL	DUPLICATE 1	RECOVERY	RY STUDY	Y	
Anions by E300	Blank Sample Result	Spike Added	Blank Spike Result	Blank Spike	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD	Control Limits	Control Limits	Flag
Analytes		[B]	[2]	[Q]	[E]	Result [F]	[6]				
Chloride	<0.420	10.0	9.75	86	10.0	9.28	93	5	75-125	20	

Analyst: BEV

Date Prepared: 03/23/2011

Date Analyzed: 03/23/2011 Matrix: Solid

Lab Batch ID: 849014	Sample: 598767-1-BKS	KS	Batch #:	1#: 1					Matrix: S	Solid		
Units: mg/kg			BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	LANKS	PIKE DUPL	CATE F	RECOVE	RY STUD	,	
TPH By SW8015 Mod	5 Mod	Blank Sample Result	Spike Added	Blank Spike Result	Blank Spike	Spike Added	Blank Spike Dunlicate	Blk. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes		[	[B]	[2]	[g]	[E]	Result [F]	[6]				
C6-C12 Gasoline Range Hydrocarbons	suoc	<15.0	1000	893	68	1000	823	82	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	suc	<15.0	1000	868	06	1000	824	82	6	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: R.D. Sims 8" Site



Work Order #: 410646

Lab Batch #: 848925

QC-Sample ID: 410646-001 S

Date Analyzed: 03/23/2011

**Date Prepared:** 03/23/2011

Project ID: 11-0103-01

Analyst: LATCOR

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	×					
Chloride	23.1	112	121	87	75-125	

Matrix 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

BRL - Below Reporting Limit



# Form 3 - MS / MSD Recoveries

Project Name: R.D. Sims 8" Site



Work Order #: 410646

Lab Batch ID: 849014

QC-Sample ID: 410646-013 S

Matrix: Soil Batch #:

Project ID: 11-0103-01

Date Analyzed: 03/23/2011

Flag Control Limits %RPD 35 35 Control Limits 70-135 70-135 MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY RPD % 35 35 Spiked Dup. %R [G] 87 87 Spiked Sample Duplicate Result [F] 944 941 BEV Spike Added 1080 1080 Analyst: Sample %R Spiked 125 125 Spiked Sample Result 1340 1340 Date Prepared: 03/23/2011 Spike Added [B] 1070 1070 Parent Sample Result <16.1 <16.1 V TPH By SW8015 Mod C6-C12 Gasoline Range Hydrocarbons C12-C28 Diesel Range Hydrocarbons Analytes 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



# **Sample Duplicate Recovery**



Project Name: R.D. Sims 8" Site

Work Order #: 410646

Lab Batch #: 848925

Date Prepared: 03/23/2011

23.1

**Project ID:** 11-0103-01

Date Analyzed: 03/23/2011 09:34

vate i repareu.

Analyst: LATCOR

QC- Sample ID: 410646-001 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300	Parent Sample Result	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte	[A]	[B]		76KI D	

Lab Batch #: 849000

Date Analyzed: 03/23/2011 17:00

Date Prepared: 03/23/2011

Analyst: WRU

6

20

21.7

QC-Sample ID: 410641-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

Chloride

SAMPLE / SAMPLE DUPLICATE RECOVERY

Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	10.8	10.9	1	20	

ECT LOCATION OR NAME: 6112 Sept 3 OCTIVE COLLECTOR: A. (COLECTOR: A. (CO	A grson 8				1	507 N. Marienfeld, Ste. 200	Marie	held	Ste.		DATE: 3-22-11	I AB WORK ORDER #:	ORDER #:	PAGE 1 OF 1
The reported to:	SSOCIOT Environmento	es, Inc	• 10	f		N.	dland, 132-6	TX 7	9701	- A	OJECT LOCATION OR P	14	Sems	1000
The Proport   Second   Secon	Data Reported to:	HLEXI	V	OHV	NO5					S	9	1/10/	COLLECT	$\mathbb{R}$
Control   Cont	9	S=SOIL W=WATER	P=PA SL=SI	INT			PRES	ERVA	NOL		//	(530x) (530x)	COSSI	
Section   12   12   13   14   15   15   15   15   15   15   15	TIME ZONE:	A=AIR	O=C	THER		uers		☐ HO <sub>6</sub> N		63	COCO 140 60 CSOC 140	11 00 NO	OMOJION CANOJION CANIOJION	100 SNO
E45   O1   O3-D, 1265   S   C   K   K   K   K   EAST	Field		<b>2011</b> Date	Time	Matrix			D ⁵OS²H	UNPRESE	Selly Held	2 8 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7	Cos Cha	Singonio Nonosciol	
Cherry (12) 02   1245	Puc # 5		3-22	1265	N	_		^		× ×			<b>7</b> .	EAST EXCAMATION
EAST (22) 0.3   1245	SS-Berram (15)	20		1240	-				1					
FAST (67) OV   1250   1253   1250   1253   1250   1253   1250   1253   1250   1253   1250   1253   1250	SS-EAST (121)	60		1243			-							
MEST (12) US   USS   USS	SS-EAST (6)	3		1245			7.							
Severy (24)   Ove   12.53	55- WEST (12")	05		1250										
128   128	SS-WEST(61)	90		1253	-									
12.58   13.00   13.00   13.00   13.00   13.00   13.3		10		1255			+							
1	4	B		1258										
Веттем (181) 1 (1320	SS NORTH (121)	8		1380	+									
1	55-NORTH (6')	0		1303			-							
12   1320   134	BOTTOM	=		1312										
Septem(249)   13   1336   14   15   15   15   15   15   15   15	3- Bottom (21)	7		1320			+							
UISHED BY: (Signature)  DATE/TIME  RECEIVED BY: (Signature)  A-12-11 5'00P  (MACAGO (MACAGO (17.00)  NORMAL ROUND TIME  RECEIVED BY: (Signature)  1 DAY  2 DAY  OTHER  OTHER	4	2	>	1330	>	<del>&gt;</del>				3			*	3
UISHED BY: (Signature)  DATE/TIME RECEIVED BY: (Signature)  3.12.11  TURN AROUND TIME NORMAL  NORMAL  1000	TOTAL					13	+		-					
DATE/TIME RECEIVED BY: (Signature) 1 DAY ☐ 2 DAY ☐ 2 DAY ☐ 2 DAY ☐ OTHER ☐ OTHER ☐	RELIMOUISHEDBY:(8	Signature)	3.2		200	REGEN	E BY	Sign	Sem Jenn	m		LABORATORY USE		A
DATE/TIME RECEIVED BY: (Signature)  OTHER □	RELINQUISHED BY:(S	Signature)		DATE/TIN	ΛΕ.	RECEIV	ED BY	: (Sign	nature)		DAY D	CUSTODY SEALS	- D BROKEN	INTACT NOT USED
	RELINQUISHED BY:(S	Signature)		DATE/TIN	Ę.	RECEIV	ED BY	: (Sign	nature)		2 DAY ☐ OTHER ☐	CARRIER BILL#	-	
												HAND DELIVERE		2 glass



### XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

# Prelogin / Nonconformance Report - Sample Log-In

Client: Laysor								
Date/Time: 3 27	11	$\infty$						
Lab ID#:	110646							
Initials:	AE							
		S	Sample Receipt C	heck	list			
1. Samples on ice?					Blue	Water	No	
2. Shipping container in	good condition?		3		(Yes)	No	None	
3. Custody seals intact of	on shipping contain	ner (c	ooler) and bottles?		Yes	No	(N/A)	
4. Chain of Custody pres	sent?				Yes	No		
5. Sample instructions of	complete on chain	of cus	stody?		Yes	No		
6. Any missing / extra sa	amples?				Yes	No		
7. Chain of custody sign	ned when relinquish	hed /	received?		Yes	No		
8. Chain of custody agree	es with sample lab	oel(s)	?		(Pes)	No		
9. Container labels legit	ole and intact?				Yes	No		
10. Sample matrix / prop	perties agree with c	hain	of custody?		Yes	No .		
11. Samples in proper c	ontainer / bottle?				Yes	No		
12. Samples properly pr	reserved?				Yes	No	N/A	
13. Sample container in	tact?				Yes	No		
14. Sufficient sample an	nount for indicated	test(	s)?		Yes	No		
15. All samples received	within sufficient h	old ti	me?		Yes	No		
16. Subcontract of samp	ple(s)?				Yes	No	(N/A)	
17. VOC sample have ze	ero head space?				Yes	No	N/A	
18. Cooler 1 No.	Cooler 2 No.		Cooler 3 No.		Cooler 4 No		Cooler 5 No.	
lbs 3.1 °C	lbs	°C	lbs	°C	lbs	°C	lbs	°c
Contact:			conformance Dod y:			Date/Time:_		
regarding.								
Corrective Action Taker	n:							
Check all that apply:	Cooling process	hae h	equip shorthy after any	nnlina	event and a	ut of towns	ratura	
oneck an mat apply:			able by NELAC 5.5.8.3			ut or temper	awie	

□ Initial and Backup Temperature confirm out of temperature conditions

□ Client understands and would like to proceed with analysis

# **Analytical Report 410647**

for Larson & Associates

Project Manager: Alexis Johnson

R.D. Sims 8" Site

11-0103-01

24-MAR-11



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), 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)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL01273):

Florida(E86240), South Carolina(96031001), Louisiana(04154), Georgia(917)

North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





24-MAR-11

Project Manager: Alexis Johnson Larson & Associates

P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 410647

R.D. Sims 8" Site Project Address:

#### Alexis Johnson:

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 410647. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 410647 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,

Brent Barron, II

Odessa Laboratory 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 - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



# **Sample Cross Reference 410647**



# Larson & Associates, Midland, TX

R.D. Sims 8" Site

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SP-1 (28-29.5')	S	Mar-22-11 09:55		410647-001
SP-1 (32-33.5')	S	Mar-22-11 10:40		410647-002
SP-1 (35')	S	Mar-22-11 11:40		410647-003

### **CASE NARRATIVE**



Client Name: Larson & Associates Project Name: R.D. Sims 8" Site



Project ID:

11-0103-01

Work Order Number: 410647

Report Date: 24-MAR-11

Date Received: 03/22/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

Certificate of Analysis Summary 410647 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site

Date Received in Lab: Tue Mar-22-11 05:00 pm

24-N Bren
--------------

	Lab Id:	410647-001	410647-002	410647-003	
And December 1	Field Id:	SP-1 (28-29.5')	SP-1 (32-33.5')	SP-1 (35')	
Analysis Kequesieu	Depth:				
	Matrix:	SOIL	SOIL	SOIL	
	Sampled:	Mar-22-11 09:55	Mar-22-11 10:40	Mar-22-11 11:40	
Anions by E300	Extracted:			j.	
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	
	Units/RL:	mg/kg RL	П	mg/kg RL	
Chloride		649 24.9	671 25.3	404 19.2	
Percent Moisture	Extracted:				
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	
	Units/RL:	% RL	% RL	% RL	
Percent Moisture		15.6 1.00	17.0 1.00	12.6 1.00	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpetations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warmany 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.

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

Odessa Laboratory Manager Brent Barron, II

Page 5 of 11

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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

**PQL** Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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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
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116
, ,		



# BS / BSD Recoveries



Project Name: R.D. Sims 8" Site

Work Order #: 410647

Analyst: LATCOR

Lab Batch ID: 848925

Batch #: 1 Sample: 848925-1-BKS

**Project ID:** 11-0103-01 **Date Analyzed:** 03/23/2011

Date Prepared: 03/23/2011

Matrix: Solid

Units: mg/kg		BLAN	SLANK /BLANK SPIKE / ]	PIKE / E	LANKS	BLANK SPIKE DUPLICATE		RECOVE	RECOVERY STUDY	Y	
Anions by E300	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[2]	[a]	[E]	Result [F]	[G]				
Chloride	<0.420	10.0	9.75	86	10.0	9.28	93	5	75-125	20	

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: R.D. Sims 8" Site



Work Order #: 410647

Lab Batch #: 848925

Date Analyzed: 03/23/2011 QC- Sample ID: 410646-001 S

Project ID: 11-0103-01

Date Prepared: 03/23/2011

**Analyst: LATCOR** 

Batch #:

Matrix: Soil

Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	23.1	112	121	87	75-125	

Matrix 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

BRL - Below Reporting Limit



# **Sample Duplicate Recovery**



Project Name: R.D. Sims 8" Site

Work Order #: 410647

Lab Batch #: 848925

Project ID: 11-0103-01

Date Prepared: 03/23/2011 Analyst: LATCOR

Date Analyzed: 03/23/2011 09:34

QC- Sample ID: 410646-001 D eting Uniter mg/kg

Batch #: 1 Matrix: Soil

Reporting Units: mg/kg	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	23.1	21.7	6	20	

Lab Batch #: 849000

Date Analyzed: 03/23/2011 17:00

Date Prepared: 03/23/2011

Analyst: WRU

QC- Sample ID: 410641-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte		[D]			
Percent Moisture	10.8	10.9	1	20	

TROP mond   Section   PRESERVATION   Trans   PRESERVATION   PRES	A Grson & Sociates, Inc. Environmental Consultants Data Reported to: MEXIS	Res, Included the Merk	() 돌 S1	PHMS6 N		507 N. Marienfeld, Ste. 200 Midland, TX 79701 432-687-0901	N. Marienfeld, Ste. Midland, TX 79701 432-687-0901	TX 7 TX 7 87-09	, Ste. 9701 101	200	DATE: _ PO #: _ PROJEC	DATE: 03-22-11 PO #: PROJECT LOCATION OR NAME: LAI PROJECT #: 11-0103-0	O3-22-11	7 5 1		LAB WORK ORDER #:	3K ORD	ORDER #: L	9 7 8 3	10647 10647 16647
Col	TRRP report?  Yes No	S=SOIL W=WATEF A=AIR		AINT SLUDGE OTHER			PRES	ERVA	NOIL			1/4	Cappital	111	Chrology.	13/7/1		SORNOW NOW	THE PROPERTY OF THE PARTY OF TH	
Cold	TIME ZONE: Time zone/State:					saenis		NaOH 🗆			83	\$60,760	100	(6 <sup>7</sup> (8)	C 1887	000	NIO CHAS DE	SO NOW		
0.1   0.2-12, 0.955   S   1   K   K   K   K   K   K   K   K   K		Lab#	2011 Date	Time	Matrix	stnoO to #		□ °OS²H	UNPRESE	Thatile	JAIN HAY	ON JUST	015000	(3/3)		(t)(0)	12 7 6 14 5 14 5 14 5 14 5 14 5 14 5 14 5 14	2 00		/ FIELD NOTES
\$\tilde{0.5} \frac{1}{1(40} \tilde{\sigma} \frac{1}{\sigma} \frac{1}{\si	5.6-1628-29.6")		03-12		S	_		×									×		WEST	3CAVATTO
0.5   1/40   4   4   4   4   4   4   4   4   4	56 ((32-33.5")		-	-	-				1 1		105						_			
DATE/TIME RECEIVED BY: (Signature)  OTHER D																				
DATE/TIME RECEIVED BY: (Signature)  2.27.11  TURN AROUND TIME  NORMAL X  DATE/TIME RECEIVED BY: (Signature)  DATE/TIME RECEIVED BY: (Signature)  OTHER D	TOTAL					2														
DATE/TIME RECEIVED BY: (Signature)  1 DAY ☐ 2 DAY ☐ OTHER ☐	RELANDUISHED BY:	Signature)		DATE/TIN	)	FCEIN	ED BY	Sign	ature)	37	=3	TURN	N AROU	ND TIME	LABOR	ATORY U	ISE ONLY	]		
DATE/TIME RECEIVED BY: (Signature)  OTHER ☐	RELINQUISHED BY:(	Signature)		DATE/TIN		RECEIV	ED BY	(Sign	ature)			1 DAY	į		RECEIV	VING TEM		THE	ERM#:	ANOTHER
	RELINQUISHED BY:(	Signature)		DATE/TIN		RECEIV	ED BY:	(Sign	ature)			2 DAY			□ CAR	RIER BILI	#			200
															HAN	D DELIVE	RED	70	29/45	S



#### XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

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

rielogiii / Noncomormance Nepo	ort - Gampie	Log-III		
client: Larson & Assoc.				
Date/Time: 3 27 · 11 \ 7 : 00				
Lab ID#: 410647				
Initials: AE				
Sample Receipt Chec	cklist			
1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	(es)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	NA	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Yes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	Yes	No	(NA)	
17. VOC sample have zero head space?	Yes	No	NIA	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No.		Cooler 5 No.	
Ibs 3 °C Ibs °C Ibs	°C lbs	°C	lbs	°C
Nonconformance Docum Contact:Contacted by:		Date/Time:_		
Regarding:				
Corrective Action Taken:				

Check all that apply: 

Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.

