

**NM1 - \_30\_**

**MONITORING  
REPORT**

**YEAR(S):**

**\_2016-2017\_**



NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
1220 S. ST. FRANCIS DRIVE  
SANTA FE, NEW MEXICO 87505

2017 FEB 01 10:53 AM  
NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES

February 1, 2017

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: 2016 Analytical Results, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New  
Mexico

Mr. Jones:

The attached report is for our quarterly vadose soil samples collected at the R360  
Artesia, LLC (formerly Artesia Aeration) Landfarm during the fourth quarter of  
2016. You may contact me at (956) 458-0515 or by email at  
[StephanieG@r360es.com](mailto:StephanieG@r360es.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie Garza", written in a cursive style.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

**FEBRUARY 1, 2017**

**QUARTERLY TREATMENT AND VADOSE ZONE MONITORING REPORT  
FOURTH QUARTER 2016 (DECEMBER 1, 2016)**

**R360 Artesia LLC Landfarm**

Township 17 South, Range 32 East, Unit A of Section 7  
Maljamar, Lea County, New Mexico  
Permit No. NM-1-30

Prepared for:



507 N. MARIENFELD STREET  
SUITE 200  
MIDLAND, TEXAS 79701

Prepared by:



PO Box 12177  
ODESSA, TEXAS 79768

A handwritten signature in black ink, reading "Gilbert J. Van Deventer". The signature is written in a cursive style with a clear, legible font.

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Gilbert J. Van Deventer, PG

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## **1.0 INTRODUCTION**

As agent for R360 Environmental Solutions (R360), Trident Environmental submits this *2016 Fourth Quarter Treatment and Vadose Zone Monitoring Report* for the R360 Artesia, LLC Landfarm (landfarm). Pursuant to 19.15.9.711 NMAC, the New Mexico Oil Conservation Division (OCD) issued permit number NM-1-30 to Artesia Aeration Landfarm on November 29, 1999, as a commercial surface waste management facility for treating exempt oil field waste which consists predominantly of petroleum hydrocarbon-impacted soil and drill cuttings. R360 acquired the landfarm in April 2011 and has not accepted new material since that time. The landfarm occupies approximately 48.4 acres in Unit A (NE/4, NE/4) of Section 7, Township 17 South, Range 32 East, Lea County, New Mexico, as depicted on the Site Location Map (Figure 1). The landfarm is divided into 6 cells (cell 1 through cell 6) ranging in size from about 2.74 acres (cell 1) to 13.28 acres (cell 6). Figure 2 is a Site Map depicting locations of the vadose zone samples collected during the fourth (4<sup>th</sup>) quarter of 2016.

## **2.0 MONITORING PROGRAM**

Samples are no longer collected from cell 6 since the treatment zone soil overlying the perched water zone was removed from cell 6 and the southwest corner of cell 5 and placed as an additional lift on cells 1, 3 and 4 in 2015. Also, treatment zone samples are no longer collected from Cell 2 since no additional soil was added to the cell after OCD granted approval for adding another lift of contaminated soil on March 23, 2015. On November 21, 2016, Jim Griswold granted approval to R360's request for additional lifts in cells 1, 3, and 4.

As approved by OCD, treatment zone samples were not collected during the 4<sup>th</sup> quarter sampling event since they are only required on a semi-annual basis. During each of the three previous quarters during 2016, treatment zone samples were collected.

## **3.0 SOIL SAMPLING PROCEDURES**

Treatment zone samples are collected from an approximate depth of 1 foot into the treatment (tilled) zone at cells 1, 3, 4 and 5 using a stainless steel trowel. Treatment zone sample aliquots from four discrete locations are composited as a single sample and immediately placed in pre-cleaned 4-ounce containers, properly labeled, and placed in a cooler with ice.

Vadose zone samples are collected from cells 1 through 5 approximately 2 to 3 feet below native ground surface. The samples are collected with a hand trowel after a backhoe temporarily excavates the overlying treatment zone soil from each location. The samples are then placed in 4-ounce glass containers, properly labeled, and placed in a cooler with ice, while the removed treatment zone soils are returned back in to the temporary excavation with the backhoe.

The locations of all samples are recorded with a Garmin™ handheld GPS receiver. Soil samples are delivered to the laboratory under chain of custody the same or next day for analysis of benzene, BTEX (sum of benzene, toluene, ethylbenzene and xylene), TPH (total petroleum hydrocarbons), and chloride using EPA SW-846 Methods 8021B, 8015, and 300, respectively. As approved by OCD, TRPH method 418.1 is not required under the condition that the TPH-8015 extraction method extends from the Carbon-6 to Carbon-35 range to include all GRO (gas range organics), DRO (diesel range organics), and ORO (oil range organics) fractions of TPH.

Analysis was performed by Permian Basin Environmental Lab (Midland TX) for the 4<sup>th</sup> quarter. PBEL is accredited under the National Environmental Laboratory Accreditation Program (NELAP).

#### **4.0 TREATMENT (TILLED) ZONE SOIL SAMPLE ANALYTICAL RESULTS**

The treatment zone soil sample analytical results are compared to the closure performance standards or additional lift requests as specified in NMAC 19.15.36.15(F) as follows:

- (1) Benzene not to exceed 0.2 mg/kg,
- (2) Total BTEX not to exceed 50 mg/kg,
- (3) The GRO, DRO and ORO combined fractions (TPH) not to exceed 500 mg/kg,
- (4) TRPH not to exceed 2,500 mg/kg, and
- (5) Chloride not to exceed 1,000 mg/kg

Treatment zone samples were not collected during the 4th quarter sampling event since they are only required on a semi-annual basis. As of the most recent treatment zone sampling event (3<sup>rd</sup> quarter), the benzene, BTEX, TPH, TRPH, and chloride concentrations in the treatment zone were below the above-referenced closure performance standards for all cells, with the exception of minimal exceedences of TPH (744 mg/kg) and chloride (1,120 mg/kg) in Cell 5.

#### **5.0 VADOSE ZONE SOIL SAMPLE ANALYTICAL RESULTS**

Vadose samples were collected at 2 - 3 feet below native ground surface in cells 1 through 5 during the 4<sup>th</sup> quarter sampling event. Vadose zone monitoring results are compared to the analytical method reporting limit (RL) or background soil concentrations (whichever is higher) in order to determine if a release had occurred and if additional follow-up actions of 19.15.36.15.E.(5) NMAC are required. The RL is equivalent to the practical quantitation limit (PQL) in Rule 36. Laboratory reports are included in Attachment A.

As summarized in Table 1, benzene, BTEX and TPH concentrations in the vadose zone samples for each sampled cell during the 4<sup>th</sup> quarter sampling event are comparable to background levels and were less than the RL (PQL) for each constituent, indicating there is no migration of benzene, BTEX and TPH to the vadose zone.

Chloride concentrations within the vadose zone during the most recent (4th quarter) sampling event were 411 mg/kg in cell 1, less than 1.06 mg/kg in cells 2 and 3, 15.7 mg/kg in cell 4, and 6.72 mg/kg in cell 5 (Table 1).

## 6.0 CONCLUSIONS

Treatment zone samples were not collected during the 4<sup>th</sup> quarter sampling event since they are only required on a semi-annual frequency. As of the most recent treatment zone sampling event (3<sup>rd</sup> quarter), the benzene, BTEX, TPH, TRPH, and chloride concentrations in the treatment zone did not exceed closure performance standards for all cells, with the exception of minimal exceedences of TPH (744 mg/kg) and chloride (1,120 mg/kg) in Cell 5.

During the 4<sup>th</sup> quarter sampling event on December 1, 2016, benzene, BTEX, TPH, and chloride concentrations in the vadose zone samples were less than the RL (PQL) or background soil concentrations with the exception of chloride in cell 1 (411 mg/kg), cell 4 (15.7 mg/kg), and cell 5 (6.72 mg/kg).

Although chloride concentrations in the vadose zone of cells 1, 4, and 5 exceed the higher of the RL (PQL) or background soil concentration, they are well below concentrations considered protective of groundwater which is greater than 100 ft below ground surface. Even so, it is understood that R360 will collect and analyze a minimum of four randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC in cells 1, 4, and 5, which will be followed by submission of a response action plan to the OCD that addresses changes in the landfarm operations to mitigate any potential threat to groundwater conditions.

R360 continues tilling operations in cells 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation of hydrocarbons in the treatment zone. R360 will notify OCD District 1 and Santa Fe offices at least 24 hours prior to collecting samples during the first quarter in 2017.

## **TABLES**

**Table 1**  
**Summary of 4<sup>th</sup> Quarter Treatment and Vadose Zone Soil Sample Analytical Results**  
**R360 Artesia LLC Landfarm (NM-1-30), Lea County, New Mexico**

Cell	Date	Zone	Depth (ft)	Benzene (mg/kg)	BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
1	12/01/16	Treatment Vadose	0 - 1	*	*	*	*	*	*	*
			2 - 3	<0.001	<0.007	<10.6	<10.6	<10.6	<10.6	<10.6
2	12/01/16	Treatment Vadose	0 - 1	*	*	*	*	*	*	*
			2 - 3	<0.001	<0.007	<10.1	<10.1	<10.1	<10.1	<10.1
3	12/01/16	Treatment Vadose	0 - 1	*	*	*	*	*	*	*
			2 - 3	<0.001	<0.007	<10.0	<10.0	<10.0	<10.0	<10.0
4	12/01/16	Treatment Vadose	0 - 1	*	*	*	*	*	*	*
			2 - 3	<0.001	<0.007	<9.90	<9.90	<9.90	<9.90	<9.90
5	12/01/16	Treatment Vadose	0 - 1	*	*	*	*	*	*	*
			2 - 3	<0.001	<0.007	<10.1	<10.1	<10.1	<10.1	<10.1
6	12/01/16	Treatment Vadose	0 - 1	**	**	**	**	**	**	**
			2 - 3	**	**	**	**	**	**	**
<b>Closure Performance Standards:</b>				<b>0.2</b>	<b>50</b>	–	–	–	<b>500</b>	<b>1,000</b>
<b>Background (Mean):</b>				<b>&lt;0.001</b>	<b>&lt;0.007</b>	–	–	–	–	<b>&lt;5.04</b>
<b>Reporting Limit (RL and PQL):</b>				<b>0.005</b>	<b>0.015</b>	<b>10.6</b>	<b>10.6</b>	<b>10.6</b>	<b>10.6</b>	<b>5.04</b>

Notes: Analysis performed by Permian Basin Environmental Lab (Midland TX)

EPA SW-846 methods 8021B (BTEX), 8015M (GRO, DRO, and ORO), and 300.0 (chloride).

Depth listed in feet below native ground surface. Concentrations reported in units of milligrams per kilogram (mg/kg).

\* Treatment zone samples not collected (only required semi-annually).

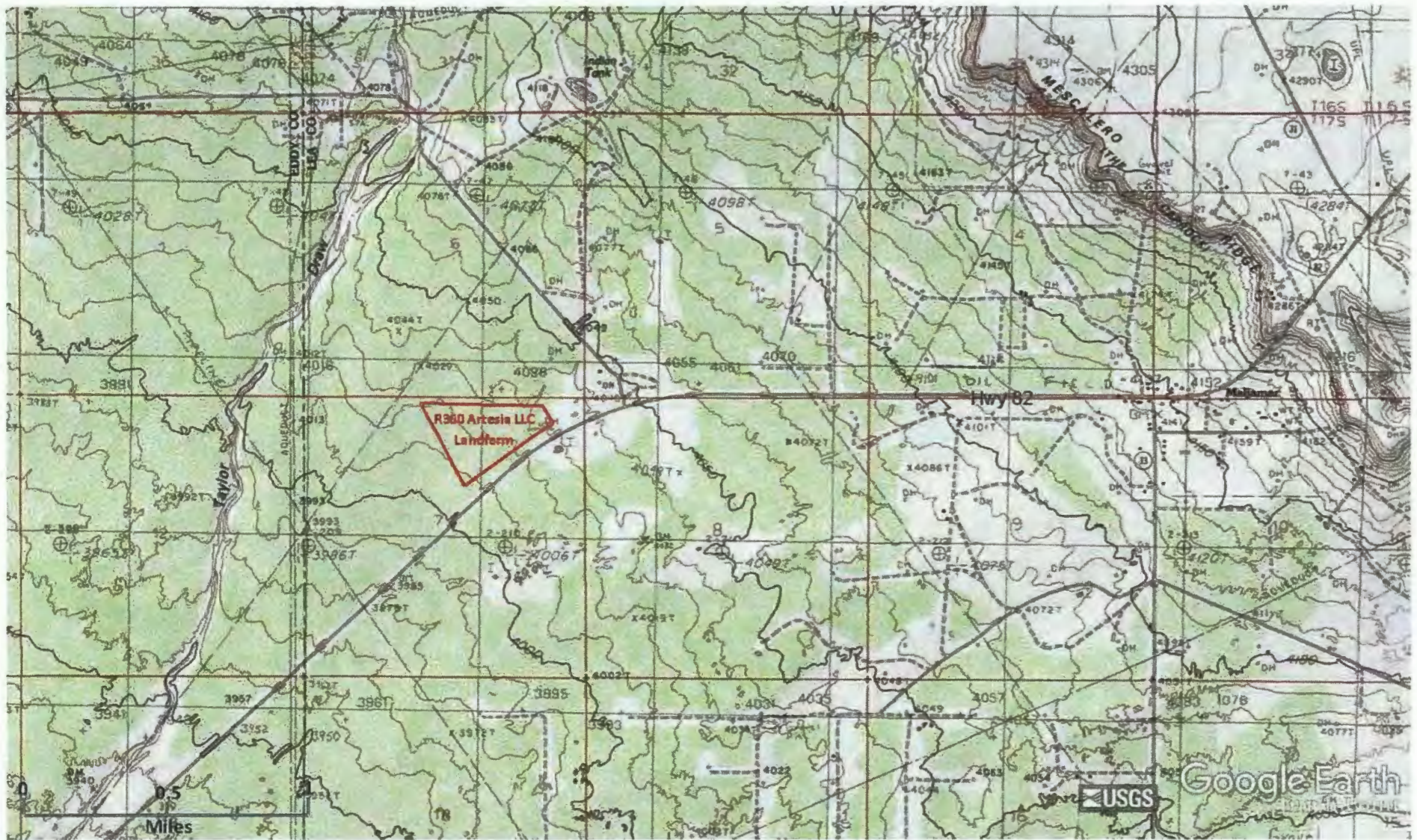
\*\* Soil removed from Cell 6 and placed as additional layer on Cells 1, 3 and 4.

<: Less than the reporting limit (RL) which is the equivalent to the Practical Quantitation Limit (PQL)

**Analyte is reported higher than the RL (PQL) or background concentration.**


## FIGURES



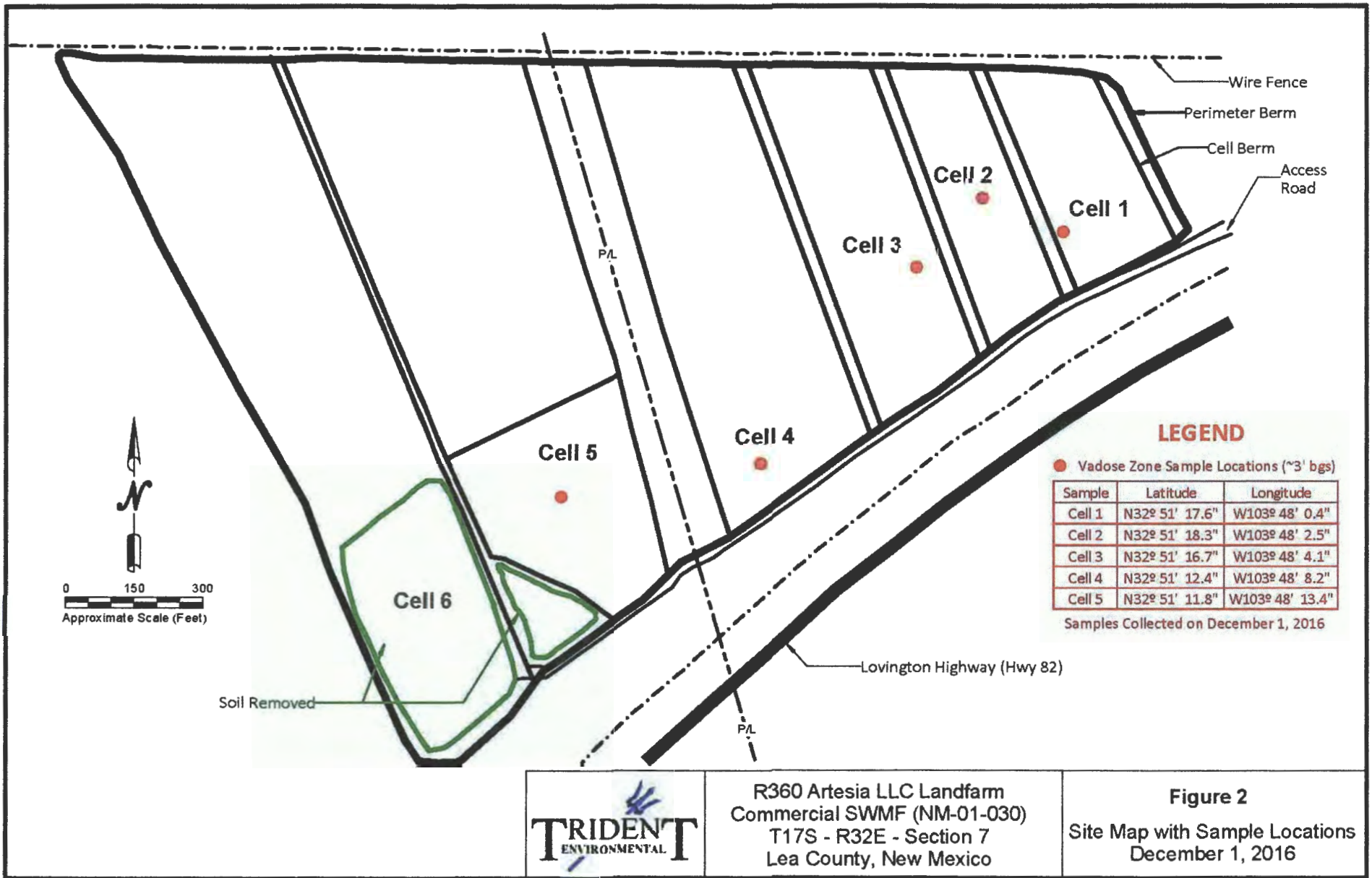


Google Earth



	<p>R360 Artesia LLC Landfarm          Unit A, Sec 7, T17S, R32E,          Lea County, NM          N 32° 51' 17"          W 103° 47' 57"</p>	<p><b>Figure 1</b>  <b>Site Location Map</b></p>
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R360 Artesia LLC Landfarm  
 Commercial SWMF (NM-01-030)  
 T17S - R32E - Section 7  
 Lea County, New Mexico

**Figure 2**  
 Site Map with Sample Locations  
 December 1, 2016



## **ATTACHMENT A**

### **Laboratory Analytical Reports and Chains of Custody**

**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
1400 Rankin Hwy  
Midland, TX 79701**



# Analytical Report

**Prepared for:**

Gilbert Vandeventer  
Trident Environmental  
P.O. Box 12177  
Odessa, TX 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Location: T17S R32E Sec 7 Unit B , Lea County NM  
Lab Order Number: 6L02001



**NELAP/TCEQ # T104704156-16-6**

Report Date: 01/12/17

Trident Environmental  
P.O. Box 12177  
Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Cell 1 (3')	6L02001-01	Soil	12/01/16 11:30	12-02-2016 09:05
Cell 2 (3')	6L02001-02	Soil	12/01/16 10:00	12-02-2016 09:05
Cell 3 (3')	6L02001-03	Soil	12/01/16 11:50	12-02-2016 09:05
Cell 4 (3')	6L02001-04	Soil	12/01/16 12:30	12-02-2016 09:05
Cell 5 (3')	6L02001-05	Soil	12/01/16 13:00	12-02-2016 09:05

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Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

Cell 1 (3')  
6L02001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

**Organics by GC**

Benzene	ND	0.00111	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Toluene	ND	0.00222	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Ethylbenzene	ND	0.00111	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (p/m)	ND	0.00222	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (o)	ND	0.00111	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		95.7 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>Chloride</b>	<b>411</b>	1.11	mg/kg dry	1	P6L0601	12/06/16	12/07/16	EPA 300.0	
<b>% Moisture</b>	<b>10.0</b>	0.1	%	1	P6L0501	12/05/16	12/05/16	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	10.6	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C12-C28	ND	10.6	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C28-C35	ND	10.6	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
<i>Surrogate: 1-Chlorooctane</i>		74.5 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		80.4 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	10.6	mg/kg dry	1	[CALC]	12/05/16	12/05/16	calc	

Trident Environmental  
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Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

**Cell 2 (3')**  
**6L02001-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.0 %		75-125	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		95.3 %		75-125	P6L0502	12/05/16	12/05/16	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	ND	1.06	mg/kg dry	1	P6L0601	12/06/16	12/07/16	EPA 300.0	
% Moisture	6.0	0.1	%	1	P6L0501	12/05/16	12/05/16	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C12-C28	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C28-C35	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
<i>Surrogate: 1-Chlorooctane</i>		70.2 %		70-130	P6L0508	12/05/16	12/05/16	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		78.0 %		70-130	P6L0508	12/05/16	12/05/16	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	10.1	mg/kg dry	1	[CALC]	12/05/16	12/05/16	calc	

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Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

**Cell 3 (3')**  
**6L02001-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00105	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Toluene	ND	0.00211	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		96.1 %		75-125	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.5 %		75-125	P6L0502	12/05/16	12/05/16	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	ND	1.05	mg/kg dry	1	P6L0601	12/06/16	12/07/16	EPA 300.0	
% Moisture	5.0	0.1	%	1	P6L0501	12/05/16	12/05/16	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	10.0	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C12-C28	ND	10.0	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C28-C35	ND	10.0	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
<i>Surrogate: 1-Chlorooctane</i>		70.7 %		70-130	P6L0508	12/05/16	12/05/16	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		78.0 %		70-130	P6L0508	12/05/16	12/05/16	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	10.0	mg/kg dry	1	[CALC]	12/05/16	12/05/16	calc	

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Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

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**Cell 4 (3')**  
**6L02001-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00104	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Toluene	ND	0.00208	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		95.8 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

<b>Chloride</b>	<b>15.7</b>	1.04	mg/kg dry	1	P6L0601	12/06/16	12/07/16	EPA 300.0	
<b>% Moisture</b>	<b>4.0</b>	0.1	%	1	P6L0501	12/05/16	12/05/16	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	9.90	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C12-C28	ND	9.90	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C28-C35	ND	9.90	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
<i>Surrogate: 1-Chlorooctane</i>		71.3 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		76.8 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	9.90	mg/kg dry	1	[CALC]	12/05/16	12/05/16	calc	

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P.O. Box 12177  
Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

**Cell 5 (3')**  
**6L02001-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Toluene	ND	0.00213	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P6L0502	12/05/16	12/05/16	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		94.9 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.9 %	75-125		P6L0502	12/05/16	12/05/16	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	6.72	1.06	mg/kg dry	1	P6L0601	12/06/16	12/07/16	EPA 300.0	
% Moisture	6.0	0.1	%	1	P6L0501	12/05/16	12/05/16	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C12-C28	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
>C28-C35	ND	10.1	mg/kg dry	1	P6L0508	12/05/16	12/05/16	TPH 8015M	SQL-1
Surrogate: 1-Chlorooctane		73.6 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
Surrogate: o-Terphenyl		74.0 %	70-130		P6L0508	12/05/16	12/05/16	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	10.1	mg/kg dry	1	[CALC]	12/05/16	12/05/16	calc	



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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P6L0502 - General Preparation (GC)**

**Blank (P6L0502-BLK1)**

Prepared & Analyzed: 12/05/16

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
<i>Surrogate: 1,4-Difluorobenzene</i>	<i>0.0593</i>		"	<i>0.0600</i>		<i>98.9</i>	<i>75-125</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0600</i>		"	<i>0.0600</i>		<i>100</i>	<i>75-125</i>			

**LCS (P6L0502-BS1)**

Prepared & Analyzed: 12/05/16

Benzene	0.0883	0.00100	mg/kg wet	0.100		88.3	70-130			
Toluene	0.0902	0.00200	"	0.100		90.2	70-130			
Ethylbenzene	0.105	0.00100	"	0.100		105	70-130			
Xylene (p/m)	0.193	0.00200	"	0.200		96.3	70-130			
Xylene (o)	0.0949	0.00100	"	0.100		94.9	70-130			
<i>Surrogate: 1,4-Difluorobenzene</i>	<i>0.0619</i>		"	<i>0.0600</i>		<i>103</i>	<i>75-125</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0658</i>		"	<i>0.0600</i>		<i>110</i>	<i>75-125</i>			

**LCS Dup (P6L0502-BSD1)**

Prepared & Analyzed: 12/05/16

Benzene	0.0857	0.00100	mg/kg wet	0.100		85.7	70-130	2.93	20	
Toluene	0.0906	0.00200	"	0.100		90.6	70-130	0.409	20	
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130	1.93	20	
Xylene (p/m)	0.189	0.00200	"	0.200		94.5	70-130	1.85	20	
Xylene (o)	0.0933	0.00100	"	0.100		93.3	70-130	1.75	20	
<i>Surrogate: 1,4-Difluorobenzene</i>	<i>0.0609</i>		"	<i>0.0600</i>		<i>102</i>	<i>75-125</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0635</i>		"	<i>0.0600</i>		<i>106</i>	<i>75-125</i>			

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P6L0501 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P6L0501-BLK1)** Prepared & Analyzed: 12/05/16

% Moisture	ND	0.1	%							
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**Duplicate (P6L0501-DUP1)** Source: 6L02002-21 Prepared & Analyzed: 12/05/16

% Moisture	8.0	0.1	%		12.0			40.0	20	
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**Batch P6L0601 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P6L0601-BLK1)** Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	ND	1.00	mg/kg wet							
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**LCS (P6L0601-BS1)** Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	412	1.00	mg/kg wet	400		103	80-120			
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**LCS Dup (P6L0601-BSD1)** Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	414	1.00	mg/kg wet	400		103	80-120	0.453	20	
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**Duplicate (P6L0601-DUP1)** Source: 6L01011-05 Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	2070	12.2	mg/kg dry		2080			0.453	20	
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**Duplicate (P6L0601-DUP2)** Source: 6L01014-10 Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	9.90	1.02	mg/kg dry		9.43			4.86	20	
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**Matrix Spike (P6L0601-MS1)** Source: 6L01011-05 Prepared: 12/06/16 Analyzed: 12/07/16

Chloride	4360	12.2	mg/kg dry	2440	2080	93.6	80-120			
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*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

Trident Environmental  
P.O. Box 12177  
Odessa TX, 79768

Project: R360 Artesia Landfarm  
Project Number: V-259  
Project Manager: Gilbert Vandeventer

Fax: (432) 413-9968

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch P6L0508 - TX 1005**

**Blank (P6L0508-BLK1)**

Prepared & Analyzed: 12/05/16

C6-C12	ND	25.0	mg/kg wet							SQL-1
>C12-C28	ND	25.0	"							SQL-1
>C28-C35	ND	25.0	"							SQL-1
Surrogate: 1-Chlorooctane	65.9		"	80.0		82.4	70-130			
Surrogate: o-Terphenyl	32.7		"	40.0		81.7	70-130			

**LCS (P6L0508-BS1)**

Prepared & Analyzed: 12/05/16

C6-C12	1130	25.0	mg/kg wet	1000		113	75-125			
>C12-C28	1110	25.0	"	1000		111	75-125			
Surrogate: 1-Chlorooctane	68.1		"	100		68.1	70-130			S-GC
Surrogate: o-Terphenyl	41.8		"	50.0		83.6	70-130			

**LCS Dup (P6L0508-BS1)**

Prepared & Analyzed: 12/05/16

C6-C12	1020	25.0	mg/kg wet	1000		102	75-125	9.97	20	
>C12-C28	1070	25.0	"	1000		107	75-125	3.96	20	
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	40.6		"	50.0		81.1	70-130			

**Matrix Spike (P6L0508-MS1)**

Source: 6L05001-05

Prepared & Analyzed: 12/05/16

C6-C12	1270	28.4	mg/kg dry	1140	ND	112	75-125			
>C12-C28	1330	28.4	"	1140	21.3	115	75-125			
Surrogate: 1-Chlorooctane	107		"	114		94.2	70-130			
Surrogate: o-Terphenyl	45.8		"	56.8		80.6	70-130			

**Matrix Spike Dup (P6L0508-MSD1)**


Source: 6L05001-05

Prepared & Analyzed: 12/05/16

C6-C12	1270	28.4	mg/kg dry	1140	ND	112	75-125	0.356	20	
>C12-C28	1340	28.4	"	1140	21.3	116	75-125	0.744	20	
Surrogate: 1-Chlorooctane	109		"	114		96.2	70-130			
Surrogate: o-Terphenyl	44.2		"	56.8		77.8	70-130			

**Notes and Definitions**

- SQL-1     The reporting limit is based on the sample quantitation limit.
- S-GC     Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
- BULK     Samples received in Bulk soil containers
- DET     Analyte DETECTED
- ND     Analyte NOT DETECTED at or above the reporting limit
- NR     Not Reported
- dry     Sample results reported on a dry weight basis
- RPD     Relative Percent Difference
- LCS     Laboratory Control Spike
- MS     Matrix Spike
- Dup     Duplicate

Report Approved By:      Date: 1/12/2017

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.





October 27, 2016

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: 2016 Analytical Results, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New  
Mexico

Mr. Jones:

The enclosed data tables present laboratory results of treatment and vadose soil samples collected at the R360 Artesia, LLC (formerly Artesia Aeration) Landfarm during the third quarter of 2016. You may contact me at (956) 458-0515 or by email at [StephanieG@r360es.com](mailto:StephanieG@r360es.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'Stephanie Garza'. The signature is fluid and cursive, with a large initial 'S'.

Stephanie Garza

**R360 Environmental Solutions, LLC**

Attachments

**QUARTERLY  
TREATMENT AND VADOSE ZONE  
MONITORING REPORT  
(September 20, 2016)**

R360 Artesia LLC Landfarm  
Lea County, New Mexico  
Permit No. NM1-30-0

LAI Project No. 15-0121-01

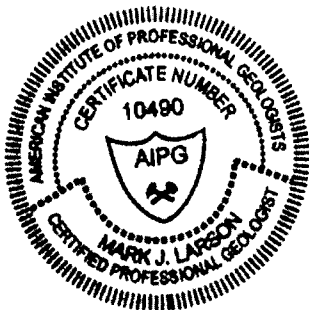
October 21, 2016

Prepared for:

R360 Environmental Solutions, LLC  
507 N. Marienfeld Street, Suite 200  
Midland, Texas 79701

Prepared by:

Larson & Associates, Inc.  
507 North Marienfeld Street, Suite 205  
Midland, Texas 79701



A handwritten signature in black ink, appearing to read "Mark J. Larson", is written over a horizontal line.

Mark J. Larson, P.G.

Certified Professional Geologist #10490

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Appendix A Laboratory Analytical Report

## 1.0 EXECUTIVE SUMMARY

This report presents the third (3<sup>rd</sup>) quarter 2016 treatment and vadose zone monitoring results for the R360 Artesia, LLC Landfarm (Site). The Site is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (MN1-30-0) that uses six (6) cells (cells 1 through 6) ranging in size from about 2.74 acres (cell 1) to 13.28 acres (cell 6) for treating exempt oil field waste (i.e., soil and drill cuttings) contaminated predominately by petroleum hydrocarbons. The Site is located in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 171" and west 103° 47' 56.9".

On September 20, 2016, third (3<sup>rd</sup>) quarter samples were collected from about 1 foot into the treatment zone at cells 1, 3, 4 and 5. No soil has been added to the treatment zone in cell 2 since the OCD approved adding another lift of contaminated soil on March 23, 2015 therefore no treatment zone samples were collected from cell 2 during the third (3<sup>rd</sup>) quarter 2016. Vadose samples were collected between about 2 and 3 feet below native ground surface in cells 1 through 5 during the third (3<sup>rd</sup>) quarter 2016. Vadose samples were not collected from cell 6 since treated soil was removed from cell 6 and the southwest corner of cell 5 and placed as an additional lift on cells 1, 3 and 4 in 2015. The treatment and vadose zone samples were analyzed for BTEX (sum of benzene, toluene, ethylbenzene and xylene), TPH (total petroleum hydrocarbons), TRPH (total recoverable hydrocarbons) and chloride by EPA SW-846 Methods 8021B, 8015, 418.1 and 300, respectively.

The following conclusions are drawn from the third (3<sup>rd</sup>) quarter 2016 monitoring event:

- BTEX was below the analytical method RL and closure performance standards in treatment zone samples from cells 1 through 5 on September 20, 2016;
- TPH was below the closure performance standard (500 ppm) in treatment zone from cells 1, 3 and 4 on September 20, 2016;
- TPH exceeded the closure performance standard in treatment zone sample from cell 5 (744 mg/Kg) on September 20, 2016;
- BTEX, TPH and TRPH were below the analytical method RL in vadose zone samples from cells 1 through 5 on September 20, 2016;
- Chloride ranged from 6.68 mg/Kg (cell 3) to 289 mg/Kg (cell 5) in vadose samples and exceeded the mean background concentration (5.04 mg/Kg) on September 20, 2016.

**R360 will continue monthly tilling of cell 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation of hydrocarbons in the treatment zone. R360 will notify OCD District 1 and Santa Fe offices at least 24 hours prior to collecting samples during the fourth (4th) quarter 2016.**

## 2.0 INTRODUCTION

This report has been prepared by Larson & Associates, Inc. (LAI) to present vadose and treatment zone monitoring results for the third (3<sup>rd</sup>) quarter of 2016 at the R360 Artesia, LLC (R360) Landfarm (Facility) located in Lea County, New Mexico. The Facility is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (NM1-30-0) for treating exempt oil field waste (i.e., soil and drill cuttings) contaminated predominately by petroleum hydrocarbons.

The Facility is divided into 6 cells (cell 1 through cell 6) ranging in size from about 2.74 acres (cell 1) to 13.28 acres (cell 6). The Facility occupies approximately 48.4 acres in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 4.93" and west 103° 48' 15.45". Figure 1 presents a topographic map. Figure 2 presents an aerial map. Figure 3 presents a Facility drawing with locations of the third (3<sup>rd</sup>) quarter 2016 treatment and vadose zone samples. The OCD issued the permit under Rule 711 to Artesia Aeration Landfarm on November 29, 1999. R360 acquired the Facility in April 2011. R360 has not accepted new material since acquiring the Facility.

## 3.0 LANDFARM MONITORING

### 3.1 Treatment (Tilled) Zone Soil Samples

Per OCD permit requires a 4-part composite soil sample from the treatment zone. On September 20, 2016, LAI personnel collected samples from the treatment (tilled) zone in cells 1, 3, 4, and 5. Treatment zone samples were not collected from cell 2 during the third (3<sup>rd</sup>) quarter since no additional soil was added to the cell since OCD granted approval for adding another lift of contaminated soil on March 23, 2015. Treatment zone samples were collected between about 1 foot into the treatment (tilled) zone at cells 1, 3, 4 and 5 using a stainless steel trowel. Sample aliquots were immediately placed in pre-cleaned 4-ounce jars, properly labeled, and iced upon collection. The samples were shipped via LoneStar Overnight, under chain of custody to DHL Analytical, a National Analytical Laboratory Accreditation Program (NELAP) accredited laboratory located in Round Rock, Texas. The samples were analyzed for benzene, toluene, ethylbenzene and xylene (BTEX), total petroleum hydrocarbons (TPH), total recoverable petroleum hydrocarbons (TRPH) and chloride by EPA SW-846 Methods 8021B, 8015, 418.1 and 300, respectively. The locations for the 4 discrete sample locations were recorded with a Trimble<sup>®</sup> hand held GPS receiver. Table 1 presents the laboratory analytical data summary for the treatment zone samples. Figure 3 presents the sample locations. Appendix A presents the laboratory report.

