



AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.



App Number: pJXK1610238792

1RP - 4241

LINN OPERATING, INC.

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

State of New Mexico
Energy Minerals and Natural Resources
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

OPERATOR

☒ Initial Report ☐ Final Report



Name of Company – Linn Energy	Contact – Albert Valero	
Address – 2651 JBS Parkway, Bldg. 4 Ste F Odessa, TX 79761	Telephone No. – 432-366-1557	
Facility Name – Scharb 9 #2 Battery	Facility Type – Battery	
Surface Owner – State	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter F	Section 9	Township 19S	Range 35E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
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Latitude 32° 40.615' N Longitude 103° 27.873' W

NATURE OF RELEASE

Type of Release - Historical	Volume of Release - Unknown	Volume Recovered - Unknown
Source of Release - Unknown	Date and Hour of Occurrence - Unknown	Date and Hour of Discovery – 7-9-10
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* Historical impacted soil is present around the heater treater, tanks, pump and wellhead. The battery was moved and rebuilt on a new pad to the west. The site was delineated to the following criteria. The ranking criteria for the site is as follows: Surface Body of Water – 0 points; Wellhead Protection - 0 points; Depth to Groundwater – 20 points (GW = 24' on SEO Data). Total ranking for the site is 20 points. The following is the RAL's for the sampling: TPH Method 8015M – 100 ppm; Chloride – 250 ppm; BTEX 8021B – 50 ppm and Benzene – 0.2 ppm.		
Describe Area Affected and Cleanup Action Taken.* Attached is a plat map, field analysis and lab conformations of the delineation. Due to the hard rock, Linn Energy proposes to remediate the site with a risk based closure. Linn proposes to excavate 4' of impacted soil and haul to an approved disposal. At the four foot depth the entire site will be layered with 2" of clean sand, then a 4 oz. Geotextile Liner, then a 40 mil poly liner. Above the poly liner another layer of Geotextile felt and sand will be installed. The site will then be backfilled with clean native soil and contoured to the surrounding area. The site will be re-seeded with a custom seed mixture approved by the landowner. Due to the hard rock, low level of chlorides below 4' and the poly liner to be installed, Linn Energy feels that the groundwater will be protected from contamination using this risk based closure.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 		OIL CONSERVATION DIVISION
Printed Name: Albert Valero		Approved by District Supervisor: 
Title: Production Foreman	Approval Date:	Expiration Date:
E-mail Address: avalero@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12-17-10	Phone: 432-366-1557	