□Initial and Backup Temperature confirm out of temperature conditions

☐ Client understands and would like to proceed with analysis

# **Analytical Report 408471**

for
Larson & Associates

Project Manager: Mark Larson

R.D. Sims 8" West Excavation

11-0103-01

07-MAR-11



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North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





07-MAR-11

Project Manager: Mark Larson Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 408471

R.D. Sims 8" West Excavation

Project Address:

#### Mark Larson:

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 408471. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 408471 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,

Brent Barron, II

Odessa Laboratory Manager

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# **Sample Cross Reference 408471**



## Larson & Associates, Midland, TX

R.D. Sims 8" West Excavation

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
Botton (27')	S	Mar-02-11 09:45	27 ft	408471-001
East (20')	S	Mar-02-11 09:50	20 ft	408471-002
East (12')	S	Mar-02-11 09:55	12 ft	408471-003
East (6')	S	Mar-02-11 10:00	6 ft	408471-004
West (20')	S	Mar-02-11 10:10	20 ft	408471-005
West (12')	S	Mar-02-11 10:15	12 ft	408471-006
West (6')	S	Mar-02-11 10:20	6 ft	408471-007
South (20')	S	Mar-02-11 10:25	20 ft	408471-008
South (12')	S	Mar-02-11 10:30	12 ft	408471-009
South (6')	S	Mar-02-11 10:32	6 ft	408471-010
North (20')	S	Mar-02-11 10:38	20 ft	408471-011
North (12')	S	Mar-02-11 10:48	12 ft	408471-012
North (6')	S	Mar-02-11 10:55	6 ft	408471-013
Pile # 1	S	Mar-02-11 11:10		408471-014
Pile # 2	S	Mar-02-11 11:15		408471-015
Pile # 3	S	Mar-02-11 11:20		408471-016
Pile # 4	S	Mar-02-11 11:25		408471-017

#### **CASE NARRATIVE**



Client Name: Larson & Associates
Project Name: R.D. Sims 8" West Excavation



Project ID:

11-0103-01

Work Order Number: 408471

Report Date: 07-MAR-11 Date Received: 03/02/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



Project Id: 11-0103-01

Contact: Mark Larson Project Location:

Certificate of Analysis Summary 408471 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" West Excavation

Wed Mar-02-11 05:07 pm Date Received in Lab:

Report Date: 07-MAR-11

					Project Manager: Brent Barron, II	Brent Barron, II		
	Lab Id:	408471-001	408471-002	408471-003	408471-004	408471-005	408471-006	
Laborator Described	Field Id:	Botton (27')	East (20')	East (12')	East (6')	West (20')	West (12')	
Analysis Kequesieu	Depth:	27- ft	20- ft	12- ₦	₩ -9	20- ft	12- ft	_
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	_
	Sampled:	Mar-02-11 09:45	Mar-02-11 09:50	Mar-02-11 09:55	Mar-02-11 10:00	Mar-02-11 10:10	Mar-02-11 10:15	_
Anions by E300	Extracted:							
	Analyzed:	Mar-03-11 11:01	Mar-03-11 11:40	Mar-03-11 11:53	Mar-03-11 12:06	Mar-03-11 12:19	Mar-03-11 12:32	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg R	RL
Chloride		660 18.2	281 8.74	330 9.72	10.0 4.67	644 8.64	66.69	9.58
Percent Moisture	Extracted:							
	Analyzed:	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% R	RL
Percent Moisture		7.55 1.00	3.93 1.00	13.6 1.00	10.0 1.00	2.80 1.00	12.3 1.	1.00
TPH By SW8015 Mod	Extracted:	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	
	Analyzed:	Mar-03-11 12:43	Mar-03-11 13:02	Mar-03-11 13:22	Mar-03-11 13:41	Mar-03-11 14:01	Mar-03-11 14:20	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg R	RL
C6-C12 Gasoline Range Hydrocarbons		ND 16.2	ND 15.6	ND 17.4	ND 16.8	ND 15.4	ND 17	17.1
C12-C28 Diesel Range Hydrocarbons		ND 16.2	ND 15.6	17.5 17.4	ND 16.8	21.6 15.4	ND 17	17.1
C28-C35 Oil Range Hydrocarbons		ND 16.2	ND 15.6	ND 17.4	ND 16.8	ND 15.4	ND 17	17.1
Total TPH		ND 16.2	ND 15.6	17.5 17.4	ND 16.8	21.6 15.4	ND 17	17.1

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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Odessa Laboratory Manager Breht Barron, II



Project Id: 11-0103-01

Contact: Mark Larson Project Location:

Certificate of Analysis Summary 408471 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" West Excavation

THE COLUMN TO SERVICE AND SERV

Date Received in Lab: Wed Mar-02-11 05:07 pm

Report Date: 07-MAR-11

					rroject Manager: Dient Dation, II	orent barron, 11	
	Lab Id:	408471-007	408471-008	408471-009	408471-010	408471-011	408471-012
	Field Id:	West (6')	South (20')	South (12')	South (6')	North (20')	North (12')
Analysis Kequesiea	Depth:	6- ft	20- ft	12- ft	₩ -9	20- ft	12- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-02-11 10:20	Mar-02-11 10:25	Mar-02-11 10:30	Mar-02-11 10:32	Mar-02-11 10:38	Mar-02-11 10:48
Anions by E300	Extracted:						
	Analyzed:	Mar-03-11 12:45	Mar-03-11 12:58	Mar-03-11 13:11	Mar-03-11 13:24	Mar-03-11 13:37	Mar-03-11 13:50
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		12.0 5.93	299 9.08	71.1 4.67	324 9.22	336 8.68	783 9.33
Percent Moisture	Extracted:						
	Analyzed:	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		29.2 1.00	7.50 1.00	10.0 1.00	8.92 1.00	3.21 1.00	10.0 1.00
TPH By SW8015 Mod	Extracted:	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00
	Analyzed:	Mar-03-11 14:40	Mar-03-11 14:59	Mar-03-11 15:19	Mar-03-11 15:38	Mar-03-11 16:17	Mar-03-11 16:37
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 21.1	ND 16.2	ND 16.6	ND 16.5	ND 15.5	ND 16.7
C12-C28 Diesel Range Hydrocarbons		ND 21.1	ND 16.2	22.4 16.6	ND 16.5	ND 15.5	ND 16.7
C28-C35 Oil Range Hydrocarbons		ND 21.1	ND 16.2	ND 16.6	ND 16.5	ND 15.5	ND 16.7
Total TPH		ND 21.1	ND 16.2	22.4 16.6	ND 16.5	ND 15.5	ND 16.7

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Breht Barron, II Odessa Laboratory Manager



Contact: Mark Larson Project Id: 11-0103-01

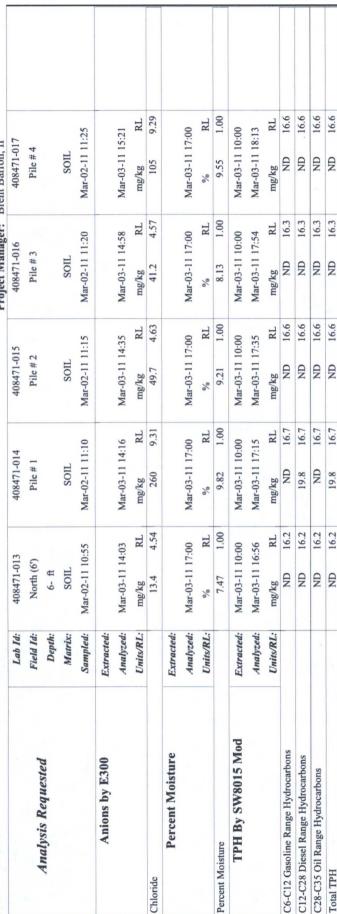
Project Location:

Certificate of Analysis Summary 408471 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" West Excavation

Wed Mar-02-11 05:07 pm Date Received in Lab:

Brent Barron, II 07-MAR-11 Report Date: Project Manager:



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Odessa Laboratory Manager Brent Barron, II



# **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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.
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- 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.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

**PQL** Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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2505 North Falkenburg Rd, Tampa, FL 33619 (813) 620	-2000 (813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014 (305) 823	-8500 (305) 823-8555
12600 West I-20 East, Odessa, TX 79765 (432) 563	-1800 (432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408 (361) 884	-0371 (361) 884-9116



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Project ID: 11-0103-01

Lab Batch #: 846206

Sample: 597109-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg	Date Analyzed: 03/03/11 11:44	SURROGATE RECOVERY STUDY						
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane		78.8	100	79	70-135			
o-Terphenyl		41.5	50.0	83	70-135			

Lab Batch #: 846206

Sample: 597109-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 03/03/	11 12:04 SU	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	76.3	100	76	70-135			
o-Terphenyl	38.4	50.2	76	70-135			

Lab Batch #: 846206

Sample: 597109-1-BLK / BLK

Batch:

Matrix: Solid

Units: mg/kg Date Analyzed: 03/03/11 12:23	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	77.8	100	78	70-135		
o-Terphenyl	37.8	50.2	75	70-135		

Lab Batch #: 846206

Sample: 408471-001 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 12:43	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	79.6	99.9	80	70-135		
o-Terphenyl	38.7	50.0	77	70-135		

Lab Batch #: 846206

Sample: 408471-002 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	SURROGATE RECOVERY STUDY					
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		79.8	100	80	70-135	
o-Terphenyl		38.3	50.1	76	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Lab Batch #: 846206

Sample: 408471-003 / SMP

Project ID: 11-0103-01

Batch: 1 Matrix: Soil SUPPOCATE RECOVERY STUDY

Units: mg/kg Date Analyzed: 03/03/11 13:22	SURROGATE RECOVERT STUDI				
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes			[2]		
1-Chlorooctane	80.3	100	80	70-135	
o-Terphenyl	38.7	50.2	77	70-135	

Lab Batch #: 846206

Sample: 408471-004 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 13:41	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	78.1	101	77	70-135		
o-Terphenyl	37.7	50.3	75	70-135		

Lab Batch #: 846206

Sample: 408471-005 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 14:01	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	76.8	99.6	77	70-135		
o-Terphenyl	36.5	49.8	73	70-135		

Lab Batch #: 846206

Sample: 408471-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 14:20	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	75.6	99.8	76	70-135			
o-Terphenyl	36.7	49.9	74	70-135			

Lab Batch #: 846206

Sample: 408471-007 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 14:40	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	77.4	99.5	78	70-135			
o-Terphenyl	37.7	49.8	76	70-135			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

**Project ID:** 11-0103-01

Lab Batch #: 846206

Sample: 408471-008 / SMP

Matrix: Soil Batch:

SURROGATE RECOVERY STUDY					
Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
77.4	100	77	70-135		
37.4	50.0	75	70-135		
	Amount Found [A]	Amount Found Amount [A] [B]	Amount Found Amount [B] Recovery %R [D] 77.4 100 77	Amount Found [A]         True Amount [B]         Recovery %R [D]         Control Limits %R           77.4         100         77         70-135	

Lab Batch #: 846206

Sample: 408471-009 / SMP

Matrix: Soil Batch:

Units: mg/kg Date Analyzed: 03/03/11 15:19	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	78.5	99.6	79	70-135			
o-Terphenyl	38.1	49.8	77	70-135			

Lab Batch #: 846206

Sample: 408471-010 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 15:38	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	78.5	100	79	70-135			
o-Terphenyl	38.0	50.0	76	70-135			

Lab Batch #: 846206

Sample: 408471-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 16:17	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	77.6	100	78	70-135			
o-Terphenyl	36.7	50.0	73	70-135			

Lab Batch #: 846206

Sample: 408471-012 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/03/11 16:37	SURROGATE RECOVERY STUDY						
	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane		78.8	99.9	79	70-135			
o-Terphenyl		38.1	50.0	76	70-135			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Sample: 408471-013 / SMP

**Project ID:** 11-0103-01

Lab Batch #: 846206

Matrix: Soil Batch: 1

Units: mg/kg	Date Analyzed: 03/03/11 16:56	SURROGATE RECOVERY STUDY							
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooctane		84.4	99.9	84	70-135				
o-Terphenyl		40.3	50.0	81	70-135				

Lab Batch #: 846206

Sample: 408471-014 / SMP

Batch: 1

Units: mg/kg Date Analyzed: 03/03/11 17:15	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	78.8	100	79	70-135			
o-Terphenyl	37.5	50.1	75	70-135			

Lab Batch #: 846206

Sample: 408471-015 / SMP

Matrix: Soil Batch: 1

Units: mg/kg Date Analyzed: 03/03/11 17:35	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	79.0	100	79	70-135		
o-Terphenyl	37.4	50.1	75	70-135		

Lab Batch #: 846206

Sample: 408471-016 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 17:54	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	79.6	99.9	80	70-135			
o-Terphenyl	38.1	50.0	76	70-135			

Lab Batch #: 846206

Sample: 408471-017 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 18:13	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	78.1	99.8	78	70-135			
o-Terphenyl	37.4	49.9	75	70-135	25		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

**Project ID:** 11-0103-01

Lab Batch #: 846206

Sample: 408471-017 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 19:29 SURROGATE RECOVERY STUDY							
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]	X. 30000			
1-Chlorooctane	81.3	99.6	82	70-135			
o-Terphenyl	40.6	49.8	82	70-135			

Lab Batch #: 846206

**Sample:** 408471-017 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/03/11 19:48	SURROGATE RECOVERY STUDY						
TPH 1	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	Analytes			[D]				
1-Chlorooctane		79.4	99.8	80	70-135			
o-Terphenyl		39.6	49.9	79	70-135			

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 3 - MS Recoveries

Project Name: R.D. Sims 8" West Excavation



Work Order #: 408471

Lab Batch #: 846180

QC-Sample ID: 408471-001 S

Date Analyzed: 03/03/2011

Date Prepared: 03/03/2011

Project ID: 11-0103-01

4. 03/03/2011

**Analyst: LATCOR** 

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	660	433	1110	104	75-125	

BRL - Below Reporting Limit



# Form 3 - MS / MSD Recoveries



Project Name: R.D. Sims 8" West Excavation

Work Order #: 408471

Date Analyzed: 03/03/2011 Lab Batch ID: 846206

QC-Sample ID: 408471-017 S

Batch #:

Analyst: Date Prepared: 03/03/2011

Matrix: Soil BEV

**Project ID: 11-0103-01** 

eporting Units: mg/kg		M	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	MAT	RIX SPII	KE DUPLICA	re rec	OVERY !	STUDY		
TPH By SW8015 Mod	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control	Control	Flag
Analytes	Result [A]	Added [B]	[C] %R A	%R [D]	dded [E]	Result [F]	%R [G]	%	%R	%RPD	0
C6-C12 Gasoline Range Hydrocarbons	<16.5	1100	1100	100	1100	1090	66	-	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.5	1100	848	77	1100	853	78	-	70-135	35	

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative 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



# **Sample Duplicate Recovery**



Project Name: R.D. Sims 8" West Excavation

Work Order #: 408471

Lab Batch #: 846180

.....

**Project ID:** 11-0103-01

Date Analyzed: 03/03/2011 11:14

Anions by E300

Analyte

Date Prepared: 03/03/2011

Analyst: LATCOR

**QC- Sample ID:** 408471-001 D

Batch #: 1

Matrix: Soil

Reporting	Units:	mg/kg	
			_

SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
660	630	5	20	

Lab Batch #: 846172

Date Analyzed: 03/03/2011 17:00

Date Prepared: 03/03/2011

Analyst: WRU

QC- Sample ID: 408471-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

Chloride

SAMPLE / SAMPLE	DUPLICATE	RECOVERY
-----------------	-----------	----------

Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	7.55	7.85	4	20	

	Edition	Lateral School	Y		The same of the last	The same of		-					
A drson &		)	n	z s	Marier	SU/ IN. Marienfeld, Sfe. 200	e. 200	PO #:		LAB WC	LAB WORK ORDER #	!	
Ssociates, Inc.	DC.			Mid	land,	Midland, 1X /9/01	-	PRO	PROJECT LOCATION OR NAME:	R NAME:	Sims	8" WEST	Excaus
Data Reported to:	N	SHA	7	1				F	10	-		- Sens	1 m
	P=PAII	unge			RESE	PRESERVATION	Z		C800;	() 05   C (Note)		Can	
☐ Yes ☐ No A=AIR	í	HER				Г				Silves of State of St		WALE STAN	
TIME ZONE: Time zone/State:				ners		HOBN	RVED	Si	\$ 500 PM	(		0.000	
MST/NM				istno			-	() 384 64		( + 1 × 1 × 1 × 1 × 1 × 1 × 1 × 1 × 1 × 1		1	
Field Sample I.D. Lab #	<b>26/1</b> Date	Time	Matrix	# of Co	HNO <sup>3</sup>	ICE	Modera	SINTERNIA NO STORY	101 100 100 100 100 100 100 100 100 100			FIELD NOTES	IOTES
Autom (27')	03/42	Show	V	1		×		×					
1	-	1700	V	10		\ \		7			×		
Lacr (121)		2000	V	1		X		×			.~		
Ι.	03/02 1000	1000	V	1		X		×			×		
	Mah ,	2018	1	1		×		7			· ×		
1	1		h	1		X		X			7		
Ti			4	1	1	X		×			.~		
Solory (50.1)	1		h	7		X		X			~		
	1	1030	In	7		X		×		2	~		
			8	7		X		×			~		
-	43/02 1038		10	7		X		×			7		
NORTH (121)	03/62	870	5	7		×		X			×		
KORTH (6')	03/00 1055		V	1		V		×			*		
	03/102 1110	110	10	N		X		××			4		
Puc#2	13/02	1115 5		1		X	1	XX			X		
TOTAL													
RELIGIOUSHED BY: (Signature)	11.4.2	DATE/TIME	1	SECEIVE	A S	RECEIVED BY: (Signature)		3.2.11/17.07	TURN AROUND TIME		Ή.	~	
RELINQUISHED BY:(Signature)	(6	DATE/TIME		RECEIVE	ED BY:	RECEIVED BY: (Signature)	(e)	-	1 DAY	CUSTODY SEALS - L	BROKE	THERM #: (-)	- IOT USED
RELINQUISHED BY:(Signature)	9)	DATE/TIME		RECEIVE	ED BY:	RECEIVED BY: (Signature)	(a.		2 DAY L OTHER D	CARRIER BILL #	31LL #		
										2			