#### 3.1.1 Organic Sample Results

BTEX constituents were below the analytical method reporting limits (RL), equivalent to the practical quantitation limit (PQL) and closure performance standards in treatment zone samples from cells 1, 3, 4, and 5 on September 20, 2016.

TPH was below the closure performance standard of 500 milligrams per kilogram (mg/Kg) in treatment zone samples from cell 1 (15.4 mg/Kg), cell 3 (242 mg/Kg) and cell 4 (293 mg/Kg) on September 20,

2016. The closure performance standard for TPH was exceeded in treatment zone samples from cell 5 (744 mg/Kg) on September 20, 2016. TRPH was below the closure performance standard of 1,000 mg/Kg in treatment zone samples from cells 1, 3, 4 and 5 on September 20, 2016.

### **3.1.2 Chloride Sample Results**

Chloride was below the closure performance standard (1,000 mg/kg) in the treatment zone from all cells except cell 5 (1,120 mg/kg) during the third (3<sup>rd</sup>) on September 20, 2016.

## **3.2 Vadose Zone Soil Samples**

Vadose zone samples were collected from cell 1 through 5 approximately 2 to 3 feet below native ground surface. The samples were collected with a backhoe after removing contaminated (treatment zone) soil from each location. The samples were collected in 4-ounce glass containers that were labeled, chilled in an ice chest and delivered to DHL. The laboratory analyzed the samples by EPA SW-846 Method 8021B (BTEX), 8015 (TPH), 418.1 (TRPH) and 300 (chloride). The native soil was placed in the sample excavation prior to replacing the contaminated (treatment zone) soil. Each sample location was recorded with the Trimble® GPS receiver. Table 2 presents the laboratory analytical data summary for the vadose zone samples. Figure 3 presents the vadose zone sample locations. Appendix A presents the laboratory reports.

### **3.2.1 Organic Sample Results**

BTEX, TPH and TRPH were below the analytical method RL in vadose samples from cell 1 through 5 on September 20, 2016.

### **3.2.2 Chloride Sample Results**

Chloride in the vadose samples ranged from 6.68 mg/Kg (cell 3) to 289 mg/Kg (cell 5) and exceeded the mean background concentration (5.04 mg/Kg) on September 20, 2016.

## **4.0 CONCLUSIONS**

- BTEX was below the analytical method RL and closure performance standards in treatment zone samples from cells 1 through 5 on September 20, 2016;
- TPH was below the closure performance standard (500 ppm) in treatment zone from cells 1, 3 and 4 on September 20, 2016;
- TPH exceeded the closure performance standard in treatment zone sample from cell 5 (744 mg/Kg) on September 20, 2016;
- BTEX, TPH and TRPH were below the analytical method RL in vadose zone samples from cells 1 through 5 on September 20, 2016;
- Chloride ranged from 6.68 mg/Kg (cell 3) to 289 mg/Kg (cell 5) in vadose samples and exceeded the mean background concentration (5.04 mg/Kg) on September 20, 2016.

R360 will continue monthly tilling of cell 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation of hydrocarbons in the treatment zone. R360 will notify OCD District 1 and Santa Fe offices at least 24 hours prior to collecting samples during the fourth (4th) quarter 2016.

## TABLES

**Table 1**  
**Treatment Zone Soil Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			0.2	50				500	2,500	1,000
1	03/16/2016	0 - 1	<0.00472	<0.0472	<0.190	366	263	629	836	356
	06/01/2016	0 - 1	<0.00496	<0.0496	<0.180	224	265	489	252	397
	09/20/2016	0 - 1	<0.00543	<0.05433	<0.234	15.4	<11.6	15.4	15.1	302
2	03/16/2016	0 - 1	*	*	*	*	*	*	*	*
	06/01/2016	0 - 1	*	*	*	*	*	*	*	*
	09/20/2016	0 - 1	*	*	*	*	*	*	*	*
3	03/16/2016	0 - 1	<0.00454	<0.0454	<0.192	273	235	508	644	177
	06/01/2016	0 - 1	<0.00436	<0.0436	<0.186	147	118	265	291	334
	09/20/2016	0 - 1	<0.00471	<0.04701	<0.183	136	106	242	102	112
4	03/16/2016	0 - 1	<0.00451	<0.0451	<0.200	299	228	527	704	467
	06/01/2016	0 - 1	<0.00483	<0.0483	<0.192	374	297	671	599	279
	09/20/2016	0 - 1	<0.00465	<0.04665	<0.196	159	134	293	110	81.4
5	03/16/2016	0 - 1	<0.00493	<0.0493	<0.186	737	669	1,406	2,080	2,100
	06/01/2016	0 - 1	<0.00514	<0.0514	<0.204	467	447	914	498	4,630
	09/20/2016	0 - 1	<0.00499	<0.04999	<0.199	422	322	744	357	1,120
6	03/16/2016	0 - 1	**	**	**	**	**	**	**	**
	06/01/2016	0 - 1	**	**	**	**	**	**	**	**
	09/20/2016	0 - 1	**	**	**	**	**	**	**	**

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas by EPA SW-846 methods 8021B (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride)  
 Results are reported in milligram per Kilograms (mg/Kg) equivalent to parts per million (ppm)  
 Depth is feet within treated soil layer  
 \*Cell approved for additional lift however no soil added to cell at the time of sample collection  
 \*\*Soil removed from cell and placed as additional layer on Cells 1, 3 and 4  
 <: Analyte concentration less than method reporting limit (RL) equivalent to practical quantitation limit (PQL)  
**Analyte concentration exceeds closure performance standard**



**Table 2**  
**Vadose Zone Soil BTEX and TPH Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	RL	Benzene (mg/Kg)	RL	Ethylbenzene (mg/Kg)	RL	Toluene (mg/Kg)	RL	Xylenes (mg/Kg)	RL	GRO (mg/Kg)	RL	DRO (mg/Kg)	RL	ORO (mg/Kg)	RL	TPH (mg/Kg)	RL	TRPH (mg/Kg)	RL	Chloride (mg/Kg)
<b>Background: Mean Concentration:</b>				<0.00095		<0.00095		<0.00095		<0.00095		--		--		--		--		<4.90		<5.04
<b>Background PQL or RL:</b>				0.0048		0.0048		0.0048		0.0048		--		--		--		--		9.78		5.04
1	03/16/2016	2 - 3	0.00483	<0.00483	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.213	<0.213	11.0	77.4	11.0	48.8	11.0	126.2	10.9	175	5.55	133
	06/01/2016	2 - 3	0.00536	<0.00536	0.0161	<0.0161	0.0161	<0.0161	0.0161	<0.0161	0.204	<0.204	10.6	<10.6	10.6	<10.6	10.6	<10.6	10.5	<10.5	51.0	98.2
	09/20/2016	2 - 3	0.00518	<0.00518	0.0155	<0.0155	0.0155	<0.0155	0.0155	<0.0155	0.222	<0.222	10.9	<10.9	10.9	<10.9	10.9	<10.9	11.1	<11.1	5.40	38.6
2	03/16/2016	2 - 3	0.00551	<0.00551	0.0165	<0.0165	0.0165	<0.0165	0.0165	<0.0165	0.237	<0.237	11.8	<11.8	11.8	4.49 <sup>J</sup>	11.8	4.49 <sup>J</sup>	12.2	<12.2	5.74	14.4
	06/01/2016	2 - 3	0.00558	<0.00558	0.0167	<0.0167	0.0167	<0.0167	0.0167	<0.0167	0.226	<0.226	10.9	<10.9	10.9	<10.9	10.9	<10.9	11.0	<11.0	54.5	328
	09/20/2016	2 - 3	0.00553	<0.00553	0.0166	<0.0166	0.0166	<0.0166	0.0166	<0.0166	0.223	<0.223	10.9	<10.9	10.9	<10.9	10.9	<10.9	11.0	<11.0	55.3	331
3	03/16/2016	2 - 3	0.00479	<0.00479	0.0144	<0.0144	0.0144	<0.0144	0.0144	<0.0144	0.189	<0.189	10.2	15.1	10.2	11.4	10.2	26.5	9.85	9.52 <sup>M</sup>	5.01	21.4
	06/01/2016	2 - 3	0.00592	<0.00592	0.0178	<0.0178	0.0178	<0.0178	0.0178	<0.0178	0.239	<0.239	11.5	<11.5	11.5	<11.5	11.5	<11.5	11.8	<11.8	54.4	567
	09/20/2016	2 - 3	0.00547	<0.00547	0.0164	<0.0164	0.0164	<0.0164	0.0164	<0.0164	0.202	<0.202	11.2	<11.2	11.2	<11.2	11.2	<11.2	10.7	<10.7	5.26	6.68
4	03/16/2016	2 - 3	0.00540	<0.00540	0.0162	<0.0162	0.0162	<0.0162	0.0162	<0.0162	0.205	<0.205	10.5	98.7	10.5	82.3	10.5	181	10.7	228	5.31	255
	06/01/2016	2 - 3	0.00484	<0.00484	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.198	<0.198	9.45	<9.45	9.45	<9.45	9.45	<9.45	9.95	<9.95	47.5	192
	09/20/2016	2 - 3	0.00573	<0.00573	0.0172	<0.0172	0.0172	<0.0172	0.0172	<0.0172	0.230	<0.230	11.7	<11.7	11.7	<11.7	11.7	<11.7	11.1	<11.1	5.88	165
5	03/16/2016	2 - 3	0.00519	<0.00519	0.0156	<0.0156	0.0156	<0.0156	0.0156	<0.0156	0.223	<0.223	11.0	203	11.0	107	11.0	310	10.9	287	529	3,120
	06/01/2016	2 - 3	0.00497	<0.00497	0.0149	<0.0149	0.0149	<0.0149	0.0149	<0.0149	0.203	<0.203	10.2	<10.2	10.2	<10.2	10.2	<10.2	10.7	<10.7	47.2	882
	09/20/2016	2 - 3	0.00509	<0.00509	0.0153	<0.0153	0.0153	<0.0153	0.0153	<0.0153	0.225	<0.225	10.7	<10.7	10.7	<10.7	10.7	<10.7	11.0	<11.0	48.4	289
6	03/16/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0	*	*	*	*
	06/01/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09/20/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX, Permian Basin Environmental Lab, Midland, TX and Trace Analysis, Inc., Lubbock, TX

BTEX by EPA SW-846 method 8021B (BTEX)

TPH by EPA SW 846 method 8015M (GRO and DRO)

TRPH by EPA SW-846 method 418.1

Results are reported in milligram per Kilograms (mg/Kg).

RL: Reporting limit (equivalent to practical quantification limit (PQL))

1. <: Less than method reporting limit

2. Depth in feet below native ground surface

J: Analyte detected between MDL and RL

N: Parameter not NELAC certified

Analyte detected above reporting limit (RL) equivalent to practical quantitation limit (PQL)

Analyte reported above the mean background concentration

## FIGURES



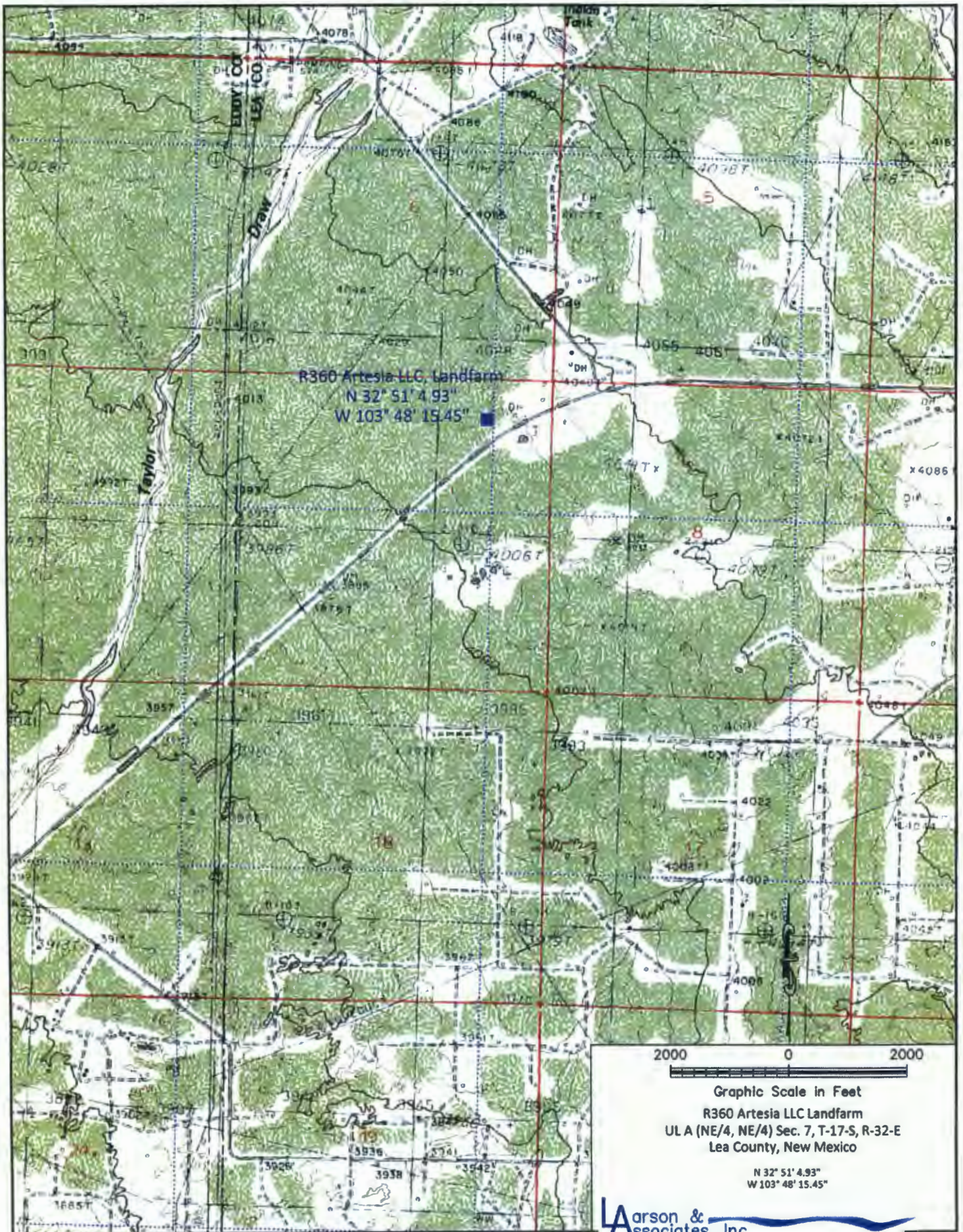


Figure 1 - Topographic Map





Figure 2 - Aerial Map



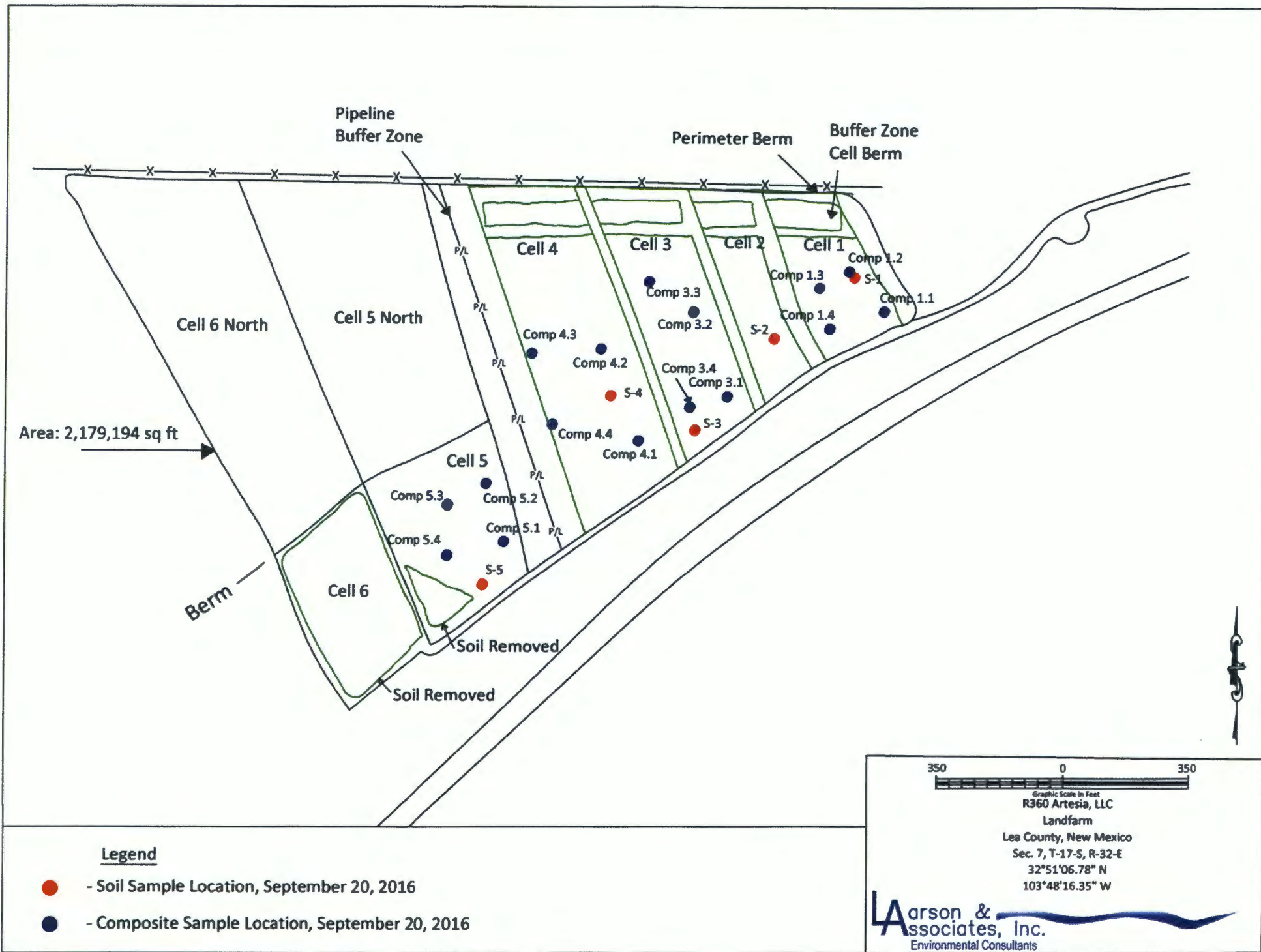


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

**APPENDIX A**  
**Laboratory Report**



September 30, 2016

Mark Larson  
Larson & Associates  
507 N. Marienfeld #200  
Midland, TX 79701  
TEL: (432) 687-0901  
FAX (432) 687-0456

Order No.: 1609206

RE: R360 Artesia Aeration Landfarm NM

Dear Mark Larson:

DHL Analytical, Inc. received 9 sample(s) on 9/22/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification  
Number: T104704211-16-16



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2300 Double Creek Dr. ■ Round Rock, TX 78664  
 Phone (512) 388-8222 ■ FAX (512) 388-8229  
 Web: [www.dhlanalytical.com](http://www.dhlanalytical.com)  
 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 70834  
**CHAIN-OF-CUSTODY**

CLIENT: Larson 3 Associates  
 ADDRESS: 507 N. Marimfeld St. Ste 205, Midland Tx  
 PHONE: 432 687 0901 FAX/E-MAIL: mark @ LAenvironmental.com  
 DATA REPORTED TO: Mark @ LAenvironmental.com  
 ADDITIONAL REPORT COPIES TO:

DATE: 9/21/16 PAGE 1 OF 1  
 PO #: \_\_\_\_\_ DHL WORK ORDER #: 1609206  
 PROJECT LOCATION OR NAME: R360 Artesia Aeration Landfarm NM  
 CLIENT PROJECT #: 15-0121-01 COLLECTOR: Travis Williams

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION					ANALYSES	FIELD NOTES		
							HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> / NaOH	ICE	UNPRESERVED				
Cell 5 Comp	01	9/20/16	10:45	S	Glass	2			X		✓	✓	✓		
Cell 4 Comp	02		11:00								✓	✓	✓		
Cell 3 Comp	03		11:05								✓	✓	✓		
Cell 1 Comp	04		11:15								✓	✓	✓		
Cell 1 (2-3)	05		12:15								✓	✓	✓		
Cell 2 (2-3)	06		12:20								✓	✓	✓		
Cell 3 (2-3)	07		12:45								✓	✓	✓		
Cell 4 (2-3)	08		1:05								✓	✓	✓		
Cell 5 (2-3)	09		1:30								✓	✓	✓		

**ANALYSES ORG 8015**  
 BTEX BY MIBK □ (METHOD 8021)  
 TPH 1006 □ HOLD 1006 □  
 GRO METHOD 8015 □  
 VOC 8260 □ VOC 624 □ VOC 8260/8263 □  
 8270 PEST □ 8270 PEST □ 8270 PEST □ 8270 PEST □  
 8270 Q-P PEST □ 8270 PEST □ 8270 PEST □  
 METALS 8290 □ METALS 2008 □ DES-METALS □  
 PCRA □ TX11 □  
 PHO HEL-CROM □ ALKALINITY □ COD □  
 CHLORIDE □ ANIONS-200 □  
 TCLP-METALS □ VOC □  
 RC10 FLASHPOINT □ RC28.80 □ TX11 □  
 TSS □ TSS □ % MOISTURE □ CYANIDE □  
**TPH 418.1**

RELINQUISHED BY: (Signature) <u>T. Williams</u>	DATE/TIME <u>9:45 9/21/16</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP: <u>1.1</u> THERM #: <u>78</u> CUSTODY SEALS: <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> INTACT <input type="checkbox"/> NOT USED CARRIER: <input checked="" type="checkbox"/> LONE STAR <input type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>9/22/16 9:15</u>	RECEIVED BY: (Signature) <u>[Signature]</u>		
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME	RECEIVED BY: (Signature)		

DHL DISPOSAL @ \$5.00 each     Return    **3**



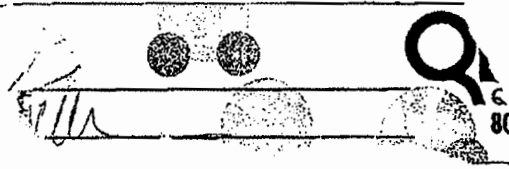
WWW.LSO.COM  
Questions? Call 800-800-8984

Airbill No. 49614848

49614848

<b>1. To:</b> <small>Print Name (Person)</small> <b>J. Bacher</b> <small>Phone (Important)</small> <b>(512) 386-8222</b>		<b>2. From:</b> <small>Print Name (Person)</small> <b>IMPSON &amp; ASSOCIATES</b> <small>Phone (Important)</small> <b>432-607-0991</b>	
<small>Company Name</small> <b>DHL Analytical</b>		<small>Company Name</small> <b>IMPSON &amp; ASSOCIATES</b>	
<small>Street Address (No P.O. Box or P.O. Box Zip Code/Deliveries)</small> <b>2820 Double Creek Drive</b>		<small>Street Address</small> <b>807 NORTH WAREFIELD</b>	
<small>Suite / Floor</small> 		<small>Suite / Floor</small> <b>205</b>	
<small>City</small> <b>Round Rock</b>	<small>State</small> <b>Tx</b>	<small>City</small> <b>WHEATLAND</b>	<small>State</small> <b>TN</b>
<small>Zip</small> <b>78664</b>		<small>Zip</small> <b>37091</b>	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>4. Package:</b> <small>Weight:</small>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. to most cities</small>		<input type="checkbox"/> <b>LSO Ground</b>	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>		<input type="checkbox"/> <b>LSO Saturday*</b>	
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>		<input type="checkbox"/> <b>Other</b> _____	
<input type="checkbox"/> <b>LSO 2nd Day*</b>		<small>*Check commitment times and availability at www.lso.com</small>	
<input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>		<small>Assumed LSO Priority Overnight service unless otherwise noted.</small>	
<small>Release Signature</small> _____		<small>Your Company's Billing Reference Information</small> _____	
<small>_____ x W _____ x H _____</small>		<small>Ship Date: (mm/dd/yy)</small> <b>09 / 21 / 16</b>	
		<b>5. Payment:</b>	
		<b>FOR DRIVER USE ONLY</b>	
		<small>Driver Number</small> <b>11337</b>	
		<input type="checkbox"/> <small>Check here if LSO Supplies are used with LSO Ground Service.</small>	
		<small>Pick-up Location</small> <b>2110</b>	
		<small>Date:</small> <b>09/21/16</b>	
		<small>Time:</small> <b>11:30</b>	
		<small>City Code:</small> <b>WHEATLAND</b>	

**LIMIT OF LIABILITY:** We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value (not to exceed \$25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. NO DELIVERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERNIGHT SERVICE. PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON LSO GROUND SERVICE. OVSZIE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.





DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 9/22/2016

Work Order Number 1609206

Received by JT

Checklist completed by: [Signature] 9/22/2016  
Signature Date

Reviewed by: [Initials] 9/22/2016  
Initials Date

Carrier name LoneStar

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  1.1 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Any No response must be detailed in the comments section below.

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

Corrective Action \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Lab Order:** 1609206

**CASE NARRATIVE**

Sample was analyzed using the methods outlined in the following references:

Method M8015D - DRO Analysis  
Method M8015V - GRO Analysis  
Method E418.1 - Total Recoverable Petroleum Hydrocarbons Analysis (This Parameter is not NELAC Certified)  
Method SW8021B - Volatile Organics by GC Analysis  
Method E300 - Anions Analysis  
Method D2216 - Percent Moisture Analysis

**LOG IN**

The samples were received and log-in performed on 9/22/2016. A total of 9 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: NELAP requires a note that if 5035 sampling method for VOCs and GRO is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised and state environmental regulatory agencies will reject data if submitted for remediation projects. The client has been notified and has requested the Laboratory to proceed with analysis.

**DRO ANALYSIS**

For DRO Analysis, the recovery of surrogate Octacosane for three samples, the Matrix Spike and Matrix Spike Duplicate (1609206-01 MS/MSD) was above the method control limits. These are flagged accordingly in the Analytical Data Report and QC Summary Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

For DRO Analysis, the recoveries/RPD of the Matrix Spike and Matrix Spike Duplicate (1609206-01 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. The associated LCS was within method control limits. No further corrective action was taken.

**TRPH ANALYSIS**

For TRPH Analysis, the recoveries of the Matrix Spike and Matrix Spike Duplicate (1609206-09

---

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Lab Order:** 1609206

**CASE NARRATIVE**

---

MS/MSD) were above the method control limits. These are flagged accordingly in the QC Summary Report. The associated LCS was within method control limits. No further corrective action was taken.

**DHL Analytical, Inc.**

**Date:** 30-Sep-16

---

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Lab Order:** 1609206

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1609206-01	Cell 5 Comp		09/20/16 10:45 AM	9/22/2016
1609206-02	Cell 4 Comp		09/20/16 11:00 AM	9/22/2016
1609206-03	Cell 3 Comp		09/20/16 11:05 AM	9/22/2016
1609206-04	Cell 1 Comp		09/20/16 11:15 AM	9/22/2016
1609206-05	Cell 1 (2-3)		09/20/16 12:15 PM	9/22/2016
1609206-06	Cell 2 (2-3)		09/20/16 12:30 PM	9/22/2016
1609206-07	Cell 3 (2-3)		09/20/16 12:45 PM	9/22/2016
1609206-08	Cell 4 (2-3)		09/20/16 01:05 PM	9/22/2016
1609206-09	Cell 5 (2-3)		09/20/16 01:30 PM	9/22/2016

Lab Order: 1609206  
 Client: Larson & Associates  
 Project: R360 Artesia Acration Landfarm N

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1609206-01A	Cell 5 Comp	09/20/16 10:45 AM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 5 Comp	09/20/16 10:45 AM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 5 Comp	09/20/16 10:45 AM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-01B	Cell 5 Comp	09/20/16 10:45 AM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 5 Comp	09/20/16 10:45 AM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 5 Comp	09/20/16 10:45 AM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 5 Comp	09/20/16 10:45 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-02A	Cell 4 Comp	09/20/16 11:00 AM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 4 Comp	09/20/16 11:00 AM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 4 Comp	09/20/16 11:00 AM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-02B	Cell 4 Comp	09/20/16 11:00 AM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 4 Comp	09/20/16 11:00 AM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 4 Comp	09/20/16 11:00 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
	Cell 4 Comp	09/20/16 11:00 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-03A	Cell 3 Comp	09/20/16 11:05 AM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 3 Comp	09/20/16 11:05 AM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 3 Comp	09/20/16 11:05 AM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-03B	Cell 3 Comp	09/20/16 11:05 AM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 3 Comp	09/20/16 11:05 AM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 3 Comp	09/20/16 11:05 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
	Cell 3 Comp	09/20/16 11:05 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-04A	Cell 1 Comp	09/20/16 11:15 AM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 1 Comp	09/20/16 11:15 AM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 1 Comp	09/20/16 11:15 AM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-04B	Cell 1 Comp	09/20/16 11:15 AM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 1 Comp	09/20/16 11:15 AM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 1 Comp	09/20/16 11:15 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-05A	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377

Lab Order: 1609206  
 Client: Larson & Associates  
 Project: R360 Artesia Aeration Landfarm N

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1609206-05B	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 1 (2-3)	09/20/16 12:15 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-06A	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-06B	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 2 (2-3)	09/20/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-07A	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-07B	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 3 (2-3)	09/20/16 12:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-08A	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-08B	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 4 (2-3)	09/20/16 01:05 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372
1609206-09A	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	E300	Anion Prep	09/27/16 10:21 AM	77356
	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC	09/27/16 01:46 PM	77360
	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	09/29/16 09:06 AM	77377
1609206-09B	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	D2216	Moisture Preparation	09/27/16 03:54 PM	77365
	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	09/28/16 02:20 PM	77373
	Cell 5 (2-3)	09/20/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	09/28/16 02:01 PM	77372

Lab Order: 1609206  
 Client: Larson & Associates  
 Project: R360 Artesia Aeration Landfarm N

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1609206-01A	Cell 5 Comp	Soil	E300	Anions by IC method - Soil	77356	10	09/27/16 03:43 PM	IC4_160927A
	Cell 5 Comp	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 11:44 AM	GC4_160929A
	Cell 5 Comp	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 03:48 PM	GC4_160927A
1609206-01B	Cell 5 Comp	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 5 Comp	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 11:31 AM	GC15_160929A
	Cell 5 Comp	Soil	M8015D	TPH Extractable by GC - Soil	77373	10	09/29/16 12:09 PM	GC15_160929A
	Cell 5 Comp	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-02A	Cell 4 Comp	Soil	E300	Anions by IC method - Soil	77356	1	09/27/16 12:08 PM	IC4_160927A
	Cell 4 Comp	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 12:08 PM	GC4_160929A
	Cell 4 Comp	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 04:13 PM	GC4_160927A
1609206-02B	Cell 4 Comp	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 4 Comp	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 12:55 PM	GC15_160929A
	Cell 4 Comp	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-03A	Cell 3 Comp	Soil	E300	Anions by IC method - Soil	77356	1	09/27/16 12:23 PM	IC4_160927A
	Cell 3 Comp	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 12:33 PM	GC4_160929A
	Cell 3 Comp	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 04:37 PM	GC4_160927A
1609206-03B	Cell 3 Comp	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 3 Comp	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 01:31 PM	GC15_160929A
	Cell 3 Comp	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-04A	Cell 1 Comp	Soil	E300	Anions by IC method - Soil	77356	10	09/27/16 03:58 PM	IC4_160927A
	Cell 1 Comp	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 12:57 PM	GC4_160929A
	Cell 1 Comp	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 05:01 PM	GC4_160927A
1609206-04B	Cell 1 Comp	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 1 Comp	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 10:37 AM	GC15_160929A
	Cell 1 Comp	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-05A	Cell 1 (2-3)	Soil	E300	Anions by IC method - Soil	77356	1	09/27/16 12:53 PM	IC4_160927A
	Cell 1 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 01:21 PM	GC4_160929A
	Cell 1 (2-3)	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 05:25 PM	GC4_160927A

Lab Order: 1609206  
 Client: Larson & Associates  
 Project: R360 Artesia Aeration Landfarm N

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1609206-05B	Cell 1 (2-3)	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 1 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 10:46 AM	GC15_160929A
	Cell 1 (2-3)	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-06A	Cell 2 (2-3)	Soil	E300	Anions by IC method - Soil	77356	10	09/27/16 04:13 PM	IC4_160927A
	Cell 2 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 01:44 PM	GC4_160929A
	Cell 2 (2-3)	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 05:49 PM	GC4_160927A
1609206-06B	Cell 2 (2-3)	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 2 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 10:55 AM	GC15_160929A
	Cell 2 (2-3)	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-07A	Cell 3 (2-3)	Soil	E300	Anions by IC method - Soil	77356	1	09/27/16 01:23 PM	IC4_160927A
	Cell 3 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 02:08 PM	GC4_160929A
	Cell 3 (2-3)	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 06:13 PM	GC4_160927A
1609206-07B	Cell 3 (2-3)	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 3 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 11:04 AM	GC15_160929A
	Cell 3 (2-3)	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-08A	Cell 4 (2-3)	Soil	E300	Anions by IC method - Soil	77356	1	09/27/16 01:38 PM	IC4_160927A
	Cell 4 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 02:32 PM	GC4_160929A
	Cell 4 (2-3)	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 06:37 PM	GC4_160927A
1609206-08B	Cell 4 (2-3)	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 4 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 11:13 AM	GC15_160929A
	Cell 4 (2-3)	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A
1609206-09A	Cell 5 (2-3)	Soil	E300	Anions by IC method - Soil	77356	10	09/27/16 04:28 PM	IC4_160927A
	Cell 5 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	77377	1	09/29/16 02:56 PM	GC4_160929A
	Cell 5 (2-3)	Soil	SW8021B	Volatile Organics by GC	77360	1	09/27/16 07:01 PM	GC4_160927A
1609206-09B	Cell 5 (2-3)	Soil	D2216	Percent Moisture	77365	1	09/28/16 08:20 AM	PMOIST_160927A
	Cell 5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	77373	1	09/29/16 11:22 AM	GC15_160929A
	Cell 5 (2-3)	Soil	E418.1	TRPH	77372	1	09/28/16 04:15 PM	IR207_160928A



**DHL Analytical, Inc.**

Date: 30-Sep-16

CLIENT: Larson & Associates  
 Project: R360 Artesia Aeration Landfarm NM  
 Project No: 15-0121-01  
 Lab Order: 1609206

Client Sample ID: Cell 5 Comp  
 Lab ID: 1609206-01  
 Collection Date: 09/20/16 10:45 AM  
 Matrix: SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>DB</b>			
TPH-DRO C10-C28	422	109	109		mg/Kg-dry	10	09/29/16 12:09 PM
TPH-ORO >C28-C35	322	109	109		mg/Kg-dry	10	09/29/16 12:09 PM
Surr: Isopropylbenzene	73.5	0	47-142		%REC	10	09/29/16 12:09 PM
Surr: Octacosane	388	0	25-162	S	%REC	10	09/29/16 12:09 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	<0.199	0.0995	0.199		mg/Kg-dry	1	09/29/16 11:44 AM
Surr: Tetrachlorethene	110	0	70-134		%REC	1	09/29/16 11:44 AM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>AV</b>			
Benzene	<0.00499	0.00300	0.00499		mg/Kg-dry	1	09/27/16 03:48 PM
Ethylbenzene	<0.0150	0.00499	0.0150		mg/Kg-dry	1	09/27/16 03:48 PM
Toluene	<0.0150	0.00499	0.0150		mg/Kg-dry	1	09/27/16 03:48 PM
Xylenes, Total	<0.0150	0.00499	0.0150		mg/Kg-dry	1	09/27/16 03:48 PM
Surr: Tetrachloroethene	104	0	79-135		%REC	1	09/27/16 03:48 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>DEW</b>			
Petroleum Hydrocarbons, TR	357	5.53	11.1	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	1120	53.9	53.9		mg/Kg-dry	10	09/27/16 03:43 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>SP</b>			
Percent Moisture	11.4	0	0		WT%	1	09/28/16 08:20 AM