* Attach Additional Sheets If Necessary

- EXCAVATE TO CLEAN
Jeffrey Gehring, NMOCD - HOBBS, 12/17/10

Linn Energy

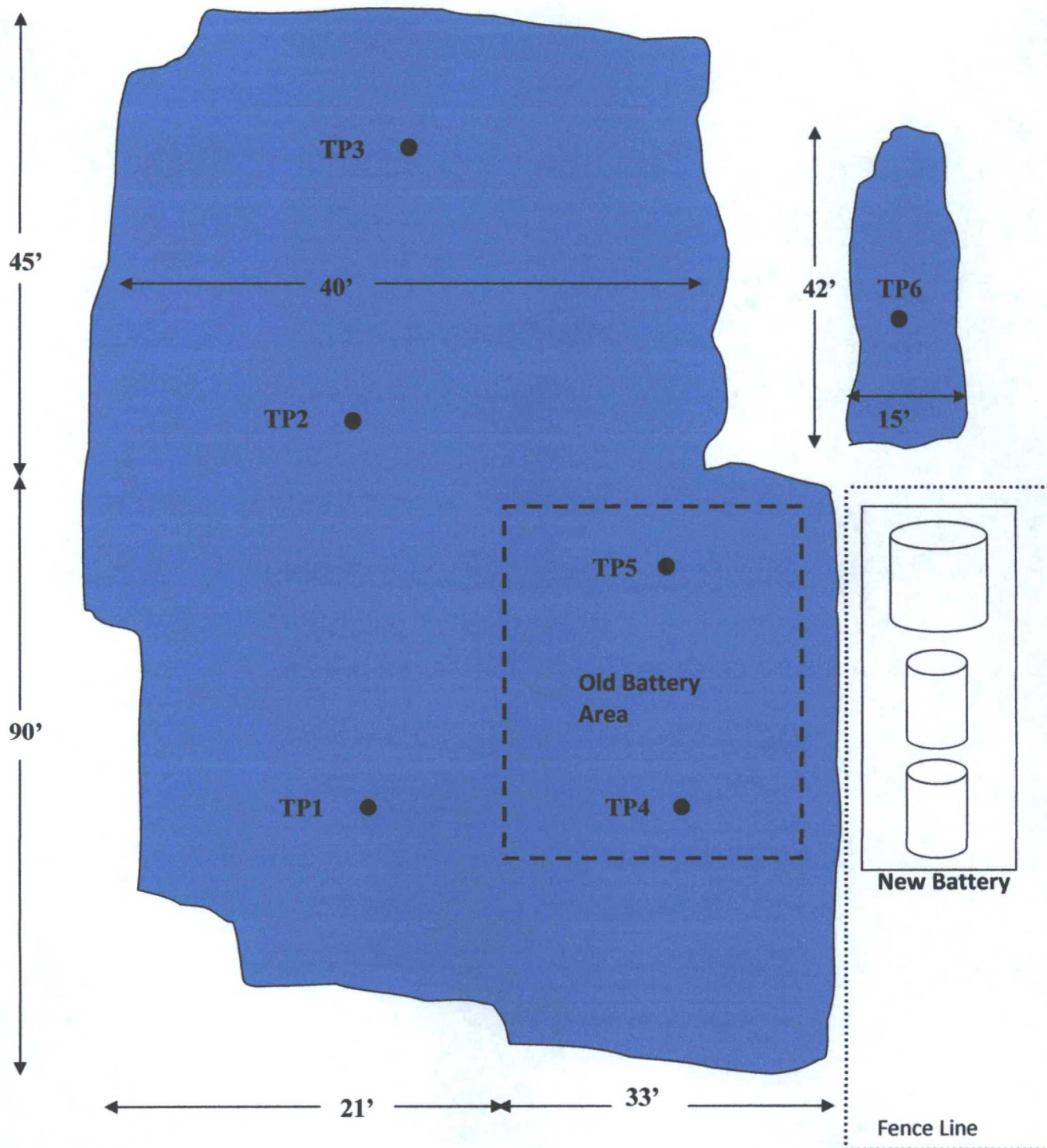
Scharb 9 #2

UL 'F' Sec. 9 T19S R35E

Lea County, NM



Plat Map



Rio Services

P O Box 69139 Odessa, TX 79769
Phone (432) 530-2803 Fax (432) 530-2890

Field Analytical Report Form

Client Linn Energy **Analyst** Logan Anderson

Site Scharb 9 #2

Sample ID	Date	Depth	418.1 TPH / PPM	Cl / PPM	PID / PPM	GPS
TP4	12-14-10	9.5'		509		
TP4	12-14-10	10.5'		460		
TP4	12-14-10	11.5'		111		
TP5	10-14-10	1'		690		
TP5	11-18-10	2'		834		
TP5	11-18-10	3'		526		
TP5	12-15-10	6'		577		
TP5	12-15-10	8'		459		
TP5	12-15-10	10'		241		
TP6	10-14-10	1'		285		
TP6	11-19-10	2'		149		
Background	10-14-10	Surface		146		
Background	11-19-10	2'		139		

Analyst Notes _____

Analytical Report 400704

**for
Rio Services**

Project Manager: Logan Anderson

Linn Energy

16-DEC-10



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), California(06244CA), 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)



16-DEC-10

Project Manager: **Logan Anderson**
Rio Services
P.O. Box 69139
Odessa, TX 79769

Reference: XENCO Report No: **400704**
Linn Energy
Project Address: Scharb 9 #2 Battery

Logan Anderson:

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 400704. 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. 400704 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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Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America

Sample Cross Reference 400704**Rio Services, Odessa, TX**

Linn Energy

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TP1	S	Dec-14-10 14:30	20 ft	400704-001
TP3	S	Dec-14-10 15:40	10 ft	400704-002
TP4	S	Dec-14-10 14:20	11.5 ft	400704-003
TP6	S	Dec-14-10 16:00	2 ft	400704-004



CASE NARRATIVE

Client Name: Rio Services

Project Name: Linn Energy



Project ID:

Work Order Number: 400704

Report Date: 16-DEC-10

Date Received: 12/15/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-836181 BTEX by EPA 8021B

SW8021BM

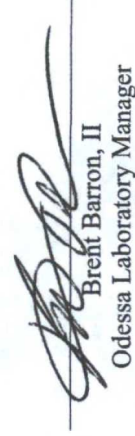
Batch 836181, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 400704-003,400704-001.