PROJECT LOCATION OR NAME R. S. MEN LACATION CHAIN-OF-CUSTODY PAGE ZOF Z CUSTODY SEALS - D BROKEN D INTACT NOT USED FIELD NOTES COLLECTOR: 6 PM THERM #: 3.1 40291955 LAB WORK ORDER #: LABORATORY USE ONLY: RECEIVING TEMP: 17 HAND DELIVERED CARRIER BILL # 11-0/03-0 **TURN AROUND TIME** 03-02-11 NORMAL LAI PROJECT #: OTHER 🗓 1 DAY 2 DAY DATE: # Od SISTINA 507 N. Marienfeld, Ste. 200 Midland, TX 79701 UNPRESERVED Moduca Elam RECEIVED BY: (Signature) **PRESERVATION** RECEIVED BY: (Signature) RECEIVED BY: (Signature) 432-687-0901 ICE HOSN D OSTH HNO3 HCI 24 # of Containers DATE/TIME DATE/TIME DATE/TIME 110847 1120 03/02 1125 Time SL=SLUDGE OT=OTHER P=PAINT 03/02 Date 1102 HLEXIS Orson & Ssociates, Inc. Environmental Consultants W=WATER Lab # RELINQUISHED BY:(Signature) RELINQUISHED BY: (Signature) S=SOIL A=AIR RELINGUISHED BY: (Signature Data Reported to: ☐ Yes ☐ No Time zone/State: TRRP report? TIME ZONE: MST/NM K15#4 Sample I.D. (ue#3 TOTAL



#### **XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

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

1 a d Asses	Campi			
3 3 11 - 5				
111271171				
Initials:				
Sample Receipt Check	list			
1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	Yes	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(NA)	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Yes	No	-	
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No ·		
11. Samples in proper container / bottle?	Yes	No	_	
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	Yes	No	(N/A)	
17. VOC sample have zero head space?	Yes	No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No	).	Cooler 5 No.	
Ibs 3. °C Ibs °C Ibs °C	lbs	°c	Ibs	°c
Nonconformance Docume	ntation			
Contact: Contacted by:		Date/Time:		
oonada sy.		Date: 11110		
Regarding:			****	
Corrective Action Taken:				

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.

□ Initial and Backup Temperature confirm out of temperature conditions

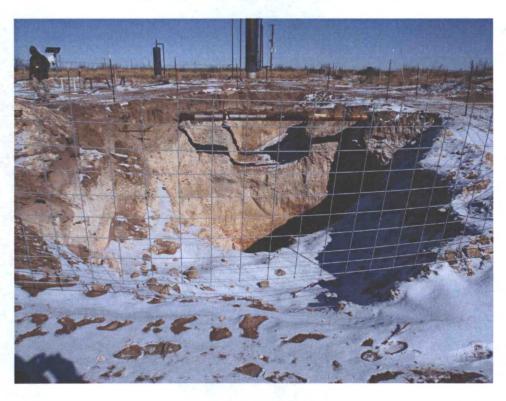
☐ Client understands and would like to proceed with analysis

Appendix B

Photographs



**Lease Sign From Tank Battery Located North of Spill** 



Page 1 of 7

West Excavation Viewing North, February 4, 2011



West Excavation Viewing South, February 4, 2011



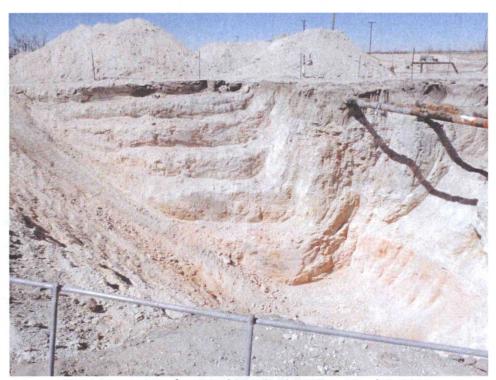
West (Foreground) and East (Background) Excavations Viewing East, February 4, 2011



West Excavation after Benching Viewing North, March 2, 2011



West Excavation after Benching Viewing Northeast, March 2, 2011



West Excavation after Benching Viewing West, March 2, 2011







East Excavation Viewing South, March 22, 2011



East Excavation Viewing North, March 22, 2011



East Excavation Viewing West, March 22, 2011

Appendix B - Photographs
TARGA MIDSTREAM SERVICES, L.P.
R. D. SIMS 8" RELEASE – WEST LOCATION
Lea County, New Mexico



4 Inch PVC Line and Dresser Sleeve from West Excavation, March 22, 2011

# Appendix C

Initial and Final C-141

#### Leking, Geoffrey R, EMNRD

From:

Leking, Geoffrey R, EMNRD

Sent:

Thursday, April 21, 2011 11:24 AM

To: Subject: 'Mark Larson' Chloride delineation

Attachments:

DSC09712.JPG; DSC09714.JPG

#### Mark

Although a diminishing trend is displayed for chloride concentration with depth of soil column sampled, chlorides are not delineated to 250 mg/kg in soil.

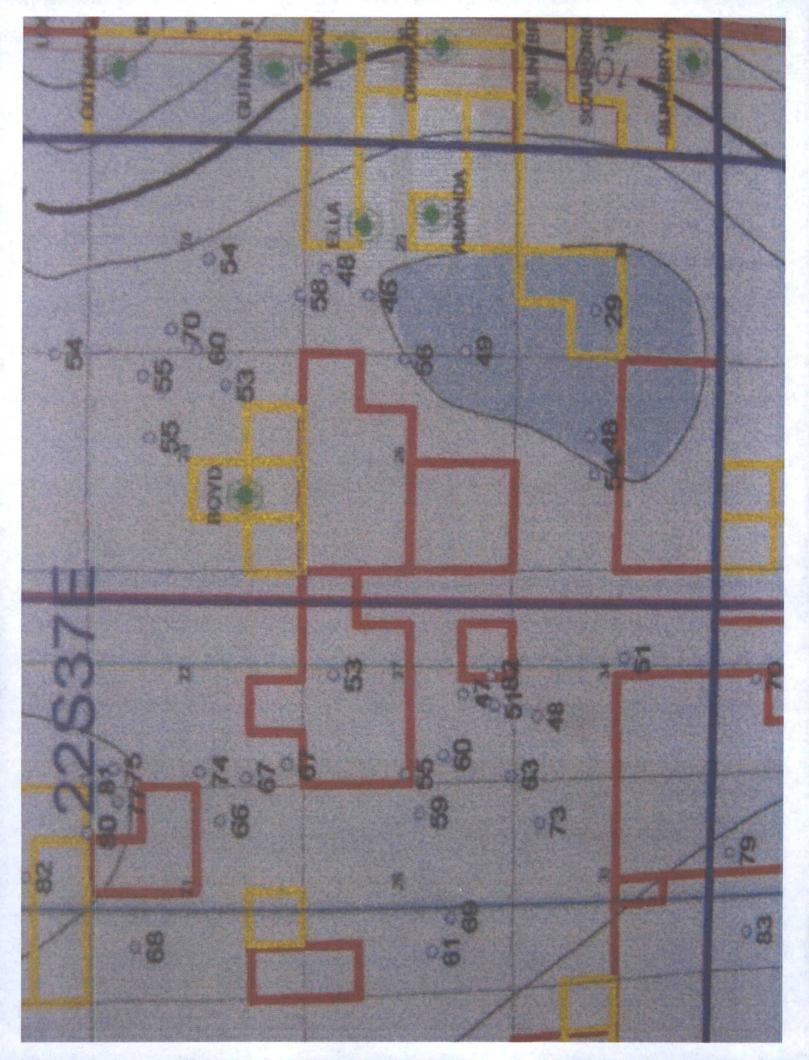
2.2 Setting – p. 3 – para. 4 – sentence 1 – "Groundwater occurs in the Ogallala formation at approximately 70 feet below ground Surface (bgs) based on records of water levels from Office of the New Mexico State Engineer." – Please provide the referenced Office of the New Mexico State Engineer records. In addition, please review the attachments to this email. Discuss why or why not the 82 foot bgs reading displayed west of the subject location is a statistical outlier compared to the surrounding and proximal water levels displayed in the attachments.

Geoffrey Leking Environmental Engineer NMOCD-Hobbs 1625 N. French Drive Hobbs, NM 88240

Office: (575) 393-6161 Ext. 113

Cell: (575) 399-2990

email: geoffreyr.leking@state.nm.us







JUN 2 4 2011

RECEIVED

June 24, 2011

TARGIA SIMS 8"

VIA EMAIL: GeoffreyR.Leking@state.nm.us

Mr. Geoffrey R. Leking Environmental Engineer New Mexico Oil Conservation Division - District 1 1625 N. French Drive Hobbs, New Mexico 88240

Re:

Final Report - R.D. Sims 8" Pipeline Release, 1RP-03-11-2691

Targa Midstream Services, L.P., Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East, Lea County, New Mexico, June 23, 2011

## Dear Geoffrey:

Please find the enclosed report which is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Targa Midstream Services, L.P. by Larson & Associates, Inc. The report details the results of investigations and remediation of two releases (west and east) at the R.D. Sims 8" pipeline segment located in Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East in Lea County, New Mexico. Your approval and signature of the final C-141 for closing the excavations is requested. Please remit a copy of the signed final C-141 to Mr. Cal Wrangham, Environmental Manager, Targa Midstream Services, L.P., 6 Desta Drive, Suite 3300, Midland, Texas 79705. You may contact Mr. Wrangham by phone at 432-688-0542 or email (CalvinWrangham@targaresources.com) or myself at the contact information presented below if you have questions.

Sincerely,

Larson & Associates, Inc.

Mark J. Larson, P.G. (432) 687-0901

mark@laenvironmental.com

cc:

Cal Wrangham - Targa David Honeycutt - Targa

Encl.

approved by:
Thereb Edring
Enr-Engineer
NMUCD-District 1
08102111

## 1.0 EXECUTIVE SUMMARY

This report is submitted on behalf of Targa Midstream Services, L.P. (Targa) to the New Mexico Oil Conservation Division (OCD) District 1 to present the analysis of soil samples collected during investigation and remediation of a natural gas liquid (NGL) release at the R.D. Sims 8 inch pipeline segment (Site). The Site is located in Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East in Lea County, New Mexico. In November 2010 two leaks were discovered at the location (west and east) while Targa was inserting polyethylene pipe inside the 8 inch steel pipelines. On December 1, 2010, Targa submitted the initial C-141 to the OCD District 1 which assigned the leak remediation project (RP) number 1RP-03-11-2691. The geodetic position is north 33° 21′ 32.55″ and west 103° 08′ 28.80″.

During November and December 2010, Environmental Plus, Inc. (EPI) excavated soil from the leak locations. The west leak was excavated to approximately 27 feet below ground surface (bgs) and the east leak was excavated to approximately 15 feet bgs. Approximately 1,624 cubic yards of soil was removed from the Site and disposed at Sundance Disposal located east of Eunice, New Mexico. On March 2, 2011, Larson & Associates, Inc. (LAI) was requested to collect soil samples from the west excavation. Samples were collected from the bottom at approximately 27 feet bgs and sidewalls at 6, 12 and 20 feet bgs. LAI also collected composite (5 spot) samples from 4 soil piles and samples a fifth pile (Pile #5) on March 22, 2011. The soil piles were the result of excavation sloping for safety concerns. On March 22, 2011, LAI personnel used a Terraprobe® direct push rig to collect samples from the bottom of the west excavation at approximately 28, 32 and 35 feet bgs. LAI personnel also collected samples from the east excavation bottom at about 15, 18, 21 and 24 feet bgs and sidewalls at about 6 and 12 feet bgs.

On May 24, 2011, LAI supervised Scarborough Drilling, Inc., to collect soil samples from an air rotary drilled boring (BH-1) about 20 feet west of the Site. A jam tube core sampler was used to collect samples about every five feet (0', 5', 10', 15', 20', etc.) to approximately 40 feet bgs. All samples were placed in clean 4-ounce glass jars that were filled to near zero headspace, labeled, chilled in an ice filled chest. The samples were delivered under chain of custody control and analyzed by Xenco Environmental Laboratories, for total petroleum hydrocarbons (TPH) by EPA method SW-8015 and chloride by standard method 300. A portion of each sample was collected for headspace analysis in clean 8-ounce glass jars that were partially filled, sealed with aluminum foil, capped and allowed to reach ambient temperature before testing with a calibrated photoionization detector (PID). The highest PID reading was 13.9 parts per million (ppm) from the north sidewall of the west location at approximately 12 feet bgs. No BTEX analysis was performed on the samples.

The highest TPH concentration in the excavation samples was 82.6 milligram per kilogram (mg/Kg) in the bottom of the east excavation at approximately 18 feet bgs. The highest chloride concentration in the excavation samples was 783 mg/Kg from the north side of the west excavation at approximately 12 feet bgs. Chloride was 404 mg/Kg in the bottom of the west excavation at approximately 35 feet bgs. The highest TPH and chloride concentrations in the soil piles were 19.8 mg/Kg and 260 mg/Kg, respectively, from Pile #1.

TPH was not reported in the soil boring samples above the test method detection limits. The highest chloride concentration in the soil boring samples was 229 mg/Kg at approximately 30 feet bgs. Chloride was 158 mg/Kg in the sample from 40 feet bgs. The jam tube core sampler and sample trowels were thoroughly washed between samples with a solution of laboratory grade detergent and potable water

and rinsed with distilled water. Groundwater was not observed in the boring which was plugged with bentonite approximately 1 hour after drilling was completed.

Since groundwater is not present in the Ogallala formation and TPH is below the recommended remediation action level (RRAL) of 5,000 mg/Kg, Targa requests approval from the OCD to fill the excavations (west and east) with soil from the piles and clean soil from an offsite source.

## 2.0 INTRODUCTON

This document is submitted to the New Mexico Oil Conservation Division (OCD) on behalf of Targa Midstream Services, L.P. (Targa) by Larson & Associates, Inc. (LAI), its consultant, to present the analysis of soil samples collected from 2 excavations (west and east), 5 soil piles (Pile #1 through Pile #5) and a soil boring (BH-1) at the R.D. Sims 8" natural gas pipeline release (Site). In November 2010, while inserting polyethylene pipe inside the steel pipelines, Targa discovered natural gas liquids (NGL) leaking at two locations (west and east). The leaks are separated by about 50 feet. Targa repaired the leaks and submitted an initial C-141 to the New Mexico Oil Conservation Division (OCD) on December 1, 2010. The OCD assigned remediation project (RP) number 1RP-03-11-2691 to the release. The Site is located in Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East, Lea County, New Mexico. The geodetic position is north 33° 21' 32.55" and west 103° 08' 28.80". Figure 1 presents a location and topographic map. Figure 2 presents an aerial photograph.

## 2.1 Chronology

November 2010	Targa identified two leaks while inserting polyethylene pipe inside two steel pipelines. The leaks were repaired and a Targa contractor excavated approximately 1,624 cubic yards of contaminated soil which was disposed at Sundance Disposal located east of Eunice, New Mexico;
November 30, 2010	Targa personnel collected initial soil samples from the bottom and sidewalls of the west excavation for TPH (8015M) and chloride (SM4500CI-B) analysis by Cardinal Laboratories, located in Hobbs, New Mexico;
December 1, 2010	Targa submitted the initial C-141 to the OCD District 1 in Hobbs, New Mexico;
December 15, 2010	Targa personnel collected soil samples from the bottom and sidewalls of the west location for TPH (8015M) and chloride (SM4500CI-B) analysis by Cardinal Laboratories, located in Hobbs, New Mexico;
January 28, 2011	Landowner contracted Basin Environmental Service Technologies, Inc., to collect soil samples from the north side of the west location for chloride analysis by field method (Hach Quantab);
March 2, 2011	LAI collected soil samples from the bottom and sidewalls of the west excavation and five soil piles for TPH (SW-8015M) and chloride (SW-300) analysis by Xenco Laboratories, located in Odessa, Texas;

March 22, 2011

LAI collected soil samples from approximately 28, 32 and 35 feet bgs from a direct push boring (SP-1) in the bottom of the west excavation. LAI also collected soil samples from the bottom and sidewalls of the east excavation for TPH (SW-8015M) and chloride (SW-300) analysis. All analyses were performed by Xenco Laboratories, located in Odessa, Texas;

May 24, 2011

LAI collected soil samples to approximately 40 feet below ground surface (bgs) from an air rotary drilled boring (BH-1) located about 20 feet west of the Site. The samples were analyzed for TPH (8015M) and chloride (SW-300) by Xenco Laboratories.