Qualifiers: \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 4 Comp  
**Lab ID:** 1609206-02  
**Collection Date:** 09/20/16 11:00 AM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	159	10.5	10.5		mg/Kg-dry	1	09/29/16 12:55 PM
TPH-ORO >C28-C35	134	10.5	10.5		mg/Kg-dry	1	09/29/16 12:55 PM
Surr: Isopropylbenzene	82.3	0	47-142		%REC	1	09/29/16 12:55 PM
Surr: Octacosane	210	0	25-162	S	%REC	1	09/29/16 12:55 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.196	0.0982	0.196		mg/Kg-dry	1	09/29/16 12:08 PM
Surr: Tetrachlorethene	114	0	70-134		%REC	1	09/29/16 12:08 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00465	0.00279	0.00465		mg/Kg-dry	1	09/27/16 04:13 PM
Ethylbenzene	<0.0140	0.00465	0.0140		mg/Kg-dry	1	09/27/16 04:13 PM
Toluene	<0.0140	0.00465	0.0140		mg/Kg-dry	1	09/27/16 04:13 PM
Xylenes, Total	<0.0140	0.00465	0.0140		mg/Kg-dry	1	09/27/16 04:13 PM
Surr: Tetrachloroethene	106	0	79-135		%REC	1	09/27/16 04:13 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	110	5.02	10.0	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	81.4	5.14	5.14		mg/Kg-dry	1	09/27/16 12:05 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	5.41	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- B Analyte detected in the associated Method Blank
- C Sample Result or QC discussed in the Case Narrative
- DF Dilution Factor
- E TPH pattern not Gas or Diesel Range Pattern
- J Analyte detected between MDL and RL
- MDL Method Detection Limit
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- S Spike Recovery outside control limits
- N Parameter not NELAC certified

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 3 Comp  
**Lab ID:** 1609206-03  
**Collection Date:** 09/20/16 11:05 AM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	136	9.89	9.89		mg/Kg-dry	1	09/29/16 01:31 PM
TPH-ORO >C28-C35	106	9.89	9.89		mg/Kg-dry	1	09/29/16 01:31 PM
Surr: Isopropylbenzene	87.4	0	47-142		%REC	1	09/29/16 01:31 PM
Surr: Octacosane	187	0	25-162	S	%REC	1	09/29/16 01:31 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.183	0.0913	0.183		mg/Kg-dry	1	09/29/16 12:33 PM
Surr: Tetrachlorethene	112	0	70-134		%REC	1	09/29/16 12:33 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00471	0.00283	0.00471		mg/Kg-dry	1	09/27/16 04:37 PM
Ethylbenzene	<0.0141	0.00471	0.0141		mg/Kg-dry	1	09/27/16 04:37 PM
Toluene	<0.0141	0.00471	0.0141		mg/Kg-dry	1	09/27/16 04:37 PM
Xylenes, Total	<0.0141	0.00471	0.0141		mg/Kg-dry	1	09/27/16 04:37 PM
Surr: Tetrachloroethene	102	0	79-135		%REC	1	09/27/16 04:37 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	102	5.19	10.4	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	112	5.17	5.17		mg/Kg-dry	1	09/27/16 12:23 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	4.23	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 1 Comp  
**Lab ID:** 1609206-04  
**Collection Date:** 09/20/16 11:15 AM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	15.4	11.6	11.6		mg/Kg-dry	1	09/29/16 10:37 AM
TPH-ORO >C28-C35	<11.6	11.6	11.6		mg/Kg-dry	1	09/29/16 10:37 AM
Surr: Isopropylbenzene	81.1	0	47-142		%REC	1	09/29/16 10:37 AM
Surr: Octacosane	113	0	25-162		%REC	1	09/29/16 10:37 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.234	0.117	0.234		mg/Kg-dry	1	09/29/16 12:57 PM
Surr: Tetrachlorethene	114	0	70-134		%REC	1	09/29/16 12:57 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00543	0.00326	0.00543		mg/Kg-dry	1	09/27/16 05:01 PM
Ethylbenzene	<0.0163	0.00543	0.0163		mg/Kg-dry	1	09/27/16 05:01 PM
Toluene	<0.0163	0.00543	0.0163		mg/Kg-dry	1	09/27/16 05:01 PM
Xylenes, Total	<0.0163	0.00543	0.0163		mg/Kg-dry	1	09/27/16 05:01 PM
Surr: Tetrachloroethene	101	0	79-135		%REC	1	09/27/16 05:01 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	15.1	5.73	11.5	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	302	50.9	50.9		mg/Kg-dry	10	09/27/16 03:58 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	16.6	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 1 (2-3)  
**Lab ID:** 1609206-05  
**Collection Date:** 09/20/16 12:15 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	<10.9	10.9	10.9		mg/Kg-dry	1	09/29/16 10:46 AM
TPH-ORO >C28-C35	<10.9	10.9	10.9		mg/Kg-dry	1	09/29/16 10:46 AM
Surr: Isopropylbenzene	76.1	0	47-142		%REC	1	09/29/16 10:46 AM
Surr: Octacosane	93.5	0	25-162		%REC	1	09/29/16 10:46 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.222	0.111	0.222		mg/Kg-dry	1	09/29/16 01:21 PM
Surr: Tetrachlorethene	124	0	70-134		%REC	1	09/29/16 01:21 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00518	0.00311	0.00518		mg/Kg-dry	1	09/27/16 05:25 PM
Ethylbenzene	<0.0155	0.00518	0.0155		mg/Kg-dry	1	09/27/16 05:25 PM
Toluene	<0.0155	0.00518	0.0155		mg/Kg-dry	1	09/27/16 05:25 PM
Xylenes, Total	<0.0155	0.00518	0.0155		mg/Kg-dry	1	09/27/16 05:25 PM
Surr: Tetrachloroethene	106	0	79-135		%REC	1	09/27/16 05:25 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.1	5.55	11.1	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	38.6	5.40	5.40		mg/Kg-dry	1	09/27/16 12:53 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	11.9	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 2 (2-3)  
**Lab ID:** 1609206-06  
**Collection Date:** 09/20/16 12:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	<10.9	10.9	10.9		mg/Kg-dry	1	09/29/16 10:55 AM
TPH-ORO >C28-C35	<10.9	10.9	10.9		mg/Kg-dry	1	09/29/16 10:55 AM
Surr: Isopropylbenzene	86.5	0	47-142		%REC	1	09/29/16 10:55 AM
Surr: Octacosane	97.1	0	25-162		%REC	1	09/29/16 10:55 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.223	0.112	0.223		mg/Kg-dry	1	09/29/16 01:44 PM
Surr: Tetrachlorethene	117	0	70-134		%REC	1	09/29/16 01:44 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00553	0.00332	0.00553		mg/Kg-dry	1	09/27/16 05:49 PM
Ethylbenzene	<0.0166	0.00553	0.0166		mg/Kg-dry	1	09/27/16 05:49 PM
Toluene	<0.0166	0.00553	0.0166		mg/Kg-dry	1	09/27/16 05:49 PM
Xylenes, Total	<0.0166	0.00553	0.0166		mg/Kg-dry	1	09/27/16 05:49 PM
Surr: Tetrachloroethene	107	0	79-135		%REC	1	09/27/16 05:49 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.0	5.49	11.0	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	331	55.3	55.3		mg/Kg-dry	10	09/27/16 04:13 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	12.3	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 3 (2-3)  
**Lab ID:** 1609206-07  
**Collection Date:** 09/20/16 12:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	<11.2	11.2	11.2		mg/Kg-dry	1	09/29/16 11:04 AM
TPH-ORO >C28-C35	<11.2	11.2	11.2		mg/Kg-dry	1	09/29/16 11:04 AM
Surr: Isopropylbenzene	85.6	0	47-142		%REC	1	09/29/16 11:04 AM
Surr: Octacosane	95.4	0	25-162		%REC	1	09/29/16 11:04 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.202	0.101	0.202		mg/Kg-dry	1	09/29/16 02:08 PM
Surr: Tetrachlorethene	115	0	70-134		%REC	1	09/29/16 02:08 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00547	0.00328	0.00547		mg/Kg-dry	1	09/27/16 06:13 PM
Ethylbenzene	<0.0164	0.00547	0.0164		mg/Kg-dry	1	09/27/16 06:13 PM
Toluene	<0.0164	0.00547	0.0164		mg/Kg-dry	1	09/27/16 06:13 PM
Xylenes, Total	<0.0164	0.00547	0.0164		mg/Kg-dry	1	09/27/16 06:13 PM
Surr: Tetrachloroethene	103	0	79-135		%REC	1	09/27/16 06:13 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	6.68	5.35	10.7	JN	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	<5.26	5.26	5.26		mg/Kg-dry	1	09/27/16 01:23 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	12.0	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 4 (2-3)  
**Lab ID:** 1609206-08  
**Collection Date:** 09/20/16 01:05 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	<11.7	11.7	11.7		mg/Kg-dry	1	09/29/16 11:13 AM
TPH-ORO >C28-C35	<11.7	11.7	11.7		mg/Kg-dry	1	09/29/16 11:13 AM
Surr: Isopropylbenzene	86.3	0	47-142		%REC	1	09/29/16 11:13 AM
Surr: Octacosane	97.9	0	25-162		%REC	1	09/29/16 11:13 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.230	0.115	0.230		mg/Kg-dry	1	09/29/16 02:32 PM
Surr: Tetrachlorethene	119	0	70-134		%REC	1	09/29/16 02:32 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00573	0.00344	0.00573		mg/Kg-dry	1	09/27/16 06:37 PM
Ethylbenzene	<0.0172	0.00573	0.0172		mg/Kg-dry	1	09/27/16 06:37 PM
Toluene	<0.0172	0.00573	0.0172		mg/Kg-dry	1	09/27/16 06:37 PM
Xylenes, Total	<0.0172	0.00573	0.0172		mg/Kg-dry	1	09/27/16 06:37 PM
Surr: Tetrachloroethene	101	0	79-135		%REC	1	09/27/16 06:37 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.1	5.54	11.1	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	165	5.88	5.88		mg/Kg-dry	1	09/27/16 01:38 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	15.6	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 30-Sep-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

**Client Sample ID:** Cell 5 (2-3)  
**Lab ID:** 1609206-09  
**Collection Date:** 09/20/16 01:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: DB</b>			
TPH-DRO C10-C28	<10.7	10.7	10.7		mg/Kg-dry	1	09/29/16 11:22 AM
TPH-ORO >C28-C35	<10.7	10.7	10.7		mg/Kg-dry	1	09/29/16 11:22 AM
Surr: Isopropylbenzene	81.5	0	47-142		%REC	1	09/29/16 11:22 AM
Surr: Octacosane	97.0	0	25-162		%REC	1	09/29/16 11:22 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.225	0.112	0.225		mg/Kg-dry	1	09/29/16 02:56 PM
Surr: Tetrachlorethene	114	0	70-134		%REC	1	09/29/16 02:56 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00509	0.00305	0.00509		mg/Kg-dry	1	09/27/16 07:01 PM
Ethylbenzene	<0.0153	0.00509	0.0153		mg/Kg-dry	1	09/27/16 07:01 PM
Toluene	<0.0153	0.00509	0.0153		mg/Kg-dry	1	09/27/16 07:01 PM
Xylenes, Total	<0.0153	0.00509	0.0153		mg/Kg-dry	1	09/27/16 07:01 PM
Surr: Tetrachloroethene	102	0	79-135		%REC	1	09/27/16 07:01 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.0	5.51	11.0	N	mg/Kg-dry	1	09/28/16 04:15 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	289	48.4	48.4		mg/Kg-dry	10	09/27/16 04:28 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: SP</b>			
Percent Moisture	11.1	0	0		WT%	1	09/28/16 08:20 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

CLIENT: Larson & Associates

Work Order: 1609206

Project: R360 Artesia Aeration Landfarm NM

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC15\_160929A

The QC data in batch 77373 applies to the following samples: 1609206-01B, 1609206-02B, 1609206-03B, 1609206-04B, 1609206-05B, 1609206-06B, 1609206-07B, 1609206-08B, 1609206-09B

Sample ID	LCS-77373	Batch ID:	77373	TestNo:	M8015D	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC15_160929A	Analysis Date:	9/29/2016 9:35:05 AM	Prep Date:	9/28/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	107	10.0	125.0	0	85.6	50	114			
Surr: Isopropylbenzene	6.57		7.500		87.6	47	142			
Surr: Octacosane	7.55		7.500		101	25	162			

Sample ID	LCS2-77373	Batch ID:	77373	TestNo:	M8015D	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC15_160929A	Analysis Date:	9/29/2016 9:44:05 AM	Prep Date:	9/28/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	106	10.0	125.0	0	84.6	50	114			
Surr: Isopropylbenzene	6.53		7.500		87.1	47	142			
Surr: Octacosane	7.37		7.500		98.2	25	162			

Sample ID	MB-77373	Batch ID:	77373	TestNo:	M8015D	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC15_160929A	Analysis Date:	9/29/2016 10:11:02 AM	Prep Date:	9/28/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	<10.0	10.0								
TPH-ORO >C28-C35	<10.0	10.0								
Surr: Isopropylbenzene	6.44		7.500		85.9	47	142			
Surr: Octacosane	7.48		7.500		99.8	25	162			

Sample ID	1609206-01BMS	Batch ID:	77373	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC15_160929A	Analysis Date:	9/29/2016 2:08:27 PM	Prep Date:	9/28/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	664	112	139.6	422.5	173	50	114			S
Surr: Isopropylbenzene	6.93		8.378		82.7	47	142			
Surr: Octacosane	33.9		8.378		404	25	162			S

Sample ID	1609206-01BMSD	Batch ID:	77373	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC15_160929A	Analysis Date:	9/29/2016 2:44:23 PM	Prep Date:	9/28/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	482	110	138.0	422.5	43.3	50	114	31.7	30	SR
Surr: Isopropylbenzene	6.52		8.280		78.7	47	142	0	0	
Surr: Octacosane	26.0		8.280		314	25	162	0	0	S

- Qualifiers:
- B Analyte detected in the associated Method Blank
  - J Analyte detected between MDL and RL
  - ND Not Detected at the Method Detection Limit
  - RL Reporting Limit
  - J Analyte detected between SDL and RL
  - DF Dilution Factor
  - MDL Method Detection Limit
  - R RPD outside accepted control limits
  - S Spike Recovery outside control limits
  - N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1609206  
**Project:** R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

**RunID: GC15\_160929A**

Sample ID <b>ICV-160929</b>	Batch ID: <b>R88343</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>GC15_160929A</b>	Analysis Date: <b>9/29/2016 9:24:37 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	492	10.0	500.0	0	98.4	80	120			
Surr: Isopropylbenzene	26.4		25.00		106	80	120			
Surr: Octacosane	26.4		25.00		106	80	120			

Sample ID <b>CCV1-160929</b>	Batch ID: <b>R88343</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>GC15_160929A</b>	Analysis Date: <b>9/29/2016 3:20:17 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	224	10.0	250.0	0	89.7	80	120			
Surr: Isopropylbenzene	12.4		12.50		99.0	80	120			
Surr: Octacosane	11.4		12.50		91.2	80	120			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1609206  
 Project: R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160927A

The QC data in batch 77360 applies to the following samples: 1609206-01A, 1609206-02A, 1609206-03A, 1609206-04A, 1609206-05A, 1609206-06A, 1609206-07A, 1609206-08A, 1609206-09A

Sample ID	Batch ID:	TestNo:	Units:							
LCS-77360	77360	SW8021B	mg/Kg							
SampType:	Run ID:	Analysis Date:	Prep Date:							
LCS	GC4_160927A	9/27/2016 2:21:26 PM	9/27/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0870	0.00500	0.1000	0	87.0	65	113			
Toluene	0.0924	0.0150	0.1000	0	92.4	73	115			
Ethylbenzene	0.0915	0.0150	0.1000	0	91.5	74	118			
Xylenes, Total	0.275	0.0150	0.3000	0	91.7	73	119			
Surr: Tetrachloroethene	0.181		0.2000		90.6	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
MB-77360	77360	SW8021B	mg/Kg							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MBLK	GC4_160927A	9/27/2016 3:09:24 PM	9/27/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00500	0.00500								
Toluene	<0.0150	0.0150								
Ethylbenzene	<0.0150	0.0150								
Xylenes, Total	<0.0150	0.0150								
Surr: Tetrachloroethene	0.203		0.2000		102	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
1609206-09AMS	77360	SW8021B	mg/Kg-dry							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MS	GC4_160927A	9/27/2016 7:26:01 PM	9/27/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0936	0.00514	0.1028	0	91.0	65	113			
Toluene	0.0969	0.0154	0.1028	0	94.2	73	115			
Ethylbenzene	0.0954	0.0154	0.1028	0	92.8	74	118			
Xylenes, Total	0.292	0.0154	0.3085	0	94.5	73	119			
Surr: Tetrachloroethene	0.197		0.2057		95.6	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
1609206-09AMSD	77360	SW8021B	mg/Kg-dry							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MSD	GC4_160927A	9/27/2016 7:50:22 PM	9/27/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0897	0.00487	0.09750	0	92.0	65	113	4.31	30	
Toluene	0.0939	0.0146	0.09750	0	96.3	73	115	3.15	30	
Ethylbenzene	0.0927	0.0146	0.09750	0	95.1	74	118	2.93	30	
Xylenes, Total	0.280	0.0146	0.2925	0	95.9	73	119	3.91	30	
Surr: Tetrachloroethene	0.188		0.1950		96.2	79	135		0	

**Qualifiers:**

B Analyte detected in the associated Method Blank	DF Dilution Factor
J Analyte detected between MDL and RL	MDL Method Detection Limit
ND Not Detected at the Method Detection Limit	R RPD outside accepted control limits
RL Reporting Limit	S Spike Recovery outside control limits
J Analyte detected between SDL and RL	N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1609206  
 Project: R360 Artesia Aeration Landfarm NM

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC4\_160927A

Sample ID	ICV-160927	Batch ID:	R88323	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	ICV	Run ID:	GC4_160927A	Analysis Date:	9/27/2016 1:41:12 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.181	0.00500	0.2000	0	90.6	80	120			
Toluene	0.188	0.0150	0.2000	0	93.9	80	120			
Ethylbenzene	0.190	0.0150	0.2000	0	95.1	80	120			
Xylenes, Total	0.605	0.0150	0.6000	0	101	80	120			
Surr: Tetrachloroethene	0.201		0.2000		100	79	135			

Sample ID	CCV1-160927	Batch ID:	R88323	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_160927A	Analysis Date:	9/27/2016 8:38:18 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0928	0.00500	0.1000	0	92.8	80	120			
Toluene	0.0971	0.0150	0.1000	0	97.1	80	120			
Ethylbenzene	0.0966	0.0150	0.1000	0	96.6	80	120			
Xylenes, Total	0.290	0.0150	0.3000	0	96.6	80	120			
Surr: Tetrachloroethene	0.200		0.2000		100	79	135			

Qualifiers: B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1609206  
 Project: R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160929A

The QC data in batch 77377 applies to the following samples: 1609206-01A, 1609206-02A, 1609206-03A, 1609206-04A, 1609206-05A, 1609206-06A, 1609206-07A, 1609206-08A, 1609206-09A

Sample ID	LCS-77377	Batch ID:	77377	TestNo:	M8015V	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC4_160929A	Analysis Date:	9/29/2016 9:46:50 AM	Prep Date:	9/29/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	2.39	0.200	2.500	0	95.8	68	126			
Surr: Tetrachlorethene	0.391		0.4000		97.7	70	134			

Sample ID	MB-77377	Batch ID:	77377	TestNo:	M8015V	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC4_160929A	Analysis Date:	9/29/2016 10:58:38 AM	Prep Date:	9/29/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	<0.200	0.200								
Surr: Tetrachlorethene	0.454		0.4000		113	70	134			

Sample ID	1609206-09AMS	Batch ID:	77377	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC4_160929A	Analysis Date:	9/29/2016 3:20:26 PM	Prep Date:	9/29/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	2.38	0.207	2.590	0	91.7	68	126			
Surr: Tetrachlorethene	0.429		0.4144		103	70	134			

Sample ID	1609206-09AMSD	Batch ID:	77377	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC4_160929A	Analysis Date:	9/29/2016 3:44:32 PM	Prep Date:	9/29/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	2.67	0.219	2.742	0	97.5	68	126	11.8	30	
Surr: Tetrachlorethene	0.459		0.4386		105	70	134	0	0	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1609206  
**Project:** R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

**RunID:** GC4\_160929A

Sample ID: <b>ICV-160929</b>	Batch ID: <b>R88351</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GC4_160929A</b>	Analysis Date: <b>9/29/2016 8:55:53 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.38	0.200	5.000	0	87.6	80	120			
Surr: Tetrachlorethene	0.302		0.4000		75.5	70	134			

Sample ID: <b>CCV1-160929</b>	Batch ID: <b>R88351</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>GC4_160929A</b>	Analysis Date: <b>9/29/2016 4:12:04 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	2.62	0.200	2.500	0	105	80	120			
Surr: Tetrachlorethene	0.373		0.4000		93.3	70	134			

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL                                      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit                              R RPD outside accepted control limits  
 RL Reporting Limit    S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL    N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1609206  
 Project: R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

RunID: IC4\_160927A

The QC data in batch 77356 applies to the following samples: 1609206-01A, 1609206-02A, 1609206-03A, 1609206-04A, 1609206-05A, 1609206-06A, 1609206-07A, 1609206-08A, 1609206-09A

Sample ID: <b>MB-77356</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>MBLK</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 10:57:53 AM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<5.00	5.00								

Sample ID: <b>LCS-77356</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCS</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 11:12:53 AM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	51.8	5.00	50.00	0	104	80	120			

Sample ID: <b>LCSD-77356</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCSD</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 11:27:53 AM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	52.0	5.00	50.00	0	104	80	120	0.356	20	

Sample ID: <b>1609206-05A-DUP</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>DUP</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 2:58:25 PM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	44.5	5.34	0	38.59				14.2	20	

Sample ID: <b>1609206-05AMS</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 3:13:25 PM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	163	5.50	110.0	38.59	113	80	120			

Sample ID: <b>1609206-05AMSD</b>	Batch ID: <b>77356</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 3:28:25 PM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	162	5.48	109.6	38.59	113	80	120	0.452	20	

**Qualifiers:**

B Analyte detected in the associated Method Blank	DF Dilution Factor
J Analyte detected between MDL and RL	MDL Method Detection Limit
ND Not Detected at the Method Detection Limit	R RPD outside accepted control limits
RL Reporting Limit	S Spike Recovery outside control limits
J Analyte detected between SDL and RL	N Parameter not NELAC certified



**CLIENT:** Larson & Associates  
**Work Order:** 1609206  
**Project:** R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_160927A**

Sample ID: <b>ICV-160927</b>	Batch ID: <b>R88318</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 10:14:40 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	24.7	5.00	25.00	0	98.7	90	110			
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Sample ID: <b>CCV1-160927</b>	Batch ID: <b>R88318</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 2:23:20 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.5	5.00	10.00	0	105	90	110			
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Sample ID: <b>CCV2-160927</b>	Batch ID: <b>R88318</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>IC4_160927A</b>	Analysis Date: <b>9/27/2016 4:58:25 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride	10.5	5.00	10.00	0	105	90	110			
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<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
--	---

CLIENT: Larson & Associates  
 Work Order: 1609206  
 Project: R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_160928A

The QC data in batch 77372 applies to the following samples: 1609206-01B, 1609206-02B, 1609206-03B, 1609206-04B, 1609206-05B, 1609206-06B, 1609206-07B, 1609206-08B, 1609206-09B

Sample ID	ICV-160928	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg				
SampType:	ICV	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		224	10.0	250.0	0	89.8	90	110			N

Sample ID	LCS-77372	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg				
SampType:	LCS	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:	9/28/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		107	10.0	100.0	0	107	80	120			N

Sample ID	MB-77372	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg				
SampType:	MBLK	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:	9/28/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		<10.0	10.0								N

Sample ID	1609206-09BMS	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg-dry				
SampType:	MS	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:	9/28/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		137	11.1	110.7	0	124	80	120			SN

Sample ID	1609206-09BMSD	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg-dry				
SampType:	MSD	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:	9/28/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		160	10.9	109.4	0	146	80	120	15.5	20	SN

Sample ID	CCV1-160928	Batch ID:	77372	TestNo:	E418.1	Units:	mg/Kg				
SampType:	CCV	Run ID:	IR207_160928A	Analysis Date:	9/28/2016 4:15:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		226	10.0	250.0	0	90.5	85	115			N

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1609206  
**Project:** R360 Artesia Aeration Landfarm NM

## ANALYTICAL QC SUMMARY REPORT

**RunID:** PMOIST\_160927A

The QC data in batch 77365 applies to the following samples: 1609206-01B, 1609206-02B, 1609206-03B, 1609206-04B, 1609206-05B, 1609206-06B, 1609206-07B, 1609206-08B, 1609206-09B

Sample ID: <b>1609206-01B DUP</b>	Batch ID: <b>77365</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>							
SampType: <b>DUP</b>	Run ID: <b>PMOIST_160927A</b>	Analysis Date: <b>9/28/2016 8:20:00 AM</b>	Prep Date: <b>9/27/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	11.4	0	0	11.37				0.559	30	

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified



PROCESSED

2016 09 12 10 04 33

September 8, 2016

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: 2016 Analytical Results, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New  
Mexico

Mr. Jones:

The enclosed data tables present laboratory results of treatment and vadose soil samples collected at the R360 Artesia, LLC (formerly Artesia Aeration) Landfarm during the second quarter of 2016. You may contact me at (956) 458-0515 or by email at [StephanieG@r360es.com](mailto:StephanieG@r360es.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie Garza".

Stephanie Garza

**R360 Environmental Solutions, LLC**

Attachments

**QUARTERLY  
TREATMENT AND VADOSE ZONE  
MONITORING REPORT  
(June 1, 2016)**

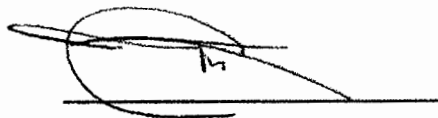
R360 Artesia LLC Landfarm  
Lea County, New Mexico  
Permit No. NM-030

LAI Project No. 15-0121-01

August 10, 2016

Prepared for:  
R360 Environmental Solutions, LLC  
507 N. Marienfeld Street, Suite 205  
Midland, Texas 79701

Prepared by:  
Larson & Associates, Inc.  
507 North Marienfeld Street, Suite 205  
Midland, Texas 79701

A handwritten signature in black ink, appearing to be 'M. Larson', written over a horizontal line.

Mark J. Larson, P.G.  
Texas Professional Geologist #4469

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## 1.0 EXECUTIVE SUMMARY

This report presents the second (2<sup>nd</sup>) quarter 2016 treatment and vadose zone monitoring results for the R360 Artesia, LLC Landfarm (Site). The Site is located in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 171" and west 103° 47' 56.9". The Facility is divided into 6 cells (Cell 1 through Cell 6) ranging in size from about 2.74 acres (Cell 1) to 13.28 acres (Cell 6).

During the second quarter samples were collected from about 1 foot into the treatment zone at cells 1, 3, 4 and 5. No soil has been added to the treatment zone in cell 2 since the New Mexico Oil Conservation Division (OCD) approved adding another lift of contaminated soil therefore no treatment zone samples were collected from cell 2 during the second quarter 2016. Vadose samples were collected between about 2 and 3 feet below cells 1 through 5 during the second quarter. The treatment and vadose zone samples were analyzed for BTEX (sum of benzene, toluene, ethylbenzene and xylene), TPH (total petroleum hydrocarbons), TRPH (total recoverable hydrocarbons (TRPH) and chloride by EPA SW-848 methods 8021B, 8015, 418.1 and 300, respectively.

The following conclusions are drawn from the second (2<sup>nd</sup>) quarter 2016 monitoring event:

- BTEX was below the analytical method reporting limit (RL) in treatment zone samples from cells 1, 3, 4 and 5;
- TPH was below the closure performance standard of 500 milligrams per kilogram (mg/Kg) in treatment zone samples from cells 1 and 3;
- TPH exceeded the closure performance standard in treatment zone samples from cell 4 (671 mg/Kg) and cell 5 (914 mg/Kg);
- TRPH was below the closure performance standard (2,500 mg/Kg) in treatment zone samples from cells 1, 3, 4 and 5 during the second quarter 2016;
- Chloride exceeded the closure performance standard (1,000 mg/Kg) in the treatment zone sample from cell 5 (4,630 mg/Kg);
- BTEX, TPH and TRPH were below the analytical method RL in vadose zone samples from cells 1 through 5 during the second quarter 2016;
- Chloride in exceeded the background concentration (5.04 mg/Kg) in vadose samples from cells 1 through 5 and ranged from 98.2 mg/Kg (cell 1) to 882 mg/Kg (cell 5).

**R360 will continue monthly tilling of cell 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation of hydrocarbons in the treatment zone. R360 will notify OCD District 1 and Santa Fe offices at least 24 hours prior to collecting samples during the third (3<sup>rd</sup>) quarter 2016.**



## **2.0 INTRODUCTION**

This report has been prepared by Larson & Associates, Inc. (LAI) to present vadose and treatment zone monitoring results for the second (2<sup>nd</sup>) quarter of 2016 at the R360 Artesia, LLC (R360) Landfarm (Facility) located in Lea County, New Mexico. The Facility is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (NM-1-0030) for treating exempt oil field waste (i.e., soil and drill cuttings) contaminated predominately by petroleum hydrocarbons.

The Facility occupies approximately 48.4 acres in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 4.93" and west 103° 48' 15.45". The Facility is divided into 6 cells (Cell 1 through Cell 6) ranging in size from about 2.74 acres (Cell 1) to 13.28 acres (Cell 6). Figure 1 presents a detailed topographic map. Figure 2 presents an aerial map. Figure 3 presents a Facility drawing with locations of the first quarter samples.

The Facility was permitted under Artesia Aeration Landfarm on November 29, 1999. R360 acquired the Facility in April 2011 and has not accepted new material since acquiring the Facility.

## **3.0 LANDFARM MONITORING**

### **3.1 Treatment (Tilled) Zone Soil Samples**

Per OCD permit requirements, 4-part composite soil samples were collected from cells 1, 3, 4, and 5 treatment (tilled) zones on June 1, 2016. Treatment zone samples were not collect from cell 2 during the second quarter due to no soil being added to the cell since OCD granted approval for adding another lift of contaminated soil. Samples were collect at about 1 foot into the treatment (tilled) zone using a stainless steel trowel. Sample aliquots were immediately placed in pre-cleaned 4-ounce jars, properly labeled, and iced upon collection. The discrete sample locations were recorded with a Trimble<sup>®</sup> hand held GPS receiver. The samples were shipped via LoneStar Overnight, under chain of custody to DHL Analytical, a National Analytical Laboratory Accreditation Program (NELAP) accredited laboratory located in Round Rock, Texas. The samples were analyzed for benzene, toluene, ethylbenzene and xylene (BTEX), total petroleum hydrocarbons (TPH), total recoverable petroleum hydrocarbons (TRPH) and chloride by EPA SW-846 methods 8021B, 8015, 418.1 and 300, respectively. Table 1 presents the laboratory analytical data summary for the treatment zone samples. Figure 4 presents the treatment zone sample locations. The laboratory report is included in Appendix A.

#### **3.1.1 Organic Sample Results**

BTEX constituents were below the analytical method reporting limits (RL), equivalent to the practical quantitation limit (PQL) and closure performance standards in treatment zone samples from cells 1, 3, 4, and 5 on June 1, 2016.

TPH was below the closure performance standard of 500 milligrams per kilogram (mg/Kg) in treatment zone samples from cell 1 (489 mg/Kg) and cell 3 (264 mg/Kg) on June 1, 2016. The closure performance standard was exceeded in treatment zone samples from cell 4 (671 mg/Kg) and cell 5 (914 mg/Kg) on June 1, 2016. TRPH was below the closure performance standard of 1,000 mg/Kg in treatment zone samples from cells 1, 3, 4 and 5 on June 1, 2016.

### **3.1.2 Chloride Sample Results**

Chloride exceeded the closure performance standard (1,000 mg/kg) in treatment zone samples from cell 5 (4,639 mg/kg) during the second quarter 2016.

## **3.2 Vadose Zone Samples**

Vadose zone samples were collected in native soil approximately 2 to 3 feet below cells 1 through 5. The samples were collected with a Terraprobe® direct push rig equipped with a stainless steel core barrel after removing contaminated (treatment zone soil) from the sample locations. The core barrel was equipped with a polyethylene liner to minimize cross contamination between samples. The polyethylene liner was replaced between samples. The samples were collected in 4-ounce glass containers that were labeled, chilled in an ice chest and delivered to DHL. The laboratory analyzed the samples by EPA SW-846 method 8021B (BTEX), 8015 (TPH), 418.1 (TRPH) and 300 (chloride). The boreholes were filled with bentonite and locations recorded with the Trimble® GPS receiver. Table 2 presents the laboratory analytical data summary for the vadose zone samples. Figure 4 presents the vadose zone sample locations. Appendix A presents the laboratory reports.

### **3.2.1 Organic Sample Results**

BTEX, TPH and TRPH were below the analytical method RL in vadose samples from cell 1 through 5 on June 1, 2016.

### **3.2.2 Chloride Sample Results**

Chloride in the vadose samples ranged from 98.2 mg/Kg (cell 1) to 882 mg/Kg (cell 5) and exceeded the mean background concentration (5.04 mg/Kg) on June 1, 2016.

## **4.0 SUMMARY**

- BTEX was below the analytical method RL and closure performance standards in treatment zone samples from cells 1 through 5 on June 1, 2016;
- TPH was below the closure performance standard (500 ppm) in treatment zone from cells 1 and 3 on June 1, 2016;
- TPH exceeded the closure performance standard in treatment zone samples from cell 4 (671 mg/Kg) and cell 5 (914 mg/Kg) on June 1, 2016;
- BTEX, TPH and TRPH were below the analytical method RL in vadose zone samples from cells 1 through 5 on June 1, 2016;
- Chloride ranged from 98.2 mg/Kg (cell 1) to 882 mg/Kg (cell 5) in vadose samples and exceeded the mean background concentration (5.04 mg/Kg) on June 1, 2016.

R360 will continue monthly tilling of cell 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation of hydrocarbons in the treatment zone. R360 will notify OCD District 1 and Santa Fe offices at least 24 hours prior to collecting samples during the third (3<sup>rd</sup>) quarter 2016.