<i>Analysis Requested</i>		Lab Id:	400704-001	400704-002	400704-003	400704-004
<i>Field Id:</i>		TP1	TP3	TP4	TP6	
<i>Depth:</i>		20 ft	10 ft	11.5 ft	2 ft	
<i>Matrix:</i>		SOIL	SOIL	SOIL	SOIL	
<i>Sampled:</i>		Dec-14-10 14:30	Dec-14-10 15:40	Dec-14-10 14:20	Dec-14-10 16:00	
Anions by E300		<i>Extracted:</i>				
		<i>Analyzed:</i>	Dec-15-10 14:05	Dec-15-10 14:05	Dec-15-10 14:05	
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride			91.3 4.20	7.65 4.20	69.9 4.20	7.22 4.20
BTEX by EPA 8021B		<i>Extracted:</i>	Dec-15-10 13:40	Dec-15-10 13:40	Dec-15-10 13:40	
		<i>Analyzed:</i>	Dec-16-10 01:33	Dec-16-10 02:58	Dec-16-10 03:20	Dec-16-10 03:41
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene			ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0011
Toluene			ND 0.0023	ND 0.0021	ND 0.0023	ND 0.0021
Ethylbenzene			ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0011
m p-Xylenes			ND 0.0023	ND 0.0021	ND 0.0023	ND 0.0021
o-Xylene			ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0011
Total Xylenes			ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0011
Total BTEX			ND 0.0011	ND 0.0011	ND 0.0011	ND 0.0011
Percent Moisture		<i>Extracted:</i>				
		<i>Analyzed:</i>	Dec-16-10 08:30	Dec-16-10 08:30	Dec-16-10 08:30	
		<i>Units/RL:</i>	% RL	% RL	% RL	% RL
Percent Moisture			12.0 1.00	5.22 1.00	11.6 1.00	5.78 1.00
TPH By SW8015 Mod		<i>Extracted:</i>	Dec-15-10 13:50	Dec-15-10 13:50	Dec-15-10 13:50	
		<i>Analyzed:</i>	Dec-16-10 09:25	Dec-16-10 09:44	Dec-16-10 10:03	Dec-16-10 10:22
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Gasoline Range Hydrocarbons			ND 17.0	ND 15.9	ND 17.1	ND 15.9
C12-C28 Diesel Range Hydrocarbons			ND 17.0	20.1 15.9	ND 17.1	19.5 15.9
C28-C35 Oil Range Hydrocarbons			ND 17.0	ND 15.9	ND 17.1	ND 15.9
Total TPH			ND 17.0	20.1 15.9	ND 17.1	19.5 15.9

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.

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



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
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(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116

Form 2 - Surrogate Recoveries

Project Name: Linn Energy

Work Orders : 400704,

Lab Batch #: 836181

Sample: 591409-1-BKS / BKS

Project ID:

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/15/10 23:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 836181

Sample: 591409-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 00:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 836181

Sample: 591409-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 01:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 836181

Sample: 400704-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 01:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0230	0.0300	77	80-120	**
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 836181

Sample: 400704-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 01:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Linn Energy

Work Orders : 400704,

Lab Batch #: 836181

Sample: 400704-001 SD / MSD

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 02:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

Lab Batch #: 836181

Sample: 400704-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 02:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 836181

Sample: 400704-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 03:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0233	0.0300	78	80-120	**
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 836181

Sample: 400704-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 03:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0240	0.0300	80	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 836178

Sample: 591413-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/15/10 14:48

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	72.2	99.5	73	70-135	
o-Terphenyl	49.2	49.8	99	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Linn Energy

Work Orders : 400704,

Lab Batch #: 836178

Sample: 591413-1-BSD / BSD

Project ID:

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/15/10 15:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.6	100	77	70-135	
o-Terphenyl	38.9	50.2	77	70-135	

Lab Batch #: 836178

Sample: 591413-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/15/10 15:25

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.8	100	75	70-135	
o-Terphenyl	38.9	50.0	78	70-135	

Lab Batch #: 836178

Sample: 400704-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 09:25

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	73.9	99.5	74	70-135	
o-Terphenyl	38.1	49.8	77	70-135	

Lab Batch #: 836178

Sample: 400704-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 09:44

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	100	77	70-135	
o-Terphenyl	39.5	50.2	79	70-135	

Lab Batch #: 836178

Sample: 400704-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 10:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.6	101	76	70-135	
o-Terphenyl	39.8	50.3	79	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Linn Energy

Work Orders : 400704,

Project ID:

Lab Batch #: 836178

Sample: 400704-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 10:22

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	99.9	76	70-135	
o-Terphenyl	39.0	50.0	78	70-135	

Lab Batch #: 836178

Sample: 400678-004 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 12:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.9	99.8	75	70-135	
o-Terphenyl	38.9	49.9	78	70-135	

Lab Batch #: 836178

Sample: 400678-004 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 12:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.2	99.5	73	70-135	
o-Terphenyl	39.2	49.8	79	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

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

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

Project Name: Linn Energy

Work Order #: 400704

Analyst: SEE

Lab Batch ID: 836181

Date Prepared: 12/15/2010

Sample: 591409-1-BKS

Project ID:

Date Analyzed: 12/15/2010

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021B											
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1004	0.1032	103	0.0996	0.1003	101	3	70-130	35	
Toluene	ND	0.1004	0.0912	91	0.0996	0.0896	90	2	70-130	35	
Ethylbenzene	ND	0.1004	0.0915	91	0.0996	0.0895	90	2	71-129	35	
m_p-Xylenes	ND	0.2008	0.1791	89	0.1992	0.1743	88	3	70-135	35	
o-Xylene	ND	0.1004	0.0913	91	0.0996	0.0893	90	2	71-133	35	

Analyst: LATCOR

Lab Batch ID: 836094

Sample: 836094-1-BKS

Date Prepared: 12/15/2010

Batch #: 1

Date Analyzed: 12/15/2010

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Anions by E300		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		<0.420	10.0	8.76	88	10	8.88	89	1	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

Project Name: Linn Energy

Work Order #: 400704

Analyst: BEV

Lab Batch ID: 836178

Sample: 591413-1-BKS

Date Prepared: 12/15/2010

Batch #: 1

Project ID:

Date Analyzed: 12/15/2010

Matrix: Solid

Units: mg/kg

BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
C6-C12 Gasoline Range Hydrocarbons		<50.0	995	977	98	1000	1030	103	5	70-135	35	
C12-C28 Diesel Range Hydrocarbons		<50.0	995	881	89	1000	1020	102	15	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

Project Name: Linn Energy

Work Order #: 400704

Lab Batch #: 836094

Date Analyzed: 12/15/2010

QC- Sample ID: 400673-002 S

Reporting Units: mg/kg

Date Prepared: 12/15/2010

Batch #: 1

Project ID:

Analyst: LATCOR

Matrix: Soil

Inorganic Anions by EPA 300		MATRIX / MATRIX SPIKE RECOVERY STUDY				
Analytes		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R
Chloride		230	200	398	84	75-125

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

BRL - Below Reporting Limit

Project Name: Linn Energy

Work Order # : 400704

Lab Batch ID: 836181

Date Analyzed: 12/16/2010

Reporting Units: mg/kg

Project ID:

QC- Sample ID: 400704-001 S

Date Prepared: 12/15/2010

Batch #: 1

Analyst: SEE

Matrix: Soil

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	ND	0.1146	0.1072	94	0.1125	0.1041	93	3	70-130	35	
Toluene	ND	0.1146	0.0951	83	0.1125	0.0941	84	1	70-130	35	
Ethylbenzene	ND	0.1146	0.0953	83	0.1125	0.0927	82	3	71-129	35	
m_p-Xylenes	ND	0.2291	0.1851	81	0.2250	0.1811	80	2	70-135	35	
o-Xylene	ND	0.1146	0.0952	83	0.1125	0.0938	83	1	71-133	35	