## 2.2 Setting

The Site is located about 5 miles southeast of Eunice, in rural Lea County, New Mexico. The surface elevation is approximately 3,315 feet above mean sea level (MSL) and slopes gently to the southeast. The soil is designated "Simona fine sandy loam, 0 to 3 percent slopes" with color from pale brown to grayish brown and fine sandy loam with fragments of hard caliche. The "c" layer is comprised of white caliche that is indurated to strongly cemented. The soil is used for range, wildlife and recreation. The nearest surface water feature is Monument Draw which is located about 1.3 miles (6,800 feet) southeast of the Site.

According to the *Geologic Map of New Mexico* and the *Geologic Atlas of Texas, Hobbs Sheet* the surface geology is comprised of Holocene to mid-Pleistocene age wind-blown sand. This material covers the eastern flank of the Pecos River valley and derived principally from reworking the underlying Tertiary-aged Ogallala formation of the Southern High Plains. The Ogallala formation is comprised of fluvial sand, silt, clay and localized gravel, with indistinct to massive crossbeds. The Ogallala sand is generally fine- to medium-grained quartz, and is known to contain arsenic, barium and other heavy metals.

In the Eunice area, the Ogallala formation consists mainly of unconsolidated to poorly consolidated, very fine to medium-grained quartz sand and gravel, with minor amount of silt and clay. An upper-most unit, the Blackwater Draw formation, consists of reddish brown, very fine to fine grained eolian sand with minor amounts of clay and caliche. Locally the "c" horizon of the Simona fine sandy loam, 0 to 3 percent slopes, is called the caprock caliche. The caprock is a hard, erosion resistant, pedogenic calcrete that is typically five to ten feet thick but may exceed 20 feet in some areas. The Ogallala formation is underlain by the Chile formation (Triassic).

On May 24, 2011, Scarborough Drilling, Inc. drilled a boring for the purpose of collecting soil samples about 20 feet west of the Site. The boring was advanced to approximately 40 feet bgs and shale and mudstone was encountered at approximately 38 feet bgs. Groundwater was not observed in the Ogallala sediments above the red bed. The nearest well was observed about 2,000 feet southwest (cross gradient) from the Site. This well is used for livestock watering. Figure 1 presents approximate water well locations and depth to groundwater based on records from the Office of the New Mexico State Engineer.

## 3.0 REMEDIATION

Between November and December 2010, Environmental Plus, Inc. (EPI), located in Eunice, New Mexico, was contracted to excavate soil from the west and east locations. EPI excavated approximately 1,624 cubic yards of soil which was hauled and disposed at Sundance Disposal (NM-01-003) located east of Eunice, New Mexico. In February 2011, EPI removed approximately 400 cubic yards of soil during sidewall sloping of the excavations for safety concerns. The soil was piled on the right-of-way.

On March 2, 2011, LAI personnel collected soil samples from the bottom (27 feet) and sidewalls (6, 12 and 20 feet) of the west excavation. LAI collected 5 – spot composite samples from 4 soil piles resulting from excavation sloping. A fifth pile was also sampled on March 22, 2011. The samples were collected using stainless steel trowels that were decontaminated between uses by washing with a solution of laboratory grade (Alconox) detergent and water and rinsed with distilled water.

On March 22, 2011, LAI personnel used a Terraprobe® direct-push sampling rig to collect soil samples from the bottom of the west excavation at approximately 28, 32 and 35 feet bgs. The direct push boring was filled with bentonite. LAI personnel also collected soil samples from the bottom (15, 18, 21 and 24 feet bgs) and sidewalls (6 and 12 feet bgs) from the east excavation. The samples were placed in 4-ounce clean glass sample jars that were filled to near zero headspace, labeled, chilled in an ice filled chest, hand delivered under chain of custody control and analyzed by Xenco Laboratories, Inc., Odessa, Texas, for total petroleum hydrocarbons (TPH) by EPA method SW-8015 and chloride by standard method 300. Figure 3 presents a Site drawing and sample locations.

On May 24, 2011, Scarborough Drilling, Inc., under supervision from LAI, used an air rotary rig and jam tube core sampler to collect samples from a boring that was drilled approximately 20 feet west of the Site. Soil samples were collected about every 5 feet (0', 5', 10', 15', etc.) to the terminal depth of approximately 40 feet. Shale and mudstone, commonly referred to as "red bed", of the Chinle formation (Triassic) was encountered at about 38 feet bgs. The red beds form the lower confining layer for groundwater in the overlying Ogallala formation. Groundwater was not observed in the Ogallala formation. The samples were placed in 4-ounce clean glass sample jars that were filled to near zero headspace, labeled, chilled in an ice filled chest, hand delivered under chain of custody control and analyzed by Xenco Laboratories, Inc., for TPH by EPA method SW-8015 and chloride by standard method 300. Figure 3 presents the boring location. Table 1 present a summary of the laboratory analysis. Appendix A presents the analytical laboratory reports. Appendix B presents the soil boring geologic log.

A portion of each sample was placed in a clean 8 ounce glass jars for headspace vapor analysis. The jars were partially filled, sealed with aluminum foil before securing the cap. After approximately 30 minutes at ambient temperature the headspace vapor concentration was measured using a calibrated Thermo Environmental instruments Model 580B organic vapor meter (OVM) photoionization detector (PID). The highest PID reading was 13.9 parts per million (ppm) from the north sidewall of the west excavation at approximately 12 feet bgs. No samples were analyzed for benzene, ethylbenzene, toluene or xylene (BTEX) since PID readings were less than 100 ppm. Table 1 presents a summary of the PID analysis.

The following criteria were used to calculate recommended remediation action levels for the release:

Ranking Criteria	Result	Ranking Score
Depth-to-Groundwater	>100 feet	0

Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
	Total Score:	0

The following RRAL were calculated for 1RP-03-11-2691:

Benzene:

10 mg/Kg

BTEX:

50 mg/Kg

TPH:

5,000 mg/Kg

## 4.0 CONCLUSIONS

The insitu TPH concentrations are below the recommended remediation action level (RRAL) of 5,000 milligrams per kilogram (mg/Kg). Chloride was 404 mg/Kg at approximately 35 feet bgs in the west excavation. Shale and mudstone, commonly referred to as "red bed", was encountered at approximately 38 feet bgs and groundwater was not observed in the Ogallala formation.

## 5.0 RECOMMENDATIONS

Since TPH is below the RRAL (5,000 mg/Kg) and groundwater is not present in the Ogallala formation Targa requests approval from the OCD to close the excavations. The excavations will be filled with soil from the piles and clean soil from an offsite source. Appendix C presents photographs. Appendix D presents the initial and final C-141.

## Table 1

## Soil Samples Analytical Summary

Targa Midstream Services, L.P., R. D. Sims 8" Pipeline Release Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East Lea County, New Mexico 1RP-03-11-2691

Location	Depth	Date	Status	PID	Chloride	GRO	DRO	Oil	Total TPH
(West)	Feet BGS			(ppm)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
RRAL:			W		-lai-lB-				5,000
					alytical Resu	The state of the s	46.0	46.0	100
Bottom	27	03/02/2011		4.0	660	<16.2	<16.2	<16.2	<16.2
(SP-1)	28 - 29.5	03/22/2011	Insitu		649				
(SP-1)	32 - 33.5	03/22/2011	Insitu		671				
(SP-1)	35	03/22/2011	Insitu		404				
East Side	6	03/02/2011	Insitu	3.9	10	<16.8	<16.8	<16.8	<16.8
	12	03/02/2011	Insitu	13.1	330	<17.4	17.5	<17.4	17.5
	20	03/02/2011	Insitu	3.0	281	<15.6	<15.6	<15.6	<15.6
West Side	6	03/02/2011	Insitu	2.2	12	<21.1	<21.1	<21.1	<21.1
	12	03/02/2011	Insitu	2.2	69.9	<17.1	<17.1	<17.1	<17.1
	20	03/02/2011	Insitu	2.2	644	<15.4	21.6	<15.4	21.6
South Side	6	03/02/2011	Insitu	3.3	324	<16.5	<16.5	<16.5	<16.5
.l	12	03/02/2011	Insitu	3.3	71.1	<16.6	22.4	<16.6	22.4
	20	03/02/2011	Insitu	2.7	299	<16.2	<16.2	<16.2	<16.2
North Side	6	03/02/2011	Insitu	2.6	13.4	<16.2	<16.2	<16.2	<16.2
	12	03/02/2011	Insitu	13.9	783	<16.7	<16.7	<16.7	<16.7
	20	03/02/2011	Insitu	3.9	336	<15.5	<15.5	<15.5	<15.5
-			East Ex	cavation An	alytical Resu	lts			
Bottom	15	03/22/2011	Insitu	1.2	36.8	<17.2	<17.2	<17.2	<17.2
	18	03/22/2011	Insitu	1.2	123	<17.4	82.6	<17.4	82.6
_	21	03/22/2011	Insitu	1.2	8.16	<16.6	<16.6	<16.6	<16.6
	24	03/22/2011	Insitu	1.1	11.7	<16.1	<16.1	<16.1	<16.1
East Side	6	03/22/2011	Insitu	1.6	16.9	<15.5	<15.5	<15.5	<15.5
	12	03/22/2011	Insitu	1.6	15.5	<15.6	<15.6	<15.6	<15.6
West Side	6	03/22/2011	Insitu	1.1	638	<16.1	<16.1	<16.1	<16.1
	12	03/22/2011	Insitu	1.8	21.4	<16.5	<16.5	<16.5	<16.5

## Table 1

## Soil Samples Analytical Summary

Targa Midstream Services, L.P., R. D. Sims 8" Pipeline Release Unit L (NW/4, SW/4), Section 26, Township 22 South, Range 37 East Lea County, New Mexico

1RP-03-11-2691

NAME OF TAXABLE PARTY.							MESSIA CONTRACTOR	Market School	Section Control
Location	Depth	Date	Status	PID	Chloride	GRO	DRO	Oil	Total TPH
(West)	Feet BGS			(ppm)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
RRAL:									5,000
South Side	6	03/22/2011	Insitu	1.0	21.1	<17.3	<17.3	<17.3	<17.3
	12	03/22/2011	Insitu	1.4	8.24	<18.9	<18.9	<18.9	<18.9
North Side	6	03/22/2011	Insitu	1.2	61.5	<16.2	<16.2	<16.2	<16.2
4	12	03/22/2011	Insitu	1.2	12.7	<18.9	<18.9	<18.9	<18.9
			Soil	Boring Analy	tical Results				
BH-1	0	05/24/2011	Insitu	1.4	52.6	<15.7	<15.7	<15.7	<15.7
	5	05/24/2011	Insitu	2.0	5.02	<17.2	<17.2	<17.2	<17.2
1	10	05/24/2011	Insitu	1.1	<4.71	<16.8	<16.8	<16.8	<16.8
	15	05/24/2011	Insitu	1.7	19.4	<18.1	<18.1	<18.1	<18.1
	20	05/24/2011	Insitu	2.0	19.5	<17.1	<17.1	<17.1	<17.1
	25	05/24/2011	Insitu	0.2	64.2	<16.0	<16.0	<16.0	<16.0
ıl l	30	05/24/2011	Insitu	0.2	229	<17.5	<17.5	<17.5	<17.5
4	35	05/24/2011	Insitu	0.2	182	<17.2	<17.2	<17.2	<17.2
	40	05/24/2011	Insitu	0.2	158	<17.3	<17.3	<17.3	<17.3
			So	il Pile Analyt	ical Results				
Pile #1		03/02/2011	Excavated	3.3	260	<16.7	19.8	<16.7	19.8
Pile #2		03/02/2011	Excavated	2.2	49.7	<16.6	<16.6	<16.6	<16.6
Pile #3		03/02/2011	Excavated	2.2	41.2	<16.3	<16.3	<16.3	<16.3
Pile #4		03/02/2011	Excavated	2.2	105	<16.6	<16.6	<16.6	<16.6
Pile #5		03/22/2011	Excavated	1.2	23.1	<16.7	<16.7	<16.7	<16.7

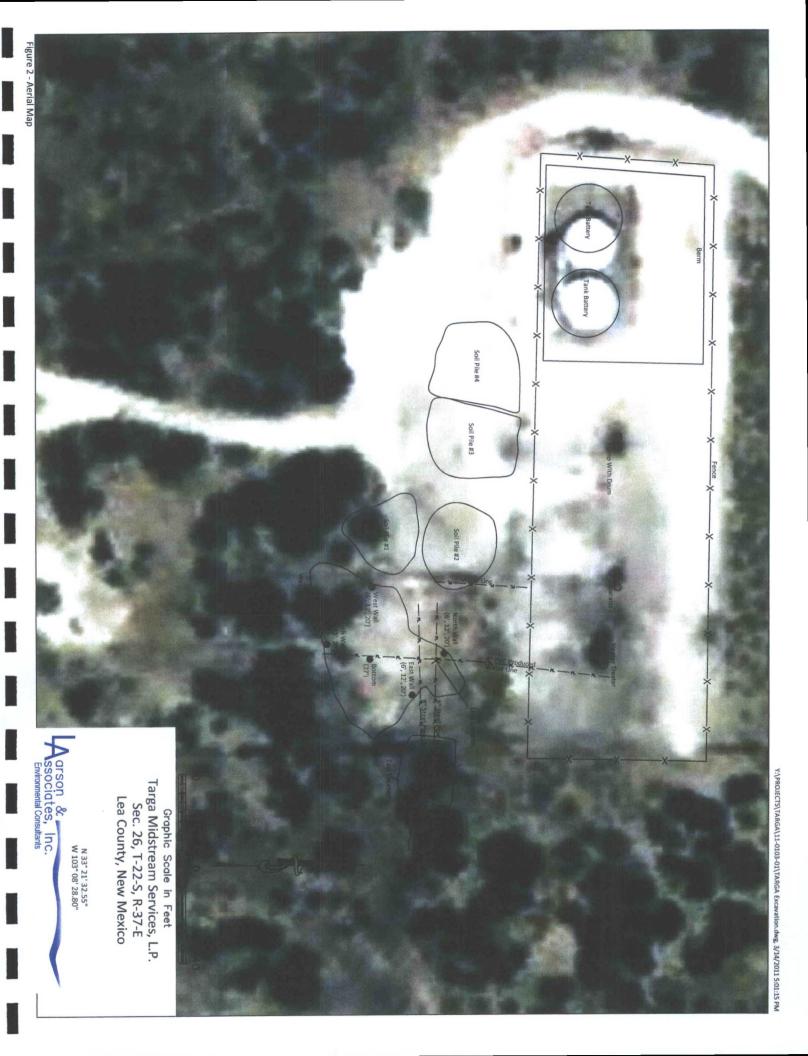
## Notes

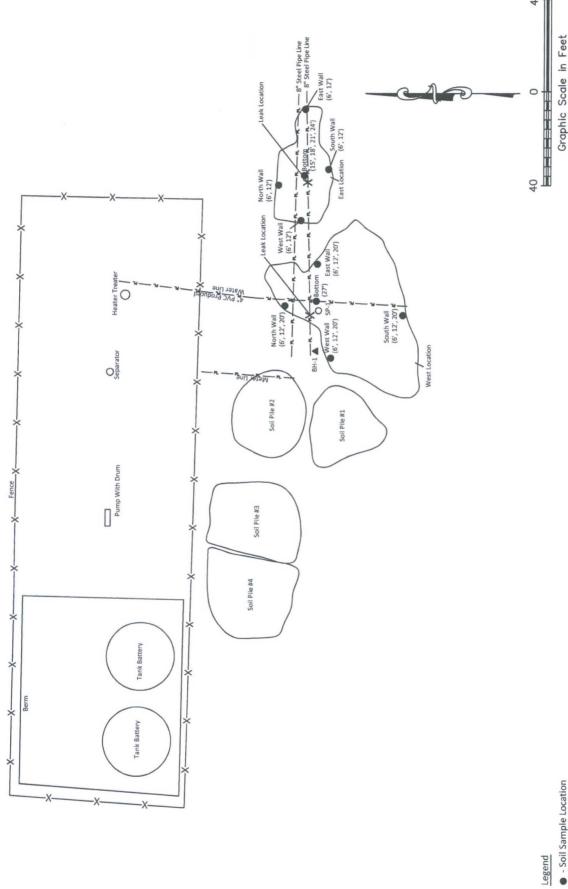
Samples analyzed via EPA method SW-8015M (TPH) and SW-300 (chloride).

Depth measurements are in feet below ground surface (bgs).

All concentrations are in milligrams per kilogram (mg/Kg) equivalent to parts per million (ppm).

## **FIGURES**





 Soil Sample Location (approximate)
 West Excavation March 2, 2011
 East Excavation March 22, 2011

Targa Midstream Services, L.P.

Sec. 26, T-22-S, R-37-E Lea County, New Mexico

N 33° 21' 32.55" W 103° 08' 28.80"

Ssociates, Inc.