## TABLES

**Table 1**  
**Treatment Zone Soil Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			<b>0.2</b>	<b>50</b>				<b>500</b>	<b>2,500</b>	<b>1,000</b>
<b>1</b>	03/16/2016	0 - 1	<0.00472	<0.0472	<0.190	<b>366</b>	<b>263</b>	<b>629</b>	<b>836</b>	<b>356</b>
	06/01/2016	0 - 1	<0.00496	<0.0496	<0.180	<b>224</b>	<b>265</b>	<b>489</b>	<b>252</b>	<b>397</b>
<b>2</b>	03/16/2016	0 - 1	*	*	*	*	*	*	*	*
	06/01/2016	0 - 1	*	*	*	*	*	*	*	*
<b>3</b>	03/16/2016	0 - 1	<0.00454	<0.0454	<0.192	<b>273</b>	<b>235</b>	<b>508</b>	<b>644</b>	<b>177</b>
	06/01/2016	0 - 1	<0.00436	<0.0436	<0.186	<b>147</b>	<b>118</b>	<b>265</b>	<b>291</b>	<b>334</b>
<b>4</b>	03/16/2016	0 - 1	<0.00451	<0.0451	<0.200	<b>299</b>	<b>228</b>	<b>527</b>	<b>704</b>	<b>467</b>
	06/01/2016	0 - 1	<0.00483	<0.0483	<0.192	<b>374</b>	<b>297</b>	<b>671</b>	<b>599</b>	<b>279</b>
<b>5</b>	03/16/2016	0 - 1	<0.00493	<0.0493	<0.186	<b>737</b>	<b>669</b>	<b>1,406</b>	<b>2,080</b>	<b>2,100</b>
	06/01/2016	0 - 1	<0.00514	<0.0514	<0.204	<b>467</b>	<b>447</b>	<b>914</b>	<b>498</b>	<b>4,630</b>
<b>6</b>	03/16/2016	0 - 1	**	**	**	**	**	**	**	**
	06/01/2016	0 - 1	**	**	**	**	**	**	**	**

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas by EPA SW-846 methods 8021B (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride)  
 Results are reported in milligram per Kilograms (mg/Kg) equivalent to parts per million (ppm)

RL: Reporting limit (equivalent to practical quantification limit (PQL))

\*Cell approved for additional lift but no soil added to cell at the time of sample collection

\*\*Soil removed from cell and placed as additional layer on Cells 1, 3 and 4

1. <: Less than method reporting limit (equivalent to PQL)

2. Depth in feet within treated soil layer

Table 2  
Vadose Zone Soil BTEX and TPH Analytical Data Summary  
R360 Artesia LLC Landfarm (NM-1-030)  
Lea County, New Mexico

Cell	Date	Depth (feet)	RL	Benzene (mg/Kg)	RL	Ethylbenzene (mg/Kg)	RL	Toluene (mg/Kg)	RL	Xylenes (mg/Kg)	RL	GRO (mg/Kg)	RL	DRO (mg/Kg)	RL	ORO (mg/Kg)	RL	TPH (mg/Kg)	RL	TRPH (mg/Kg)	RL	Chloride (mg/Kg)
Background: Mean Concentration:				<0.00095		<0.00095		<0.00095		<0.00095		--		--		--		--		<4.90		<5.04
Background PQL or RL:				0.0048		0.0048		0.0048		0.0048		--		--		--		--		9.78		5.04
1	03/16/2016	2 - 3	0.00483	<0.00483	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.213	<0.213	11.0	77.4	11.0	48.8	11.0	126.2	10.9	175	5.55	133
	06/01/2016	2 - 3	0.00536	<0.00536	0.0161	<0.0161	0.0161	<0.0161	0.0161	<0.0161	0.204	<0.204	10.6	<10.6	10.6	<10.6	10.6	<10.6	10.5	<10.5	51.0	98.2
2	03/16/2016	2 - 3	0.00551	<0.00551	0.0165	<0.0165	0.0165	<0.0165	0.0165	<0.0165	0.237	<0.237	11.8	<11.8	11.8	4.49 <sup>J</sup>	11.8	4.49 <sup>J</sup>	12.2	<12.2	5.74	14.4
	06/01/2016	2 - 3	0.00558	<0.00558	0.0167	<0.0167	0.0167	<0.0167	0.0167	<0.0167	0.226	<0.226	10.9	<10.9	10.9	<10.9	10.9	<10.9	11.0	<11.0	54.5	328
3	03/16/2016	2 - 3	0.00479	<0.00479	0.0144	<0.0144	0.0144	<0.0144	0.0144	<0.0144	0.189	<0.189	10.2	15.1	10.2	11.4	10.2	26.5	9.85	9.52 <sup>N</sup>	5.01	21.4
	06/01/2016	2 - 3	0.00592	<0.00592	0.0178	<0.0178	0.0178	<0.0178	0.0178	<0.0178	0.239	<0.239	11.5	<11.5	11.5	<11.5	11.5	<11.5	11.8	<11.8	54.4	567
4	03/16/2016	2 - 3	0.00540	<0.00540	0.0162	<0.0162	0.0162	<0.0162	0.0162	<0.0162	0.205	<0.205	10.5	98.7	10.5	82.3	10.5	181	10.7	228	5.31	255
	06/01/2016	2 - 3	0.00484	<0.00484	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.198	<0.198	9.45	<9.45	9.45	<9.45	9.45	<9.45	9.95	<9.95	47.5	192
5	03/16/2016	2 - 3	0.00519	<0.00519	0.0156	<0.0156	0.0156	<0.0156	0.0156	<0.0156	0.223	<0.223	11.0	203	11.0	107	11.0	310	10.9	287	529	3,120
	06/01/2016	2 - 3	0.00497	<0.00497	0.0149	<0.0149	0.0149	<0.0149	0.0149	<0.0149	0.203	<0.203	10.2	<10.2	10.2	<10.2	10.2	<10.2	10.7	<10.7	47.2	882
6	03/16/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0	*	*	*	*
	06/01/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX, Permian Basin Environmental Lab, Midland, TX and Trace Analysis, Inc., Lubbock, TX

BTEX by EPA SW-846 method 8021B (BTEX)

TPH by EPA SW 846 method 8015M (GRO and DRO)

TRPH by EPA SW-846 method 418.1

Results are reported in milligram per kilograms (mg/Kg).

RL: Reporting limit (equivalent to practical quantification limit (PQL))

1. <: Less than method reporting limit

2. Depth in feet below native ground surface

J: Analyte detected between MDL and RL

## FIGURES





Figure 1 - Topographic Map





Figure 2 - Aerial Map



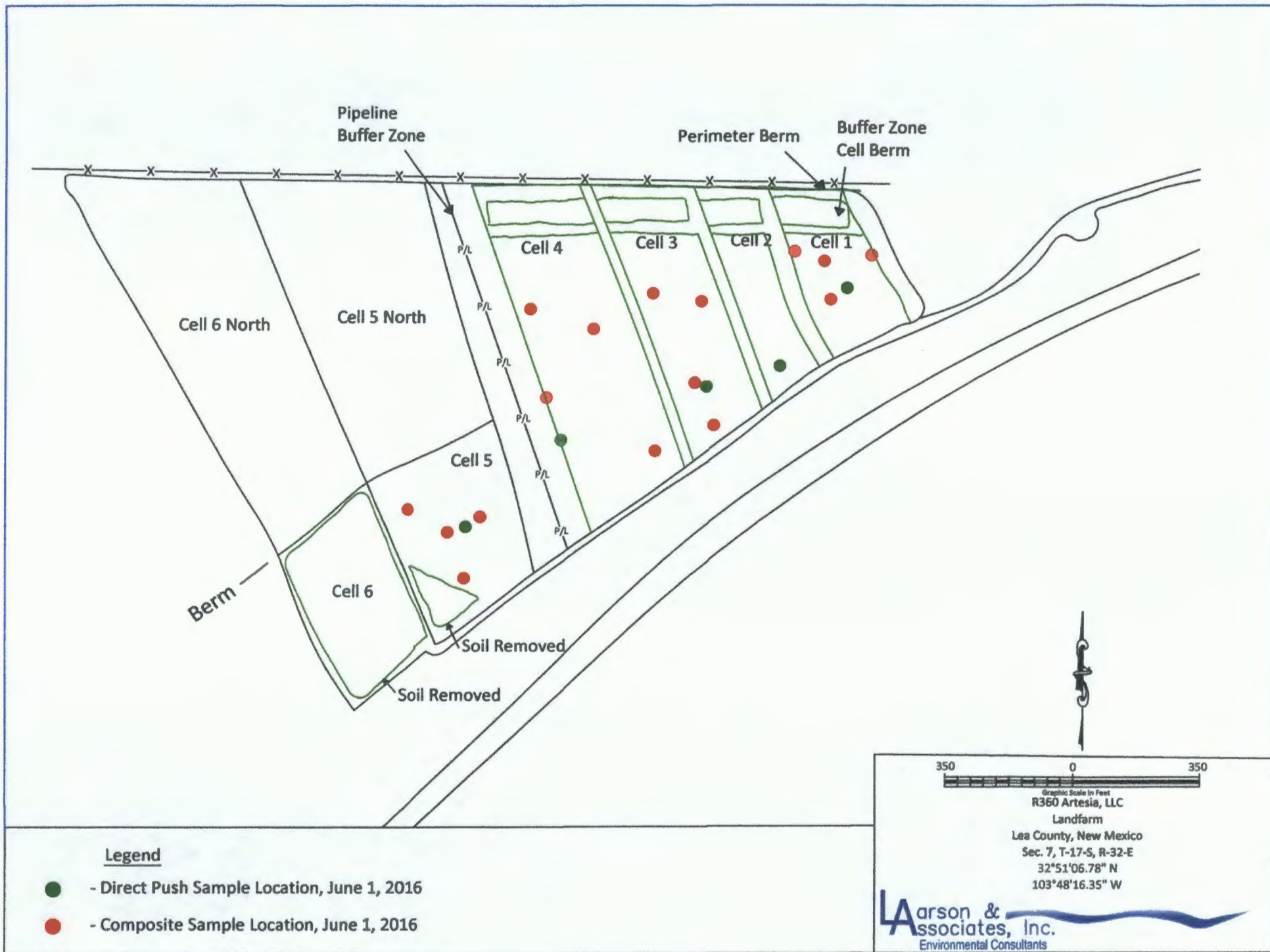


Figure 4 - Site Map Showing Direct Push and Composite Sample Locations, June 1, 2016

**APPENDIX A**  
**Laboratory Report**



June 15, 2016

Mark Larson  
Larson & Associates  
507 N. Marienfeld #200  
Midland, TX 79701  
TEL: (432) 687-0901  
FAX (432) 687-0456  
RE: R360 Artesia Landfarm

Order No.: 1606029

Dear Mark Larson:

DHL Analytical, Inc. received 9 sample(s) on 6/3/2016 for the analyses presented in the following report.

Revision Number 1 for Work Order 1606029: This revision consists of changing Sample Identifications and analyte list, per the client's request. Please replace the original Data Report with this revision.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-16-16



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<b>1. To:</b> <i>J. Barker</i> <small>Print Name (Person) Phone (Important)</small>		<b>2. From:</b> <small>Print Name (Person) Phone (Important)</small>	
Company Name <i>DHL Analytical</i>		Company Name <i>LARSON &amp; ASSOCIATES</i>	
Street Address (No P.O. Box or P.O. Box Zip Code Deliveries) <i>2300 Double Creek Drive</i>		Street Address <i>509 NORTH WATKINSON</i>	
Suite / Floor 		Suite / Floor <i>205</i>	
City <i>Round Rock</i>	State <i>TX</i>	City <i>WILLOWDALE</i>	State <i>OH</i>
Zip <i>78664</i>		Zip <i>43170</i>	
<b>3. Service:</b> Visit <a href="http://www.lso.com">www.lso.com</a> for availability of services to your destination and enjoy added features by creating your shipping label online.		<b>4. Package:</b> Weight: <i>90</i>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. to most cities</small>		<input type="checkbox"/> <b>LSO Ground</b>	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>		<input type="checkbox"/> <b>LSO Saturday*</b>	
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>		<input type="checkbox"/> <b>Other</b> _____	
<input type="checkbox"/> <b>LSO 2nd Day*</b>		<small>*Check commitment times and availability at <a href="http://www.lso.com">www.lso.com</a></small>	
<input type="checkbox"/> <b>Deliver Without Delivery Signature</b> (See Limits of Liability below)		<b>FOR DRIVER USE ONLY</b>	
Release Signature  L _____ x W _____ x H _____		Your Company's Billing Reference Information  Ship Date: (m/d/yyyy) / /	
		Driver Number: <i>1057</i> <input type="checkbox"/> Check here if LSO Scripts are used with LSO Ground Service.	
		Pick-up Location: <i>1057</i> Date: <i>Jan 21/10</i>	
		Time: _____ City Code: _____	
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**CUSTODY SEAL**

DATE

*6-02-2010*

SIGNATURE

*[Signature]*



Quality Environmental Containers  
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 6/3/2016

Work Order Number 1608029

Received by JB

Checklist completed by:

*[Handwritten Signature]*  
Signature

6/3/2016  
Date

Reviewed by

*[Handwritten Initials]*  
Initials

6/3/2016  
Date

Carrier name LoneStar

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  4.2 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Any No response must be detailed in the comments section below.

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1606029

**CASE NARRATIVE**

Sample was analyzed using the methods outlined in the following references:

- Method M8015D - DRO/ORO Analysis
- Method M8015V - GRO Analysis
- Method E418.1 - Total Recoverable Petroleum Hydrocarbons Analysis (This Parameter is not NELAC Certified)
- Method SW8021B - Volatile Organics by GC Analysis
- Method E300 - Anions Analysis
- Method D2216 - Percent Moisture Analysis

**LOG IN**

The samples were received and log-in performed on 6/3/2016. A total of 9 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

**DRO/ORO ANALYSIS**

For DRO/ORO Analysis, the recovery of surrogate Isopropylbenzene for three samples was below the method control limits. These are flagged accordingly in the Analytical Data Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

For DRO/ORO Analysis, the recovery of surrogate Octacosane for four samples was above the method control limits. These are flagged accordingly in the Analytical Data Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: NELAP requires a note that if 5035 sampling method for VOCs and GRO is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised and state environmental regulatory agencies will reject data if submitted for remediation projects. The client has been notified and has requested the Laboratory to proceed with analysis.

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1606029

**Work Order Sample Summary**

---

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1606029-01	Comp1		06/01/16 11:45 AM	6/3/2016
1606029-02	Comp3		06/01/16 12:00 PM	6/3/2016
1606029-03	Comp4		06/01/16 12:30 PM	6/3/2016
1606029-04	Comp5		06/01/16 12:45 PM	6/3/2016
1606029-05	DP5 (2-3)		06/01/16 01:00 PM	6/3/2016
1606029-06	DP4 (2-3)		06/01/16 01:30 PM	6/3/2016
1606029-07	DP3 (2-3)		06/01/16 01:45 PM	6/3/2016
1606029-08	DP2 (2-3)		06/01/16 02:10 PM	6/3/2016
1606029-09	DP1 (2-3)		06/01/16 02:30 PM	6/3/2016

Lab Order: 1606029  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1606029-01A	Comp1	06/01/16 11:45 AM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	Comp1	06/01/16 11:45 AM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	Comp1	06/01/16 11:45 AM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	Comp1	06/01/16 11:45 AM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	Comp1	06/01/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	Comp1	06/01/16 11:45 AM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
1606029-02A	Comp3	06/01/16 12:00 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	Comp3	06/01/16 12:00 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	Comp3	06/01/16 12:00 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	Comp3	06/01/16 12:00 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	Comp3	06/01/16 12:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	Comp3	06/01/16 12:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
1606029-03A	Comp4	06/01/16 12:30 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	Comp4	06/01/16 12:30 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	Comp4	06/01/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	Comp4	06/01/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	Comp4	06/01/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	Comp4	06/01/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
1606029-04A	Comp4	06/01/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
	Comp5	06/01/16 12:45 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	Comp5	06/01/16 12:45 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	Comp5	06/01/16 12:45 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	Comp5	06/01/16 12:45 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	Comp5	06/01/16 12:45 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
1606029-05A	Comp5	06/01/16 12:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	Comp5	06/01/16 12:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	Comp5	06/01/16 12:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
	DP5 (2-3)	06/01/16 01:00 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507

Lab Order: 1606029  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1606029-05A	DP5 (2-3)	06/01/16 01:00 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	DP5 (2-3)	06/01/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	DP5 (2-3)	06/01/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	DP5 (2-3)	06/01/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	DP5 (2-3)	06/01/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
1606029-06A	DP4 (2-3)	06/01/16 01:30 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	DP4 (2-3)	06/01/16 01:30 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	DP4 (2-3)	06/01/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	DP4 (2-3)	06/01/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	DP4 (2-3)	06/01/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
1606029-07A	DP4 (2-3)	06/01/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
	DP3 (2-3)	06/01/16 01:45 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	DP3 (2-3)	06/01/16 01:45 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	DP3 (2-3)	06/01/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	DP3 (2-3)	06/01/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
1606029-08A	DP3 (2-3)	06/01/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	DP3 (2-3)	06/01/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
	DP2 (2-3)	06/01/16 02:10 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	DP2 (2-3)	06/01/16 02:10 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
	DP2 (2-3)	06/01/16 02:10 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
1606029-09A	DP2 (2-3)	06/01/16 02:10 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	DP2 (2-3)	06/01/16 02:10 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506
	DP2 (2-3)	06/01/16 02:10 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629
	DP1 (2-3)	06/01/16 02:30 PM	Soil	E300	Anion Prep	06/08/16 09:25 AM	75507
	DP1 (2-3)	06/01/16 02:30 PM	Soil	D2216	Moisture Preparation	06/08/16 12:17 PM	75520
1606029-09A	DP1 (2-3)	06/01/16 02:30 PM	Soil	SW5030C	Purge and Trap Soils GC	06/08/16 10:07 AM	75517
	DP1 (2-3)	06/01/16 02:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	06/07/16 09:41 AM	75489
	DP1 (2-3)	06/01/16 02:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	06/08/16 09:08 AM	75506

Lab Order: 1606029  
Client: Larson & Associates  
Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1606029-09A	DP1 (2-3)	06/01/16 02:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	06/14/16 10:16 AM	75629

Lab Order: 1606029  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606029-01A	Comp1	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 11:45 AM	IC4_160608A
	Comp1	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	Comp1	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 12:02 PM	GC15_160609A
	Comp1	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 11:45 AM	GC4_160607A
	Comp1	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	Comp1	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 12:04 PM	GC4_160608A
1606029-02A	Comp3	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 12:00 PM	IC4_160608A
	Comp3	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	Comp3	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 11:44 AM	GC15_160609A
	Comp3	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 12:09 PM	GC4_160607A
	Comp3	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	Comp3	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 12:29 PM	GC4_160608A
1606029-03A	Comp4	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 12:15 PM	IC4_160608A
	Comp4	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	Comp4	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 11:53 AM	GC15_160609A
	Comp4	Soil	M8015D	TPH Extractable by GC - Soil	75506	2	06/09/16 02:15 PM	GC15_160609A
	Comp4	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 12:33 PM	GC4_160607A
	Comp4	Soil	E418.1	TRPH	75629	10	06/14/16 10:34 AM	IR207_160614A
	Comp4	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 12:54 PM	GC4_160608A
1606029-04A	Comp5	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 12:30 PM	IC4_160608A
	Comp5	Soil	E300	Anions by IC method - Soil	75507	100	06/08/16 02:40 PM	IC4_160608A
	Comp5	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	Comp5	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 12:11 PM	GC15_160609A
	Comp5	Soil	M8015D	TPH Extractable by GC - Soil	75506	2	06/09/16 02:06 PM	GC15_160609A
	Comp5	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 12:57 PM	GC4_160607A
	Comp5	Soil	E418.1	TRPH	75629	10	06/14/16 10:34 AM	IR207_160614A
	Comp5	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 01:18 PM	GC4_160608A
1606029-05A	DPS (2-3)	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 12:45 PM	IC4_160608A

Lab Order: 1606029  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606029-05A	DP5 (2-3)	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	DP5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 10:41 AM	GC15_160609A
	DP5 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 01:21 PM	GC4_160607A
	DP5 (2-3)	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	DP5 (2-3)	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 01:43 PM	GC4_160608A
1606029-06A	DP4 (2-3)	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 01:00 PM	IC4_160608A
	DP4 (2-3)	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	DP4 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 10:50 AM	GC15_160609A
	DP4 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 01:45 PM	GC4_160607A
	DP4 (2-3)	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	DP4 (2-3)	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 02:07 PM	GC4_160608A
1606029-07A	DP3 (2-3)	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 01:15 PM	IC4_160608A
	DP3 (2-3)	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	DP3 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 10:59 AM	GC15_160609A
	DP3 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 02:09 PM	GC4_160607A
	DP3 (2-3)	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	DP3 (2-3)	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 02:31 PM	GC4_160608A
1606029-08A	DP2 (2-3)	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 01:30 PM	IC4_160608A
	DP2 (2-3)	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	DP2 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 11:26 AM	GC15_160609A
	DP2 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 02:33 PM	GC4_160607A
	DP2 (2-3)	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A
	DP2 (2-3)	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 02:56 PM	GC4_160608A
1606029-09A	DP1 (2-3)	Soil	E300	Anions by IC method - Soil	75507	10	06/08/16 01:45 PM	IC4_160608A
	DP1 (2-3)	Soil	D2216	Percent Moisture	75520	1	06/09/16 08:50 AM	PMOIST_160608A
	DP1 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	75506	1	06/09/16 11:35 AM	GC15_160609A
	DP1 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	75489	1	06/07/16 02:57 PM	GC4_160607A
	DP1 (2-3)	Soil	E418.1	TRPH	75629	1	06/14/16 10:34 AM	IR207_160614A

DHL Analytical, Inc.

15-Jun-16

Lab Order: 1606029  
Client: Larson & Associates  
Project: R360 Artesia Landfarm

## ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1606029-09A	DP1 (2-3)	Soil	SW8021B	Volatile Organics by GC	75517	1	06/08/16 03:20 PM	GC4_160608A



**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** Compl  
**Lab ID:** 1606029-01  
**Collection Date:** 06/01/16 11:45 AM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	224	10.0	10.0		mg/Kg-dry	1	06/09/16 12:02 PM
TPH-ORO >C28-C35	265	10.0	10.0		mg/Kg-dry	1	06/09/16 12:02 PM
Surr: Isopropylbenzene	81.3	0	47-142		%REC	1	06/09/16 12:02 PM
Surr: Octacosane	275	0	25-162	S	%REC	1	06/09/16 12:02 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.180	0.0900	0.180		mg/Kg-dry	1	06/07/16 11:45 AM
Surr: Tetrachlorethene	116	0	70-134		%REC	1	06/07/16 11:45 AM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00496	0.00298	0.00496		mg/Kg-dry	1	06/08/16 12:04 PM
Ethylbenzene	<0.0149	0.00496	0.0149		mg/Kg-dry	1	06/08/16 12:04 PM
Toluene	<0.0149	0.00496	0.0149		mg/Kg-dry	1	06/08/16 12:04 PM
Xylenes, Total	<0.0149	0.00496	0.0149		mg/Kg-dry	1	06/08/16 12:04 PM
Surr: Tetrachloroethene	107	0	79-135		%REC	1	06/08/16 12:04 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	252	4.89	9.79	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	397	46.9	46.9		mg/Kg-dry	10	06/08/16 11:45 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	2.51	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** Comp3  
**Lab ID:** 1606029-02  
**Collection Date:** 06/01/16 12:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	147	10.1	10.1		mg/Kg-dry	1	06/09/16 11:44 AM
TPH-ORO >C28-C35	118	10.1	10.1		mg/Kg-dry	1	06/09/16 11:44 AM
Surr: Isopropylbenzene	75.5	0	47-142		%REC	1	06/09/16 11:44 AM
Surr: Octacosane	189	0	25-162	S	%REC	1	06/09/16 11:44 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.186	0.0931	0.186		mg/Kg-dry	1	06/07/16 12:09 PM
Surr: Tetrachlorethene	111	0	70-134		%REC	1	06/07/16 12:09 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00436	0.00262	0.00436		mg/Kg-dry	1	06/08/16 12:29 PM
Ethylbenzene	<0.0131	0.00436	0.0131		mg/Kg-dry	1	06/08/16 12:29 PM
Toluene	<0.0131	0.00436	0.0131		mg/Kg-dry	1	06/08/16 12:29 PM
Xylenes, Total	<0.0131	0.00436	0.0131		mg/Kg-dry	1	06/08/16 12:29 PM
Surr: Tetrachloroethene	99.6	0	79-135		%REC	1	06/08/16 12:29 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	291	4.83	9.65	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	334	45.5	45.5		mg/Kg-dry	10	06/08/16 12:00 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	1.50	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** Comp4  
**Lab ID:** 1606029-03  
**Collection Date:** 06/01/16 12:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	374	19.9	19.9		mg/Kg-dry	2	06/09/16 02:15 PM
TPH-ORO >C28-C35	297	19.9	19.9		mg/Kg-dry	2	06/09/16 02:15 PM
Surr: Isopropylbenzene	73.7	0	47-142		%REC	2	06/09/16 02:15 PM
Surr: Octacosane	305	0	25-162	S	%REC	2	06/09/16 02:15 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.192	0.0960	0.192		mg/Kg-dry	1	06/07/16 12:33 PM
Surr: Tetrachlorethene	109	0	70-134		%REC	1	06/07/16 12:33 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00483	0.00290	0.00483		mg/Kg-dry	1	06/08/16 12:54 PM
Ethylbenzene	<0.0145	0.00483	0.0145		mg/Kg-dry	1	06/08/16 12:54 PM
Toluene	<0.0145	0.00483	0.0145		mg/Kg-dry	1	06/08/16 12:54 PM
Xylenes, Total	<0.0145	0.00483	0.0145		mg/Kg-dry	1	06/08/16 12:54 PM
Surr: Tetrachloroethene	98.4	0	79-135		%REC	1	06/08/16 12:54 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	599	51.0	102	N	mg/Kg-dry	10	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	279	46.3	46.3		mg/Kg-dry	10	06/08/16 12:15 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	2.05	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** Comp5  
**Lab ID:** 1606029-04  
**Collection Date:** 06/01/16 12:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	467	20.6	20.6		mg/Kg-dry	2	06/09/16 02:06 PM
TPH-ORO >C28-C35	447	20.6	20.6		mg/Kg-dry	2	06/09/16 02:06 PM
Surr: Isopropylbenzene	72.1	0	47-142		%REC	2	06/09/16 02:06 PM
Surr: Octacosane	464	0	25-162	S	%REC	2	06/09/16 02:06 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.204	0.102	0.204		mg/Kg-dry	1	06/07/16 12:57 PM
Surr: Tetrachlorethene	105	0	70-134		%REC	1	06/07/16 12:57 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00514	0.00309	0.00514		mg/Kg-dry	1	06/08/16 01:18 PM
Ethylbenzene	<0.0154	0.00514	0.0154		mg/Kg-dry	1	06/08/16 01:18 PM
Toluene	<0.0154	0.00514	0.0154		mg/Kg-dry	1	06/08/16 01:18 PM
Xylenes, Total	<0.0154	0.00514	0.0154		mg/Kg-dry	1	06/08/16 01:18 PM
Surr: Tetrachloroethene	87.2	0	79-135		%REC	1	06/08/16 01:18 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	498	51.9	104	N	mg/Kg-dry	10	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	4630	485	485		mg/Kg-dry	100	06/08/16 02:40 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	3.92	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** DP5 (2-3)  
**Lab ID:** 1606029-05  
**Collection Date:** 06/01/16 01:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>AV</b>			
TPH-DRO C10-C28	<10.2	10.2	10.2		mg/Kg-dry	1	06/09/16 10:41 AM
TPH-ORO >C28-C35	<10.2	10.2	10.2		mg/Kg-dry	1	06/09/16 10:41 AM
Surr: Isopropylbenzene	27.8	0	47-142	S	%REC	1	06/09/16 10:41 AM
Surr: Octacosane	79.9	0	25-162		%REC	1	06/09/16 10:41 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	<0.203	0.101	0.203		mg/Kg-dry	1	06/07/16 01:21 PM
Surr: Tetrachlorethene	111	0	70-134		%REC	1	06/07/16 01:21 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>BJT</b>			
Benzene	<0.00497	0.00298	0.00497		mg/Kg-dry	1	06/08/16 01:43 PM
Ethylbenzene	<0.0149	0.00497	0.0149		mg/Kg-dry	1	06/08/16 01:43 PM
Toluene	<0.0149	0.00497	0.0149		mg/Kg-dry	1	06/08/16 01:43 PM
Xylenes, Total	<0.0149	0.00497	0.0149		mg/Kg-dry	1	06/08/16 01:43 PM
Surr: Tetrachloroethene	108	0	79-135		%REC	1	06/08/16 01:43 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>DEW</b>			
Petroleum Hydrocarbons, TR	<10.7	5.34	10.7	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	882	47.2	47.2		mg/Kg-dry	10	06/08/16 12:45 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>WB</b>			
Percent Moisture	7.00	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** DP4 (2-3)  
**Lab ID:** 1606029-06  
**Collection Date:** 06/01/16 01:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	<9.45	9.45	9.45		mg/Kg-dry	1	06/09/16 10:50 AM
TPH-ORO >C28-C35	<9.45	9.45	9.45		mg/Kg-dry	1	06/09/16 10:50 AM
Surr: Isopropylbenzene	53.2	0	47-142		%REC	1	06/09/16 10:50 AM
Surr: Octacosane	86.1	0	25-162		%REC	1	06/09/16 10:50 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.198	0.0988	0.198		mg/Kg-dry	1	06/07/16 01:45 PM
Surr: Tetrachlorethene	110	0	70-134		%REC	1	06/07/16 01:45 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00484	0.00290	0.00484		mg/Kg-dry	1	06/08/16 02:07 PM
Ethylbenzene	<0.0145	0.00484	0.0145		mg/Kg-dry	1	06/08/16 02:07 PM
Toluene	<0.0145	0.00484	0.0145		mg/Kg-dry	1	06/08/16 02:07 PM
Xylenes, Total	<0.0145	0.00484	0.0145		mg/Kg-dry	1	06/08/16 02:07 PM
Surr: Tetrachloroethene	105	0	79-135		%REC	1	06/08/16 02:07 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<9.95	4.97	9.95	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	192	47.5	47.5		mg/Kg-dry	10	06/08/16 01:00 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	2.30	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** DP3 (2-3)  
**Lab ID:** 1606029-07  
**Collection Date:** 06/01/16 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	<11.5	11.5	11.5		mg/Kg-dry	1	06/09/16 10:59 AM
TPH-ORO >C28-C35	<11.5	11.5	11.5		mg/Kg-dry	1	06/09/16 10:59 AM
Surr: Isopropylbenzene	40.4	0	47-142	S	%REC	1	06/09/16 10:59 AM
Surr: Octacosane	87.7	0	25-162		%REC	1	06/09/16 10:59 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.239	0.119	0.239		mg/Kg-dry	1	06/07/16 02:09 PM
Surr: Tetrachlorethene	111	0	70-134		%REC	1	06/07/16 02:09 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00592	0.00355	0.00592		mg/Kg-dry	1	06/08/16 02:31 PM
Ethylbenzene	<0.0178	0.00592	0.0178		mg/Kg-dry	1	06/08/16 02:31 PM
Toluene	<0.0178	0.00592	0.0178		mg/Kg-dry	1	06/08/16 02:31 PM
Xylenes, Total	<0.0178	0.00592	0.0178		mg/Kg-dry	1	06/08/16 02:31 PM
Surr: Tetrachloroethene	105	0	79-135		%REC	1	06/08/16 02:31 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.8	5.92	11.8	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	567	54.4	54.4		mg/Kg-dry	10	06/08/16 01:15 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	17.7	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** DP2 (2-3)  
**Lab ID:** 1606029-08  
**Collection Date:** 06/01/16 02:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	<10.9	10.9	10.9		mg/Kg-dry	1	06/09/16 11:26 AM
TPH-ORO >C28-C35	<10.9	10.9	10.9		mg/Kg-dry	1	06/09/16 11:26 AM
Surr: Isopropylbenzene	32.4	0	47-142	S	%REC	1	06/09/16 11:26 AM
Surr: Octacosane	82.5	0	25-162		%REC	1	06/09/16 11:26 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.226	0.113	0.226		mg/Kg-dry	1	06/07/16 02:33 PM
Surr: Tetrachlorethene	103	0	70-134		%REC	1	06/07/16 02:33 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00558	0.00335	0.00558		mg/Kg-dry	1	06/08/16 02:56 PM
Ethylbenzene	<0.0167	0.00558	0.0167		mg/Kg-dry	1	06/08/16 02:56 PM
Toluene	<0.0167	0.00558	0.0167		mg/Kg-dry	1	06/08/16 02:56 PM
Xylenes, Total	<0.0167	0.00558	0.0167		mg/Kg-dry	1	06/08/16 02:56 PM
Surr: Tetrachloroethene	103	0	79-135		%REC	1	06/08/16 02:56 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<11.0	5.52	11.0	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	328	54.5	54.5		mg/Kg-dry	10	06/08/16 01:30 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	14.0	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 15-Jun-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1606029

**Client Sample ID:** DP1 (2-3)  
**Lab ID:** 1606029-09  
**Collection Date:** 06/01/16 02:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	<10.6	10.6	10.6		mg/Kg-dry	1	06/09/16 11:35 AM
TPH-ORO >C28-C35	<10.6	10.6	10.6		mg/Kg-dry	1	06/09/16 11:35 AM
Surr: Isopropylbenzene	54.1	0	47-142		%REC	1	06/09/16 11:35 AM
Surr: Octacosane	84.9	0	25-162		%REC	1	06/09/16 11:35 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.204	0.102	0.204		mg/Kg-dry	1	06/07/16 02:57 PM
Surr: Tetrachlorethene	107	0	70-134		%REC	1	06/07/16 02:57 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: BJT</b>			
Benzene	<0.00536	0.00322	0.00536		mg/Kg-dry	1	06/08/16 03:20 PM
Ethylbenzene	<0.0161	0.00536	0.0161		mg/Kg-dry	1	06/08/16 03:20 PM
Toluene	<0.0161	0.00536	0.0161		mg/Kg-dry	1	06/08/16 03:20 PM
Xylenes, Total	<0.0161	0.00536	0.0161		mg/Kg-dry	1	06/08/16 03:20 PM
Surr: Tetrachloroethene	102	0	79-135		%REC	1	06/08/16 03:20 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<10.5	5.24	10.5	N	mg/Kg-dry	1	06/14/16 10:34 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	98.2	51.0	51.0		mg/Kg-dry	10	06/08/16 01:45 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: WB</b>			
Percent Moisture	7.07	0	0		WT%	1	06/09/16 08:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**CLIENT:** Larson & Associates  
**Work Order:** 1606029  
**Project:** R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

**RunID:** GC15\_160609A

The QC data in batch 75506 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID	LCS-75506	Batch ID:	75506	TestNo:	M8015D	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC15_160609A	Analysis Date:	6/9/2016 9:56:59 AM	Prep Date:	6/8/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	91.4	10.0	125.0	0	73.1	50	114			
Surr: Isopropylbenzene	6.31		7.500		84.2	47	142			
Surr: Octacosane	6.81		7.500		90.8	25	162			

Sample ID	LCS1-75506	Batch ID:	75506	TestNo:	M8015D	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC15_160609A	Analysis Date:	6/9/2016 10:05:58 AM	Prep Date:	6/8/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	79.1	10.0	125.0	0	63.3	50	114			
Surr: Isopropylbenzene	5.58		7.500		74.4	47	142			
Surr: Octacosane	5.71		7.500		76.1	25	162			

Sample ID	MB-75506	Batch ID:	75506	TestNo:	M8015D	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC15_160609A	Analysis Date:	6/9/2016 10:32:55 AM	Prep Date:	6/8/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	<10.0	10.0								
TPH-ORO >C28-C35	<10.0	10.0								
Surr: Isopropylbenzene	6.14		7.500		81.9	47	142			
Surr: Octacosane	6.39		7.500		85.2	25	162			

Sample ID	1606029-07AMS	Batch ID:	75506	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC15_160609A	Analysis Date:	6/9/2016 11:08:48 AM	Prep Date:	6/8/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	105	11.9	148.8	0	70.8	50	114			
Surr: Isopropylbenzene	6.82		8.930		76.3	47	142			
Surr: Octacosane	7.69		8.930		86.1	25	162			

Sample ID	1606029-07AMSD	Batch ID:	75506	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC15_160609A	Analysis Date:	6/9/2016 11:17:46 AM	Prep Date:	6/8/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	106	12.0	150.6	0	70.3	50	114	0.397	30	
Surr: Isopropylbenzene	7.64		9.036		84.5	47	142	0	0	
Surr: Octacosane	7.74		9.036		85.7	25	162	0	0	

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_160609A

Sample ID: ICV-160609	Batch ID: R86222	TestNo: M8015D	Units: mg/Kg							
SampType: ICV	Run ID: GC15_160609A	Analysis Date: 6/9/2016 9:40:07 AM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	529	10.0	500.0	0	106	80	120			
Surr: Isopropylbenzene	26.1		25.00		104	80	120			
Surr: Octacosane	27.9		25.00		112	80	120			