Lab Batch ID: 836178

Date Analyzed: 12/16/2010

Reporting Units: mg/kg

QC- Sample ID: 400678-004 S

Date Prepared: 12/15/2010

Batch #: 1

Analyst: BEV

Matrix: Soil

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Gasoline Range Hydrocarbons	<16.1	1080	1100	102	1070	1070	100	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.1	1080	855	79	1070	819	77	4	70-135	35	

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

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

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

Project Name: Linn Energy

Work Order #: 400704

Lab Batch #: 836094

Date Analyzed: 12/15/2010 14:05

Date Prepared: 12/15/2010

Project ID:

Analyst: LATCOR

QC- Sample ID: 400673-002 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	230	224	3	20	

Lab Batch #: 836104

Date Analyzed: 12/16/2010 08:30

Date Prepared: 12/16/2010

Analyst: JLG

QC- Sample ID: 400673-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	2.97	3.25	9	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



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: Ric Services
Date/Time: 12-15-10 12:51
Lab ID #: 400704
Initials: XM

Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and <u>bottles</u> ?	<u>Yes</u>	No	N/A	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	<u>No</u>	N/A	
17. VOC sample have zero head space?	Yes	No	<u>N/A</u>	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>4.6</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

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 400790

for
Rio Services

Project Manager: Logan Anderson

Scharb 9 # 2

16-DEC-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

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

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

16-DEC-10

Project Manager: **Logan Anderson**
Rio Services
P.O. Box 69139
Odessa, TX 79769

Reference: XENCO Report No: **400790**
Scharb 9 # 2
Project Address: Linn Operating

Logan Anderson:

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 400790. 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. 400790 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 400790**Rio Services, Odessa, TX**

Scharb 9 # 2

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TP 2 @ 18'	S	Dec-15-10 14:15	18 ft	400790-001
TP 5 @ 10'	S	Dec-15-10 13:00	10 ft	400790-002



CASE NARRATIVE

Client Name: Rio Services

Project Name: Scharb 9 # 2



Project ID:

Work Order Number: 400790

Report Date: 16-DEC-10

Date Received: 12/15/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Project Id:
Contact: Logan Anderson

Project Location: Linn Operating

Date Received in Lab: Wed Dec-15-10 05:16 pm

Report Date: 16-DEC-10

Project Manager: Brent Barron, II

Analysis Requested		Lab Id:	400790-001	400790-002		
		Field Id:	TP 2 @ 18'	TP 5 @ 10'		
		Depth:	18 ft	10 ft		
		Matrix:	SOIL	SOIL		
		Sampled:	Dec-15-10 14:15	Dec-15-10 13:00		
Anions by E300		Extracted:				
		Analyzed:	Dec-16-10 08:23	Dec-16-10 08:23		
		Units/RL:	mg/kg RL 17.1 4.74	mg/kg RL 19.3 4.62		
BTEX by EPA 8021B		Extracted:	Dec-15-10 17:20	Dec-15-10 17:20		
		Analyzed:	Dec-16-10 11:27	Dec-16-10 11:48		
		Units/RL:	mg/kg RL ND 0.0011	mg/kg RL ND 0.0011		
Benzene			ND 0.0011	ND 0.0011		
Toluene			ND 0.0022	ND 0.0022		
Ethylbenzene			ND 0.0011	ND 0.0011		
m p-Xylenes			ND 0.0022	ND 0.0022		
o-Xylene			ND 0.0011	ND 0.0011		
Total Xylenes			ND 0.0011	ND 0.0011		
Total BTEX			ND 0.0011	ND 0.0011		
Percent Moisture		Extracted:				
		Analyzed:	Dec-16-10 11:52	Dec-16-10 11:52		
		Units/RL:	% RL 11.3 1.00	% RL 9.15 1.00		
TPH By SW8015 Mod		Extracted:	Dec-16-10 08:30	Dec-16-10 08:30		
		Analyzed:	Dec-16-10 15:21	Dec-16-10 15:39		
		Units/RL:	mg/kg RL ND 16.9	mg/kg RL ND 16.5		
C6-C12 Gasoline Range Hydrocarbons			ND 16.9	ND 16.5		
C12-C28 Diesel Range Hydrocarbons			ND 16.9	ND 16.5		
C28-C35 Oil Range Hydrocarbons			ND 16.9	ND 16.5		
Total TPH			ND 16.9	ND 16.5		