BH·1 ▲ - Soil Sample Location (approximate) March 2, 2011

SP-1 O - Soil Sample Location (approximate) March 2, 2011

Figure 3 - Site Map

## **Analytical Report 408471**

for Larson & Associates

Project Manager: Mark Larson

R.D. Sims 8" West Excavation

11-0103-01

07-MAR-11



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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Xenco-Houston (EPA Lab code: TX00122):

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Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL01273):

Florida(E86240), South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





07-MAR-11

Project Manager: Mark Larson Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 408471

R.D. Sims 8" West Excavation

Project Address:

### Mark Larson:

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 408471. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 408471 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,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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## **Sample Cross Reference 408471**



## Larson & Associates, Midland, TX

R.D. Sims 8" West Excavation

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
Botton (27')	S	Mar-02-11 09:45	27 ft	408471-001
East (20')	S	Mar-02-11 09:50	20 ft	408471-002
East (12')	S	Mar-02-11 09:55	12 ft	408471-003
East (6')	S	Mar-02-11 10:00	6 ft	408471-004
West (20')	S	Mar-02-11 10:10	20 ft	408471-005
West (12')	S	Mar-02-11 10:15	12 ft	408471-006
West (6')	S	Mar-02-11 10:20	6 ft	408471-007
South (20')	S	Mar-02-11 10:25	20 ft	408471-008
South (12')	S	Mar-02-11 10:30	12 ft	408471-009
South (6')	S	Mar-02-11 10:32	6 ft	408471-010
North (20')	S	Mar-02-11 10:38	20 ft	408471-011
North (12')	S	Mar-02-11 10:48	12 ft	408471-012
North (6')	S	Mar-02-11 10:55	6 ft	408471-013
Pile # 1	S	Mar-02-11 11:10		408471-014
Pile # 2	S	Mar-02-11 11:15		408471-015
Pile # 3	S	Mar-02-11 11:20		408471-016
Pile # 4	S	Mar-02-11 11:25		408471-017

## **CASE NARRATIVE**



Client Name: Larson & Associates
Project Name: R.D. Sims 8" West Excavation



Project ID:

11-0103-01

Work Order Number: 408471

Report Date: 07-MAR-11 Date Received: 03/02/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



# Certificate of Analysis Summary 408471

Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" West Excavation

Project Location:

Project Id: 11-0103-01 Contact: Mark Larson

Date Received in Lab: Wed Mar-02-11 05:07 pm

Report Date: 07-MAR-11

Analysis Requested  Anions by E300  Chloride  Percent Moisture	Lab Id: Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL: Extracted:	408471-001 Botton (27') 27- ft SOIL Mar-02-11 09:45  Mar-03-11 11:01 mg/kg RL 660 18.2  Mar-03-11 17:00	40x471-002 East (20') 20- ft SOIL Mar-02-11 09:50 Mar-03-11 11:40 mg/kg RL 281 8.74 Mar-03-11 17:00	408471-003 East (12') 12- ft SOIL Mar-02-11 09:55  Mar-03-11 11:53 mg/kg RL 330 9.72  Mar-03-11 17:00	Project Manager:         Brent Barron, II           408471-004         408471-005           East (6')         West (20')           6- ft         20- ft           SOIL         SOIL           Mar-02-11 10:00         Mar-02-11 10           Mar-03-11 12:06         Mar-03-11 12           mg/kg         RL         mg/kg           10:0         4.67         644           Mar-03-11 17:00         Mar-03-11 17	Brent Barron, II 408471-005 West (20') 20- ft SOIL Mar-02-11 10:10 Mar-03-11 12:19 mg/kg RL 644 8.64 Mar-03-11 17:00	
Percent Moisture	Extracted: Analyzed: Units/RL:	Mar-03-11 17:00	Mar-03-11 17:00 % RL	Mar-03-11 17:00 % RL	Mar-03-1117:00	Mar-03-11 17:00	RL 00
Percent Moisture		7.55 1.00	3.93 1.00	13.6 1.00	10.0 1.00	2.80 1.00	-
TPH By SW8015 Mod	Extracted: Analyzed:	Mar-03-11 10:00 Mar-03-11 12:43	Mar-03-11 10:00 Mar-03-11 13:02	Mar-03-11 10:00 Mar-03-11 13:22	Mar-03-11 10:00 Mar-03-11 13:41	Mar-03-11 10:00 Mar-03-11 14:01	
C6-C12 Gasoline Range Hydrocarbons	UMIS/KL:	mg/kg RL ND 16.2	mg/kg KL	mg/kg KL	mg/kg KL	mg/kg KL	-
C12-C28 Diesel Range Hydrocarbons		ND 16.2	ND 15.6	17.5 17.4	ND 16.8	21.6 15.4	-
C28-C35 Oil Range Hydrocarbons		ND 16.2	ND 15.6	ND 17.4	ND 16.8	ND 15.4	4
Total TPH		ND 16.2	ND 15.6	17.5 17.4	ND 16.8	21.6 15.4	4

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# Certificate of Analysis Summary 408471

Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" West Excavation

Project Id: 11-0103-01

Project Location: Contact: Mark Larson

Date Received in Lab: Wed Mar-02-11 05:07 pm

Report Date: 07-MAR-11

ojec zocanom					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	408471-007	408471-008	408471-009	408471-010	408471-011	408471-012
And her Promoted	Field Id:	West (6')	South (20')	South (12')	South (6')	North (20')	North (12')
Anai/sis Nequesieu	Depth:	6- ft	20- ft	12- ft	6- ft	20- ft	12- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-02-11 10:20	Mar-02-11 10:25	Mar-02-11 10:30	Mar-02-11 10:32	Mar-02-11 10:38	Mar-02-11 10:48
Anions by E300	Extracted:						
	Analyzed:	Mar-03-11 12:45	Mar-03-11 12:58	Mar-03-11 13:11	Mar-03-11 13:24	Mar-03-11 13:37	Mar-03-11 13:50
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		12.0 5.93	299 9.08	71.1 4.67	324 9.22	336 8.68	783 9.33
Percent Moisture	Extracted:						
	Analyzed:	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		29.2 1.00	7.50 1.00	10.0 1.00	8.92 1.00	3.21 1.00	10.0 1.00
TPH By SW8015 Mod	Extracted:	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00
	Analyzed:	Mar-03-11 14:40	Mar-03-11 14:59	Mar-03-11 15:19	Mar-03-11 15:38	Mar-03-11 16:17	Mar-03-11 16:37
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 21.1	ND 16.2	ND 16.6	ND 16.5	ND 15.5	ND 16.7
C12-C28 Diesel Range Hydrocarbons		ND 21.1	ND 16.2	22.4 16.6	ND 16.5	ND 15.5	ND 16.7
C28-C35 Oil Range Hydrocarbons		ND 21.1	ND 16.2	ND 16.6	ND 16.5	ND 15.5	ND 16.7
Total TPH		ND 21.1	ND 16.2	22.4 16.6	ND 16.5	ND 15.5	ND 16.7

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Brefit Barron, II

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# Certificate of Analysis Summary 408471

Larson & Associates, Midland, TX

Project Id: 11-0103-01 Contact: Mark Larson

Project Location:

Project Name: R.D. Sims 8" West Excavation

West Excavation

Date Received in Lab: Wed Mar-02-11 05:07 pm

Report Date: 07-MAR-11

					Project Manager: Brent Barron, II	Brent Barron, II
	Lab Id:	408471-013	408471-014	408471-015	408471-016	408471-017
A Description of the last of t	Field Id:	North (6')	Pile # 1	Pile # 2	Pile #3	Pile #4
Anaiysis wequesiea	Depth:	6- ft				
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-02-11 10:55	Mar-02-11 11:10	Mar-02-11 11:15	Mar-02-11 11:20	Mar-02-11 11:25
Anions by E300	Extracted:					
	Analyzed:	Mar-03-11 14:03	Mar-03-11 14:16	Mar-03-11 14:35	Mar-03-11 14:58	Mar-03-11 15:21
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		13.4 4.54	260 9.31	49.7 4.63	41.2 4.57	105 9.29
Percent Moisture	Extracted:					
	Analyzed:	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00	Mar-03-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL
Percent Moisture		7.47 1.00	9.82 1.00	9.21 1.00	8.13 1.00	9.55 1.00
TPH By SW8015 Mod	Extracted:	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00	Mar-03-11 10:00
	Analyzed:	Mar-03-11 16:56	Mar-03-11 17:15	Mar-03-11 17:35	Mar-03-11 17:54	Mar-03-11 18:13
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 16.2	ND 16.7	ND 16.6	ND 16.3	ND 16.6
C12-C28 Diesel Range Hydrocarbons		ND 16.2	19.8 16.7	ND 16.6	ND 16.3	ND 16.6
C28-C35 Oil Range Hydrocarbons		ND 16.2	ND 16.7	ND 16.6	ND 16.3	ND 16.6
Total TPH		ND 16.2	19.8 16.7	ND 16.6	ND 16.3	ND 16.6

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Brent Barron, II
Odessa Laboratory Manager



## **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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.
- BRL Below Reporting Limit.
- **RL** Reporting Limit
- MDL Method Detection Limit
- **PQL** Practical Quantitation Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
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842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Sample: 597109-1-BKS / BKS

**Project ID:** 11-0103-01

Lab Batch #: 846206

Batch: 1 Matrix: Solid

Units: mg/kg	Date Analyzed: 03/03/11 11:44	SU	RROGATE RE	ECOVERY S	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Allalytes	78.8	100	79	70-135	
o-Terphenyl		41.5	50.0	83	70-135	

Lab Batch #: 846206

Sample: 597109-1-BSD / BSD

Batch: 1

Matrix: Solid

Units: mg/kg Date Analyzed: 03/03/11 12:04	SU	RROGATE RI	ECOVERY S	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	76.3	100	. 76	70-135	
o-Terphenyl	38.4	50.2	76	70-135	

Lab Batch #: 846206

Sample: 597109-1-BLK / BLK

Batch: 1

Matrix: Solid

Units: mg/kg	Date Analyzed: 03/03/11 12:23	SURROGATE RECOVERY STUDY					
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane	T MANUAL Y COO	77.8	100	78	70-135		
o-Terphenyl		37.8	50.2	75	70-135		

Lab Batch #: 846206

Sample: 408471-001 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 12:43	SU	RROGATE RI	ECOVERY S	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.6	99.9	80	70-135	
o-Terphenyl	38.7	50.0	77	70-135	

Lab Batch #: 846206

Sample: 408471-002 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 0	3/03/11 13:02	SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amou Four [A]	d Amount	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	79.8	100	80	70-135			
o-Terphenyl	38.3	50.1	76	70-135			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471, Lab Batch #: 846206

Project ID: 11-0103-01

Sample: 408471-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 13:22 SURROGATE RECOVERY STUDY							
ТРН	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
	Analytes	(-1	1-1	[D]			
1-Chlorooctane		80.3	100	80	70-135		
o-Terphenyl		38.7	50.2	77	70-135		

Lab Batch #: 846206

Sample: 408471-004 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 13:41 SURROGATE RECOVERY STUDY							
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	78.1	101	77	70-135			
o-Terphenyl	37.7	50.3	75	70-135			

Lab Batch #: 846206

Sample: 408471-005 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/	/11 14:01 <b>SU</b>	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	76.8	99.6	77	70-135	
o-Terphenyl	36.5	49.8	73	70-135	

Lab Batch #: 846206

Sample: 408471-006 / SMP

Batch:

Matrix: Soil

Units: mg/kg D	ate Analyzed: 03/03/11 14:20	SU	RROGATE RE	COVERY S	STUDY	
TPH By SV	V8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Anal	ytes			[D]		
1-Chlorooctane		75.6	99.8	76	70-135	
o-Terphenyl		36.7	49.9	74	70-135	

Lab Batch #: 846206

Sample: 408471-007 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/03/11 14:40	SURROGATE RECOVERY STUDY						
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	Analytes	77.4	99.5	78	70-135			
o-Terphenyl		37.7	49.8	76	70-135			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Project ID: 11-0103-01

Lab Batch #: 846206

Sample: 408471-008 / SMP

Matrix: Soil Batch: 1

Units: mg/kg Date Analyzed: 03/03/11 14:59 SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
Analytes			[D]			
1-Chlorooctane	77.4	100	77	70-135		
o-Terphenyl	37.4	50.0	75	70-135		

Lab Batch #: 846206

Sample: 408471-009 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/03/11 15:19	SU	RROGATE RI	ECOVERY S	STUDY	
ТРН	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		78.5	99.6	79	70-135	
o-Terphenyl		38.1	49.8	77	70-135	

Lab Batch #: 846206

Sample: 408471-010 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/03/11 15:38	SURROGATE RECOVERY STUDY					
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane		78.5	100	79	70-135		
o-Terphenyl		38.0	50.0	76	70-135		

Lab Batch #: 846206

Sample: 408471-011 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 16:17	SU	RROGATE RI	ECOVERY S	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.6	100	78	70-135	
o-Terphenyl	36.7	50.0	73	70-135	

Lab Batch #: 846206

Sample: 408471-012 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 16:37	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.8	99.9	79	70-135	
o-Terphenyl	38.1	50.0	76	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Project ID: 11-0103-01

Lab Batch #: 846206

Sample: 408471-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg	Date Analyzed: 03/03/11 16:56	SU	RROGATE RE	<b>ECOVERY</b> S	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		84.4	99.9	84	70-135	
o-Terphenyl		40.3	50.0	81	70-135	

Lab Batch #: 846206

Sample: 408471-014 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 17:15	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.8	100	79	70-135	
o-Terphenyl	37.5	50.1	75	70-135	

Lab Batch #: 846206

Sample: 408471-015 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/03/11 17:35	SU	RROGATE RE	ECOVERY	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		79.0	100	79	70-135	
o-Terphenyl		37.4	50.1	75	70-135	

Lab Batch #: 846206

Sample: 408471-016 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 17:54	SU	RROGATE RI	ECOVERY S	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.6	99.9	80	70-135	
o-Terphenyl	38.1	50.0	76	70-135	

Lab Batch #: 846206

Sample: 408471-017 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 18:13	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.1	99.8	78	70-135	
o-Terphenyl	37.4	49.9	75	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" West Excavation

Work Orders: 408471,

Project ID: 11-0103-01

Lab Batch #: 846206

Sample: 408471-017 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/03/11 19:29	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	81.3	99.6	82	70-135	
o-Terphenyl	40.6	49.8	82	70-135	

Lab Batch #: 846206

Sample: 408471-017 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/03/11 19:48	SU	RROGATE RE	<b>ECOVERY</b> S	STUDY	
ТРН Е	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		79.4	99.8	80	70-135	
o-Terphenyl		39.6	49.9	79	70-135	

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



## BS / BSD Recoveries



## Project Name: R.D. Sims 8" West Excavation

Work Order #: 408471

Analyst: LATCOR Lab Batch ID: 846180

Sample: 846180-1-BKS

Date Prepared: 03/03/2011

Batch #: 1

Project ID: 11-0103-01

Date Analyzed: 03/03/2011 Matrix: Solid

Flag %RPD Control Limits 20 BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY Control Limits 75-125 %R RPD % BIK. Spk Dup. %R [G] 114 Duplicate Result [F] Blank Spike 4.11 Spike Added 10.0 <u>-</u> Blank Spike %R [D] 112 Blank Spike Result 11.2 [C]Spike Added 10.0 [B] Blank Sample Result <0.420 Anions by E300 Units: mg/kg Analytes Chloride

Analyst: BEV

Lab Batch ID: 846206

Sample: 597109-1-BKS

Date Prepared: 03/03/2011 Batch #: 1

Matrix: Solid

Date Analyzed: 03/03/2011

•											
Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	LANKS	PIKE DUPL	ICATE 1	RECOVE	RY STUD	Y	
TPH By SW8015 Mod	Blank Sample Result	Spike Added	Blank Spike	Blank Spike	Spike Added	Blank Spike	BIK. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	<u> </u>	[B]	[C]	[D]	[3]	Dupneare Result [F]	[6]		No/	/oNrD	
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	946	95	1000	940	94	_	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	847	85	1000	891	68	5	70-135	35	

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

Final 1.000



## Form 3 - MS Recoveries

Project Name: R.D. Sims 8" West Excavation



Work Order #: 408471

Lab Batch #: 846180 Date Analyzed: 03/03/2011

Project ID: 11-0103-01

**Date Prepared:** 03/03/2011

Analyst: LATCOR

QC-Sample ID: 408471-001 S

Batch #:

Matrix: Soil

Reporting Units: mg/kg	MATI	UX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	660	433	1110	104	75-125	

Matrix 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

BRL - Below Reporting Limit



## Form 3 - MS / MSD Recoveries

Project Name: R.D. Sims 8" West Excavation



Work Order #: 408471

Lab Batch ID: 846206

Date Analyzed: 03/03/2011

Batch #:

Analyst: BEV

QC-Sample ID: 408471-017 S **Date Prepared:** 03/03/2011

Matrix: Soil

**Project ID: 11-0103-01** 

Reporting Units: mg/kg		M	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	/MAT	AIX SPIF	KE DUPLICAT	TE REC	OVERY S	STUDY		
TPH By SW8015 Mod	Parent Sample	Spike	Spiked Sample Spiked Result Sample	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	Result [A]	Added [B]		%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C12 Gasoline Range Hydrocarbons	<16.5	1100	1100	100	1100	1090	66	-	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.5	1100	848	77	1100	853	78	-	70-135	35	

Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E Matrix Spike Percent Recovery [D] =  $100^{\circ}$ (C-A)/B Relative Percent Difference RPD =  $200^{\circ}$ (C-F)/(C+F)]

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



## **Sample Duplicate Recovery**



Project Name: R.D. Sims 8" West Excavation

Work Order #: 408471

Lab Batch #: 846180

Project ID: 11-0103-01

Date Analyzed: 03/03/2011 11:14

Date Prepared: 03/03/2011

Analyst: LATCOR

QC- Sample ID: 408471-001 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	660	630	5	20	