Sample ID: CCV1-160609	Batch ID: R86222	TestNo: M8015D	Units: mg/Kg							
SampType: CCV	Run ID: GC15_160609A	Analysis Date: 6/9/2016 12:42:10 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	218	10.0	250.0	0	87.0	80	120			
Surr: Isopropylbenzene	12.7		12.50		101	80	120			
Surr: Octacosane	11.3		12.50		90.3	80	120			

Sample ID: CCV2-160609	Batch ID: R86222	TestNo: M8015D	Units: mg/Kg							
SampType: CCV	Run ID: GC15_160609A	Analysis Date: 6/9/2016 2:42:55 PM	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	206	10.0	250.0	0	82.6	80	120			
Surr: Isopropylbenzene	12.7		12.50		102	80	120			
Surr: Octacosane	11.2		12.50		89.7	80	120			

Qualifiers: B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160607A

The QC data in batch 75489 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID	LCS-75489	Batch ID:	75489	TestNo:	M8015V	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC4_160607A	Analysis Date:	6/7/2016 10:16:18 AM	Prep Date:	6/7/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.70	0.200	5.000	0	94.1	68	126			
Surr: Tetrachlorethene	0.372		0.4000		93.1	70	134			

Sample ID	MB-75489	Batch ID:	75489	TestNo:	M8015V	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC4_160607A	Analysis Date:	6/7/2016 11:04:31 AM	Prep Date:	6/7/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	<0.200	0.200								
Surr: Tetrachlorethene	0.436		0.4000		109	70	134			

Sample ID	1606029-09AMS	Batch ID:	75489	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC4_160607A	Analysis Date:	6/7/2016 3:21:20 PM	Prep Date:	6/7/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	5.09	0.210	5.254	0	96.8	68	126			
Surr: Tetrachlorethene	0.427		0.4204		102	70	134			

Sample ID	1606029-09AMSD	Batch ID:	75489	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC4_160607A	Analysis Date:	6/7/2016 3:45:24 PM	Prep Date:	6/7/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.83	0.200	5.000	0	96.5	68	126	5.24	30	
Surr: Tetrachlorethene	0.379		0.4000		94.9	70	134	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
--	---

**CLIENT:** Larson & Associates  
**Work Order:** 1606029  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GC4\_160607A**

Sample ID: <b>ICV-160607</b>	Batch ID: <b>R86209</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GC4_160607A</b>	Analysis Date: <b>6/7/2016 9:39:03 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	9.78	0.200	10.00	0	97.8	80	120			
Surr: Tetrachlorethene	0.307		0.4000		76.9	70	134			

Sample ID: <b>CCV1-160607</b>	Batch ID: <b>R86209</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>GC4_160607A</b>	Analysis Date: <b>6/7/2016 4:12:41 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.78	0.200	5.000	0	95.5	80	120			
Surr: Tetrachlorethene	0.329		0.4000		82.2	70	134			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160608A

The QC data in batch 75517 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID	Batch ID:	TestNo:	Units:							
LCS-75517	75517	SW8021B	mg/Kg							
SampType:	Run ID:	Analysis Date:	Prep Date:							
LCS	GC4_160608A	6/8/2016 10:41:08 AM	6/8/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0836	0.00500	0.1000	0	83.6	65	113			
Toluene	0.0862	0.0150	0.1000	0	86.2	73	115			
Ethylbenzene	0.0850	0.0150	0.1000	0	85.0	74	118			
Xylenes, Total	0.261	0.0150	0.3000	0	87.0	73	119			
Surr: Tetrachloroethene	0.160		0.2000		80.0	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
MB-75517	75517	SW8021B	mg/Kg							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MBLK	GC4_160608A	6/8/2016 11:29:16 AM	6/8/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00500	0.00500								
Toluene	<0.0150	0.0150								
Ethylbenzene	<0.0150	0.0150								
Xylenes, Total	<0.0150	0.0150								
Surr: Tetrachloroethene	0.204		0.2000		102	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
1606029-09AMS	75517	SW8021B	mg/Kg-dry							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MS	GC4_160608A	6/8/2016 3:45:05 PM	6/8/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0922	0.00526	0.1053	0	87.6	65	113			
Toluene	0.0952	0.0158	0.1053	0	90.4	73	115			
Ethylbenzene	0.0962	0.0158	0.1053	0	91.3	74	118			
Xylenes, Total	0.287	0.0158	0.3159	0	90.8	73	119			
Surr: Tetrachloroethene	0.200		0.2106		94.8	79	135			

Sample ID	Batch ID:	TestNo:	Units:							
1606029-09AMSD	75517	SW8021B	mg/Kg-dry							
SampType:	Run ID:	Analysis Date:	Prep Date:							
MSD	GC4_160608A	6/8/2016 4:09:25 PM	6/8/2016							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0919	0.00521	0.1043	0	88.2	65	113	0.302	30	
Toluene	0.0944	0.0156	0.1043	0	90.5	73	115	0.869	30	
Ethylbenzene	0.0956	0.0156	0.1043	0	91.6	74	118	0.638	30	
Xylenes, Total	0.287	0.0156	0.3128	0	91.8	73	119	0.095	30	
Surr: Tetrachloroethene	0.200		0.2085		95.9	79	135	0		

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160608A

Sample ID: <b>ICV-160608</b>	Batch ID: <b>R86207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GC4_160608A</b>	Analysis Date: <b>6/8/2016 10:08:54 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.187	0.00500	0.2000	0	93.3	80	120			
Toluene	0.189	0.0150	0.2000	0	94.4	80	120			
Ethylbenzene	0.195	0.0150	0.2000	0	97.6	80	120			
Xylenes, Total	0.629	0.0150	0.6000	0	105	80	120			
Surr: Tetrachloroethene	0.171		0.2000		85.4	79	135			

Sample ID: <b>CCV1-160608</b>	Batch ID: <b>R86207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>GC4_160608A</b>	Analysis Date: <b>6/8/2016 4:45:06 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0847	0.00500	0.1000	0	84.7	80	120			
Toluene	0.0876	0.0150	0.1000	0	87.6	80	120			
Ethylbenzene	0.0867	0.0150	0.1000	0	86.7	80	120			
Xylenes, Total	0.262	0.0150	0.3000	0	87.3	80	120			
Surr: Tetrachloroethene	0.197		0.2000		98.6	79	135			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC4\_160608A

The QC data in batch 75507 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID: MB-75507	Batch ID: 75507	TestNo: E300	Units: mg/Kg
SampType: MBLK	Run ID: IC4_160608A	Analysis Date: 6/8/2016 10:51:45 AM	Prep Date: 6/8/2016
Analyte	Result	RL	SPK value
Chloride	<5.00	5.00	

Sample ID: LCS-75507	Batch ID: 75507	TestNo: E300	Units: mg/Kg
SampType: LCS	Run ID: IC4_160608A	Analysis Date: 6/8/2016 11:06:45 AM	Prep Date: 6/8/2016
Analyte	Result	RL	SPK value
Chloride	48.4	5.00	50.00

Sample ID: LCSD-75507	Batch ID: 75507	TestNo: E300	Units: mg/Kg
SampType: LCSD	Run ID: IC4_160608A	Analysis Date: 6/8/2016 11:21:45 AM	Prep Date: 6/8/2016
Analyte	Result	RL	SPK value
Chloride	48.3	5.00	50.00

Sample ID: 1606029-09AMS	Batch ID: 75507	TestNo: E300	Units: mg/Kg-dry
SampType: MS	Run ID: IC4_160608A	Analysis Date: 6/8/2016 2:10:57 PM	Prep Date: 6/8/2016
Analyte	Result	RL	SPK value
Chloride	195	48.7	97.47

Sample ID: 1606029-09AMSD	Batch ID: 75507	TestNo: E300	Units: mg/Kg-dry
SampType: MSD	Run ID: IC4_160608A	Analysis Date: 6/8/2016 2:25:57 PM	Prep Date: 6/8/2016
Analyte	Result	RL	SPK value
Chloride	201	51.3	102.7

Qualifiers: B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SIDL and RL      N Parameter not NELAC certified



**CLIENT:** Larson & Associates  
**Work Order:** 1606029  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC4\_160608A**

Sample ID: <b>ICV-160608</b>	Batch ID: <b>R86203</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>IC4_160608A</b>	Analysis Date: <b>6/8/2016 9:56:20 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.0	5.00	25.00	0	100	90	110			

Sample ID: <b>CCV1-160608</b>	Batch ID: <b>R86203</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>IC4_160608A</b>	Analysis Date: <b>6/8/2016 3:03:24 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	5.00	10.00	0	100	90	110			

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1606029  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_160614A

The QC data in batch 75629 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID	ICV-160614	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg			
SampType:	ICV	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	252	10.0	250.0	0	101	90	110			N

Sample ID	MB-75629	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg			
SampType:	MBLK	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:	6/14/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	<10.0	10.0								N

Sample ID	LCS-75629	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg			
SampType:	LCS	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:	6/14/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	101	10.0	100.0	0	101	80	120			N

Sample ID	1606029-09AMS	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:	6/14/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	115	10.1	101.2	0	114	80	120			N

Sample ID	1606029-09AMSD	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:	6/14/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	113	10.4	103.7	0	109	80	120	1.51	20	N

Sample ID	CCV1-160614	Batch ID:	75629	TestNo:	E418.1	Units:	mg/Kg			
SampType:	CCV	Run ID:	IR207_160614A	Analysis Date:	6/14/2016 10:34:00 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	251	10.0	250.0	0	101	85	115			N

**Qualifiers:**

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1606029  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_160608A**

The QC data in batch 75520 applies to the following samples: 1606029-01A, 1606029-02A, 1606029-03A, 1606029-04A, 1606029-05A, 1606029-06A, 1606029-07A, 1606029-08A, 1606029-09A

Sample ID: <b>1606029-06A DUP</b>	Batch ID: <b>75520</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>							
SampType: <b>DUP</b>	Run ID: <b>PMOIST_160608A</b>	Analysis Date: <b>6/9/2016 8:50:00 AM</b>	Prep Date: <b>6/8/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	2.41	0	0	2.301				4.78	30	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
1900 East 10th Street, Suite 200  
Cortez, Colorado 81301-3492  
Phone: 970.841.6000 Fax: 970.841.6001  
www.blm.gov

RECEIVED OGD

2016 JUN 14 P 1:36

June 9, 2016

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: 2016 Analytical Results, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New  
Mexico

Mr. Jones:

The enclosed data tables present laboratory results of treatment and vadose soil samples collected at the R360 Artesia, LLC (formerly Artesia Aeration) Landfarm during the first quarter of 2016. You may contact me at (956) 458-0515 or by email at [StephanieG@r360es.com](mailto:StephanieG@r360es.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie G", written over a light blue horizontal line.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

**1<sup>st</sup> Quarter 2016**  
**SURFACE WASTE MANAGEMENT**  
**SUMMARY REPORT**  
R360 Artesia, LLC Landfarm  
(NM-01-030)

Lea County, New Mexico

Project No. 15-0121-01

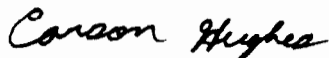
June 7, 2016

Prepared for:

R360 Permian Basin, LLC  
507 N. Marienfeld, Suite 200  
Midland, Texas 79701

Prepared by:

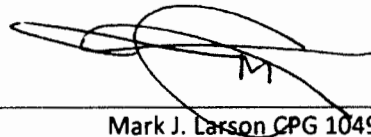
Larson & Associates, Inc.  
507 North Marienfeld, Suite 205  
Midland, Texas 79701



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Carson Hughes

Chemist/Engineering Professional



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Mark J. Larson CPG 10490

President/Geologist

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## 1.0 INTRODUCTION

This report has been prepared by Larson & Associates, Inc. (LAI) to present vadose and treatment zone monitoring results for the first quarter of 2016 at the R360 Artesia Aeration, LLC (R360) Landfarm (Facility) located in Lea County, New Mexico. The Facility is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (NM-1-0030) for treating exempt oil field waste (i.e., soil and drill cuttings) contaminated predominately by petroleum hydrocarbons. The Facility occupies approximately 48.4 acres in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 4.93" and west 103° 48' 15.45". The Facility is divided into 6 cells (Cell 1 through Cell 6) ranging in size from about 2.74 acres (Cell 1) to 13.28 acres (Cell 6). Figure 1 presents a detailed topographic map. Figure 2 presents an aerial map. Figure 3 presents a Facility drawing with locations of the first quarter samples.

The Facility was permitted Artesia Aeration Landfarm on November 29, 1999. R360 acquired the Facility in April 2011. R360 has accepted no new material.

## 2.0 LANDFARM MONITORING

### 2.1 Treatment (Tilled) Zone Soil Samples

Per OCD permit requirements, 4-part composite soil samples were collected from cells 1, 3, 4, and 5 treatment (tilled) zones on March 16, 2016. No treatment zone samples were collect from cell 2 since no soil was added to the cell since approval was granted by OCD to add an additional lift. Samples were retrieved from 0-1 foot depth in the tilled zone using a stainless steel trowel. Sample aliquots were immediately placed in pre-cleaned 4-ounce jars, properly labeled, and iced upon collection. The samples were shipped via LoneStar Overnight, under custody seals and chain of custody to DHL. The samples were analyzed for BTEX, TPH, and chloride by EPA SW-846 methods 8021B, 8015 and 300, respectively.

Table 1 presents a summary of the treatment zone BTEX, TPH, and chloride analysis. The discrete sample locations were recorded with a Trimble<sup>®</sup> hand held GPS receiver. Figure 3 presents the treatment zone sample locations. The laboratory report is included in Appendix A.

#### 2.1.1 Organic Sample Results

BTEX constituents were below the method reporting limits, equivalent to the practical quantitation limit (PQL) and closure performance standards for treatment zone samples collected from cells 1, 3, 4, and 5.

TPH was reported at 629, 508, 527 and 1,406 milligrams per kilogram (mg/Kg) in treatment zone samples from cells 1, 3, 4 and 5, respectively. The TPH concentrations exceed the permit threshold of 500 mg/Kg.

#### 2.1.2 Chloride Sample Results

Chloride was detected above the permit threshold limit of 1,000 ppm in cell 5 (2,100 mg/kg) during the first quarterly event the chloride results for the remaining cells were below the 1,000 ppm permit threshold.

## **2.2 Vadose Zone Samples**

Vadose zone samples were collected on March 16, 2016 (1<sup>st</sup> Quarter) from native soil approximately 2 to 3 feet below cells 1 through 5. The samples were collected using a Terraprobe® direct push rig after treatment zone soil was removed from the sample location. The Terraprobe® pushes or percussion hammers a 4-foot long stainless steel core barrel into the subsurface and collects a 4-foot long soil core. The core barrel is equipped with polyethylene liners to minimize cross contamination between samples.

The samples were collected in 4-ounce glass containers that were labeled, chilled in an ice chest and delivered to DHL. The laboratory analyzed the samples for BTEX by EPA SW-846 method 8021B, total residual petroleum hydrocarbon (TRPH) by EPA method 418.1, TPH, including diesel (DRO) and gasoline (GRO) range organics, by EPA SW-846 method 8015, metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), cations (calcium, magnesium, sodium and potassium) and anions (alkalinity, sulfate and chloride). The boreholes were filled with bentonite and the locations recorded with the Trimble® GPS receiver. Table 2 presents the BTEX and TPH analytical data summary. Table 3 presents the metals analytical data summary. Table 4 presents the cation and anion analytical data summary. Appendix A presents the laboratory reports.

### **2.2.1 Organic Sample Results**

Sample results from cells 1, 2, 3, 4, and 5 were below reporting limits for the BTEX constituents.

Sample results from cells 1, 2, 3, 4 and 5 reported, TPH above the reporting limit and ranged from 4.49 mg/Kg (cell 2) to 310 mg/Kg (cell 5). TRPH was above the mean background concentration (<4.90 mg/Kg) in samples from cells 1 through 5 and ranged from less than the reporting limit (<12.2 mg/Kg) in cell 2 to 287 mg/Kg (cell 5). The TPH and TRPH is believe to be the result of loose material that was incorporated into the sample during collection.

### **2.2.2 Metals Sample Results**

Arsenic exceeded the mean background concentration (1.63 mg/Kg) in vadose zone samples for cells 1 (3.15 mg/Kg), 4 (4.04 mg/kg), and 5 (2.26 mg/kg).

Barium was detected above background mean concentration (21.0 mg/Kg) for cells 1 (63.2 mg/Kg), 2 (70.5 mg/Kg), 4 (149 mg/Kg), and 5 (158 mg/Kg).

Cadmium was reported above background mean concentration (<0.117 mg/Kg) in cell 4 (0.264 mg/Kg).

Chromium was detected above background mean concentration (4.81 mg/Kg) for cells 1 (12.1 mg/Kg), 4 (16.3 mg/Kg) and 5 (8.92 mg/Kg).

Lead was above background mean concentration (2.87 mg/Kg) for cells 1 (4.71 mg/Kg), 4 (48.5 mg/Kg), and 5 (5.75 mg/Kg).



Mercury was detected below the reporting limit but above the mean background concentration (<0.016 mg/Kg) in cell 4 (0.0688 mg/Kg) 5 (0.0173 mg/Kg), and above the reporting limit and mean background concentration in cell 4 (0.0688 mg/kg).

Selenium was detected above the mean background concentration (0.597 mg/Kg) in cell 4 (0.966 mg/Kg).

Silver was below the detection limit in all cells.

### **2.2.3 Anion Sample Results**

Chloride in the vadose zone sample for cells 1, 2, 3, 4, and 5 ranged from 14.4 mg/Kg (cell 2) to 3,120 mg/Kg (cell 5) and exceeded the mean background concentration (5.04 ppm).

## **3.0 SUMMARY**

- BTEX was below the analytical method reporting limits and closure standards in treatment zone samples from cells 1, 3, 4 and 5 during the first quarter of 2016;
- TPH was above the closure standard (500 ppm) in the treatment zone for cells 1, 3, 4, and 5 in the first quarter of 2016;
- TPH, metals, and chlorides were reported above mean background in vadose zone samples during the first quarter 2016;
- R360 will continue monthly tilling of cell 1, 2, 3, 4, and 5 to promote volatilization and microbial degradation;
- The next quarter sampling event was performed on June 1, 2016 with laboratory results pending.

## Tables

**Table 1**  
**Treatment Zone Soil Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			<b>0.2</b>	<b>50</b>				<b>500</b>	<b>2,500</b>	<b>1,000</b>
1	03/16/2016	0 - 1	<0.00472	<0.0472	<0.190	366	263	629	836	356
2	03/16/2016	0 - 1	--	--	--	--	--	--	--	--
3	03/16/2016	0 - 1	<0.00454	<0.0454	<0.192	273	235	508	644	177
4	03/16/2016	0 - 1	<0.00451	<0.0451	<0.200	299	228	527	704	467
5	03/16/2016	0 - 1	<0.00493	<0.0493	<0.186	737	669	1,406	2,080	2,100
6	03/16/2016	0 - 1	--	--	--	--	--	--	--	--

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX and Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 methods 8021B (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride)

Results are reported in milligram per Kilograms (mg/Kg) equivalent to parts per million (ppm)

Background analysis was performed by SW846 method 8260B

RL: Reporting limit (equivalent to practical quantification limit (PQL))

\*Cell approved for additional lift but no soil added to cell at the time of sample collection

\*\*Soil removed from cell and placed as additional layer on Cells 1, 3 and 4

1. <: Less than method detection limit

2. Depth in feet below treated soil layer

**Table 2**  
**Vadose Zone Soil BTEX and TPH Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	RL	Benzene (mg/Kg)	RL	Ethylbenzene (mg/Kg)	RL	Toluene (mg/Kg)	RL	Xylenes (mg/Kg)	RL	GRO (mg/Kg)	RL	DRO (mg/Kg)	RL	ORO (mg/Kg)	RL	TPH (mg/Kg)	RL	TRPH (mg/Kg)	RL	Chloride (mg/Kg)
Background: Mean Concentration:				<0.00095		<0.00095		<0.00095		<0.00095		--		--		--		--		<4.90		<5.04
Background PQI or RL:				0.005		0.005		0.005		0.005		--		--		--		--		10		5.00
1	03/16/2016	2 - 3	0.00483	<0.00483	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.213	<0.213	11.0	77.4	11.0	48.8	11.0	126.2	10.9	175	5.55	133
2	03/16/2016	2 - 3	0.00551	<0.00551	0.0165	<0.0165	0.0165	<0.0165	0.0165	<0.0165	0.237	<0.237	11.8	<11.8	11.8	4.49 <sup>J</sup>	11.8	4.49 <sup>J</sup>	12.2	<12.2	5.74	14.4
3	03/16/2016	2 - 3	0.00479	<0.00479	0.0144	<0.0144	0.0144	<0.0144	0.0144	<0.0144	0.189	<0.189	10.2	15.1	10.2	11.4	10.2	26.5	9.85	9.52 <sup>IN</sup>	5.01	21.4
4	03/16/2016	2 - 3	0.00540	<0.00540	0.0162	<0.0162	0.0162	<0.0162	0.0162	<0.0162	0.205	<0.205	10.5	98.7	10.5	82.3	10.5	181	10.7	228	5.31	255
5	03/16/2016	2 - 3	0.00519	<0.00519	0.0156	<0.0156	0.0156	<0.0156	0.0156	<0.0156	0.223	<0.223	11.0	203	11.0	107	11.0	310	10.9	287	529	8,120
6	03/16/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX, Permian Basin Environmental Lab, Midland, TX and Trace Analysis, Inc., Lubbock, TX  
 BTEX by EPA SW-846 method 8021B (BTEX)  
 TPH by EPA SW 846 method 8015M (GRO and DRO)

**Table 2**  
**Vadose Zone Soil BTEX and TPH Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lee County, New Mexico**

TRPH by EPA SW-846 method 418.1

Results are reported in milligram per Kilograms (mg/Kg).

RL: Reporting limit (equivalent to practical quantification limit (PQL))

1. <: Less than method reporting limit

2. Depth in feet below native ground surface

J: Analyte detected between MDL and RL

N: Parameter not NELAC certified

**Bold values indicate that analyte was detected**

**Highlighted values indicate concentrations above mean background concentration**



**Table 3**  
**Vadose Soil Metals Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM1-30-0)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	RL	Arsenic (mg/Kg)	RL	Barium (mg/Kg)	RL	Cadmium (mg/Kg)	RL	Chromium (mg/Kg)	RL	Lead (mg/Kg)	RL	Mercury (mg/Kg)	RL	Selenium (mg/Kg)	RL	Silver (mg/Kg)
Background: Mean Concentration:				1.63		21.0		<0.117		4.81		2.87		<0.016		0.997		<0.099
Background PQJ (RL):				0.983 - 0.995		1.97 - 1.99		0.298 - 0.295		1.97 - 1.99		0.295 - 0.298		0.0373 - 0.0406		0.491 - 0.497		0.197 - 0.199
1	11/30/2012	2 - 3	1.05	2.31	105	174	0.315	<0.105	2.10	5.53	0.315	2.82	0.0354	<0.0142	0.525	0.398	0.210	<0.105
	03/26/2013	2 - 3	1.08	5.16	2.16	70.0	0.324	0.290	2.16	13.7	0.324	7.65	0.0406	<0.0162	0.541	2.49	0.216	<0.108
	03/12/2014	2 - 3	0.645	3.77	1.29	59.7	0.193	0.131	1.29	12.9	0.193	5.60	0.0220	<0.00879	0.322	0.785	0.129	<0.0645
	04/04/2015	2 - 3	0.008	1.60	0.001	19.0	0.001	<0.001	0.091	3.50	0.011	2.50	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
	03/16/2016	2 - 3	1.08	3.15	2.16	63.2	0.323	<0.323	2.16	12.1	0.323	4.71	0.0412	<0.0412	0.539	0.383	0.216	<0.216
2	11/30/2012	2 - 3	1.03	3.67	103	137	0.310	<0.103	2.07	8.23	0.310	3.83	0.0371	<0.0149	0.517	0.455	0.207	<0.103
	03/26/2013	2 - 3	1.01	4.46	101	1,160	0.303	0.246	2.02	7.73	0.303	3.76	0.0386	<0.0154	0.504	1.32	0.202	<0.101
	03/12/2014	2 - 3	1.10	4.65	2.21	198	0.331	0.133	2.21	6.37	0.331	3.05	0.0434	<0.0174	0.552	0.581	0.221	<0.110
	06/16/2015	2 - 3	2.00	<2.00	1.00	55.5	0.500	<0.500	0.500	4.14	1.00	<1.0	0.025	<0.0250	2.00	<2.00	0.500	<0.500
	03/16/2016	2 - 3	1.16	1.35	2.33	70.5	0.349	<0.349	2.33	<3.32	0.349	1.37	0.0490	<0.0490	0.582	<0.582	0.233	<0.233
3	11/30/2012	2 - 3	0.896	1.65	1.79	40.7	0.269	<0.0896	1.79	5.88	0.269	2.88	0.0362	<0.0145	0.488	0.370	0.179	<0.0896
	03/26/2013	2 - 3	0.989	2.95	1.98	49.3	0.297	0.198	1.98	8.91	0.297	5.29	0.0367	<0.0147	0.494	1.39	0.198	<0.0989
	03/12/2014	2 - 3	0.662	4.40	132	1,120	0.199	0.136	1.32	4.87	0.199	2.21	0.0241	<0.00964	0.331	0.571	0.132	<0.662
	04/04/2015	2 - 3	0.008	2.50	0.001	33.0	0.001	<0.001	0.091	6.20	0.011	4.00	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
	03/16/2016	2 - 3	0.937	0.680	1.87	18.8	0.281	<0.281	1.87	2.60	0.281	1.13	0.0401	<0.0401	0.469	<0.469	0.187	<0.187
4	11/30/2012	2 - 3	0.909	1.02	1.82	16.4	0.273	<0.0909	1.82	4.21	0.273	2.08	0.0369	<0.0148	0.454	0.245	0.182	<0.0909
	03/26/2013	2 - 3	0.975	1.30	1.95	25.0	0.292	0.127	1.95	4.56	0.292	4.36	0.0403	<0.0161	0.487	0.765	0.195	<0.0975
	03/12/2014	2 - 3	0.668	1.87	1.34	35.7	0.200	0.0927	1.34	7.36	0.200	4.47	0.0240	<0.00959	0.334	0.553	0.134	<0.0668
	04/04/2015	2 - 3	0.008	2.70	0.001	82.0	0.001	<0.001	0.091	5.70	0.011	3.60	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
	03/16/2016	2 - 3	1.07	4.04	2.13	149	0.320	0.264	2.13	16.3	0.320	48.5	0.0415	0.0688	0.534	0.966	0.213	<0.213
5	11/30/2012	2 - 3	1.05	1.94	105	605	0.314	0.181	2.09	7.19	0.314	4.12	0.0383	<0.0153	0.523	0.453	0.209	<0.105
	03/22/2013	2 - 3	0.927	1.20	1.85	20.9	0.278	0.102	1.85	3.71	0.278	2.23	0.0394	<0.0158	0.463	0.756	0.185	<0.0927
	03/12/2014	2 - 3	1.19	3.98	2.38	198	0.357	0.195	2.38	11.4	0.357	6.65	0.0472	0.0204	0.595	1.05	0.238	<0.119
	04/04/2015	2 - 3	0.008	2.00	0.001	250	0.001	<0.001	0.091	4.20	0.011	2.60	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
	03/16/2016	2 - 3	1.01	2.26	2.03	158	0.304	<0.304	2.03	8.92	0.304	5.75	0.0391	0.0173	0.506	0.267	0.203	<0.203
6	11/30/2012	2 - 3	0.873	1.21	1.75	19.4	0.262	<0.0873	1.75	4.02	0.262	2.15	0.0341	<0.0136	0.437	0.276	0.175	<0.0873
	03/23/2013	2 - 2.7	0.940	1.32	1.88	26.7	0.282	<0.0940	1.88	4.03	0.282	2.17	0.0380	<0.0152	0.470	0.610	0.188	<0.094
	03/12/2014	2 - 3	1.18	3.18	2.35	300	0.353	0.120	2.35	6.61	0.353	3.24	0.0228	<0.00913	0.588	0.626	0.235	<0.118

04/04/2015	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03/16/2016	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX and Permian Basin Environmental Lab, Midland, TX by EPA SW-846 6010B and 747.

Results are reported in milligram per kilogram (mg/Kg) equivalent to parts per million (ppm)

RL: Reporting limit (equivalent to practical quantification limit (PQL))

<: Not detected at method detection limit

-- No data available

\* Treated soil removed from cell therefore no vadose sample was collected

J: Analyte detected between MDL and RL

**Bold values indicate that analyte was detected**

**Highlighted values indicate concentrations above mean background concentration**



**Table 4**  
**Vadose Soil Anion and Cation Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM1-030)**  
**Lea County, New Mexico**

Cell	Sample Date	Depth (Feet)	RL	Calcium (mg/Kg)	RL	Magnesium (mg/Kg)	RL	Potassium (mg/Kg)	RL	Sodium (mg/Kg)	RL	Alkalinity (mg/Kg)	RL	Chloride (mg/Kg)	RL	Sulfate (mg/Kg)
Background:														5.04 ppm		
1	11/19/2012	2-3	656	149,000	656	2,730	656	1,590	13.1	75.5	52.7	809	5.30	7.51	10.6	19.6
	06/13/2013	2-3	1,270	257,000	12.7	807	12.7	206	12.7	58.8	54.6	116	54.6	361	10.9	162
	03/12/2014	2-3	80.6	14,300	8.06	2,570	8.06	3,570	8.06	105	61.9	186	6.11	57.9	12.2	140
	04/14/2015	2-3	0.081	1,960	0.036	620	0.060	815	0.043	130	2.00	4,500	1.09	5.78	0.5	48.3
	3/16/2016	2-3	404	8,460	40.4	2,360	40.4	3,030	40.4	150	54.7	209	5.55	133	11.1	336
2	11/19/2012	2-3	647	127,000	647	3,920	647	2,430	647	906	54.7	1,130	5.46	59.9	10.9	320
	06/13/2013	2-3	1,340	163,000	13.4	696	13.4	319	13.4	103	56.7	5,080	5.60	100	11.2	424
	03/12/2014	2-3	690	208,000	13.8	4,300	13.8	1,540	13.8	525	56.1	1,310	5.20	124	10.4	392
	06/16/2015	2-3	10	20,000	10	1,060	10	890	10	122	20	530	25.00	256	25	165
	3/16/2016	2-3	436	33,300	43.6	857	43.6	770	43.6	46.9	60.8	1,590	5.74	14.4	11.5	425
3	11/19/2012	2-3	560	7,710	560	1,360	560	1,590	560	964	50.7	1,470	5.11	181	10.2	345
	06/13/2013	2-3	1,270	229,000	63.7	9,720	63.7	999	63.7	193	55.0	1,440	8.59	8.59	4.78	478
	03/12/2014	2-3	827	223,000	827	4,800	8.27	911	8.27	436	63.5	1,250	5.36	118	10.7	578
	04/14/2015	2-3	0.081	1,090	0.036	1,430	0.060	1,650	0.043	505	2.00	4,000	1.10	33.7	0.5	148
	3/16/2016	2-3	35.1	4,630	35.1	508	35.1	535	35.1	58.0	50.9	182	5.01	21.4	100	890
4	11/19/2012	2-3	11.4	525	11.4	814	11.4	1,020	11.4	75.0	50.3	71.0	5.09	72.1	10.2	77.6
	06/13/2013	2-3	12.5	889	12.5	921	12.5	1,250	12.5	22.3	50.7	53.2	5.06	103	10.1	29.9
	03/12/2014	2-3	83.5	12,400	83.5	1,980	83.5	1,400	8.35	210	64.7	116	5.53	87.7	11.1	1,340
	04/14/2015	2-3	0.081	35,200	0.036	6,920	0.060	1,650	0.043	198	2.00	4,000	1.10	70.0	0.5	158
	3/16/2016	2-3	801	56,200	40.0	9,890	40.0	2,980	40.0	394	52.9	140	5.31	255	1,060	9,110
5	11/19/2012	2-3	654	32,100	654	2,970	654	1,600	654	2,160	55.4	562	55.0	2,020	110	1,770
	06/13/2013	2-3	7.50	451	7.50	591	7.50	85	7.50	248	59.3	103	5.99	18.3	12.0	13.5
	03/12/2014	2-3	744	86,100	14.9	2,410	14.9	2,290	14.9	609	62.8	260	59.4	624	11.9	332
	04/14/2015	2-3	0.081	23,300	0.036	1,860	0.060	1,020	0.043	2,910	2.00	4,500	1.16	100	0.5	62.8
	3/16/2016	2-3	380	31,200	38.0	2,610	38.0	1,810	38.0	1,130	55.5	183	529	3,120	1,060	2,550
6	11/19/2012	2-3	546	668	546	663	546	884	546	23.6	50.4	84.7	5.09	58.9	10.2	22.5
	06/13/2013	2-3	12.2	889	12.2	579	12.2	822	12.2	37.1	51.4	189	5.11	13.8	10.2	<10.2
	03/12/2014	2-3	735	102,000	14.7	2,270	14.7	1,510	14.7	420	62.2	275	5.49	256	11.0	166
	04/14/2015	2-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	3/16/2016	2-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Round Rock, Texas and Trace Analysis, Inc., Lubbock, Texas by EPA SW-846 methods 6010B, 300.0 and 310.0  
 Results are reported in milligram per kilogram (mg/Kg) equivalent to parts per million (ppm).  
 RL: Reporting limit (equivalent to practical quantification limit (PQL))  
 <: Not detected at method RL  
 - No data available



**Bold values indicate that analyte was detected**

**Highlighted values indicate concentrations above mean background concentration**

## Figures





Figure 1 - Topographic Map





850 0 850  
Graphic Scale in Feet

R-360 Enviromental

32°51'06.78"N  
103°48'16.35"W

**L**arson &  
Associates, Inc.  
Environmental Consultants

Figure 2 Aerial

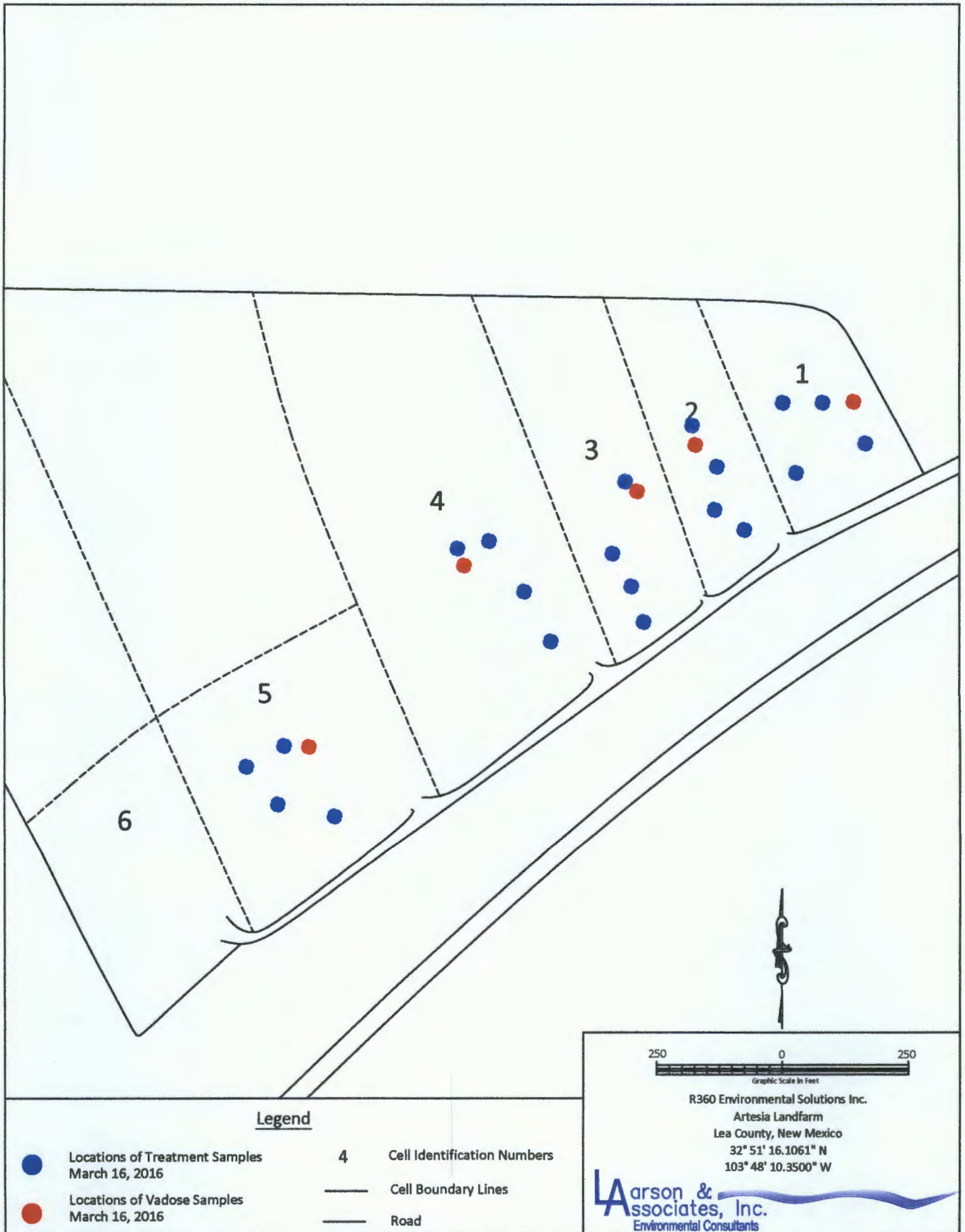


Figure 3 - Site Map with Composite Treatment & Vadose Samples March 16, 2016

## **Appendix A**





March 29, 2016

Mark Larson  
Larson & Associates  
507 N. Marienfeld #200  
Midland, TX 79701  
TEL: (432) 687-0901  
FAX (432) 687-0456  
RE: R360 Artesia Landfarm

Order No.: 1603209

Dear Mark Larson:

DHL Analytical, Inc. received 10 sample(s) on 3/18/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read 'John DuPont'.