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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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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Form 2 - Surrogate Recoveries

Project Name: Scharb 9 # 2

Work Orders : 400790,

Project ID:

Lab Batch #: 836181

Sample: 591409-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/15/10 23:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 836181

Sample: 591409-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 00:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 836181

Sample: 591409-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 01:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 836181

Sample: 400704-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 01:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	80-120	

Lab Batch #: 836181

Sample: 400704-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 02:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Scharb 9 # 2

Work Orders : 400790,

Lab Batch #: 836181

Sample: 400790-001 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 11:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0249	0.0300	83	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 836181

Sample: 400790-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 11:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 836230

Sample: 591448-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 14:24

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	72.9	99.6	73	70-135	
o-Terphenyl	42.1	49.8	85	70-135	

Lab Batch #: 836230

Sample: 591448-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 14:42

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	72.8	99.6	73	70-135	
o-Terphenyl	38.1	49.8	77	70-135	

Lab Batch #: 836230

Sample: 591448-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/16/10 15:01

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	72.7	99.7	73	70-135	
o-Terphenyl	35.9	49.9	72	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Scharb 9 # 2

Work Orders : 400790,

Project ID:

Lab Batch #: 836230

Sample: 400790-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 15:21

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.5	99.8	73	70-135	
o-Terphenyl	37.4	49.9	75	70-135	

Lab Batch #: 836230

Sample: 400790-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 15:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.6	99.8	75	70-135	
o-Terphenyl	38.4	49.9	77	70-135	

Lab Batch #: 836230

Sample: 400790-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 15:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	71.3	100	71	70-135	
o-Terphenyl	36.8	50.2	73	70-135	

Lab Batch #: 836230

Sample: 400790-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/16/10 16:16

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	70.6	101	70	70-135	
o-Terphenyl	39.9	50.3	79	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Project Name: Scharb 9 # 2

Work Order #: 400790

Analyst: SEE

Lab Batch ID: 836181

Sample: 591409-1-BKS

Date Prepared: 12/15/2010

Batch #: 1

Project ID:

Date Analyzed: 12/15/2010

Matrix: Solid

Units: mg/kg

BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1004	0.1032	103	0.0996	0.1003	101	3	70-130	35	
Toluene		ND	0.1004	0.0912	91	0.0996	0.0896	90	2	70-130	35	
Ethylbenzene		ND	0.1004	0.0915	91	0.0996	0.0895	90	2	71-129	35	
m,p-Xylenes		ND	0.2008	0.1791	89	0.1992	0.1743	88	3	70-135	35	
o-Xylene		ND	0.1004	0.0913	91	0.0996	0.0893	90	2	71-133	35	

Analyst: LATCOR

Lab Batch ID: 836214

Sample: 836214-1-BKS

Date Prepared: 12/16/2010

Batch #: 1

Date Analyzed: 12/16/2010

Matrix: Solid

Units: mg/kg

BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Anions by E300		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		ND	10.0	9.52	95	10	9.56	96	0	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

Project Name: Scharb 9 # 2

Work Order #: 400790

Analyst: BEV

Lab Batch ID: 836230

Sample: 591448-1-BKS

Date Prepared: 12/16/2010

Batch #: 1

Project ID:

Date Analyzed: 12/16/2010

Matrix: Solid

Units: mg/kg

BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
C6-C12 Gasoline Range Hydrocarbons		ND	996	1020	102	996	969	97	5	70-135	35	
C12-C28 Diesel Range Hydrocarbons		ND	996	919	92	996	893	90	3	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

Project Name: Scharb 9 # 2

Work Order #: 400790

Lab Batch #: 836214

Date Analyzed: 12/16/2010

QC- Sample ID: 400790-001 S

Reporting Units: mg/kg

Date Prepared: 12/16/2010

Batch #: 1

Project ID:

Analyst: LATCOR

Matrix: Soil

Inorganic Anions by EPA 300		MATRIX / MATRIX SPIKE RECOVERY STUDY				
Analytes		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R
Chloride		17.1	113	124	95	75-125