Lab Batch #: 846172

Date Analyzed: 03/03/2011 17:00

**Date Prepared:** 03/03/2011

Analyst: WRU

QC- Sample ID: 408471-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	7.55	7.85	4	20	

CHAIN-OF-CUSTODY

A arson &		207 14. 73	Joy 14. Marierileid, Sie. 200	PO #:		LAB WORK ORDER #:
Data Reported to: H. P. J.	ltonis John So	Midla 43,	Midland, 1X 79701 432-687-0901	PROJ LAI PI	N OR NAME:	R.D SIMS 8" WET EXCOUNT
report?	P=PAIN	PRE	ESERVATION		530 200	1000
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1		7	X	\ \ \ \		*
WEST (LI)		7	<b>X</b>	*		*
Soura (201)	*	7	X	XX		~
4	Y	7	X	X		~
~	03/02 1032 5	7	X	7		*
North (201)	2/02/1038 5	7	X	×		X
NORTH (121)	03/02/048 5	7	×	X		×
KORTH (6')	03/02 1055 5	7	×	*		4
Puette (	02/02 1110 5	N	×	X		7
RLE#2	8 5111 20/EN	7	X	XX		*
TOTAL						
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Environmental Consultants	Tes, In	Surfs Surfs				432-6	432-687-0901	2010		PRC	PROJECT LOCATION OR NAME: (2) SIMS	OCATI	ON OF	3 NAM	RD	5111	15 8"	WEST	ESCAVATION	VAT
Data Reported to:	ALEXI		1044	150 J						Z	LAI PROJECT #:	CT #:	1-6	103	3-9		COLLECTOR	TOR:	Spm	
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ALE#4		03/01	21125	(V	7			X		メ							7			
TOTAL																				
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RÉLINQUISHÉD BY:(Signature)	(Signature)		DATE/TIME		RECEIVED BY: (Signature)	/ED B	r. (Sigr	ature)		_	1 DAY L	<b>∠</b> ¬ .		A C	RECEIVING TEMP: A 1	STEMP:	RECEIVING TEMP: 7.1  THERM #: 5.1	THERM #: O. I	CT X NO	THISED
RELINQUISHED BY:(Signature)	(Signature)		DATE/TIME	ME	RECEIVED		BY: (Signature)	nature)			2 DAY 1	2 DAY ☐ OTHER ☐		3 5	CARRIER BILL #	S BILL #	1	1		
																-		-		



### **XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

## Prelogin / Nonconformance Report - Sample Log-In

Client: Larson &	ASSOC.						
Date/Time: 3.2.11	17:07						
Lab ID#: 408	471						
Initials: AE							
	S	ample Receip	t Check	list			
1. Samples on ice?				Blue	Water	No	
2. Shipping container in good of	condition?			Yes	No	None	
3. Custody seals intact on ship	ping container (co	ooler) and bottles	?	Yes	No	(NA)	
4. Chain of Custody present?				(Yes)	No		
5. Sample instructions complete	te on chain of cus	tody?		Yes	No		
6. Any missing / extra samples	?			Yes	No		
7. Chain of custody signed whe	en relinquished / r	eceived?		Yes	No		
8. Chain of custody agrees with	sample label(s)?			Yes	No		
9. Container labels legible and	intact?	•		(Yes)	No		
10. Sample matrix / properties	agree with chain o	of custody?		(Yes)	No .		
11. Samples in proper containe	r / bottle?			Yes	No		
12. Samples properly preserve	d?			Yes	No	N/A	
13. Sample container intact?				Yes	No		
14. Sufficient sample amount for	or indicated test(s	)?		(Yes)	No		
15. All samples received within	sufficient hold tir	ne?		Yes	No		
16. Subcontract of sample(s)?				Yes	No	(NA)	
17. VOC sample have zero head space?					No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.				Cooler 4 No	).	Cooler 5 No.	
1bs 3.1 °c	lbs °C	lbs	°C	lbs	°C	lbs	°C
Contact:		onformance l		ntation	Date/Time:_		
Corrective Action Taken:							

Check all that apply: 

Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.

□ Initial and Backup Temperature confirm out of temperature conditions

□ Client understands and would like to proceed with analysis

## **Analytical Report 410647**

for Larson & Associates

Project Manager: Alexis Johnson

R.D. Sims 8" Site

11-0103-01

24-MAR-11



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), 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)

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Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)





24-MAR-11

Project Manager: Alexis Johnson

Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 410647

R.D. Sims 8" Site Project Address:

### Alexis Johnson:

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 410647. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 410647 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,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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### **Sample Cross Reference 410647**



### Larson & Associates, Midland, TX

R.D. Sims 8" Site

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SP-1 (28-29.5')	S	Mar-22-11 09:55		410647-001
SP-1 (32-33.5')	S	Mar-22-11 10:40		410647-002
SP-1 (35')	S	Mar-22-11 11:40		410647-003

### **CASE NARRATIVE**



Client Name: Larson & Associates Project Name: R.D. Sims 8" Site



Project ID:

11-0103-01

Work Order Number: 410647

Report Date: 24-MAR-11 Date Received: 03/22/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

### Certificate of Analysis Summary 410647 Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site

Date Received in Lab: Tue Mar-22-11 05:00 pm Report Date: 24-MAR-11

Project Manager: Brent Barron, II

					)
	Lab Id:	410647-001	410647-002	410647-003	
D. C. D. C.	Field Id:	SP-1 (28-29.5')	SP-1 (32-33.5')	SP-1 (35')	
Anuiysis Nequesieu	Depth:				
	Matrix:	SOIL	SOIL	SOIL	
	Sampled:	Mar-22-11 09:55	Mar-22-11 10:40	Mar-22-11 11:40	40
Anions by E300	Extracted:				
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg	RL
3		649 24.9	671 25.3	404	19.2
Percent Moisture	Extracted:				
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	00
	Units/RL:	% RL	°,0 RL	0%	RL
Moisture		15.6	17.0	12.6	001

Percent Moisture

Chloride

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi 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 on warranty to the end use of the data brechy presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to m writing.

Odessa Laboratory Manager Brent Barron, II



### **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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.

BRL Below Reporting Limit.

**RL** Reporting Limit

MDL Method Detection Limit

PQL Practical Quantitation Limit

\* Outside XENCO's scope of NELAC Accreditation.

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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
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



## BS / BSD Recoveries



Project Name: R.D. Sims 8" Site

Work Order #: 410647

Analyst: LATCOR

Sample: 848925-1-BKS Lab Batch ID: 848925

Date Prepared: 03/23/2011

Batch #: 1

**Project ID:** 11-0103-01 Date Analyzed: 03/23/2011

Matrix: Solid

Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE	PIKE / B	LANKS	PIKE DUPL	ICATE I	RECOVE	RECOVERY STUDY	Y	
Anions by E300	Blank Sample Result	Spike	Blank Spike Result	Blank Spike %R	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD	Control Limits	Control Limits	Flag
Analytes		[B]	[C]	[Q]	[E]	Result [F]	[9]				
Chloride	<0.420	10.0	9.75	86	10.0	9.28	93	5	75-125	20	

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



### Form 3 - MS Recoveries

Project Name: R.D. Sims 8" Site



Work Order #: 410647

Lab Batch #: 848925

Date Analyzed: 03/23/2011

Project ID: 11-0103-01

Date Prepared: 03/23/2011

Analyst: LATCOR

QC- Sample ID: 410646-001 S

Batch #:

Matrix: Soil

Reporting Units: mg/kg	MATE	RIX / MA	TRIX SPIKE	RECOV	ERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	23.1	112	121	87	75-125	

Matrix 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

BRL - Below Reporting Limit



### Sample Duplicate Recovery



Project Name: R.D. Sims 8" Site

Work Order #: 410647

Lab Batch #: 848925

Date Prepared: 03/23/2011

Project ID: 11-0103-01

Date Analyzed: 03/23/2011 09:34

Anions by E300

**Analyte** 

**Percent Moisture** 

Analyte

Analyst: LATCOR

QC- Sample ID: 410646-001 D

Batch #:

Matrix: Soil

Reporting Units: mg/kg

SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
22.1	21.7	-	20	

Lab Batch #: 849000

Date Analyzed: 03/23/2011 17:00

Date Prepared: 03/23/2011

Analyst: WRU

QC- Sample ID: 410641-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

Percent Moisture

Chloride

SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
10.8	10.9	1	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

AB WOR	[	25 C 160 C 100 C 1		<b>&gt;</b>		LABORATORY USE ONLY:  RECEIVING TEMP: 3.1 THERM #: A7  CUSTODY SEALS - D BROKEN J INTACT ANOT USED	
07	\$ 200   101   \$ 200   \$ 20	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				TURN AROUND TIME NORMAL X 1 DAY  2 DAY  2	OTHER
507 N. Marienfeld, Ste. 200 Midland, TX 79701 432-687-0901	PRESERVATION GOH CON CONTRACTOR C	NAPRES ICE	× -	→ →	2	RECEIVED BY. (Signature) 3.22-11	RECEIVED BY: (Signature)
JOHNSON	P=PAINT SL=SLUDGE OT=OTHER	2011 Date Time Matrix	03-12 0955 5	V (140 A		DATE/TIME S'OO PAT DATE/TIME	DATE/TIME
A Grson & Inc. SSOCIATES, Inc. Environmental Consultants Data Reported to: ALEX 15	s No E ZONE:	Field Lab #	Sp. 1(28-29.6") 01 03 SP 1(32-33.5") 01	SP.((351) 05 1	TOTAL	RELINQUISHED BY:(Signature)	RELINQUISHED BY:(Signature)



### XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

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

Client: Larson & Assoc				
Date/Time: 3 27 11 17 00				
Lab ID#: 410647				
Initials: AE				
Sample Receipt Check	list			
1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	(es)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	N/A)	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Yes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	Yes	No		
9. Container labels legible and intact?	Yes	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No -		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	Yes	No	(N/A)	
17. VOC sample have zero head space?	Yes	No	NIA	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No.		Cooler 5 No.	
Ibs 3el °C Ibs °C Ibs °C	Ibs	°c	Ibs	°C
Nonconformance Docume	ntation			
Contact:Contacted by:		Date/Time:_		
Regarding:				
Corrective Action Taken:				
Check all that apply:   Cooling process has begun shortly after sampling condition acceptable by NELAC 5.5.8.3.1.a.1.  Initial and Backup Temperature confirm out of tem			ature	

☐ Client understands and would like to proceed with analysis

### **Analytical Report 410646**

for Larson & Associates

Project Manager: Alexis Johnson

R.D. Sims 8" Site

11-0103-01

24-MAR-11



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), 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)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

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Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL01273):

Florida(E86240), South Carolina(96031001), Louisiana(04154), Georgia(917) North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





24-MAR-11

Project Manager: Alexis Johnson Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 410646

R.D. Sims 8" Site Project Address:

### Alexis Johnson:

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 410646. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 410646 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,

Brent Barron, II

Odessa Laboratory Manager

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### **Sample Cross Reference 410646**



### Larson & Associates, Midland, TX

R.D. Sims 8" Site

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
Pile # 5	S	Mar-22-11 12:05		410646-001
SS-Bottom (15')	S	Mar-22-11 12:40		410646-002
SS-East (12')	S	Mar-22-11 12:43		410646-003
SS-East (6')	S	Mar-22-11 12:45		410646-004
SS-West (12')	S	Mar-22-11 12:50		410646-005
SS-West (6')	S	Mar-22-11 12:53		410646-006
SS-South (12')	S	Mar-22-11 12:55		410646-007
SS-South (6')	S	Mar-22-11 12:58		410646-008
SS-North (12')	S	Mar-22-11 13:00		410646-009
SS-North (6')	S	Mar-22-11 13:03		410646-010
SS-Bottom (18')	S	Mar-22-11 13:12		410646-011
SS-Bottom (21')	S	Mar-22-11 13:20		410646-012
SS-Bottom(24')	S	Mar-22-11 13:30		410646-013



### CASE NARRATIVE

Client Name: Larson & Associates Project Name: R.D. Sims 8" Site



Project ID:

11-0103-01

Report Date: 24-MAR-11

Work Order Number: 410646

Date Received: 03/22/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-849014 TPH By SW8015 Mod

SW8015MOD NM

Batch 849014, 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected;

data not confirmed by re-analysis

Samples affected are: 410646-013 S.



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

# Certificate of Analysis Summary 410646

Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site

Date Received in Lab: Tue Mar-22-11 05:00 pm

Brent Barron, II 24-MAR-11 Report Date: Project Manager:

					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	410646-001	410646-002	410646-003	410646-004	410646-005	410646-006
Australia Dominated	Field Id:	Pile#5	SS-Bottom (15')	SS-East (12')	SS-East (6')	SS-West (12')	SS-West (6')
Analysis Requesieu	<b>Depth</b> :						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-22-11 12:05	Mar-22-11 12:40	Mar-22-11 12:43	Mar-22-11 12:45	Mar-22-11 12:50	Mar-22-11 12:53
Anions by E300	Extracted:						
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34	Mar-23-11 09:34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.1 4.70	36.8 4.79	15.5 8.75	16.9 8.64	21.4 9.27	638 18.1
Percent Moisture	Extracted:						
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00	Mar-23-11 17:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		10.6 1.00	12.4 1.00	4.02 1.00	2.80 1.00	9.37 1.00	7.09 1.00
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45	Mar-23-11 09:45
	Analyzed:	Mar-23-11 14:06	Mar-23-11 14:36	Mar-23-11 15:05	Mar-23-11 15:34	Mar-23-11 16:04	Mar-23-11 16:33
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
C12-C28 Diesel Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
C28-C35 Oil Range Hydrocarbons		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1
Total TPH		ND 16.7	ND 17.2	ND 15.6	ND 15.5	ND 16.5	ND 16.1

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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Odessa Laboratory Manager Brent Barron, II

Page 5 of 18



Contact: Alexis Johnson Project Id: 11-0103-01

Project Location:

# Certificate of Analysis Summary 410646

Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site



Date Received in Lab: Tue Mar-22-11 05:00 pm

-11	rron. II
24-MAR-11	Brent Ba
Date:	

					0	A second	The same of the sa
	Lab Id:	410646-007	410646-008	410646-009	410646-010	410646-011	410646-012
Assalisais Doginated	Field Id:	SS-South (12')	SS-South (6')	SS-North (12')	SS-North (6')	SS-Bottom (18')	SS-Bottom (21')
Analysis requested	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-22-11 12:55	Mar-22-11 12:58	Mar-22-11 13:00	Mar-22-11 13:03	Mar-22-11 13:12	Mar-22-11 13:20
Anions by E300	Extracted:						
	Analyzed:	Mar-23-11 09:34	Mar-23-11 09:34				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		8.24 5.32	21.1 4.84	12.7 5.28	61.5 4.53	123 9.71	8.16 4.63
Percent Moisture	Extracted:						
	Analyzed:	Mar-23-11 17:00	Mar-23-11 17:00				
	Units/RL:	% RL	% RL				
Percent Moisture		21.1 1.00	13.2 1.00	20.5 1.00	7.35 1.00	13.5 1.00	9.31 1.00
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45	Mar-23-11 09:45				
	Analyzed:	Mar-23-11 17:01	Mar-23-11 17:32	Mar-23-11 18:01	Mar-23-11 18:30	Mar-23-11 19:29	Mar-23-11 19:59
	Units/RL:	mg/kg RL	mg/kg RL				
C6-C12 Gasoline Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	ND 17.4	ND 16.6
C12-C28 Diesel Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	82.6 17.4	ND 16.6
C28-C35 Oil Range Hydrocarbons		ND 18.9	ND 17.3	ND 18.9	ND 16.2	ND 17.4	ND 16.6
Total TPH		ND 18.9	ND 17.3	ND 18.9	ND 16.2	82.6 17.4	ND 16.6
Total 11 11			ON!				74.1

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Odessa Laboratory Manager Brent Barron, II

Page 6 of 18



Project Id: 11-0103-01
Contact: Alexis Johnson

Project Location:

# Certificate of Analysis Summary 410646

Larson & Associates, Midland, TX

Project Name: R.D. Sims 8" Site



Date Received in Lab: Tue Mar-22-11 05:00 pm

Report Date: 24-MAR-11
Project Manager: Brent Barron. II

			Froject Manager: Brent Barron, II	n, 11
	Lab Id:	410646-013		
Analysis Roanostad	Field Id:	SS-Bottom(24')		
maicanhais richmeire	Depth:			
	Matrix:	SOIL		
	Sampled:	Mar-22-11 13:30		
Anions by E300	Extracted:			
	Analyzed:	Mar-23-11 09:34		
	Units/RL:			
Chloride		11.7 4.52		
Percent Moisture	Extracted:			
	Analyzed:	Mar-23-11 17:00		
	Units/RL:	% RL		
Percent Moisture		7.06 1.00		
TPH By SW8015 Mod	Extracted:	Mar-23-11 09:45		
	Analyzed:	Mar-23-11 20:29		
	Units/RL:	mg/kg RL		
C6-C12 Gasoline Range Hydrocarbons		ND 16.1		
C12-C28 Diesel Range Hydrocarbons		ND 16.1		
C28-C35 Oil Range Hydrocarbons		ND 16.1		
Total TPH		ND 16.1		

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Brent Barron, II Odessa Laboratory Manager