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-15



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 E-Mail: [login@dhlanalytical.com](mailto:login@dhlanalytical.com)



No 68976  
**CHAIN-OF-CUSTODY**

CLIENT: Larson & Associates  
 ADDRESS: 507 Maricfeld  
 PHONE: (432) 687-0901 FAX/E-MAIL: \_\_\_\_\_  
 DATA REPORTED TO: Mark Larson  
 ADDITIONAL REPORT COPIES TO: \_\_\_\_\_

DATE: 3/17/2016 PAGE \_\_\_\_\_ OF \_\_\_\_\_  
 PO #: \_\_\_\_\_ DHL WORK ORDER #: 1603209  
 PROJECT LOCATION OR NAME: R360 Ardenia Landfarm  
 CLIENT PROJECT #: 15-0121-01 COLLECTOR: Sarah Shistle/Carson Hughes

Authorize 5% surcharge for TRRP Report?  
 Yes  No

S=SOIL P=PAINT  
 W=WATER SL=SLUDGE  
 A=AIR O=OTHER  
 L=LIQUID SO=SOLID  
 SE=SEDIMENT

**PRESERVATION**

HCl  
 HNO<sub>3</sub>  
 H<sub>2</sub>SO<sub>4</sub> □ NaOH □  
 ICE  
 UNPRESERVED

- ANALYSES**
- BTEX
  - TPH 1009
  - TPH 1096
  - GRO (METHOD 8015)
  - VOC 8260
  - SVOC 8270
  - 8270 O-P
  - 8321 HERB
  - METALS 8070
  - PCRA 8070
  - PH
  - CHLORIDES
  - TCLP-SVOC
  - TCLP-METALS
  - RC10
  - TDS
  - TSS
  - TRP (4/1/1)
  - ANIONS
  - VOC
  - FLASHPOINT
  - % MOISTURE
  - CYANIDE

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> □ NaOH □	ICE	UNPRESERVED	ANALYSES												FIELD NOTES			
DP-1 (2-3)	01	3/16/16	1230	S	glass	2			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	per mark 2/3 3/18/16	
DP-2 (2-3)	02	3/16/16	1300	S																							
DP-3 (2-3)	03	3/16/16	1315	S																							
DP-4 (2-3)	04	3/16/16	1330	S																							
DP-5 (2-3)	05	3/16/16	1345	S																							
COMP-1 (0-1)	06	3/16/16	1235	S																							
COMP-2 (0-1)	07	3/16/16	1300	S																							
COMP-3 (0-1)	08	3/16/16	1315	S																							
COMP-4 (0-1)	09	3/16/16	1330	S																							
COMP5 (0-1)	10	3/16/16	1345	S																							

RELINQUISHED BY: (Signature) Carson Hughes DATE/TIME 3/17/2016 8:43 AM RECEIVED BY: (Signature) Lone Star  
 RELINQUISHED BY: (Signature) Lone Star DATE/TIME 3/18/16 9:00 AM RECEIVED BY: (Signature) Foran

**TURN AROUND TIME**  
 RUSH  CALL FIRST  
 1 DAY  CALL FIRST  
 2 DAY   
 NORMAL   
 OTHER

**LABORATORY USE ONLY:**  
 RECEIVING TEMP: 2.5 THERM #: 78  
 CUSTODY SEALS:  BROKEN  INTACT  NOT USED  
 CARRIER:  LONE STAR  FEDEX  UPS  OTHER  
 COURIER DELIVERY  
 HAND DELIVERED



WWW.LSO.COM  
Questions? Call 800-800-8984

Airbill No. 47639737

47639737

1A  
1B  
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801005980 00011, RV, Danville, VA 0933 reserved. 0687

<b>1. To:</b> <small>Print Name (Person)</small> J. Becker <small>Phone (Important)</small> (512)388-8222		<b>2. From:</b> <small>Print Name (Person)</small> MARK LARSON <small>Phone (Important)</small> 432-687-0901	
<small>Company Name</small> DHL Analytical		<small>Company Name</small> LARSON & ASSOCIATES INC.	
<small>Street Address (No P.O. Box or P.O. Box Zip Code Deliveries)</small> 2300 Double Creek Dr.		<small>Street Address</small> 507 N. MARIENFIELD	
<small>Suite / Floor</small> Room		<small>Suite / Floor</small> 200	
<small>City</small> Round Rock TX	<small>State</small> TX	<small>City</small> MIDLAND TX	<small>Zip</small> 79701
<b>3. Service:</b> Visit <a href="http://www.lso.com">www.lso.com</a> for availability of services to your destination and enjoy added features by creating your shipping label online.		<b>4. Package:</b> <small>Weight:</small> _____	
<input checked="" type="checkbox"/> By 10:30 am Delivery <small>Check availability at <a href="http://www.lso.com">www.lso.com</a></small>		<input type="checkbox"/> Saturday Delivery <small>Check availability at <a href="http://www.lso.com">www.lso.com</a></small> (Extra charge, not available on Ground)	
<input type="checkbox"/> By 8:30 am Delivery <small>Check availability at <a href="http://www.lso.com">www.lso.com</a></small> (Extra charge, no signature obtained)		<input type="checkbox"/> Other _____	
<input type="checkbox"/> By 3:00 pm Delivery		<small>Assumed 10:30 a.m. service unless otherwise noted.</small>	
<input type="checkbox"/> Ground (next day to most cities)		<b>FOR COURIER USE ONLY</b>	
<input checked="" type="checkbox"/> Deliver Without Delivery Signature (See Limits of Liability below)		<small>Your Company's Billing Reference Information</small> 	
<small>Release Signature</small> 		<small>Ship Date: (mm/dd/yy)</small> 3 17 16	
L _____ x W _____ x H _____		<b>5. Payment:</b>	
		<small>Courier Number</small> _____ <input type="checkbox"/> Check here if LSO Supplies are used with Ground Service.	
		<small>Pick-up Location</small> _____ <small>Date</small> _____ <small>Time</small> _____ <small>City Code</small> _____	

**LIMIT OF LIABILITY:** We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value (not to exceed \$25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. **NO DELIVERY SIGNATURE WILL BE OBTAINED FOR 8:30 AM DELIVERIES. PRIORITY SERVICE PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON GROUND SERVICE. OVERSIZE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.**

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 3/18/2016

Work Order Number 1603209

Received by JT

Checklist completed by: [Signature] 3/18/2016  
Signature Date

Reviewed by [Initials JD] 3/18/2016  
Initials Date

Carrier name LoneStar

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  2.5 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Any No response must be detailed in the comments section below.

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_

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**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1603209

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**CASE NARRATIVE**

Sample was analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis  
Method SW7471B - Mercury Analysis  
Method M8015D - DRO Analysis  
Method M8015V - GRO Analysis  
Method SW8021B - Volatile Organics by GC Analysis  
Method E418.1 - Petroleum Hydrocarbons, TR Analysis (This parameter is not NELAC Certified)  
Method SW9056A - Anions Analysis  
Method M2320 B - Soluble Alkalinity Analysis  
Method D2216 - Percent Moisture Analysis

**LOG IN**

The samples were received and log-in performed on 3/18/2016. A total of 10 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

The report includes the column RL and this is defined as the Reporting Limit. This term is also known as the Practical Quantitation Limit (PQL) in some state environmental programs. If the result for a target compound is non-detect, then it is reported as <RL for that compound.

**VOLATILE ORGANICS BY GC ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: As of January 1, 2016, the TCEQ remediation division guidance on the collection of soil for VOC analysis requires the use of Method 5035 and will reject VOC data reported for soil samples collected and prepared using another method; this applies to remediation testing only. For analyses reported to TCEQ for waste characterization, TCLP testing or matrices other than soil, bulk sampling is allowed. For analyses reported to the Texas Railroad Commission, bulk sampling is allowed. NELAP requires a note that if 5035 sampling method for VOCs is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised. The client has been notified and has requested the Laboratory to proceed with analysis.

**TX1005 ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: For TX1005 analyses of soils, the samples were collected in 4 ounce jars. This is allowed in Method TX1005 and by regulatory agencies for specific situations. For analyses reported to the Texas Railroad Commission, bulk sampling is allowed. For analyses reported for the TCEQ PST program, for waste classification,

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**CLIENT:** Larson & Associates  
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**Lab Order:** 1603209

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or for remediation project where process knowledge can document that C6-C12 hydrocarbons are not present, then Method 1005 allows for bulk sampling. NELAP requires a note that if 5035 sampling method for TX1005 is not utilized and none of the exceptions are applicable, the results of samples collected in bulk containers for C6-C12 hydrocarbon components may be compromised. The client has been notified and has requested the Laboratory to proceed with analysis.

### DRO ANALYSIS

For DRO Analysis, the recovery of surrogate Octacosane for six samples, and the Matrix Spike Duplicate (1603209-01 MSD) was above the method control limits. These are flagged accordingly in the Analytical Data Report and the QC Summary Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

For DRO Analysis, the recovery of the Matrix Spike Duplicate (1603209-01 MSD) was above the method control limits. This is flagged accordingly in the QC Summary Report. The remaining surrogate for these samples was within method control limits. No further corrective action was taken.

### GRO ANALYSIS

As per the TCEQ-NELAP accreditation requirement the following must be noted: NELAP requires a note that if 5035 sampling method for VOCs and GRO is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised and state environmental regulatory agencies will reject data if submitted for remediation projects. The client has been notified and has requested the Laboratory to proceed with analysis.

For GRO Analysis, the recoveries of the Matrix Spike and Matrix Spike Duplicate (1603209-10 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. The associated LCS was within method control limits. No further corrective action was taken.

### METALS ANALYSIS

For Metals Analysis, the recoveries of up to four analytes for the Matrix Spike and Matrix Spike Duplicate (1603188-01 MS/MSD) were outside of the method control limits. Additionally, the RPD of Barium for the Matrix Spike Duplicate (1603188-01 MSD) was marginally above the method control limit. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS. The reference sample selected for the Batch QC was not from this workorder. No further corrective action was taken.

For Metals Analysis, the RPD of Selenium for the Serial Dilution (1603188-01 SD) was above the method control limit. This is flagged accordingly in the QC Summary Report. The recovery of this

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**CLIENT:** Larson & Associates  
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## CASE NARRATIVE

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analyte was within method control limits in the associated Post Digestion Spike. No further corrective action was taken.

For Metals Analysis, Calcium was detected below the reporting limit for Method Blank-74259. This analyte was detected in the associated samples at greater than 10x the amount detected in the blank. No further corrective action was taken.

### ANIONS ANALYSIS

For Anions Analysis, the recoveries of two anions for the Matrix Spike and Matrix Spike Duplicate (1603209-10 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These anions were within method control limits in the associated LCS. The reference sample selected for the Batch QC was from this workorder. No further corrective action was taken.

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**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1603209

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1603209-01	DP-1 (2-3)		03/16/16 12:30 PM	3/18/2016
1603209-02	DP-2 (2-3)		03/16/16 01:00 PM	3/18/2016
1603209-03	DP-3 (2-3)		03/16/16 01:15 PM	3/18/2016
1603209-04	DP-4 (2-3)		03/16/16 01:30 PM	3/18/2016
1603209-05	DP-5 (2-3)		03/16/16 01:45 PM	3/18/2016
1603209-06	COMP-1 (0-1)		03/16/16 12:35 PM	3/18/2016
1603209-07	COMP-2 (0-1)		03/16/16 01:00 PM	3/18/2016
1603209-08	COMP-3 (0-1)		03/16/16 01:15 PM	3/18/2016
1603209-09	COMP-4 (0-1)		03/16/16 01:30 PM	3/18/2016
1603209-10	COMP-5 (0-1)		03/16/16 01:45 PM	3/18/2016



Lab Order: 1603209  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1603209-01A	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW7471B	Mercury Soil Prep, Total	03/24/16 09:47 AM	74261
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
1603209-01B	DP-1 (2-3)	03/16/16 12:30 PM	Soil	USDA 60	1:5 Water Extract	03/22/16 12:17 PM	74217
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	DP-1 (2-3)	03/16/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
1603209-02A	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW7471B	Mercury Soil Prep, Total	03/24/16 09:47 AM	74261
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
1603209-02B	DP-2 (2-3)	03/16/16 01:00 PM	Soil	USDA 60	1:5 Water Extract	03/22/16 12:17 PM	74217
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
1603209-03A	DP-2 (2-3)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW7471B	Mercury Soil Prep, Total	03/24/16 09:47 AM	74261
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
1603209-03B	DP-3 (2-3)	03/16/16 01:15 PM	Soil	USDA 60	1:5 Water Extract	03/22/16 12:17 PM	74217
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292

Lab Order: 1603209  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1603209-03B	DP-3 (2-3)	03/16/16 01:15 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	DP-3 (2-3)	03/16/16 01:15 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
1603209-04A	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW7471B	Mercury Soil Prep, Total	03/24/16 09:47 AM	74261
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
1603209-04B	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	USDA 60	1:5 Water Extract	03/22/16 12:17 PM	74217
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
1603209-05A	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	DP-4 (2-3)	03/16/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW7471B	Mercury Soil Prep, Total	03/24/16 09:47 AM	74261
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
1603209-05B	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	03/24/16 09:45 AM	74259
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	USDA 60	1:5 Water Extract	03/22/16 12:17 PM	74217
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
1603209-06A	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	DP-5 (2-3)	03/16/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
1603209-06A	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248

Lab Order: 1603209  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1603209-06A	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-1 (0-1)	03/16/16 12:35 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
1603209-07A	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-2 (0-1)	03/16/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
1603209-08A	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
1603209-09A	COMP-3 (0-1)	03/16/16 01:15 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
1603209-10A	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-4 (0-1)	03/16/16 01:30 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW9056A	Anion Prep	03/28/16 08:31 AM	74292
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	D2216	Moisture Preparation	03/25/16 11:19 AM	74287
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC	03/22/16 10:02 AM	74207
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC- Gas	03/23/16 12:23 PM	74248

Lab Order: 1603209  
Client: Larson & Associates  
Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1603209-10A	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: DRO	03/24/16 01:27 PM	74269
	COMP-5 (0-1)	03/16/16 01:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	03/23/16 11:52 AM	74245

**Lab Order:** 1603209  
**Client:** Larson & Associates  
**Project:** R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1603209-01A	DP-1 (2-3)	Soil	SW7471B	Total Mercury: Soil/Solid	74261	1	03/24/16 03:22 PM	CETAC2_HG_160324 A
	DP-1 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 04:24 PM	GC4_160323A
	DP-1 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	5	03/24/16 06:13 PM	ICP-MS4_160324H
	DP-1 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	50	03/25/16 02:19 PM	ICP-MS4_160325A
	DP-1 (2-3)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 12:14 PM	GC4_160322A
1603209-01B	DP-1 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	1	03/28/16 10:48 AM	IC2_160328A
	DP-1 (2-3)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	DP-1 (2-3)	Soil	M2320 B	Soluble Alkalinity of Soil	74217	1	03/23/16 10:16 AM	TITRATOR_160323A
	DP-1 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 10:21 AM	GC15_160325A
	DP-1 (2-3)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
1603209-02A	DP-2 (2-3)	Soil	SW7471B	Total Mercury: Soil/Solid	74261	1	03/24/16 03:24 PM	CETAC2_HG_160324 A
	DP-2 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 04:48 PM	GC4_160323A
	DP-2 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	5	03/24/16 06:29 PM	ICP-MS4_160324H
	DP-2 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	50	03/25/16 02:21 PM	ICP-MS4_160325A
	DP-2 (2-3)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 12:38 PM	GC4_160322A
1603209-02B	DP-2 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	1	03/28/16 11:02 AM	IC2_160328A
	DP-2 (2-3)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	DP-2 (2-3)	Soil	M2320 B	Soluble Alkalinity of Soil	74217	1	03/23/16 10:26 AM	TITRATOR_160323A
	DP-2 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 10:48 AM	GC15_160325A
	DP-2 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 12:57 PM	GC15_160325A
	DP-2 (2-3)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
1603209-03A	DP-3 (2-3)	Soil	SW7471B	Total Mercury: Soil/Solid	74261	1	03/24/16 03:26 PM	CETAC2_HG_160324 A
	DP-3 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 05:12 PM	GC4_160323A
	DP-3 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	5	03/24/16 06:31 PM	ICP-MS4_160324H
	DP-3 (2-3)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 01:04 PM	GC4_160322A
1603209-03B	DP-3 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	1	03/28/16 11:17 AM	IC2_160328A

**Lab Order:** 1603209  
**Client:** Larson & Associates  
**Project:** R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1603209-03B	DP-3 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	10	03/28/16 02:08 PM	IC2_160328A
	DP-3 (2-3)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	DP-3 (2-3)	Soil	M2320 B	Soluble Alkalinity of Soil	74217	1	03/23/16 10:29 AM	TITRATOR_160323A
	DP-3 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 10:57 AM	GC15_160325A
	DP-3 (2-3)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
1603209-04A	DP-4 (2-3)	Soil	SW7471B	Total Mercury: Soil/Solid	74261	1	03/24/16 03:29 PM	CETAC2_HG_160324 A
	DP-4 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 05:36 PM	GC4_160323A
	DP-4 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	100	03/25/16 02:23 PM	ICP-MS4_160325A
	DP-4 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	5	03/24/16 06:33 PM	ICP-MS4_160324H
	DP-4 (2-3)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 01:28 PM	GC4_160322A
1603209-04B	DP-4 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	1	03/28/16 11:32 AM	IC2_160328A
	DP-4 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	100	03/28/16 02:22 PM	IC2_160328A
	DP-4 (2-3)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	DP-4 (2-3)	Soil	M2320 B	Soluble Alkalinity of Soil	74217	1	03/23/16 10:32 AM	TITRATOR_160323A
	DP-4 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:06 AM	GC15_160325A
1603209-05A	DP-4 (2-3)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
	DP-5 (2-3)	Soil	SW7471B	Total Mercury: Soil/Solid	74261	1	03/24/16 03:36 PM	CETAC2_HG_160324 A
	DP-5 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 06:00 PM	GC4_160323A
	DP-5 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	5	03/24/16 06:35 PM	ICP-MS4_160324H
	DP-5 (2-3)	Soil	SW6020A	Trace Metals: ICP-MS - Solid	74259	50	03/25/16 02:25 PM	ICP-MS4_160325A
1603209-05B	DP-5 (2-3)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 01:52 PM	GC4_160322A
	DP-5 (2-3)	Soil	SW9056A	Anions by IC method - Soil	74292	100	03/28/16 02:37 PM	IC2_160328A
	DP-5 (2-3)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	DP-5 (2-3)	Soil	M2320 B	Soluble Alkalinity of Soil	74217	1	03/23/16 10:36 AM	TITRATOR_160323A
	DP-5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:15 AM	GC15_160325A
1603209-06A	COMP-1 (0-1)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
1603209-06A	COMP-1 (0-1)	Soil	SW9056A	Anions by IC method - Soil	74292	10	03/28/16 02:52 PM	IC2_160328A

**Lab Order:** 1603209  
**Client:** Larson & Associates  
**Project:** R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1603209-06A	COMP-1 (0-1)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	COMP-1 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:24 AM	GC15_160325A
	COMP-1 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	2	03/25/16 01:15 PM	GC15_160325A
	COMP-1 (0-1)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 06:24 PM	GC4_160323A
	COMP-1 (0-1)	Soil	E418.1	TRPH	74245	5	03/23/16 02:30 PM	IR207_160323A
	COMP-1 (0-1)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 02:17 PM	GC4_160322A
1603209-07A	COMP-2 (0-1)	Soil	SW9056A	Anions by IC method - Soil	74292	100	03/28/16 03:06 PM	IC2_160328A
	COMP-2 (0-1)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	COMP-2 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:33 AM	GC15_160325A
	COMP-2 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 01:06 PM	GC15_160325A
	COMP-2 (0-1)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 06:48 PM	GC4_160323A
	COMP-2 (0-1)	Soil	E418.1	TRPH	74245	1	03/23/16 02:30 PM	IR207_160323A
	COMP-2 (0-1)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 02:41 PM	GC4_160322A
1603209-08A	COMP-3 (0-1)	Soil	SW9056A	Anions by IC method - Soil	74292	1	03/28/16 12:30 PM	IC2_160328A
	COMP-3 (0-1)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	COMP-3 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:42 AM	GC15_160325A
	COMP-3 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	2	03/25/16 01:24 PM	GC15_160325A
	COMP-3 (0-1)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 07:13 PM	GC4_160323A
	COMP-3 (0-1)	Soil	E418.1	TRPH	74245	5	03/23/16 02:30 PM	IR207_160323A
	COMP-3 (0-1)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 03:05 PM	GC4_160322A
1603209-09A	COMP-4 (0-1)	Soil	SW9056A	Anions by IC method - Soil	74292	10	03/28/16 03:21 PM	IC2_160328A
	COMP-4 (0-1)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	COMP-4 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:50 AM	GC15_160325A
	COMP-4 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	2	03/25/16 01:33 PM	GC15_160325A
	COMP-4 (0-1)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 07:37 PM	GC4_160323A
	COMP-4 (0-1)	Soil	E418.1	TRPH	74245	5	03/23/16 02:30 PM	IR207_160323A
	COMP-4 (0-1)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 03:30 PM	GC4_160322A
1603209-10A	COMP-5 (0-1)	Soil	SW9056A	Anions by IC method - Soil	74292	100	03/28/16 03:36 PM	IC2_160328A



**Lab Order:** 1603209  
**Client:** Larson & Associates  
**Project:** R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1603209-10A	COMP-5 (0-1)	Soil	D2216	Percent Moisture	74287	1	03/28/16 10:17 AM	PMOIST_160325A
	COMP-5 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	1	03/25/16 11:59 AM	GC15_160325A
	COMP-5 (0-1)	Soil	M8015D	TPH Extractable by GC - Soil	74269	10	03/25/16 01:42 PM	GC15_160325A
	COMP-5 (0-1)	Soil	M8015V	TPH Purgeable by GC - Soil	74248	1	03/23/16 08:01 PM	GC4_160323A
	COMP-5 (0-1)	Soil	E418.1	TRPH	74245	5	03/23/16 02:30 PM	IR207_160323A
	COMP-5 (0-1)	Soil	SW8021B	Volatile Organics by GC	74207	1	03/22/16 03:55 PM	GC4_160322A

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-1 (2-3)  
**Lab ID:** 1603209-01  
**Collection Date:** 03/16/16 12:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	77.4	3.29	11.0		mg/Kg-dry	1	03/25/16 10:21 AM
TPH-ORO >C28-C35	48.8	3.29	11.0		mg/Kg-dry	1	03/25/16 10:21 AM
Surr: Isopropylbenzene	86.5	0	47-142		%REC	1	03/25/16 10:21 AM
Surr: Octacosane	337	0	25-162	S	%REC	1	03/25/16 10:21 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.213	0.107	0.213		mg/Kg-dry	1	03/23/16 04:24 PM
Surr: Tetrachlorethene	132	0	70-134		%REC	1	03/23/16 04:24 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00483	0.00290	0.00483		mg/Kg-dry	1	03/22/16 12:14 PM
Ethylbenzene	<0.0145	0.00483	0.0145		mg/Kg-dry	1	03/22/16 12:14 PM
Toluene	<0.0145	0.00483	0.0145		mg/Kg-dry	1	03/22/16 12:14 PM
Xylenes, Total	<0.0145	0.00483	0.0145		mg/Kg-dry	1	03/22/16 12:14 PM
Surr: Tetrachloroethene	114	0	79-135		%REC	1	03/22/16 12:14 PM
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>		<b>Analyst: AH</b>			
Mercury	<0.0412	0.0165	0.0412		mg/Kg-dry	1	03/24/16 03:22 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>		<b>Analyst: RO</b>			
Arsenic		0.539	1.08		mg/Kg-dry	5	03/24/16 06:13 PM
Barium		0.539	2.16		mg/Kg-dry	5	03/24/16 06:13 PM
Cadmium	<0.323	0.108	0.323		mg/Kg-dry	5	03/24/16 06:13 PM
Calcium	8460	135	404		mg/Kg-dry	50	03/25/16 02:19 PM
Chromium	12.1	0.539	2.16		mg/Kg-dry	5	03/24/16 06:13 PM
Lead	4.71	0.108	0.323		mg/Kg-dry	5	03/24/16 06:13 PM
Magnesium	2360	13.5	40.4		mg/Kg-dry	5	03/24/16 06:13 PM
Potassium	3030	13.5	40.4		mg/Kg-dry	5	03/24/16 06:13 PM
Selenium	0.383	0.162	0.539	J	mg/Kg-dry	5	03/24/16 06:13 PM
Silver	<0.216	0.108	0.216		mg/Kg-dry	5	03/24/16 06:13 PM
Sodium	150	13.5	40.4		mg/Kg-dry	5	03/24/16 06:13 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	175	5.47	10.9	N	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	133	5.55	5.55		mg/Kg-dry	1	03/28/16 10:48 AM
Sulfate	336	11.1	11.1		mg/Kg-dry	1	03/28/16 10:48 AM
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Bicarbonate (As CaCO3)		54.7	54.7		mg/L @ pH 4.52-dr	1	03/23/16 10:16 AM
Alkalinity, Carbonate (As CaCO3)	<54.7	54.7	54.7		mg/L @ pH 4.52-dr	1	03/23/16 10:16 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-1 (2-3)  
**Lab ID:** 1603209-01  
**Collection Date:** 03/16/16 12:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		Analyst: <b>BJT</b>			
Alkalinity, Hydroxide (As CaCO3)	<54.7	54.7	54.7		mg/L @ pH 4.52-dr 1		03/23/16 10:16 AM
Alkalinity, Total (As CaCO3)	209	54.7	54.7		mg/L @ pH 4.52-dr 1		03/23/16 10:16 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>CVD</b>			
Percent Moisture	11.7	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-2 (2-3)  
**Lab ID:** 1603209-02  
**Collection Date:** 03/16/16 01:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	<11.8	3.53	11.8		mg/Kg-dry	1	03/25/16 12:57 PM
TPH-ORO >C28-C35	4.49	3.53	11.8	J	mg/Kg-dry	1	03/25/16 12:57 PM
Surr: Isopropylbenzene	85.4	0	47-142		%REC	1	03/25/16 12:57 PM
Surr: Octacosane	95.2	0	25-162		%REC	1	03/25/16 12:57 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.237	0.119	0.237		mg/Kg-dry	1	03/23/16 04:48 PM
Surr: Tetrachlorethene	124	0	70-134		%REC	1	03/23/16 04:48 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00551	0.00330	0.00551		mg/Kg-dry	1	03/22/16 12:38 PM
Ethylbenzene	<0.0165	0.00551	0.0165		mg/Kg-dry	1	03/22/16 12:38 PM
Toluene	<0.0165	0.00551	0.0165		mg/Kg-dry	1	03/22/16 12:38 PM
Xylenes, Total	<0.0165	0.00551	0.0165		mg/Kg-dry	1	03/22/16 12:38 PM
Surr: Tetrachloroethene	111	0	79-135		%REC	1	03/22/16 12:38 PM
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>		<b>Analyst: AH</b>			
Mercury	<0.0490	0.0196	0.0490		mg/Kg-dry	1	03/24/16 03:24 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>		<b>Analyst: RO</b>			
Arsenic	1.35	0.582	1.16		mg/Kg-dry	5	03/24/16 06:29 PM
Barium	70.5	0.582	2.33		mg/Kg-dry	5	03/24/16 06:29 PM
Cadmium	<0.349	0.116	0.349		mg/Kg-dry	5	03/24/16 06:29 PM
Calcium	33300	145	436		mg/Kg-dry	50	03/25/16 02:21 PM
Chromium	3.32	0.582	2.33		mg/Kg-dry	5	03/24/16 06:29 PM
Lead	1.37	0.116	0.349		mg/Kg-dry	5	03/24/16 06:29 PM
Magnesium	857	14.5	43.6		mg/Kg-dry	5	03/24/16 06:29 PM
Potassium	770	14.5	43.6		mg/Kg-dry	5	03/24/16 06:29 PM
Selenium	<0.582	0.174	0.582		mg/Kg-dry	5	03/24/16 06:29 PM
Silver	<0.233	0.116	0.233		mg/Kg-dry	5	03/24/16 06:29 PM
Sodium	46.9	14.5	43.6		mg/Kg-dry	5	03/24/16 06:29 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	<12.2	6.10	12.2	N	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	14.4	5.74	5.74		mg/Kg-dry	1	03/28/16 11:02 AM
Sulfate	425	11.5	11.5		mg/Kg-dry	1	03/28/16 11:02 AM
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Bicarbonate (As CaCO3)	<60.8	60.8	60.8		mg/L @ pH 4.52-dr	1	03/23/16 10:26 AM
Alkalinity, Carbonate (As CaCO3)	<60.8	60.8	60.8		mg/L @ pH 4.52-dr	1	03/23/16 10:26 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-2 (2-3)  
**Lab ID:** 1603209-02  
**Collection Date:** 03/16/16 01:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		Analyst: BJT			
Alkalinity, Hydroxide (As CaCO3)	<60.8	60.8	60.8		mg/L @ pH 4.52-dr 1		03/23/16 10:26 AM
Alkalinity, Total (As CaCO3)	1590	60.8	60.8		mg/L @ pH 4.52-dr 1		03/23/16 10:26 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: CVD			
Percent Moisture	19.6	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	



**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-3 (2-3)  
**Lab ID:** 1603209-03  
**Collection Date:** 03/16/16 01:15 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	15.1	3.06	10.2		mg/Kg-dry	1	03/25/16 10:57 AM
TPH-ORO >C28-C35	11.4	3.06	10.2		mg/Kg-dry	1	03/25/16 10:57 AM
Surr: Isopropylbenzene	80.8	0	47-142		%REC	1	03/25/16 10:57 AM
Surr: Octacosane	103	0	25-162		%REC	1	03/25/16 10:57 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.189	0.0947	0.189		mg/Kg-dry	1	03/23/16 05:12 PM
Surr: Tetrachlorethene	129	0	70-134		%REC	1	03/23/16 05:12 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00479	0.00287	0.00479		mg/Kg-dry	1	03/22/16 01:04 PM
Ethylbenzene	<0.0144	0.00479	0.0144		mg/Kg-dry	1	03/22/16 01:04 PM
Toluene	<0.0144	0.00479	0.0144		mg/Kg-dry	1	03/22/16 01:04 PM
Xylenes, Total	<0.0144	0.00479	0.0144		mg/Kg-dry	1	03/22/16 01:04 PM
Surr: Tetrachloroethene	106	0	79-135		%REC	1	03/22/16 01:04 PM
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>		<b>Analyst: AH</b>			
Mercury	<0.0401	0.0160	0.0401		mg/Kg-dry	1	03/24/16 03:26 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>		<b>Analyst: RO</b>			
Arsenic		0.469	0.937	J	mg/Kg-dry	5	03/24/16 06:31 PM
Barium		0.469	1.87		mg/Kg-dry	5	03/24/16 06:31 PM
Cadmium	<0.281	0.0937	0.281		mg/Kg-dry	5	03/24/16 06:31 PM
Calcium	4630	11.7	35.1		mg/Kg-dry	5	03/24/16 06:31 PM
Chromium	2.60	0.469	1.87		mg/Kg-dry	5	03/24/16 06:31 PM
Lead	1.13	0.0937	0.281		mg/Kg-dry	5	03/24/16 06:31 PM
Magnesium	508	11.7	35.1		mg/Kg-dry	5	03/24/16 06:31 PM
Potassium	535	11.7	35.1		mg/Kg-dry	5	03/24/16 06:31 PM
Selenium	<0.469	0.141	0.469		mg/Kg-dry	5	03/24/16 06:31 PM
Silver	<0.187	0.0937	0.187		mg/Kg-dry	5	03/24/16 06:31 PM
Sodium	58.0	11.7	35.1		mg/Kg-dry	5	03/24/16 06:31 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	9.52	4.92	9.85	JN	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	21.4	5.01	5.01		mg/Kg-dry	1	03/28/16 11:17 AM
Sulfate	890	100	100		mg/Kg-dry	10	03/28/16 02:08 PM
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Bicarbonate (As CaCO3)		50.9	50.9		mg/L @ pH 4.5-dry	1	03/23/16 10:29 AM
Alkalinity, Carbonate (As CaCO3)	<50.9	50.9	50.9		mg/L @ pH 4.5-dry	1	03/23/16 10:29 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-3 (2-3)  
**Lab ID:** 1603209-03  
**Collection Date:** 03/16/16 01:15 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>					Analyst: <b>BJT</b>
Alkalinity, Hydroxide (As CaCO3)	<50.9	50.9	50.9		mg/L @ pH 4.5-dry	1	03/23/16 10:29 AM
Alkalinity, Total (As CaCO3)	182	50.9	50.9		mg/L @ pH 4.5-dry	1	03/23/16 10:29 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>CVD</b>
Percent Moisture	3.85	0	0		WT%	1	03/28/16 10:17 AM