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

BRL - Below Reporting Limit

Project Name: Scharb 9 # 2

Work Order # : 400790

Lab Batch ID: 836181

Date Analyzed: 12/16/2010

Reporting Units: mg/kg

Project ID:

QC- Sample ID: 400704-001 S

Date Prepared: 12/15/2010

Batch #: 1

Analyst: SEE

Matrix: Soil

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY														
Reporting Units: mg/kg	BTEX by EPA 8021B	Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	ND	0.1146	0.1072	94	0.1125	0.1041	93	3	70-130	35			
	Toluene	ND	0.1146	0.0951	83	0.1125	0.0941	84	1	70-130	35			
	Ethylbenzene	ND	0.1146	0.0953	83	0.1125	0.0927	82	3	71-129	35			
	m_p-Xylenes	ND	0.2291	0.1851	81	0.2250	0.1811	80	2	70-135	35			
	o-Xylene	ND	0.1146	0.0952	83	0.1125	0.0938	83	1	71-133	35			

Lab Batch ID: 836230

Date Analyzed: 12/16/2010

Reporting Units: mg/kg

QC- Sample ID: 400790-002 S

Date Prepared: 12/16/2010

Batch #: 1

Analyst: BEV

Matrix: Soil

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
Reporting Units: mg/kg	TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
		ND	1110	1060	95	1110	1060	95	0	70-135	35	
		ND	1110	836	75	1110	822	74	2	70-135	35	
	C6-C12 Gasoline Range Hydrocarbons											
	C12-C28 Diesel Range Hydrocarbons											

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$
 ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit

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

Project Name: Scharb 9 # 2

Work Order #: 400790

Lab Batch #: 836214

Project ID:

Date Analyzed: 12/16/2010 08:23

Date Prepared: 12/16/2010

Analyst: LATCOR

QC- Sample ID: 400790-001 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	17.1	16.3	5	20	

Lab Batch #: 836162

Date Analyzed: 12/16/2010 11:52

Date Prepared: 12/16/2010

Analyst: JLG

QC- Sample ID: 400790-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	11.3	11.5	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

Xenco Laboratories

The Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765

Phone: 432-563-1800

Fax: 432-563-1713

Project Manager:

LOGAN ANDERSON

Company Name

RIO SERVICES

Company Address:

ODESSA TX

City/State/Zip:

Telephone No:

Sampler Signature:

[Signature]

Fax No:

e-mail:

logan@rioservices.com

Report Format:

☒ Standard

☐ TRRP

☐ NPDES

Project Name:

SUMMER 9 #2

Project #:

Project Loc:

LINN OPERATIONS

PO #:

(lab use only)

ORDER #:

400790

LAB # (lab use only)

FIELD CODE

TP 2 @ 18' 2:15 PM

TP 5 @ 10' 1 PM

Date Sampled

12-15-10 2:15 PM

12-15-10 1:00 PM

Beginning Depth

18'

10'

Ending Depth

0'

0'

Time Sampled

2:15 PM

1:00 PM

Field Filtered

1

1

Total # of Containers

1

1

Preservation & # of Containers

None

Na₂SO₄

H₂SO₄

HCl

HNO₃

Ice

DW=Drinking Water SL=Sludge

GW=Groundwater S=Soil/Solid

NP=Non-Portable Specify Other

Other (Specify)

Matrix

Standard TAT

Analyze For:

TCLP:

TOTAL:

TPH: 418.1 80158

TPH: TX 1005

Cations (Ca, Mg, Na, K)

Anions (Cl, SO₄, Alkalinity)

SAR / ESP / CEC

Metals: As Ag Ba Cd Cr Pb Hg Se

Volatiles

Semivolatiles

BTEX 8021 80530 or BTEX 8260

RCI

N.O.R.M.

Standard TAT

Special Instructions:

Relinquished by:

[Signature]

Date:

12/15/10

Time:

5:16 PM

Received by:

Indira Elam

Date:

12-15-10

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17:16

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Indira Elam

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Indira Elam

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12-15-10

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17:16

Received by:

Indira Elam

Date:

12-15-10

Time:



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: Rio Services
Date/Time: 12.15.10 17.16
Lab ID #: 400790
Initials: AE

Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	<u>Yes</u>	No	N/A	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs 10.1 °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

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