### **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 effect the recovery of the spike concentration. This condition could also effect 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 MQL and above the SQL.
- 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.
- BRL Below Reporting Limit.
- **RL** Reporting Limit
- MDL Method Detection Limit
- PQL Practical Quantitation Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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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
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Lab Batch #: 849014

Sample: 598767-1-BKS / BKS

Batch:

Project ID: 11-0103-01 Matrix: Solid

Units: mg/kg Date Analyzed: 03/23/11 12:38	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes			[2]		
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	47.8	50.1	95	70-135	

Lab Batch #: 849014

Sample: 598767-1-BSD / BSD

Batch: 1

Matrix: Solid

Units: mg/kg	<b>Date Analyzed:</b> 03/23/11 13:08	SU	RROGATE RE	ECOVERY	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	•	97.8	100	98	70-135	
o-Terphenyl		43.4	50.2	86	70-135	

Lab Batch #: 849014

Sample: 598767-1-BLK / BLK

Batch:

Matrix: Solid

Units: mg/kg Date Analyzed: 03/23/11 13:37	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	98.6	99.8	99	70-135	
o-Terphenyl	48.3	49.9	97	70-135	

Lab Batch #: 849014

Sample: 410646-001 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 14:06	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	50.1	49.8	101	70-135	

Lab Batch #: 849014

Sample: 410646-002 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/23/11 14:36	SU	RROGATE RE	ECOVERY S	STUDY	
	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		98.6	100	99	70-135	
o-Terphenyl		47.3	50.2	94	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Project ID: 11-0103-01

Lab Batch #: 849014

Sample: 410646-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 15:05	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	106	99.5	107	70-135	
o-Terphenyl	50.3	49.8	101	70-135	

Lab Batch #: 849014

Sample: 410646-004 / SMP

Ratch:

Matrix: Soil

Units: mg/kg

Date Analyzed: 03/23/11 15:34

SURROGATE RECOVERY STUDY

Units: mg/kg Date Analyzed: 03/23/11 15:34 SURROGATE RECOVERT STUDY						
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
Analytes			[D]			
1-Chlorooctane	129	101	128	70-135		
o-Terphenyl	61.1	50.3	121	70-135		

Lab Batch #: 849014

Sample: 410646-005 / SMP

Batch:

1 Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/23/11 16:04	SU	RROGATE RI	ECOVERY	STUDY	
ТРН І	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		101	99.5	102	70-135	
o-Terphenyl		47.6	49.8	96	70-135	

Lab Batch #: 849014

Sample: 410646-006 / SMP

Batch:

Matrix: Soil

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 03/23/11 16:33	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	54.3	50.0	109	70-135	

Lab Batch #: 849014

Sample: 410646-007 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 17:01	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.6	111	70-135	
o-Terphenyl	54.9	49.8	110	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

**Project ID:** 11-0103-01

Lab Batch #: 849014

Sample: 410646-008 / SMP

Matrix: Soil

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 03/23/11 17:32	30	KKOGATE KI	ECOVERT	31001	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 849014

Sample: 410646-009 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/23/11 18:01	SU	RROGATE RE	ECOVERY	STUDY	
ТРН	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		108	100	108	70-135	
o-Terphenyl		52.4	50.2	104	70-135	

Lab Batch #: 849014

Sample: 410646-010 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 18:30	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.1	100	97	70-135	
o-Terphenyl	46.9	50.1	94	70-135	

Lab Batch #: 849014

Sample: 410646-011 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/23/11 19:29	SU	RROGATE RI	ECOVERY	STUDY	
ТРН І	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		104	100	104	70-135	
o-Terphenyl		51.2	50.1	102	70-135	

Lab Batch #: 849014

Sample: 410646-012 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/23/11 19:59	SU	RROGATE RI	ECOVERY	STUDY	
ТРН	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		116	101	115	70-135	
o-Terphenyl		55.8	50.3	111	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R.D. Sims 8" Site

Work Orders: 410646,

Project ID: 11-0103-01

Lab Batch #: 849014

Sample: 410646-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 03/23/11 20:29	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.5	112	70-135	
o-Terphenyl	52.5	49.8	105	70-135	

Lab Batch #: 849014

Sample: 410646-013 S / MS

Batch:

Matrix: Soil

Units: mg/kg	Date Analyzed: 03/23/11 22:00	SU	RROGATE RE	ECOVERY	STUDY	
TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		148	99.6	149	70-135	*
o-Terphenyl		66.6	49.8	134	70-135	

Lab Batch #: 849014

Sample: 410646-013 SD / MSD

Batch: 1

Matrix: Soil

Units: mg/kg	<b>Date Analyzed:</b> 03/23/11 22:31	SU	RROGATE RI	ECOVERY S	STUDY	
ТРН	By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		105	100	105	70-135	
o-Terphenyl		45.3	50.0	91	70-135	

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



## BS / BSD Recoveries



Project Name: R.D. Sims 8" Site

Work Order #: 410646

Analyst: LATCOR

Sample: 848925-1-BKS Lab Batch ID: 848925

Date Prepared: 03/23/2011

Batch #: 1

Project ID: 11-0103-01 Date Analyzed: 03/23/2011 Matrix: Solid

Units: mg/kg		BLAN	SLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE	PIKE / E	LANKS	PIKE DUPL	ICATE 1	RECOVE	RECOVERY STUDY	, X	
Anions by E300	Blank Sample Result [A]	Spike	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Bik. Spk Dup. %R	RPD	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[Q]	[E]	Result [F]	[6]				
Chloride	<0.420	10.0	9.75	86	10.0	9.28	93	5	75-125	20	

Analyst: BEV

**Date Prepared:** 03/23/2011

Date Analyzed: 03/23/2011

Batch #: 1 Sample: 598767-1-BKS Lab Batch ID: 849014

Matrix: Solid

Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	LANKS	PIKE DUPL	ICATE 1	RECOVE	RY STUD	Y	
TPH By SW8015 Mod	Blank Sample Result	Spike Added	Blank Spike	Blank Spike	Spike Added	Blank Spike	Blk. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	[ <del>A</del> ]	[B]	[C]	[D]	[3]	Result [F]	[6]		No/	79KLD	
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	893	68	1000	823	82	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	868	06	1000	824	82	6	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



### Form 3 - MS Recoveries

Project Name: R.D. Sims 8" Site



Work Order #: 410646

Lab Batch #: 848925

**Date Analyzed:** 03/23/2011 QC- Sample ID: 410646-001 S Date Prepared: 03/23/2011

**Project ID:** 11-0103-01

Analyst: LATCOR

Batch #: 1

Matrix: Soil

MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
23.1	112	121	87	75-125	
	Parent Sample Result [A]	Parent Sample Spike Result Added [A] [B]	Parent Sample Result Added [A] Spiked Sample Result C] Result [B]	Parent Sample Result Added [A] Spiked Sample Result Result Added [C] [D]	Sample Spike Result   %R Limits   Kample   Spike   Result   %R   Limits   Kample   K

Matrix 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

BRL - Below Reporting Limit



## Form 3 - MS / MSD Recoveries



Project Name: R.D. Sims 8" Site

Work Order #: 410646

Lab Batch ID: 849014

Date Analyzed: 03/23/2011

Project ID: 11-0103-01

Matrix: Soil Batch #:

BEV Analyst: QC-Sample ID: 410646-013 S Date Prepared: 03/23/2011

Reporting Units: mg/kg		M	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	/MAT	AIX SPIK	CE DUPLICA'	re reco	OVERY S	STUDY		
TPH By SW8015 Mod	Parent Sample		Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control	Control	Flag
Analytes	Kesult [A]	Added [B]	<u>[</u>	lDJ	Added [E]	Result [F]	% [G]	*	%oR	%KPD	
C6-C12 Gasoline Range Hydrocarbons	<16.1	1070	1340	125	1080	944	87	35	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.1	1070	1340	125	1080	941	87	35	70-135	35	

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



### **Sample Duplicate Recovery**



Project Name: R.D. Sims 8" Site

Work Order #: 410646

Lab Batch #: 848925

**Date Analyzed:** 03/23/2011 09:34

Date Prepared: 03/23/2011

**Project ID:** 11-0103-01

Analyst: LATCOR

**QC- Sample ID:** 410646-001 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	23.1	21.7	6	20	

Lab Batch #: 849000

Date Analyzed: 03/23/2011 17:00

**Date Prepared:** 03/23/2011

Analyst: WRU

**QC- Sample ID:** 410641-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte		. ,			
Percent Moisture	10.8	10.9	1	20	

CHAIN-OF-CUSTODY

V	0			1	507 N. Marienfeld, Ste. 200	Marie	nfeld.	Ste. 2		TE: 3	DATE: 3-22-11				4	1 OF 1
Ssociates, Inc.	es, Inc	i			Mič	Midland, TX 79701	TX 79	701		PO #:	T C T C C C C C C C C C C C C C C C C C	7	AB WOR		1	240017
Environment	al Consulta	ints	6	1	٧	432-687-0901	37-09(	<u>-</u>	<u> </u>	I PRO	PROJECT LUCATION OF NAME: LAI PROJECT #: // - 0 / 03 - 1	// -0103 - 01	1	COLLECTOR	OR.	BROOKS
TRRP report?	S=SOIL	P=PAINT		2050							101	3/0//	101/6	1000	679	11/10
□ Yes □ No	W=WATER A=AIR		SL=SLUDGE OT=OTHER			PRESE	KESEKVAIION	2			9001 Hd.I	1010184 1010184	2017/14		CA	
TIME ZONE: Time zone/State:					ners		□ HO <sub>B</sub> N	RVED	Si	1/4	1 3/4	**	1000 A	1	IN C SNOW	
MST/ MM		7011			istnoC	3			STAIN	N. J.	100 10 00 00 00 00 00 00 00 00 00 00 00	\$ 13 S S S S S S S S S S S S S S S S S S		6 S37 BANK		
Field Sample I.D.	Lab#	Date	Time	Matrix		НИО	ICE H <sup>5</sup> 2C	JNU	100 SO THE WALL WILLS	3	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Col	NO THO SOIDS		FIELD NOTES
Put # 5	10	03-22	1265	N	-		×		×					7	EAST	EXCAND TION
SS-Berram (15)	20		-						_							
55-EAST (121)	63		1243													
SS-EAST (6)	E		1245													
55- WEST (12")	05		1250													
55-WEST (61)	00		1253													
(17) HINOS-55	01		1255													
55-Sauty (6')	50		1258			-	_									
55-NORTH (121)	8		1300			-										
55-NORTH (6')	5		1303													
SS BOTTOM (181)	-		1312			1										
SS- BOTTOM (21)	2		1320													
55- BOTTOM 24")	51	>	1330	<del>&gt;</del>	<del>&gt;</del>		<del>-</del> >		-\$					<b>→</b>		<del>'}</del>
TOTAL					5					-						
RELATIONISHED BY: (Signature)	(Signature)	4	DATE/TIME	S'OOP	RECEIVED BY: (Signature)	MANAGE SI	(Signe	ature)	3.22.11		TURN AROUND TIME		LABORATORY USE ONLY:			47
RELINQUISHED BY:(Signature)	(Signature)	•		ME	RECEIVED BY: (Signature)	ÆD BY:	(Signa	ature)			1 DAY	RECE	RECEIVING TEMP: 3 - 1 BF	O. U. BROKE	THERM #: / EN DINTACT A	RECEIVING TEMP: 3.6.1 THERM #: //
RELINQUISHED BY:(Signature)	(Signature)		DATE/TIME	ME	RECEIV	RECEIVED BY: (Signature)	(Signa	ture)		0 0	2 DAY ☐ OTHER ☐	□ CA	CARRIER BILL#	#		
										1		A HA	HAND DELIVERED		Hinz alass	<i>S</i> .
															1	



### XENCO Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

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

Client: Layson & Assoc				
Date/Time: 3 · 22 · 11 17:00				
Lab ID#: 410646				
Initials: AE				
Sample Receipt Chec	klist			
1. Samples on ice?	Blue	Water	No	
2. Shipping container in good condition?	(Yes)	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	(NA)	
4. Chain of Custody present?	Yes	No		
5. Sample instructions complete on chain of custody?	Yes	No		
6. Any missing / extra samples?	Yes	No		
7. Chain of custody signed when relinquished / received?	Yes	No		
8. Chain of custody agrees with sample label(s)?	Ves	No		
9. Container labels legible and intact?	(Yes)	No		
10. Sample matrix / properties agree with chain of custody?	Yes	No ·		
11. Samples in proper container / bottle?	Yes	No		
12. Samples properly preserved?	Yes	No	N/A	
13. Sample container intact?	Yes	No		
14. Sufficient sample amount for indicated test(s)?	Yes	No		
15. All samples received within sufficient hold time?	Yes	No		
16. Subcontract of sample(s)?	Yes	No	(N/A)	
17. VOC sample have zero head space?	Yes	No	N/A	
18. Cooler 1 No. Cooler 2 No. Cooler 3 No.	Cooler 4 No		Cooler 5 No.	
lbs 3.1 °c lbs °c lbs °	C lbs	°C	lbs	°C
Nonconformance Docum	entation			
Contact:Contacted by:		Date/Time:_		
Regarding:				
Corrective Action Taken:				
Check all that apply: Cooling process has begun shortly after sampling	n event and or	it of temper	aturo	

Final 1.000

condition acceptable by NELAC 5.5.8.3.1.a.1.

□ Client understands and would like to proceed with analysis

□ Initial and Backup Temperature confirm out of temperature conditions

### **Analytical Report 417595**

for
Larson & Associates

Project Manager: Mark Larson

R. D. Sims 8"

11-0103-01

26-MAY-11



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



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

Xenco-Houston (EPA Lab code: TX00122):

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Xenco-Atlanta (EPA Lab Code: GA00046):

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Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)





26-MAY-11

Project Manager: Mark Larson Larson & Associates P.O. Box 50685 Midland, TX 79710

Reference: XENCO Report No: 417595

R. D. Sims 8"
Project Address:

### Mark Larson:

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 417595. 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. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. 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. 417595 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,

Brent Barron, II

Odessa Laboratory Manager

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### **Sample Cross Reference 417595**



### Larson & Associates, Midland, TX

R. D. Sims 8"

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
BH-1, 0'	S	May-24-11 09:13		417595-001
BH-1, 5'	S	May-24-11 09:22		417595-002
BH-1, 10'	S	May-24-11 09:25		417595-003
BH-1, 15'	S	May-24-11 09:30		417595-004
BH-1, 20'	S	May-24-11 09:35		417595-005
BH-1, 25'	S	May-24-11 09:43		417595-006
BH-1, 30'	S	May-24-11 10:25		417595-007
BH-1, 35'	S	May-24-11 10:45		417595-008
BH-1, 40'	S	May-24-11 10:55		417595-009

### CASE NARRATIVE



Client Name: Larson & Associates

Project Name: R. D. Sims 8"



Project ID:

11-0103-01

Work Order Number: 417595

Report Date: 26-MAY-11

Date Received: 05/24/2011

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None



Project Id: 11-0103-01 Contact: Mark Larson

Project Location:

# Certificate of Analysis Summary 417595

Larson & Associates, Midland, TX

Project Name: R. D. Sims 8"

Date Received in Lab: Tue May-24-11 03:20 pm

Report Date: 26-MAY-11

					Project Manager: Brent Barron, II	Brent Barron, II	
	Lab Id:	417595-001	417595-002	417595-003	417595-004	417595-005	417595-006
Australia Dogwood	Field Id:	BH-1, 0'	BH-1, 5'	BH-1, 10'	BH-1, 15'	BH-1, 20'	BH-1, 25'
Analysis nequesieu	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	May-24-11 09:13	May-24-11 09:22	May-24-11 09:25	May-24-11 09:30	May-24-11 09:35	May-24-11 09:43
Anions by E300	Extracted:						
	Analyzed:	May-24-11 23:19	May-24-11 23:19	May-24-11 23:19	May-24-11 23:19	May-24-11 23:19	May-24-11 23:19
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		52.6 4.40	5.02 4.82	ND 4.71	19.4 5.07	19.5 4.78	64.2 4.47
Percent Moisture	Extracted:						
	Analyzed:	May-24-11 17:15	May-24-11 17:15	May-24-11 17:15	May-26-11 09:05	May-24-11 17:15	May-24-11 17:15
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		4.55 1.00	12.8 1.00	10.8 1.00	17.2 1.00	12.2 1.00	6.00 1.00
TPH By SW8015 Mod	Extracted:	May-24-11 16:00	May-24-11 16:00	May-24-11 16:00	May-24-11 16:00	May-24-11 16:00	May-24-11 16:00
	Analyzed:	May-24-11 22:48	May-24-11 23:18	May-24-11 23:47	May-25-11 00:44	May-25-11 01:13	May-25-11 01:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons		ND 15.7	ND 17.2	ND 16.8	ND 18.1	ND 17.1	ND 16.0
C12-C28 Diesel Range Hydrocarbons		ND 15.7	ND 17.2	ND 16.8	ND 18.1	ND 17.1	ND 16.0
C28-C35 Oil Range Hydrocarbons		ND 15.7	ND 17.2	ND 16.8	ND 18.1	ND 17.1	ND 16.0
Total TPH		ND 15.7	ND 17.2	ND 16.8	ND 18.1	ND 17.1	ND 16.0
							1

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 represents 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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Brent Barron, II Odessa Laboratory Manager