- Qualifiers:**
- \* Value exceeds TCLP Maximum Concentration Level
  - C Sample Result or QC discussed in the Case Narrative
  - E TPH pattern not Gas or Diesel Range Pattern
  - MDL Method Detection Limit
  - RL Reporting Limit
  - N Parameter not NELAC certified
  - B Analyte detected in the associated Method Blank
  - DF Dilution Factor
  - J Analyte detected between MDL and RL
  - ND Not Detected at the Method Detection Limit
  - S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-4 (2-3)  
**Lab ID:** 1603209-04  
**Collection Date:** 03/16/16 01:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	98.7	3.14	10.5		mg/Kg-dry	1	03/25/16 11:06 AM
TPH-ORO >C28-C35	82.3	3.14	10.5		mg/Kg-dry	1	03/25/16 11:06 AM
Surr: Isopropylbenzene	81.7	0	47-142		%REC	1	03/25/16 11:06 AM
Surr: Octacosane	159	0	25-162		%REC	1	03/25/16 11:06 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.205	0.103	0.205		mg/Kg-dry	1	03/23/16 05:36 PM
Surr: Tetrachlorethene	121	0	70-134		%REC	1	03/23/16 05:36 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00540	0.00324	0.00540		mg/Kg-dry	1	03/22/16 01:28 PM
Ethylbenzene	<0.0162	0.00540	0.0162		mg/Kg-dry	1	03/22/16 01:28 PM
Toluene	<0.0162	0.00540	0.0162		mg/Kg-dry	1	03/22/16 01:28 PM
Xylenes, Total	<0.0162	0.00540	0.0162		mg/Kg-dry	1	03/22/16 01:28 PM
Surr: Tetrachloroethene	109	0	79-135		%REC	1	03/22/16 01:28 PM
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>		<b>Analyst: AH</b>			
Mercury	0.0688	0.0166	0.0415		mg/Kg-dry	1	03/24/16 03:29 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>		<b>Analyst: RO</b>			
Arsenic	4.04	0.534	1.07		mg/Kg-dry	5	03/24/16 06:33 PM
Barium	149	0.534	2.13		mg/Kg-dry	5	03/24/16 06:33 PM
Cadmium	0.264	0.107	0.320	J	mg/Kg-dry	5	03/24/16 06:33 PM
Calcium	56200	267	801		mg/Kg-dry	100	03/25/16 02:23 PM
Chromium	16.3	0.534	2.13		mg/Kg-dry	5	03/24/16 06:33 PM
Lead	48.5	0.107	0.320		mg/Kg-dry	5	03/24/16 06:33 PM
Magnesium	9890	13.3	40.0		mg/Kg-dry	5	03/24/16 06:33 PM
Potassium	2980	13.3	40.0		mg/Kg-dry	5	03/24/16 06:33 PM
Selenium	0.966	0.160	0.534		mg/Kg-dry	5	03/24/16 06:33 PM
Silver	<0.213	0.107	0.213		mg/Kg-dry	5	03/24/16 06:33 PM
Sodium	394	13.3	40.0		mg/Kg-dry	5	03/24/16 06:33 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	228	5.35	10.7	N	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	255	5.31	5.31		mg/Kg-dry	1	03/28/16 11:32 AM
Sulfate	9110	1060	1060		mg/Kg-dry	100	03/28/16 02:22 PM
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Bicarbonate (As CaCO3)	140	52.9	52.9		mg/L @ pH 4.52-dr	1	03/23/16 10:32 AM
Alkalinity, Carbonate (As CaCO3)	<52.9	52.9	52.9		mg/L @ pH 4.52-dr	1	03/23/16 10:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-4 (2-3)  
**Lab ID:** 1603209-04  
**Collection Date:** 03/16/16 01:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Hydroxide (As CaCO <sub>3</sub> )	<52.9	52.9	52.9		mg/L @ pH 4.52-dr	1	03/23/16 10:32 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	140	52.9	52.9		mg/L @ pH 4.52-dr	1	03/23/16 10:32 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: CVD</b>			
Percent Moisture	9.04	0	0		WT%	1	03/28/16 10:17 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-5 (2-3)  
**Lab ID:** 1603209-05  
**Collection Date:** 03/16/16 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	203	3.29	11.0		mg/Kg-dry	1	03/25/16 11:15 AM
TPH-ORO >C28-C35	107	3.29	11.0		mg/Kg-dry	1	03/25/16 11:15 AM
Surr: Isopropylbenzene	90.2	0	47-142		%REC	1	03/25/16 11:15 AM
Surr: Octacosane	188	0	25-162	S	%REC	1	03/25/16 11:15 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.223	0.112	0.223		mg/Kg-dry	1	03/23/16 06:00 PM
Surr: Tetrachlorethene	128	0	70-134		%REC	1	03/23/16 06:00 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00519	0.00311	0.00519		mg/Kg-dry	1	03/22/16 01:52 PM
Ethylbenzene	<0.0156	0.00519	0.0156		mg/Kg-dry	1	03/22/16 01:52 PM
Toluene	<0.0156	0.00519	0.0156		mg/Kg-dry	1	03/22/16 01:52 PM
Xylenes, Total	<0.0156	0.00519	0.0156		mg/Kg-dry	1	03/22/16 01:52 PM
Surr: Tetrachloroethene	97.4	0	79-135		%REC	1	03/22/16 01:52 PM
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>		<b>Analyst: AH</b>			
Mercury	0.0173	0.0157	0.0391	J	mg/Kg-dry	1	03/24/16 03:36 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>		<b>Analyst: RO</b>			
Arsenic		0.506	1.01		mg/Kg-dry	5	03/24/16 06:35 PM
Barium		0.506	2.03		mg/Kg-dry	5	03/24/16 06:35 PM
Cadmium	<0.304	0.101	0.304		mg/Kg-dry	5	03/24/16 06:35 PM
Calcium	31200	127	380		mg/Kg-dry	50	03/25/16 02:25 PM
Chromium	8.82	0.506	2.03		mg/Kg-dry	5	03/24/16 06:35 PM
Lead	5.75	0.101	0.304		mg/Kg-dry	5	03/24/16 06:35 PM
Magnesium	2640	12.7	38.0		mg/Kg-dry	5	03/24/16 06:35 PM
Potassium	1810	12.7	38.0		mg/Kg-dry	5	03/24/16 06:35 PM
Selenium	0.267	0.152	0.506	J	mg/Kg-dry	5	03/24/16 06:35 PM
Silver	<0.203	0.101	0.203		mg/Kg-dry	5	03/24/16 06:35 PM
Sodium	1130	12.7	38.0		mg/Kg-dry	5	03/24/16 06:35 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	287	5.45	10.9	N	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	3120	529	529		mg/Kg-dry	100	03/28/16 02:37 PM
Sulfate	2550	1060	1060		mg/Kg-dry	100	03/28/16 02:37 PM
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		<b>Analyst: BJT</b>			
Alkalinity, Bicarbonate (As CaCO3)		55.5	55.5		mg/L @ pH 4.52-dr	1	03/23/16 10:36 AM
Alkalinity, Carbonate (As CaCO3)	<55.5	55.5	55.5		mg/L @ pH 4.52-dr	1	03/23/16 10:36 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** DP-5 (2-3)  
**Lab ID:** 1603209-05  
**Collection Date:** 03/16/16 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SOLUBLE ALKALINITY OF SOIL</b>		<b>M2320 B</b>		Analyst: BJT			
Alkalinity, Hydroxide (As CaCO <sub>3</sub> )	<55.5	55.5	55.5		mg/L @ pH 4.52-dr	1	03/23/16 10:36 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	183	55.5	55.5		mg/L @ pH 4.52-dr	1	03/23/16 10:36 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: CVD			
Percent Moisture	13.4	0	0		WT%	1	03/28/16 10:17 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** COMP-1 (0-1)  
**Lab ID:** 1603209-06  
**Collection Date:** 03/16/16 12:35 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	366	5.95	19.8		mg/Kg-dry	2	03/25/16 01:15 PM
TPH-ORO >C28-C35	283	5.95	19.8		mg/Kg-dry	2	03/25/16 01:15 PM
Surr: Isopropylbenzene	87.2	0	47-142		%REC	2	03/25/16 01:15 PM
Surr: Octacosane	302	0	25-162	S	%REC	2	03/25/16 01:15 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.190	0.0951	0.190		mg/Kg-dry	1	03/23/16 06:24 PM
Surr: Tetrachlorethene	125	0	70-134		%REC	1	03/23/16 06:24 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00472	0.00283	0.00472		mg/Kg-dry	1	03/22/16 02:17 PM
Ethylbenzene	<0.0142	0.00472	0.0142		mg/Kg-dry	1	03/22/16 02:17 PM
Toluene	<0.0142	0.00472	0.0142		mg/Kg-dry	1	03/22/16 02:17 PM
Xylenes, Total	<0.0142	0.00472	0.0142		mg/Kg-dry	1	03/22/16 02:17 PM
Surr: Tetrachloroethene	93.3	0	79-135		%REC	1	03/22/16 02:17 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	836	24.8	49.7	N	mg/Kg-dry	5	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	356	49.3	49.3		mg/Kg-dry	10	03/28/16 02:52 PM
Sulfate	2790	98.6	98.6		mg/Kg-dry	10	03/28/16 02:52 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: CVD</b>			
Percent Moisture	1.38	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** COMP-2 (0-1)  
**Lab ID:** 1603209-07  
**Collection Date:** 03/16/16 01:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	68.9	3.39	11.3		mg/Kg-dry	1	03/25/16 01:06 PM
TPH-ORO >C28-C35	49.1	3.39	11.3		mg/Kg-dry	1	03/25/16 01:06 PM
Surr: Isopropylbenzene	82.8	0	47-142		%REC	1	03/25/16 01:06 PM
Surr: Octacosane	134	0	25-162		%REC	1	03/25/16 01:06 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.226	0.113	0.226		mg/Kg-dry	1	03/23/16 06:48 PM
Surr: Tetrachlorethene	130	0	70-134		%REC	1	03/23/16 06:48 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00553	0.00332	0.00553		mg/Kg-dry	1	03/22/16 02:41 PM
Ethylbenzene	<0.0166	0.00553	0.0166		mg/Kg-dry	1	03/22/16 02:41 PM
Toluene	<0.0166	0.00553	0.0166		mg/Kg-dry	1	03/22/16 02:41 PM
Xylenes, Total	<0.0166	0.00553	0.0166		mg/Kg-dry	1	03/22/16 02:41 PM
Surr: Tetrachloroethene	97.7	0	79-135		%REC	1	03/22/16 02:41 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	35.6	5.56	11.1	N	mg/Kg-dry	1	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	1580	567	567		mg/Kg-dry	100	03/28/16 03:06 PM
Sulfate	7810	1130	1130		mg/Kg-dry	100	03/28/16 03:06 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: CVD</b>			
Percent Moisture	14.0	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** COMP-3 (0-1)  
**Lab ID:** 1603209-08  
**Collection Date:** 03/16/16 01:15 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	273	5.84	19.5		mg/Kg-dry	2	03/25/16 01:24 PM
TPH-ORO >C28-C35	235	5.84	19.5		mg/Kg-dry	2	03/25/16 01:24 PM
Surr: Isopropylbenzene	86.3	0	47-142		%REC	2	03/25/16 01:24 PM
Surr: Octacosane	279	0	25-162	S	%REC	2	03/25/16 01:24 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.192	0.0959	0.192		mg/Kg-dry	1	03/23/16 07:13 PM
Surr: Tetrachlorethene	120	0	70-134		%REC	1	03/23/16 07:13 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00454	0.00272	0.00454		mg/Kg-dry	1	03/22/16 03:05 PM
Ethylbenzene	<0.0136	0.00454	0.0136		mg/Kg-dry	1	03/22/16 03:05 PM
Toluene	<0.0136	0.00454	0.0136		mg/Kg-dry	1	03/22/16 03:05 PM
Xylenes, Total	<0.0136	0.00454	0.0136		mg/Kg-dry	1	03/22/16 03:05 PM
Surr: Tetrachloroethene	95.8	0	79-135		%REC	1	03/22/16 03:05 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	644	24.9	49.8	N	mg/Kg-dry	5	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	177	4.98	4.98		mg/Kg-dry	1	03/28/16 12:30 PM
Sulfate	403	9.95	9.95		mg/Kg-dry	1	03/28/16 12:30 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: CVD</b>			
Percent Moisture	0.924	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	



**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** COMP-4 (0-1)  
**Lab ID:** 1603209-09  
**Collection Date:** 03/16/16 01:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	299	5.72	19.1		mg/Kg-dry	2	03/25/16 01:33 PM
TPH-ORO >C28-C35	228	5.72	19.1		mg/Kg-dry	2	03/25/16 01:33 PM
Surr: Isopropylbenzene	87.2	0	47-142		%REC	2	03/25/16 01:33 PM
Surr: Octacosane	301	0	25-162	S	%REC	2	03/25/16 01:33 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.200	0.100	0.200		mg/Kg-dry	1	03/23/16 07:37 PM
Surr: Tetrachlorethene	124	0	70-134		%REC	1	03/23/16 07:37 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00451	0.00271	0.00451		mg/Kg-dry	1	03/22/16 03:30 PM
Ethylbenzene	<0.0135	0.00451	0.0135		mg/Kg-dry	1	03/22/16 03:30 PM
Toluene	<0.0135	0.00451	0.0135		mg/Kg-dry	1	03/22/16 03:30 PM
Xylenes, Total	<0.0135	0.00451	0.0135		mg/Kg-dry	1	03/22/16 03:30 PM
Surr: Tetrachloroethene	88.5	0	79-135		%REC	1	03/22/16 03:30 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	704	24.0	47.9	N	mg/Kg-dry	5	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	467	50.2	50.2		mg/Kg-dry	10	03/28/16 03:21 PM
Sulfate	1460	100	100		mg/Kg-dry	10	03/28/16 03:21 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: C/D</b>			
Percent Moisture	1.35	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 29-Mar-16

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1603209

**Client Sample ID:** COMP-5 (0-1)  
**Lab ID:** 1603209-10  
**Collection Date:** 03/16/16 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AV</b>			
TPH-DRO C10-C28	737	30.7	102		mg/Kg-dry	10	03/25/16 01:42 PM
TPH-ORO >C28-C35	669	30.7	102		mg/Kg-dry	10	03/25/16 01:42 PM
Surr: Isopropylbenzene	78.3	0	47-142		%REC	10	03/25/16 01:42 PM
Surr: Octacosane	577	0	25-162	S	%REC	10	03/25/16 01:42 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	<0.186	0.0929	0.186		mg/Kg-dry	1	03/23/16 08:01 PM
Surr: Tetrachlorethene	106	0	70-134		%REC	1	03/23/16 08:01 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	<0.00493	0.00296	0.00493		mg/Kg-dry	1	03/22/16 03:55 PM
Ethylbenzene	<0.0148	0.00493	0.0148		mg/Kg-dry	1	03/22/16 03:55 PM
Toluene	<0.0148	0.00493	0.0148		mg/Kg-dry	1	03/22/16 03:55 PM
Xylenes, Total	<0.0148	0.00493	0.0148		mg/Kg-dry	1	03/22/16 03:55 PM
Surr: Tetrachloroethene	84.6	0	79-135		%REC	1	03/22/16 03:55 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: DEW</b>			
Petroleum Hydrocarbons, TR	2080	25.1	50.2	N	mg/Kg-dry	5	03/23/16 02:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	2100	512	512		mg/Kg-dry	100	03/28/16 03:36 PM
Sulfate	7890	1020	1020		mg/Kg-dry	100	03/28/16 03:36 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: CVD</b>			
Percent Moisture	3.37	0	0		WT%	1	03/28/16 10:17 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC15\_160325A

The QC data in batch 74269 applies to the following samples: 1603209-01B, 1603209-02B, 1603209-03B, 1603209-04B, 1603209-05B, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID	LCS-74269	Batch ID:	74269	TestNo:	M8015D	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 10:03:18 AM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	102	10.0	125.0	0	81.9	50	114			
Surr: Isopropylbenzene	6.50		7.500		86.7	47	142			
Surr: Octacosane	6.91		7.500		92.1	25	162			

Sample ID	MB-74269	Batch ID:	74269	TestNo:	M8015D	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 10:12:17 AM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	<10.0	10.0								
TPH-ORO >C28-C35	<10.0	10.0								
Surr: Isopropylbenzene	6.27		7.500		83.5	47	142			
Surr: Octacosane	6.73		7.500		89.7	25	162			

Sample ID	1603209-01BMS	Batch ID:	74269	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 10:30:15 AM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	191	10.5	130.7	77.40	87.1	50	114			
Surr: Isopropylbenzene	6.46		7.840		82.4	47	142			
Surr: Octacosane	11.5		7.840		146	25	162			

Sample ID	1603209-01BMSD	Batch ID:	74269	TestNo:	M8015D	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 10:39:14 AM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	245	10.5	131.5	77.40	127	50	114	24.5	30	S
Surr: Isopropylbenzene	6.81		7.891		86.3	47	142	0	0	
Surr: Octacosane	14.8		7.891		187	25	162	0	0	S

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_160325A

Sample ID	ICV-160325	Batch ID:	R84878	TestNo:	M8015D	Units:	mg/Kg
SampType:	ICV	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 9:53:11 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	589	10.0	500.0	0	118	80	120			
TPH-ORO >C28-C35	0.646	10.0	0							
Surr: Isopropylbenzene	28.2		25.00		113	80	120			
Surr: Octacosane	28.2		25.00		113	80	120			

Sample ID	CCV1-160325	Batch ID:	R84878	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 12:48:35 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	223	10.0	250.0	0	89.1	80	120			
TPH-ORO >C28-C35	5.56	10.0	0							
Surr: Isopropylbenzene	13.2		12.50		105	80	120			
Surr: Octacosane	12.0		12.50		95.9	80	120			

Sample ID	CCV2-160325	Batch ID:	R84878	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_160325A	Analysis Date:	3/25/2016 2:00:50 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	218	10.0	250.0	0	87.4	80	120			
TPH-ORO >C28-C35	1.34	10.0	0							
Surr: Isopropylbenzene	12.8		12.50		103	80	120			
Surr: Octacosane	12.0		12.50		95.7	80	120			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160322A

The QC data in batch 74207 applies to the following samples: 1603209-01A, 1603209-02A, 1603209-03A, 1603209-04A, 1603209-05A, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID: <b>LCS-74207</b>	Batch ID: <b>74207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC4_160322A</b>	Analysis Date: <b>3/22/2016 10:40:08 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0997	0.00500	0.1000	0	99.7	65	113			
Toluene	0.102	0.0150	0.1000	0	102	73	115			
Ethylbenzene	0.102	0.0150	0.1000	0	102	74	118			
Xylenes, Total	0.315	0.0150	0.3000	0	105	73	119			
Surr: Tetrachloroethene	0.196		0.2000		97.8	79	135			

Sample ID: <b>MB-74207</b>	Batch ID: <b>74207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GC4_160322A</b>	Analysis Date: <b>3/22/2016 11:30:33 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00500	0.00500								
Toluene	<0.0150	0.0150								
Ethylbenzene	<0.0150	0.0150								
Xylenes, Total	<0.0150	0.0150								
Surr: Tetrachloroethene	0.213		0.2000		107	79	135			

Sample ID: <b>1603209-10AMS</b>	Batch ID: <b>74207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GC4_160322A</b>	Analysis Date: <b>3/22/2016 4:19:00 PM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0754	0.00451	0.09014	0	83.6	65	113			
Toluene	0.0730	0.0135	0.09014	0	81.0	73	115			
Ethylbenzene	0.0688	0.0135	0.09014	0	76.4	74	118			
Xylenes, Total	0.204	0.0135	0.2704	0	75.4	73	119			
Surr: Tetrachloroethene	0.153		0.1803		84.7	79	135			

Sample ID: <b>1603209-10AMSD</b>	Batch ID: <b>74207</b>	TestNo: <b>SW8021B</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GC4_160322A</b>	Analysis Date: <b>3/22/2016 4:43:54 PM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0811	0.00469	0.09374	0	86.5	65	113	7.30	30	
Toluene	0.0795	0.0141	0.09374	0	84.8	73	115	8.45	30	
Ethylbenzene	0.0752	0.0141	0.09374	0	80.2	74	118	8.79	30	
Xylenes, Total	0.221	0.0141	0.2812	0	78.5	73	119	8.00	30	
Surr: Tetrachloroethene	0.151		0.1875		80.8	79	135	0		

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC4\_160322A

Sample ID	ICV-160322	Batch ID:	R84797	TestNo:	SW8021B	Units:	mg/Kg
SampType:	ICV	Run ID:	GC4_160322A	Analysis Date:	3/22/2016 10:06:17 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.190	0.00500	0.2000	0	94.9	80	120			
Toluene	0.191	0.0150	0.2000	0	95.6	80	120			
Ethylbenzene	0.197	0.0150	0.2000	0	98.3	80	120			
Xylenes, Total	0.625	0.0150	0.6000	0	104	80	120			
Surr: Tetrachloroethene	0.188		0.2000		94.1	79	135			

Sample ID	CCV1-160322	Batch ID:	R84797	TestNo:	SW8021B	Units:	mg/Kg
SampType:	CCV	Run ID:	GC4_160322A	Analysis Date:	3/22/2016 5:13:47 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0981	0.00500	0.1000	0	98.1	80	120			
Toluene	0.0998	0.0150	0.1000	0	99.8	80	120			
Ethylbenzene	0.101	0.0150	0.1000	0	101	80	120			
Xylenes, Total	0.306	0.0150	0.3000	0	102	80	120			
Surr: Tetrachloroethene	0.211		0.2000		106	79	135			

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_160323A

The QC data in batch 74248 applies to the following samples: 1603209-01A, 1603209-02A, 1603209-03A, 1603209-04A, 1603209-05A, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID: <b>LCS-74248</b>	Batch ID: <b>74248</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 2:24:37 PM</b>	Prep Date: <b>3/23/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	5.17	0.200	5.000	0	103	68	126			
Surr: Tetrachlorethene	0.441		0.4000		110	70	134			

Sample ID: <b>MB-74248</b>	Batch ID: <b>74248</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 3:36:22 PM</b>	Prep Date: <b>3/23/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	<0.200	0.200								
Surr: Tetrachlorethene	0.482		0.4000		121	70	134			

Sample ID: <b>1603209-10AMS</b>	Batch ID: <b>74248</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 8:25:50 PM</b>	Prep Date: <b>3/23/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	3.85	0.195	4.863	0	79.3	68	126			
Surr: Tetrachlorethene	0.404		0.3890		104	70	134			

Sample ID: <b>1603209-10MSD</b>	Batch ID: <b>74248</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 8:49:48 PM</b>	Prep Date: <b>3/23/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.46	0.201	5.024	0	88.8	68	126	14.6	30	
Surr: Tetrachlorethene	0.431		0.4019		107	70	134	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1603209  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GC4\_160323A**

Sample ID <b>ICV-160323</b>	Batch ID: <b>R84851</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 1:26:11 PM</b>	Prep Date:
<b>Analyte</b>	<b>Result</b>	<b>RL</b>	<b>SPK value</b>
Gasoline Range Organics	10.1	0.200	10.00
Surr: Tetrachlorethene	0.384		0.4000
			<b>Ref Val</b>
			0
			<b>%REC</b>
			101
			<b>LowLimit</b>
			80
			<b>HighLimit</b>
			120
			<b>%RPD</b>
			96.1
			<b>RPDLimit</b>
			70
			<b>Qual</b>
			134

Sample ID <b>CCV1-160323</b>	Batch ID: <b>R84851</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>GC4_160323A</b>	Analysis Date: <b>3/23/2016 9:13:47 PM</b>	Prep Date:
<b>Analyte</b>	<b>Result</b>	<b>RL</b>	<b>SPK value</b>
Gasoline Range Organics	5.97	0.200	5.000
Surr: Tetrachlorethene	0.418		0.4000
			<b>Ref Val</b>
			0
			<b>%REC</b>
			119
			<b>LowLimit</b>
			80
			<b>HighLimit</b>
			120
			<b>%RPD</b>
			104
			<b>RPDLimit</b>
			70
			<b>Qual</b>
			134

<b>Qualifiers:</b>	<b>B</b> Analyte detected in the associated Method Blank <b>J</b> Analyte detected between MDL and RL <b>ND</b> Not Detected at the Method Detection Limit <b>RL</b> Reporting Limit <b>J</b> Analyte detected between SDL and RL	<b>DF</b> Dilution Factor <b>MDL</b> Method Detection Limit <b>R</b> RPD outside accepted control limits <b>S</b> Spike Recovery outside control limits <b>N</b> Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2\_HG\_160324A

The QC data in batch 74261 applies to the following samples: 1603209-01A, 1603209-02A, 1603209-03A, 1603209-04A, 1603209-05A

Sample ID <b>MB-74261</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:01:59 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0400	0.0400								

Sample ID <b>LCS-74261</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:04:15 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.203	0.0400	0.2000	0	102	85	115			

Sample ID <b>LCSD-74261</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:06:31 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.201	0.0400	0.2000	0	101	85	115	0.990	25	

Sample ID <b>1603222-01A SD</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:40:34 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.184	0.184	0	0				0	10	

Sample ID <b>1603222-01A PDS</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:42:50 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.236	0.0369	0.2304	0	102	85	115			

Sample ID <b>1603222-01A MS</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:45:06 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.185	0.0370	0.1849	0	100	80	120			

Sample ID <b>1603222-01A MSD</b>	Batch ID: <b>74261</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_160324A</b>	Analysis Date: <b>3/24/2016 3:47:22 PM</b>	Prep Date: <b>3/24/2016</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.186	0.0371	0.1854	0	101	80	120	0.738	25	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: CETAC2\_HG\_160324A

Sample ID	ICV-160324	Batch ID:	R84856	TestNo:	SW7471B	Units:	mg/Kg
SampType:	ICV	Run ID:	CETAC2_HG_160324A	Analysis Date:	3/24/2016 2:57:25 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00390	0.0400	0.004000	0	97.5	90	110			

Sample ID	CCV1-160324	Batch ID:	R84856	TestNo:	SW7471B	Units:	mg/Kg
SampType:	CCV	Run ID:	CETAC2_HG_160324A	Analysis Date:	3/24/2016 3:31:28 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00206	0.0400	0.002000	0	103	90	110			

Sample ID	CCV2-160324	Batch ID:	R84856	TestNo:	SW7471B	Units:	mg/Kg
SampType:	CCV	Run ID:	CETAC2_HG_160324A	Analysis Date:	3/24/2016 4:07:58 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00207	0.0400	0.002000	0	104	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates

Work Order: 1603209

Project: R360 Artesia Landfarm

# ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

The QC data in batch 74259 applies to the following samples: 1603209-01A, 1603209-02A, 1603209-03A, 1603209-04A, 1603209-05A

Sample ID	MB-74259	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg
SampType:	MBLK	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:44:00 PM	Prep Date:	3/24/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	<1.00	1.00								
Barium	<2.00	2.00								
Cadmium	<0.300	0.300								
Calcium	13.6	37.5								
Chromium	<2.00	2.00								
Lead	<0.300	0.300								
Magnesium	<37.5	37.5								
Potassium	<37.5	37.5								
Selenium	<0.500	0.500								
Silver	<0.200	0.200								
Sodium	<37.5	37.5								

Sample ID	LCS-74259	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg
SampType:	LCS	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:46:00 PM	Prep Date:	3/24/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	50.8	1.00	50.00	0	102	80	120			
Barium	50.3	2.00	50.00	0	101	80	120			
Cadmium	49.9	0.300	50.00	0	99.7	80	120			
Calcium	1250	37.5	1250	0	100	80	120			
Chromium	52.0	2.00	50.00	0	104	80	120			
Lead	49.8	0.300	50.00	0	99.6	80	120			
Magnesium	1290	37.5	1250	0	103	80	120			
Potassium	1260	37.5	1250	0	101	80	120			
Selenium	51.4	0.500	50.00	0	103	80	120			
Silver	50.1	0.200	50.00	0	100	80	120			
Sodium	1280	37.5	1250	0	102	80	120			

Sample ID	LCS-74259	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg
SampType:	LCS	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:48:00 PM	Prep Date:	3/24/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	51.0	1.00	50.00	0	102	80	120	0.423	20	
Barium	49.6	2.00	50.00	0	99.1	80	120	1.36	20	
Cadmium	50.3	0.300	50.00	0	101	80	120	0.866	20	
Calcium	1220	37.5	1250	0	97.9	80	120	2.16	20	
Chromium	51.9	2.00	50.00	0	104	80	120	0.055	20	
Lead	51.2	0.300	50.00	0	102	80	120	2.68	20	
Magnesium	1290	37.5	1250	0	103	80	120	0.061	20	
Potassium	1260	37.5	1250	0	101	80	120	0.310	20	

- Qualifiers:**
- B Analyte detected in the associated Method Blank
  - J Analyte detected between MDL and RL
  - ND Not Detected at the Method Detection Limit
  - RL Reporting Limit
  - J Analyte detected between SDL and RL
  - DF Dilution Factor
  - MDL Method Detection Limit
  - R RPD outside accepted control limits
  - S Spike Recovery outside control limits
  - N Parameter not NELAC certified

CLIENT: Larson & Associates

Work Order: 1603209

Project: R360 Artesia Landfarm

# ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

Sample ID	LCSD-74259	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg			
SampType:	LCSD	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:48:00 PM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	50.6	0.500	50.00	0	101	80	120	1.62	20	
Silver	49.8	0.200	50.00	0	99.7	80	120	0.424	20	
Sodium	1290	37.5	1250	0	103	80	120	0.632	20	

Sample ID	1603188-01A SD	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg-dry			
SampType:	SD	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:54:00 PM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	41.1	4.89	0	39.99				2.67	10	
Barium	90.0	9.78	0	90.13				0.129	10	
Cadmium	11.9	1.47	0	11.79				1.28	10	
Chromium	11.1	9.78	0	10.49				5.37	10	
Lead	434	1.47	0	424.3				2.38	10	
Magnesium	5350	183	0	5137				4.06	10	
Potassium	2480	183	0	2413				2.84	10	
Selenium	2.24	2.44	0	2.663				17.4	10	R
Silver	2.90	0.978	0	2.911				0.235	10	
Sodium	1110	183	0	1086				2.04	10	

Sample ID	1603188-01A PDS	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg-dry			
SampType:	PDS	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:15:00 PM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	89.6	0.978	48.90	39.99	101	80	120			
Barium	139	1.96	48.90	90.13	101	80	120			
Cadmium	59.0	0.293	48.90	11.79	96.5	80	120			
Chromium	59.7	1.96	48.90	10.49	101	80	120			
Lead	473	0.293	48.90	424.3	100	80	120			
Magnesium	6420	36.7	1222	5137	105	80	120			
Potassium	3640	36.7	1222	2413	101	80	120			
Selenium	51.7	0.489	48.90	2.663	100	80	120			
Silver	49.4	0.196	48.90	2.911	95.1	80	120			
Sodium	2340	36.7	1222	1086	103	80	120			

Sample ID	1603188-01A MS	Batch ID:	74259	TestNo:	SW6020A	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:17:00 PM	Prep Date:	3/24/2016			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	89.0	0.925	46.23	39.99	106	80	120			
Barium	164	1.85	46.23	90.13	160	80	120			S
Cadmium	57.8	0.277	46.23	11.79	99.4	80	120			

**Qualifiers:**

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

Sample ID: <b>1603188-01A MS</b>	Batch ID: <b>74259</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_160324H</b>	Analysis Date: <b>3/24/2016 6:17:00 PM</b>	Prep Date: <b>3/24/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	13800	34.7	1156	14710	-79.3	80	120			S
Chromium	56.6	1.85	46.23	10.49	99.8	80	120			
Lead	487	0.277	46.23	424.3	136	80	120			S
Magnesium	5780	34.7	1156	5137	55.7	80	120			S
Potassium	3580	34.7	1156	2413	101	80	120			
Selenium	48.8	0.462	46.23	2.663	99.8	80	120			
Silver	48.5	0.185	46.23	2.911	98.7	80	120			
Sodium	2280	34.7	1156	1086	103	80	120			

Sample ID: <b>1603188-01A MSD</b>	Batch ID: <b>74259</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_160324H</b>	Analysis Date: <b>3/24/2016 6:18:00 PM</b>	Prep Date: <b>3/24/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	89.0	0.916	45.81	39.99	107	80	120	0.082	20	
Barium	133	1.83	45.81	90.13	94.6	80	120	20.6	20	R
Cadmium	56.1	0.275	45.81	11.79	96.7	80	120	2.96	20	
Calcium	13900	34.4	1145	14710	-68.5	80	120	0.953	20	S
Chromium	55.2	1.83	45.81	10.49	97.6	80	120	2.54	20	
Lead	481	0.275	45.81	424.3	123	80	120	1.33	20	S
Magnesium	5620	34.4	1145	5137	41.8	80	120	2.88	20	S
Potassium	3610	34.4	1145	2413	105	80	120	1.00	20	
Selenium	48.6	0.458	45.81	2.663	100	80	120	0.448	20	
Silver	47.3	0.183	45.81	2.911	96.8	80	120	2.66	20	
Sodium	2250	34.4	1145	1086	102	80	120	0.992	20	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

Sample ID	ICV2-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	ICV	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 4:40:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0999	0.00500	0.100	0	99.9	90	110			
Barium	0.100	0.0100	0.100	0	100	90	110			
Cadmium	0.0998	0.00100	0.100	0	99.8	90	110			
Calcium	2.38	0.300	2.50	0	95.1	90	110			
Chromium	0.104	0.00500	0.100	0	104	90	110			
Lead	0.0983	0.00100	0.100	0	98.3	90	110			
Magnesium	2.60	0.300	2.50	0	104	90	110			
Potassium	2.50	0.300	2.50	0	100	90	110			
Selenium	0.0998	0.00500	0.100	0	99.8	90	110			
Silver	0.102	0.00200	0.100	0	102	90	110			
Sodium	2.54	0.300	2.50	0	102	90	110			

Sample ID	ILCVL2-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 4:44:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00530	0.00500	0.00500	0	106	70	130			
Barium	0.00542	0.0100	0.00500	0	108	70	130			
Cadmium	0.00106	0.00100	0.00100	0	106	70	130			
Calcium	0.106	0.300	0.100	0	106	70	130			
Chromium	0.00546	0.00500	0.00500	0	109	70	130			
Lead	0.00102	0.00100	0.00100	0	102	70	130			
Magnesium	0.109	0.300	0.100	0	109	70	130			
Potassium	0.117	0.300	0.100	0	117	70	130			
Selenium	0.00513	0.00500	0.00500	0	103	70	130			
Silver	0.00215	0.00200	0.00200	0	108	70	130			
Sodium	0.109	0.300	0.100	0	109	70	130			

Sample ID	CCV9-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:36:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.205	0.00500	0.200	0	102	90	110			
Barium	0.202	0.0100	0.200	0	101	90	110			
Cadmium	0.202	0.00100	0.200	0	101	90	110			
Calcium	4.88	0.300	5.00	0	97.7	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
Magnesium	5.19	0.300	5.00	0	104	90	110			
Potassium	5.01	0.300	5.00	0	100	90	110			
Selenium	0.207	0.00500	0.200	0	104	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

Sample ID	CCV9-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:36:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.204	0.00200	0.200	0	102	90	110			
Sodium	5.20	0.300	5.00	0	104	90	110			

Sample ID	LCVL9-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 5:40:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00541	0.00500	0.00500	0	108	70	130			
Barium	0.00534	0.0100	0.00500	0	107	70	130			
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Calcium	0.103	0.300	0.100	0	103	70	130			
Chromium	0.00537	0.00500	0.00500	0	107	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
Magnesium	0.111	0.300	0.100	0	111	70	130			
Potassium	0.114	0.300	0.100	0	114	70	130			
Selenium	0.00508	0.00500	0.00500	0	102	70	130			
Silver	0.00219	0.00200	0.00200	0	110	70	130			
Sodium	0.124	0.300	0.100	0	124	70	130			

Sample ID	CCV10-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:20:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.207	0.00500	0.200	0	103	90	110			
Barium	0.197	0.0100	0.200	0	98.4	90	110			
Cadmium	0.198	0.00100	0.200	0	98.9	90	110			
Calcium	4.85	0.300	5.00	0	97.0	90	110			
Chromium	0.205	0.00500	0.200	0	102	90	110			
Lead	0.198	0.00100	0.200	0	99.0	90	110			
Magnesium	5.10	0.300	5.00	0	102	90	110			
Potassium	5.03	0.300	5.00	0	101	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Silver	0.199	0.00200	0.200	0	99.4	90	110			
Sodium	5.09	0.300	5.00	0	102	90	110			

Sample ID	LCVL10-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:24:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00541	0.00500	0.00500	0	108	70	130			
Barium	0.00532	0.0100	0.00500	0	106	70	130			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160324H

Sample ID	LCVL10-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:24:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.00110	0.00100	0.00100	0	110	70	130			
Calcium	0.107	0.300	0.100	0	107	70	130			
Chromium	0.00539	0.00500	0.00500	0	108	70	130			
Lead	0.00121	0.00100	0.00100	0	121	70	130			
Magnesium	0.110	0.300	0.100	0	110	70	130			
Potassium	0.107	0.300	0.100	0	107	70	130			
Selenium	0.00524	0.00500	0.00500	0	105	70	130			
Silver	0.00218	0.00200	0.00200	0	109	70	130			
Sodium	0.0887	0.300	0.100	0	88.7	70	130			