Project Id: 11-0103-01

# Certificate of Analysis Summary 417595

Larson & Associates, Midland, TX

Project Name: R. D. Sims 8"



Date Received in Lab: Tue May-24-11 03:20 pm

Contact Mark Larson				Da	te Received in Lab:	Date Received in Lab: Tue May-24-11 03:20 pm	
Desirot I contion:					Report Date: 26-MAY-11	26-MAY-11	
roject Location:					Project Manager:	Brent Barron, II	
	Lab Id:	417595-007	417595-008	417595-009			
Laboration Description	Field Id:	BH-1, 30'	BH-1, 35'	BH-1, 40'			
Analysis Kequesieu	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	May-24-11 10:25	May-24-11 10:45	May-24-11 10:55			
Anions by E300	Extracted:						
	Analyzed:	May-24-11 23:19	May-24-11 23:19	May-24-11 23:19			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		229 4.89	182 4.82	158 9.70			
Percent Moisture	Extracted:						
	Analyzed:	May-24-11 17:15	May-24-11 17:15	May-24-11 17:15			
	Units/RL:	% RL	% RL	% RL			
Percent Moisture		14.1 1.00	12.9 1.00	13.4 1.00			
TPH By SW8015 Mod	Extracted:	May-24-11 16:00	May-24-11 16:00	May-24-11 16:00			
	Analyzed:	May-25-11 02:09	May-25-11 02:38	May-25-11 03:08			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
C6-C12 Gasoline Range Hydrocarbons		ND 17.5	ND 17.2	ND 17.3			
C12-C28 Diesel Range Hydrocarbons		ND 17.5	ND 17.2	ND 17.3			
C28-C35 Oil Range Hydrocarbons		ND 17.5	ND 17.2	ND 17.3	7 D - 10 C - 10		
Total TPH		ND 17.5	ND 17.2	ND 17.3			

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Odessa Laboratory Manager Breft Barron, II



### **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 MQL and above the SQL.
- 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.
- BRL Below Reporting Limit.
- **RL** Reporting Limit
- MDL Method Detection Limit
- PQL Practical Quantitation Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- **DL** Method Detection Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St. Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
842 Cantwell Lane, Corpus Christi, TX 78408	(361) 884-0371	(361) 884-9116



Project Name: R. D. Sims 8"

Work Orders: 417595,

Project ID: 11-0103-01

Lab Batch #: 857501

Sample: 603621-1-BKS / BKS

Matrix: Solid Batch:

Units: mg/kg Date Analyzed: 05/24/11 18:00	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	44.4	50.0	89	70-135	

Lab Batch #: 857501

Sample: 603621-1-BSD / BSD

Batch:

Matrix: Solid

Units: mg/kg Date Analyzed: 05/24/11 18:29	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	99.5	100	100	70-135	
o-Ternhenyl	43.1	50.0	86	70-135	

Lab Batch #: 857501

Sample: 603621-1-BLK / BLK

Batch:

Matrix: Solid

Units: mg/kg Date Analyzed: 05/24/11 18:5	57 SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	94.3	100	94	70-135	
o-Terphenyl	49.8	50.0	100	70-135	

Lab Batch #: 857501

Sample: 417595-001 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 05/24/11 22:48	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.2	100	98	70-135	
o-Terphenyl	50.6	50.0	101	70-135	

Lab Batch #: 857501

Sample: 417595-002 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 05/24/11 23:18	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.6	100	94	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: R. D. Sims 8"

Work Orders: 417595,

**Project ID:** 11-0103-01

Lab Batch #: 857501

Sample: 417595-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 05/24/11 23:47	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	96.2	100	96	70-135	
o-Terphenyl	49.3	50.0	99	70-135	

Lab Batch #: 857501

Sample: 417595-004 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 05/25/11 00:44	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes		. ,	[D]		
1-Chlorooctane	86.6	100	87	70-135	
o-Terphenyl	44.7	50.0	89	70-135	

Lab Batch #: 857501

Sample: 417595-005 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 05/25/11 01:13	SURROGATE RECOVERY STUDY				
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes			[2]		
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	53.4	50.0	107	70-135	

Lab Batch #: 857501

Sample: 417595-006 / SMP

Batch: 1

Matrix: Soil

SURROGATE RECOVERY STUDY				
Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
11	[-]	[D]	,,,,	
93.8	100	94	70-135	
47.6	50.0	95	70-135	
	Amount Found [A]	Amount Found Amount [A] [B]  93.8 100	Amount Found Amount [A] Recovery %R [D] 93.8 100 94	Amount Found [A]         True Amount [B]         Recovery %R [D]         Control Limits %R           93.8         100         94         70-135

Lab Batch #: 857501

Sample: 417595-007 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg	Date Analyzed: 05/25/11 02:09	SURROGATE RECOVERY STUDY				
ТРН	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	93.7	100	94	70-135	
o-Terphenyl		47.6	50.0	95	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# Form 2 - Surrogate Recoveries

Project Name: R. D. Sims 8"

Work Orders: 417595,

Project ID: 11-0103-01

Lab Batch #: 857501

Sample: 417595-008 / SMP

Matrix: Soil Batch:

Units: mg/kg Date Analyzed: 05/25/11 02:38	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	89.5	100	90	70-135	
o-Terphenyl	46.3	50.0	93	70-135	

Lab Batch #: 857501

Sample: 417595-009 / SMP

Batch: 1

Matrix: Soil

Units: mg/kg Date Analyzed: 05/25/11 03:08	SU	RROGATE R	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	91.0	100	91	70-135	
o-Terphenyl	46.5	50.0	93	70-135	

Lab Batch #: 857501

Sample: 417503-002 D / MD

Batch: 1

Matrix: Soil

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 05/25/11 03:38	SU	RROGATE RI	ECOVERY	STUDY	
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1-Chlorooctane	88.3	100	88	70-135	
o-Terphenyl	46.4	50.0	93	70-135	

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

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



# BS / BSD Recoveries



Project Name: R. D. Sims 8"

Work Order #: 417595 Analyst: LATCOR

Lab Batch ID: 857393

Sample: 857393-1-BKS

Date Prepared: 05/24/2011

Batch #: 1

**Project ID: 11-0103-01** 

Date Analyzed: 05/24/2011 Matrix: Solid

Units: mg/kg		BLAN	SLANK /BLANK SPIKE		LANKS	BLANK SPIKE DUPLICATE	1 1	RECOVE	RECOVERY STUDY	,X	
Anions by E300	Blank Sample Result [A]	Spike	Blank Spike Result	Blank Spike %R	Spike	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[c]	[Q]	[E]	Result [F]	[6]				
Chloride	<0.420	10.0	8.88	68	10.0	8.94	68	-	75-125	20	

Analyst: BEV

Lab Batch ID: 857501

Sample: 603621-1-BKS

Batch #: 1

**Date Prepared:** 05/24/2011

Matrix: Solid

Date Analyzed: 05/24/2011

Units: mg/kg		BLAN	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY	PIKE / B	LANKS	PIKE DUPL	ICATE 1	RECOVE	CRY STUD	Y.	
TPH By SW8015 Mod	Blank Sample Result	Spike Added	Blank Spike Result	Blank Spike	Spike Added	Blank Spike Dunlicate	Blk. Spk Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	[	[B]	[5]	[ <u>Q</u> ]	[3]	Result [F]	[6]				
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	765	77	1000	740	74	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	092	92	1000	744	74	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: R. D. Sims 8"

Work Order #: 417595

Lab Batch #: 857393 Date Analyzed: 05/24/2011

Project ID: 11-0103-01

Date Prepared: 05/24/2011

Analyst: LATCOR

**QC- Sample ID:** 417498-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	MATI	CIX / MA	TRIX SPIKE	RECU	VERY SIU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]	[C]	[2]	/024	
Chloride	14000	11400	26500	110	75-125	

Matrix 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

BRL - Below Reporting Limit



# Sample Duplicate Recovery



Project Name: R. D. Sims 8"

Work Order #: 417595

Lab Batch #: 857393

**QC- Sample ID:** 417498-001 D

Date Analyzed: 05/24/2011 23:19

Date Prepared: 05/24/2011

Project ID: 11-0103-01

Analyst: LATCOR

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Anions by E300  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	14000	13900	1	20	

Lab Batch #: 857352

Date Analyzed: 05/24/2011 17:15

**Percent Moisture** 

Analyte

**Date Prepared:** 05/24/2011

Analyst: WRU

QC- Sample ID: 417595-001 D

Batch #: 1

Matrix: Soil SAMPLE / SAMPLE DUPLICATE RECOVERY

Reporting	Units:	%

Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
	[B]	10	20	
4.55	5.02	10	20	

Lab Batch #: 857613

Date Analyzed: 05/26/2011 09:05

Date Prepared: 05/26/2011

Analyst: WRU

**OC-Sample ID:** 417595-004 D

Batch #:

Matrix: Soil

Reporting Units: %

Percent Moisture

SAMPLE / SAMPLE	DUPLICATE	RECOVERY
-----------------	-----------	----------

Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	17.2	17.3	1	20	

Lab Batch #: 857501

Date Analyzed: 05/25/2011 03:38

Date Prepared: 05/24/2011

Analyst: BEV

QC- Sample ID: 417503-002 D

Batch #: 1

Matrix: Soil SAMPLE / SAMPLE DUPLICATE RECOVERY

Reporting Units: mg/kg

Reporting Chits. mg ng	SPANII LLE	SAIVII LL	DUILIC	AIL REC	OVERI
TPH By SW8015 Mod  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<16.8	<16.8	0	35	
C12-C28 Diesel Range Hydrocarbons	676	677	0	35	
C28-C35 Oil Range Hydrocarbons	50.0	37.6	28	35	

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

i PAGE OF	AB WORK ORDER	K.V. Simz 8"	10	(2005) ×	3440 1.1116 1.1116	005 40	(10) 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1			,	<b>&gt;</b>	>	>	>	<u>خ</u>	,					LABORATORY USE ONLY:	V	CHETON SEALS DEBONEN DINTACT DATE TO	COSTOUR SEALS - BROKEN LINIACI FINOI USED CARRIER BILL#	WHAND DELIVERED 4 02 4 455				
DATE: 5-24-2011	PO #:	ION OIL	-	5	5	-	5	1	764	\$ \$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	No. 10 10 10 10 10 10 10 10 10 10 10 10 10		,		>	>	>	;	>						TURN AROUND TIME	1	1 DAY	2 DAY S	
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	sociates, Inc.	Environmental Consultants	Data Reported to:	TRRP report?	Yes L No	00	Field Sample I.D.	Rise in	B11-1, 5'	6H-1, 10'	BH-1, 15	BH-1, 20°	BH-1, 25	BW-1, 30"	BW-1, 351	B14-1, 401				TOTAL	RELINCUISHED BY (Seperture)	5	RELINOUISHED BY (Signature)	RELINQUISHED BY:(Signature)					
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### **XENCO** Laboratories

Atlanta, Boca Raton, Corpus Christi, Dallas Houston, Miami, Odessa, Philadelphia Phoenix, San Antonio, Tampa Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

# Prelogin / Nonconformance Report - Sample Log-In

	Freiog	III / NOIII	Jonionnance	e vehou	t - Sampi	e Log-III		
Client: Larso	n E	ASSC	DC .			٠		
Date/Time: 5.	24.11		5: w					
Lab ID #:	41	1595						
Initials:		色						
		s	ample Recei	ot Check	list			
1. Samples on ice?		Blue	Water	No				
2. Shipping container in	good conditi	on?	Yes	No	None			
3. Custody seals intact of	n shipping c	ontainer (co	5?	Yes	No	(N/A)		
4. Chain of Custody pres	ent?			Yes	No			
5. Sample instructions c	omplete on c	hain of cus		Yes	No			
6. Any missing / extra sa	mples?			Yes	No			
7. Chain of custody sign	ed when relia	nguished / r		(Yes)	No			
8. Chain of custody agre	es with samp	ole label(s)?		Yes	No			
9. Container labels legib	e and intact	?		Yes	No			
10. Sample matrix / prop	erties agree	with chain o	of custody?		(Yes)	No .		
11. Samples in proper co	ntainer / bot	tie?			Yes	No		
12. Samples properly pre	served?			Yes	No	N/A		
13. Sample container int	act?			(Yes)	No			
14. Sufficient sample am	ount for indi	cated test(s	)?		Yes	No		
15. All samples received	within suffic	ient hold tir	ne?		Yes	No		
16. Subcontract of samp	le(s)?			Yes	No	(N/A)		
17. VOC sample have zer	ro head spac	e?		Yes	No	N/A		
18. Cooler 1 No.	Cooler 2 No.		Cooler 3 No.		Cooler 4 No	).	Cooler 5 No.	
lbs , 4 °c	lbs	°C	lbs	°c	lbs	°c	lbs	°C
		Nonc	onformance	Docume	ntation			
Contact	_			Docume	madon	Data (Firma)		
Contact:		ontacted by	/:			Date/Time:_		
Regarding:								
Corrective Action Taken:								
,								

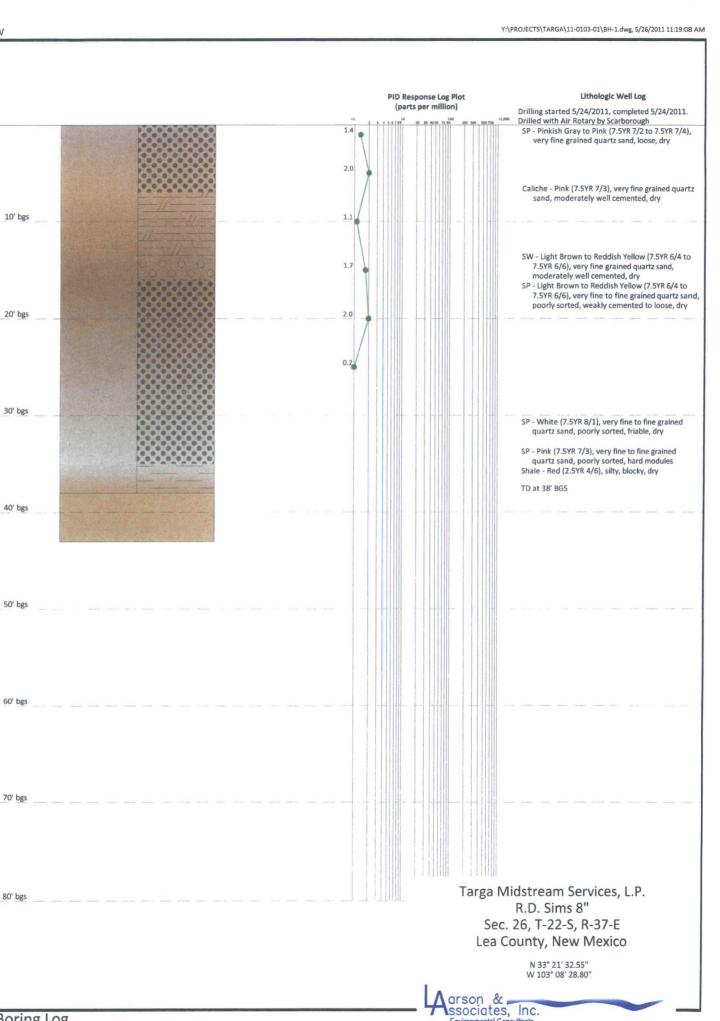
Check all that apply: Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.

□ Initial and Backup Temperature confirm out of temperature conditions

□ Client understands and would like to proceed with analysis

**APPENDIX B** 

**Geologic Log** 

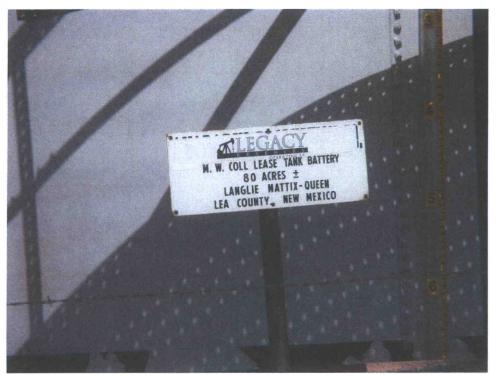


**Environmental Consultants** 

BH-1 Boring Log

# **APPENDIX C**

**Photographs** 



Location Sign



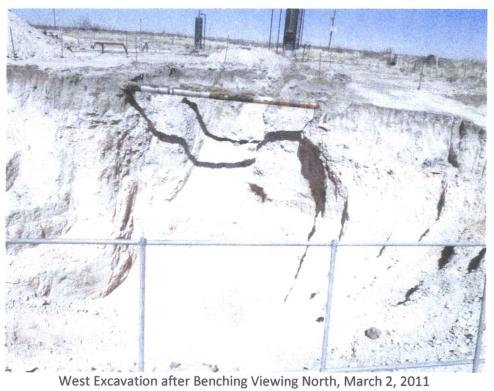
West Excavation Viewing North, February 4, 2011



West Excavation Viewing South, February 4, 2011



West (Foreground) and East (Background) Excavations Viewing East, February 4, 2011





West Excavation after Benching Viewing Northeast, March 2, 2011



West Excavation after Benching Viewing West, March 2, 2011



Appendix B - Photographs
TARGA MIDSTREAM SERVICES, L.P.
R. D. SIMS 8" RELEASE — WEST LOCATION
Lea County, New Mexico



Produced Water (PVC) Line Exposed on North Side of Excavation, March 2, 2011