Sample ID	CCV11-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:37:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.203	0.00500	0.200	0	101	90	110			
Barium	0.203	0.0100	0.200	0	102	90	110			
Cadmium	0.203	0.00100	0.200	0	102	90	110			
Calcium	4.91	0.300	5.00	0	98.2	90	110			
Chromium	0.204	0.00500	0.200	0	102	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
Magnesium	5.15	0.300	5.00	0	103	90	110			
Potassium	4.98	0.300	5.00	0	99.7	90	110			
Selenium	0.203	0.00500	0.200	0	102	90	110			
Silver	0.206	0.00200	0.200	0	103	90	110			
Sodium	5.09	0.300	5.00	0	102	90	110			

Sample ID	LCVL11-160324	Batch ID:	R84859	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160324H	Analysis Date:	3/24/2016 6:41:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00532	0.00500	0.00500	0	106	70	130			
Barium	0.00525	0.0100	0.00500	0	105	70	130			
Cadmium	0.00105	0.00100	0.00100	0	105	70	130			
Calcium	0.105	0.300	0.100	0	105	70	130			
Chromium	0.00545	0.00500	0.00500	0	109	70	130			
Lead	0.00109	0.00100	0.00100	0	109	70	130			
Magnesium	0.112	0.300	0.100	0	112	70	130			
Potassium	0.111	0.300	0.100	0	111	70	130			
Selenium	0.00513	0.00500	0.00500	0	103	70	130			
Silver	0.00215	0.00200	0.00200	0	108	70	130			
Sodium	0.0916	0.300	0.100	0	91.6	70	130			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160325A

The QC data in batch 74259 applies to the following samples: 1603209-01A, 1603209-02A, 1603209-03A, 1603209-04A, 1603209-05A

Sample ID <b>1603188-01A SD</b>	Batch ID: <b>74259</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_160325A</b>	Analysis Date: <b>3/25/2016 2:17:00 PM</b>	Prep Date: <b>3/24/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	15500	1830	0	15650				1.10	10	

Sample ID <b>1603188-01A PDS</b>	Batch ID: <b>74259</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_160325A</b>	Analysis Date: <b>3/25/2016 2:31:00 PM</b>	Prep Date: <b>3/24/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	27000	367	12220	15650	92.6	80	120			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_160325A

Sample ID	ICV-160325	Batch ID:	R84882	TestNo:	SW6020A	Units:	mg/L
SampType:	ICV	Run ID:	ICP-MS4_160325A	Analysis Date:	3/25/2016 2:01:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.102	0.00500	0.100	0	102	90	110			
Barium	0.0984	0.0100	0.100	0	98.4	90	110			
Cadmium	0.0976	0.00100	0.100	0	97.6	90	110			
Calcium	2.37	0.300	2.50	0	94.8	90	110			
Chromium	0.106	0.00500	0.100	0	106	90	110			
Lead	0.0987	0.00100	0.100	0	98.7	90	110			
Selenium	0.103	0.00500	0.100	0	103	90	110			
Silver	0.100	0.00200	0.100	0	100	90	110			

Sample ID	LCVL-160325	Batch ID:	R84882	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160325A	Analysis Date:	3/25/2016 2:09:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00532	0.00500	0.00500	0	106	70	130			
Barium	0.00505	0.0100	0.00500	0	101	70	130			
Cadmium	0.00103	0.00100	0.00100	0	103	70	130			
Calcium	0.111	0.300	0.100	0	111	70	130			
Chromium	0.00536	0.00500	0.00500	0	107	70	130			
Lead	0.00100	0.00100	0.00100	0	100	70	130			
Selenium	0.00521	0.00500	0.00500	0	104	70	130			
Silver	0.00212	0.00200	0.00200	0	106	70	130			

Sample ID	CCV1-160325	Batch ID:	R84882	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_160325A	Analysis Date:	3/25/2016 2:47:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.201	0.00500	0.200	0	101	90	110			
Barium	0.198	0.0100	0.200	0	98.9	90	110			
Cadmium	0.196	0.00100	0.200	0	98.1	90	110			
Calcium	4.90	0.300	5.00	0	98.1	90	110			
Chromium	0.206	0.00500	0.200	0	103	90	110			
Lead	0.197	0.00100	0.200	0	98.5	90	110			
Selenium	0.203	0.00500	0.200	0	101	90	110			
Silver	0.197	0.00200	0.200	0	98.4	90	110			

Sample ID	LCVL1-160325	Batch ID:	R84882	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_160325A	Analysis Date:	3/25/2016 2:51:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00543	0.00500	0.00500	0	109	70	130			
Barium	0.00530	0.0100	0.00500	0	106	70	130			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1603209  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: ICP-MS4\_160325A**

Sample ID: <b>LCVL1-160325</b>	Batch ID: <b>R84882</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_160325A</b>	Analysis Date: <b>3/25/2016 2:51:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.00102	0.00100	0.00100	0	102	70	130			
Calcium	0.105	0.300	0.100	0	105	70	130			
Chromium	0.00546	0.00500	0.00500	0	109	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
Selenium	0.00524	0.00500	0.00500	0	105	70	130			
Silver	0.00211	0.00200	0.00200	0	105	70	130			

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates

Work Order: 1603209

Project: R360 Artesia Landfarm

# ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_160328A

The QC data in batch 74292 applies to the following samples: 1603209-01B, 1603209-02B, 1603209-03B, 1603209-04B, 1603209-05B, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID	LCS-74292	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg
SampType:	LCS	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 9:47:20 AM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	47.2	5.00	50.00	0	94.4	80	120			
Sulfate	150	10.0	150.0	0	100	80	120			

Sample ID	LCSD-74292	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg
SampType:	LCSD	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 10:01:57 AM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	47.0	5.00	50.00	0	93.9	80	120	0.550	15	
Sulfate	150	10.0	150.0	0	99.7	80	120	0.393	15	

Sample ID	MB-74292	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg
SampType:	MBLK	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 10:16:33 AM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<5.00	5.00								
Sulfate	<10.0	10.0								

Sample ID	1603209-10A-DUP	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg-dry
SampType:	DUP	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 3:50:38 PM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2150	504	0	2104				2.02	10	
Sulfate	8050	1010	0	7890				1.99	10	

Sample ID	1603209-10AMS	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg-dry
SampType:	MS	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 4:05:14 PM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2180	506	101.3	2104	79.4	80	120			S
Sulfate	7590	1010	101.3	7890	-292	80	120			S

Sample ID	1603209-10AMSD	Batch ID:	74292	TestNo:	SW9056A	Units:	mg/Kg-dry
SampType:	MSD	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 4:19:51 PM	Prep Date:	3/28/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2270	488	97.63	2104	175	80	120	4.05	15	S
Sulfate	7680	976	97.63	7890	-215	80	120	1.12	15	S

- Qualifiers:**
- B Analyte detected in the associated Method Blank
  - J Analyte detected between MDL and RL
  - ND Not Detected at the Method Detection Limit
  - RL Reporting Limit
  - J Analyte detected between SDL and RL
  - DF Dilution Factor
  - MDL Method Detection Limit
  - R RPD outside accepted control limits
  - S Spike Recovery outside control limits
  - N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_160328A

Sample ID	ICV-160328	Batch ID:	R84888	TestNo:	SW9056A	Units:	mg/Kg
SampType:	ICV	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 9:31:15 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.9	5.00	25.00	0	99.5	90	110			
Sulfate	78.3	10.0	75.00	0	104	90	110			

Sample ID	CCV1-160328	Batch ID:	R84888	TestNo:	SW9056A	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 1:23:28 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.89	5.00	10.00	0	98.9	90	110			
Sulfate	32.1	10.0	30.00	0	107	90	110			

Sample ID	CCV2-160328	Batch ID:	R84888	TestNo:	SW9056A	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_160328A	Analysis Date:	3/28/2016 4:39:41 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.94	5.00	10.00	0	99.4	90	110			
Sulfate	31.8	10.0	30.00	0	106	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_160323A

The QC data in batch 74245 applies to the following samples: 1603209-01B, 1603209-02B, 1603209-03B, 1603209-04B, 1603209-05B, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID	ICV-160323	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg				
SampType:	ICV	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		267	10.0	250.0	0	107	90	110			N

Sample ID	LCS-74245	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg				
SampType:	LCS	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:	3/23/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		112	10.0	100.0	0	112	80	120			N

Sample ID	MB-74245	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg				
SampType:	MBLK	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:	3/23/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		<10.0	10.0								N

Sample ID	1603209-10AMS	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg-dry				
SampType:	MS	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:	3/23/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		1470	50.8	101.6	2080	-596	80	120			SN

Sample ID	1603209-10AMSD	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg-dry				
SampType:	MSD	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:	3/23/2016				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		1750	49.9	99.89	2080	-331	80	120	17.1	20	SN

Sample ID	CCV-160323	Batch ID:	74245	TestNo:	E418.1	Units:	mg/Kg				
SampType:	CCV	Run ID:	IR207_160323A	Analysis Date:	3/23/2016 2:30:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		272	10.0	250.0	0	109	85	115			N

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1603209  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_160325A**

The QC data in batch 74287 applies to the following samples: 1603209-01B, 1603209-02B, 1603209-03B, 1603209-04B, 1603209-05B, 1603209-06A, 1603209-07A, 1603209-08A, 1603209-09A, 1603209-10A

Sample ID <b>1603222-01A DUP</b>	Batch ID: <b>74287</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>
SampType: <b>DUP</b>	Run ID: <b>PMOIST_160325A</b>	Analysis Date: <b>3/28/2016 10:17:00 AM</b>	Prep Date: <b>3/25/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	0.406	0	0	0.4062				0.081		30

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR\_160323A

The QC data in batch 74217 applies to the following samples: 1603209-01B, 1603209-02B, 1603209-03B, 1603209-04B, 1603209-05B

Sample ID <b>MB-74217</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.38</b>
SampType: <b>MBLK</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 9:17:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	<50.0	50.0								
Alkalinity, Carbonate (As CaCO3)	<50.0	50.0								
Alkalinity, Hydroxide (As CaCO3)	<50.0	50.0								
Alkalinity, Total (As CaCO3)	<50.0	50.0								

Sample ID <b>LCS-74217</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.51</b>
SampType: <b>LCS</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 9:21:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	266	50.0	250.0	0	107	81.6	123			

Sample ID <b>LCS-74217-2</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.5</b>
SampType: <b>LCS</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 9:38:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	271	50.0	250.0	0	108	81.6	123			

Sample ID <b>LCS-74217-3</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.51</b>
SampType: <b>LCS</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 9:43:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	270	50.0	250.0	0	108	81.6	123			

Sample ID <b>LCS-74217-4</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.51</b>
SampType: <b>LCS</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 9:47:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	264	50.0	250.0	0	106	81.6	123			

Sample ID <b>1603209-01B-DUP</b>	Batch ID: <b>74217</b>	TestNo: <b>M2320 B</b>	Units: <b>mg/L @ pH 4.51-dr</b>
SampType: <b>DUP</b>	Run ID: <b>TITRATOR_160323A</b>	Analysis Date: <b>3/23/2016 10:19:00 AM</b>	Prep Date: <b>3/22/2016</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	212	55.6	0	209.1				1.20	0	
Alkalinity, Carbonate (As CaCO3)	<55.6	55.6	0	0				0	0	
Alkalinity, Hydroxide (As CaCO3)	<55.6	55.6	0	0				0	0	
Alkalinity, Total (As CaCO3)	212	55.6	0	209.1				1.20	25	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1603209  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR\_160323A

Sample ID	ICV-160323	Batch ID:	R84808	TestNo:	M2320 B	Units:	mg/L @ pH 4.51
SampType:	ICV	Run ID:	TITRATOR_160323A	Analysis Date:	3/23/2016 9:05:00 AM	Prep Date:	3/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	8.80	20.0	0							
Alkalinity, Carbonate (As CaCO3)	92.6	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	<20.0	20.0	0							
Alkalinity, Total (As CaCO3)	101	20.0	100.0	0	101	98	102			

Sample ID	CCV-160323	Batch ID:	R84808	TestNo:	M2320 B	Units:	mg/L @ pH 4.53
SampType:	CCV	Run ID:	TITRATOR_160323A	Analysis Date:	3/23/2016 10:50:00 AM	Prep Date:	3/23/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	9.20	50.0	0							
Alkalinity, Carbonate (As CaCO3)	93.3	50.0	0							
Alkalinity, Hydroxide (As CaCO3)	<50.0	50.0	0							
Alkalinity, Total (As CaCO3)	102	50.0	100.0	0	102	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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Stephanie Garza, LLC  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

June 9, 2016

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: 2015 Annual Summary Report, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New  
Mexico

Mr. Jones:

Enclosed is the Annual Summary Report during the year of 2015 for R360 Artesia,  
LLC Landfarm . You may contact me at (956) 458-0515 or by email at  
[StephanieG@R360es.com](mailto:StephanieG@R360es.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Stephanie Garza", written in a cursive style.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

**2015**  
**SURFACE WASTE MANAGEMENT**  
**FACILITY REPORT**  
R360 Artesia, LLC Landfarm  
(NM-01-030)

Lea County, New Mexico

Project No. 15-0121-01

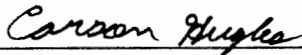
June 3, 2016

Prepared for:

R360 Permian Basin, LLC  
507 N. Marienfeld Street, Suite 200  
Midland, Texas 79701

Prepared by:

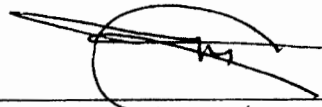
Larson & Associates, Inc.  
507 North Marienfeld, Suite 205  
Midland, Texas 79701



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Carson Hughes

Chemist/Engineering Professional



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Mark J. Larson CPG 10490

President/Geologist

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## 1.0 EXECUTIVE SUMMARY

This report presents the laboratory analysis of treatment and vadose zone soil samples, and maintenance for 2015 at the R360 Artesia, LLC Landfarm (Facility). The Facility is owned by R360, LLC (R360), and a wholly owned subsidiary of Waste Connections., Inc.. The Facility is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (MW-1-030) and is located in Unit A (NE/4, NE/4), Section 7, Township 17 South, Range 32 East in Lea County, New Mexico. The geodetic position is 32° 51' 171" north and 103° 47' 56.9" west.

The following activities were conducted during 2015:

- Monthly tilling and inspections;
- First (1<sup>st</sup>) quarter treatment and vadose zone sampling event (February 24, 2015);
- Second (2<sup>nd</sup>) quarter treatment and vadose sampling event (April 14, 2015);
- Third (3<sup>rd</sup>) quarter treatment and vadose sampling event (August 4, 2015); and
- Fourth (4<sup>th</sup>) quarter treatment and vadose sampling event (October 12, 2015).

During 2015 the OCD approved adding an additional lift of contaminated soil to cells 1 through 4. An additional lift of contaminated soil was added to cells 1, 3 and 4 from the area underlain by shallow groundwater in the southwest corner of cell 5 and cell 6. No additional soil was added to cell 2.

After review of the analytical data, the following conclusions were drawn:

- BTEX was below the treatment zone closure performance standard in treatment zone samples during 2015;
- TPH was below the treatment performance closure standard (500 mg/kg) in treatment zone samples during 2015;
- TPH, metals, and chlorides remain above the permit and/or background mean levels in the cells requiring a continuation of the surface waste management plan.
- R360 will continue monthly tilling of cells 1, 2, 3, 4, and 5, treatment zone monitoring (cells 1, 3, 4 and 5) and vadose zone monitoring (cells 1 through 5) and report results to OCD.
- The cell modification plans are still in progress at the time of this report.

## **1.0 INTRODUCTION**

This report has been prepared by Larson & Associates, Inc. (LAI) to present vadose and treatment zone monitoring results for 2015 at the R360 Artesia Aeration, LLC (R360) Landfarm (Facility) located in Lea County, New Mexico. The Facility is permitted by the New Mexico Oil Conservation Division (OCD) as a commercial surface waste management facility (NM-1-0030) for treating exempt oil field waste (i.e., soil and drill cuttings) contaminated predominately by petroleum hydrocarbons. The Facility occupies approximately 48.4 acres in Unit A (NE/4, NE/4), Section 7, Township 17 South and Range 32 East in Lea County, New Mexico. The geodetic position is north 32° 51' 4.93" and west 103° 48' 15.45". The Facility is divided into 6 cells (Cell 1 through Cell 6) ranging in size from about 2.74 acres (Cell 1) to 13.28 acres (Cell 6). Figure 1 presents a detailed topographic map. Figure 2 presents an aerial map. Figure 3 presents a Facility drawing

The Facility was permitted Artesia Aeration Landfarm on November 29, 1999. R360 acquired the Facility in April 2011. R360 has accepted no new material at the Facility.

## **2.0 LANDFARM COMPLIANCE**

### **2.1 *Buffer Zone***

During March 2015 Lighthouse Environmental Services, Inc. (Lighthouse) was contracted by R360 to construct the buffer zone and cell berm north cells 1 through 4. The permit states that no contaminated soils are allowed within 100 feet of the permit boundary. The previous owner had placed contaminated soil within 100 feet of the Facility fence. Lighthouse removed contaminated soil from the buffer zone of north of cells 1 though 4 and spread the soil evenly over the respective cell. A new berm was constructed north of cells 1 through 4 to separate contaminated soil from the buffer zone. This work was performed in accordance with Plan 1 – Berm and Buffer Plan dated November 19, 2014 and approved by OCD on November 24, 2014. LAI personnel used direct push methods in accordance with Plan 1 to collect vadose zone soil samples from the buffer zone following removal of contaminated soil and construction of the cell berms. The results of the buffer zone samples are included in a separate submittal. Figure 4 presents a drawing for the constructed berm and buffer zone north of cell 1 through 4. Appendix A presents OCD approval for Plan 1.

## **2.2 Additional Soil Lifts**

In 2015 R360 requested and was approved to add an additional lift of contaminated soil to cell 1 through 4. An additional lift of contaminated soil was added to cell 1, 3 and 4. No soil was added to cell 2. The source for the soil was the southwest corner of cell 5 and cell 6 underlain by shallow groundwater. Beginning in March of 2015 soil from the treatment zone from the southwest corner of cell 5 and CELL 6 was removed and placed as an additional lift on cells 1, 3, and 4. Appendix A presents OCD approval for the additional lift requests for cells 1 through 4.

## **3.0 LANDFARM MAINTENANCE**

### **3.1 Inspections**

Inspections were conducted monthly according to the permit requirements and found the Facility in compliance except areas of the perimeter fence that require periodic maintenance to prevent intrusion from livestock.

### **3.2 Tilling**

Tilling of the treatment zone is performed on a monthly schedule.

## **4.0 LANDFARM MONITORING**

### **4.1 Background Samples**

Between July 15 and 17, 2013, LAI personnel collected background samples from the area north of Cell 5 and Cell 6. The background samples were collected according to a plan approved by the OCD, on July 1, 2013. Twelve (12) composite samples, each consisting of 16 discreet samples, were collected from sampling grids (1 through 12) that were established over the area. The discrete samples were collected from about 1 foot below ground surface (bgs) using stainless steel hand augers. The hand augers were decontaminated between samples with a solution of distilled water and laboratory-grade detergent (Alconox®) and rinsed with distilled water. The discrete samples were collected in 4-ounce glass jars that were chilled in an ice chest until 16 samples were collected from the grid. The discrete samples (16) for each grid were homogenized in a stainless steel bowl and transferred to laboratory containers using a stainless steel trowel. The stainless steel bowl and trowel were decontaminated between composite samples as previously stated. The laboratory containers were labeled, chilled in an ice chest and delivered under chain of custody to DHL Analytical, a National Environmental Laboratory Accreditation Program (NELAP) laboratory, located in Round Rock, Texas. The laboratory analyzed the samples for total recoverable petroleum hydrocarbons (TRPH) by method 418.1, BTEX and other constituents listed in Subsections A and B of 20.6.2.3103 NMAC by method SW-846-8260C SW-846-8270B, SW-846-6020A, and SW-846-7471B as appropriate, and chloride by method E300.

The following is a summary of the average and 2 standard deviation concentrations for the metal constituents reported in the background samples:

<b>Metal</b>	<b>Mean (mg/Kg)</b>	<b>2 Standard Deviations (mg/Kg)</b>
Arsenic	2.38	3.61
Barium	68.96	168.37
Cadmium	0.21	0.35
Chromium	7.13	11.04
Copper	3.12	6.44
Iron	6,731	9,634.36
Lead	5.71	16.10
Manganese	78.34	152.70
Mercury	<0.0164	0.0624
Selenium	0.90	1.50
Silver	<0.106629	1.41
Zinc	17.52	34.84

The following is a summary of the average and 2 standard deviation concentrations for TRPH, chloride, fluoride and sulfate constituents reported in the background samples:

<b>Constituent</b>	<b>Mean (mg/Kg)</b>	<b>2 Standard Deviations (mg/Kg)</b>
TRPH	229	533.24
Chloride	31.0	747.0
Fluoride	2.53	6.18
Sulfate	808	6,239

Cyanide and nitrate were not reported above the MDL.

#### **4.2 Treatment (Tilled) Zone Soil Samples**

Vadose zone samples were collected on February 24, 2015 (1<sup>st</sup> Quarter), April 14, 2015 (2<sup>nd</sup> Quarter), August 4, 2015 (3<sup>rd</sup> Quarter) and October 12, 2015 (4<sup>th</sup> Quarter). No soil was added to cell 1, 2, 3 and 4 following OCD approval to add an additional lift treatment zone therefore no treatment zone samples were collected from these cells during the first quarter 2015. No additional soil was added to cell 2 therefore no treatment zone samples were collected during 2015. Collected samples were retrieved from 0-1 foot depth of the tilled zone using a hand auger. Sample aliquots were immediately placed in pre-cleaned 4-ounce jars, properly labeled, and iced upon collection. The samples were shipped via LoneStar Overnight, under custody seals and chain of custody to DHL. The samples were analyzed for BTEX, TPH, and chloride. Treatment zone samples from the 4<sup>th</sup> quarter (October 12, 2015) were

analyzed and reported for TPH by method TX1005. Table 1 presents a summary of the BTEX, TPH, and chloride analysis. Laboratory reports are included in Appendix B.

#### **4.2.1 Organic Sample Results**

BTEX constituents by method SW-846-8021B were below the reporting limits and treatment zone closure standards for all treatment zone samples during 2015.

TPH by EPA SW-846 method 8015 were below the treatment zone closure standard of 500ppm in treatment zone samples from cells 1, 3, 4, 5 and 6 during 2015.

TRPH by method 418.1 was not detected above the permit limit threshold of 2,500 mg/Kg in treatment zone samples from cells 1, 3, 4, 5 and 6 during 2015.

#### **4.2.2 Chloride Sample Results**

Chloride was detected above the permit threshold limit of 1,000 ppm in cell 1 during the third quarter (1,100 mg/Kg), and cell 5 during the second (1,070 mg/Kg) and third (3,790 mg/Kg) quarters on April 14, 2015 and August 4, 2015, respectively. However, the average chloride concentrations for cells 1, 3, 4, and 5 for 2015 were 465 mg/Kg, 375 mg/Kg, 90.6 mg/Kg, and 1,360 mg/Kg respectively.

### **4.3. Vadose Zone Samples**

Vadose zone samples were collected on February 24, 2015 (1<sup>st</sup> Quarter), April 14, 2015 (2<sup>nd</sup> Quarter), August 4, 2015 (3<sup>rd</sup> Quarter) and October 12, 2015 (4<sup>th</sup> Quarter). The samples were collected from native soil approximately 2 and 3 feet below the cells using a Terraprobe® direct push rig. The Terraprobe® pushes or percussion hammers a 4-foot long stainless steel core barrel into the subsurface and collects a 4-foot long soil core. The core barrel is equipped with polyethylene liners to minimize cross contamination between samples. Contaminated soil was scraped from each location to expose the native soil and minimize transfer of contaminated soil into the vadose zone.

The samples were collected in 4-ounce glass containers that were labeled, chilled in an ice chest and delivered to DHL. The laboratory analyzed the samples for benzene, toluene, ethylbenzene, xylenes (BTEX) by method SW-846-8021B, total residual petroleum hydrocarbon (TRPH) by EPA method 418.1, and total petroleum hydrocarbons (TPH), including diesel (DRO) and gasoline (GRO) range organics, by method SW-846-8015. Samples from April 14, 2015 (2<sup>nd</sup> Quarter), were analyzed for metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), cations (calcium, magnesium, sodium and potassium) and anions (alkalinity, sulfate and chloride). Vadose samples from the 4<sup>th</sup> quarter (October 12, 2015) were analyzed and reported for TPH by method TX1005. The boreholes were filled with bentonite and the locations recorded with a Trimble Global Positioning System (GPS) receiver prior to covering with contaminated soil. Table 2 presents the BTEX and TPH analytical data summary. Table 3 presents the metals analytical data summary. Table 4 presents the cation and anion analytical data summary. Appendix B presents the laboratory reports.

#### **4.3.1 Organic Sample Results**

Vadose samples for BTEX, TPH and TRPH were collected from cells 1 through 6 during the first (February 24, 2016), second (April 14, 2016), third (August 4, 2016) and fourth (October 12, 2015) sampling events.

An additional sampling event was performed on June 16, 2015 to obtain missed samples from cell 2 for the second quarter. Vadose samples were not collected from cell 6 during the second, third and fourth quarter sampling events after treatment zone soil was removed from the cell during March 2015.

***February 24, 2015 Sampling Event***

The vadose zone sample results for February 24, 2015, from cells 1, 2, 3, 4, 5, and 6 were below the detection limit for the BTEX constituents.

TPH was 186 mg/Kg in the vadose sample from cell 5 during the February 24, 2015 sampling event. TPH was below the detection limit in all other samples.

TRPH was 20.9 mg/Kg and 333 mg/Kg in vadose samples from cells 1 and 5 during the February 24, 2015 sampling event and exceeded the mean background concentration (<4.90 mg/Kg). TRPH was below detection limits in all other samples.

***April 14, 2015 Sampling Event***

Sample results from cells 1, 2, 3, 4, and 5 during the second quarter (April 14, 2015) for BTEX, TPH, and TRPH were below the detection limits.

***August 4, 2015 Sampling Event***

Toluene (0.0802 mg/Kg) and xylenes (0.207 mg/Kg) exceeded the mean background concentration (<0.00095 mg/Kg) in the vadose sample from cell 5.

TPH was 641 mg/Kg in the vadose sample from cell 5 during the August 4, 2016 sampling event.

***October 12, 2015 Sampling Event***

Ethylbenzene (0.366 mg/kg) and xylenes (2.17 mg/Kg) exceeded the mean background concentration (<0.00095 mg/kg) in the vadose sample from cell 1.

TPH was 3,500 mg/Kg in the vadose sample from cell 1 and 641 mg/Kg in cell 5 during the October 14, 2015 sampling event.

TRPH was 3,130 mg/Kg, 21.8 mg/Kg, and 16.0 mg/Kg in vadose samples from cells 1, 2, and 3 during the October 14, 2015 sampling event and exceeded the mean background concentration (<4.90 mg/Kg). LAI believes that the elevated levels of TPH are due to cross-contamination with the treatment zone during sampling.

**4.3.2 Inorganic Sample Results**

**4.3.2.1 Metals Sample Results**

Vadose sample for metals were collected during the second quarter (April 14, 2015). No vadose samples for metals were collected from cell 6 during 2015 after treatment zone soil was removed from the cell during March 2015.

Arsenic exceeded the mean background concentration (1.63 mg/Kg) in the vadose samples from cells 3 (2.50 mg/Kg), 4 (2.70 mg/Kg) and 5 (2.00 mg/Kg). Barium exceeded the mean background concentration

(21.0 mg/kg) in vadose samples from cells 2 (55.5 mg/Kg), 3 (33.0 mg/Kg), 4 (82.0 mg/Kg) and 5 (250 mg/kg).

Chromium exceeded the mean background concentration (4.81 mg/Kg) in vadose samples from cells 3 (6.2 mg/kg) and 4 (5.70 mg/Kg).

Lead exceeded the mean background concentration (2.87 mg/Kg) in the vadose samples from cells 3 (4.00 mg/Kg) and 4 (3.60 mg/Kg).

#### **4.3.2.2 Anion Sample Results**

Chloride was reported above the mean background concentration (<5.04 mg/Kg) in vadose zone samples for cells 1 through 6 during the first quarter (February 24, 2015) and cells 1, 3, 4, and 5 during the second (April 14, 2015) and fourth (October 12, 2015). Chloride was 379 mg/kg in the vadose sample from cell 5 during the third quarter (August 4, 2015). The methods reporting limit for chloride (<20.0 mg/Kg) was above the mean background concentration for samples from cells 1, 2, 3 and 4 during the third quarter (August 4, 2015).

## **5.0 SUMMARY**

- BTEX was below the treatment zone closure performance standard in treatment zone samples during 2015;
- TPH was below the treatment performance closure standard (500 mg/kg) in treatment zone samples during 2015;
- TPH, metals, and chlorides remain above the permit and/or background mean levels in the cells requiring a continuation of the surface waste management plan.
- R360 will continue monthly tilling of cells 1, 2, 3, 4, and 5, treatment zone monitoring (cells 1, 3,4 and 5) and vadose zone monitoring (cells 1 through 5) and report results to OCD.
- The cell modification plans are still in progress at the time of this report.



# Tables

**Table 1**  
**Treatment Zone Soil Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			0.2	50				500	2,500	1,000
1	02/24/2015	0-1	*	*	*	*	*	*	*	*
	04/14/2015	0-1	<0.00111	<0.00222	<27.8	<27.8	<27.8	<27.8	--	198
	08/04/2015	0-1	<0.0400	<0.0400	***	<50.0	***	--	--	1,100
	10/12/2015	0-1	<0.0200	<0.0200	<4.00	<50.0	--	<50.0	16.0	97.8
2	02/24/2015	0-1	<0.00625	<0.0187	--	--	--	--	24.2	37.0
	04/14/2015	0-1	*	*	*	*	*	*	*	*
	08/04/2015	0-1	*	*	*	*	*	*	*	*
	10/12/2015	0-1	*	*	*	*	*	*	*	*
3	02/24/2015	0-1	*	*	*	*	*	*	*	*
	04/14/2015	0-1	<0.00114	<0.00227	<28.4	<28.4	<28.4	<28.4	--	230
	08/04/2015	0-1	<0.100	<0.100	***	51.9	***	--	--	796
	10/12/2015	0-1	<0.0200	<0.0200	<4.00	139	--	139	306	100
4	02/24/2015	0-1	*	*	*	*	*	*	*	*
	04/14/2015	0-1	<0.00115	<0.00230	<28.7	<28.7	<28.7	<28.7	--	133
	08/04/2015	0-1	<0.0400	<0.0400	***	<50.0	***	--	--	<20.0
	10/12/2015	0-1	<0.0200	<0.0200	<4.00	<50.0	--	<50.0	50.3	48.1
5	02/24/2015	0-1	<0.00558	<0.0167	<0.203	388	--	388	370	144
	04/14/2015	0-1	<0.00116	<0.00233	<29.1	<29.1	<29.1	<29.1	--	1,070
	08/04/2015	0-1	<0.0400	<0.0400	***	<50.0	***	--	--	3,790
	10/12/2015	0-1	<0.0200	<0.0200	<4.00	<50.0	--	<50.0	17.9	426
6	02/24/2015	0-1	<0.00491	<0.0147	<0.200	120		120	57.7	282
	04/14/2015	0-1	**	**	**	**	**	**	**	**
	08/04/2015	0-1	**	**	**	**	**	**	**	**
	10/12/2015	0-1	**	**	**	**	**	**	**	**

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX and Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 methods 8021B (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride)

Results are reported in milligram per Kilograms (mg/Kg) equivalent to parts per million (ppm)

Background analysis was performed by SW846 method 8260B

RL: Reporting limit (equivalent to practical quantification limit (PQL))

\*Cell approved for additional lift but no soil added to cell at the time of sample collection

\*\*Soil removed from cell and placed as additional layer on Cells 1, 3 and 4

\*\*\*Analysis performed by method TX1005 (no GRO or ORO available)

1. <: Less than method detection limit
2. Depth in feet below treated soil layer



**Table 2**  
**Vadose Zone Soil BTEX and TPH Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM-1-030)**  
**Las County, New Mexico**

Cell	Date	Depth (feet)	RL	Benzene (mg/Kg)	RL	Ethylbenzene (mg/Kg)	RL	Toluene (mg/Kg)	RL	Xylenes (mg/Kg)	RL	GRO (mg/Kg)	RL	DRO (mg/Kg)	RL	ORO (mg/Kg)	RL	TPH (mg/Kg)	RL	TRPH (mg/Kg)	RL	Chloride (mg/Kg)
Background: Mean Concentration:				<0.00095		<0.00095		<0.00095		<0.00095		--		--		--		--		<4.90		<5.04
Background PQL or RL:				0.005		0.005		0.005		0.005		--		--		--		--		10		5.00
1	02/24/2015	2-3	0.00538	<0.00538	0.0161	<0.0161	0.0161	<0.0161	0.0161	<0.0161	0.202	<0.202	10.3	<10.3	--	--	10.3	<10.3	10.6	<10.6	5.15	<b>7.90</b>
	04/14/2015	2-3	0.00109	<0.00109	0.00109	<0.00109	0.00217	<0.00217	0.00326	<0.00326	27.2	<27.2	27.2	<27.2	27.2	<27.2	27.2	<27.2	100	<100	1.09	<b>3.78</b>
	08/04/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	**	**	50.0	<50.0	**	**	--	--	--	--	4.00	<20.0
	10/12/2015	2-3	0.0200	<0.0200	0.0200	<b>0.366</b>	0.0200	<0.0200	0.0200	<b>2.17</b>	4.00	<b>49.1</b>	50.0	<b>3,490</b>	--	--	50.0	<b>3,500</b>	10.0	<b>3,190</b>	25.0	<b>231</b>
2	02/24/015	2-3	0.00624	<0.00624	0.0187	<0.0187	0.0187	<0.0187	0.0187	<0.0187	0.246	<0.246	12.7	<12.7	--	--	12.7	<12.7	12.9	<b>20.9</b>	6.40	<b>33.2</b>
	04/14/2015	2-3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	06/16/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	0.0200	4.00	<4.00	50.0	<50.0	--	--	50.0	<50.0	10.0	<20.0	10.0	<b>256</b>
	08/04/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	**	**	50.0	<50.0	**	**	--	--	--	--	4.00	<20.0
10/12/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	4.00	<4.00	50.0	<50.0	--	--	50.0	<50.0	10.0	<b>21.8</b>	25.0	<b>22.1</b>	
3	02/24/015	2-3	0.00543	<0.00543	0.0163	<0.0163	0.0163	<0.0163	0.0163	<0.0163	0.216	<0.216	11.8	<11.8	--	--	11.8	<11.8	12.0	<12.0	52.7	<b>98.8</b>
	04/14/2015	2-3	0.00110	<0.00110	0.00110	<0.00110	0.00220	<0.00220	0.00330	<0.00330	27.5	<27.5	27.5	<27.5	27.5	<27.5	27.5	<27.5	100	<100	1.10	<b>33.7</b>
	08/04/2015	2-3	0.0400	<0.0400	0.0400	<0.0400	0.0400	<0.0400	0.0400	<0.0400	**	**	50.0	<50.0	**	**	50.0	<50.0	--	--	4.00	<20.0
	10/12/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	4.00	<4.00	50.0	<50.0	--	--	50.0	<50.0	10.0	<b>16.0</b>	25.0	<b>33.7</b>
4	02/24/015	2-3	0.00506	<0.00506	0.0152	<0.0152	0.0152	<0.0152	0.0152	<0.0152	0.196	<0.196	9.73	<9.73	--	--	9.73	<9.73	9.92	<9.92	4.67	<b>32.3</b>
	04/14/2015	2-3	0.00110	<0.00110	0.00110	<0.00110	0.00220	<0.00220	0.00330	<0.00330	27.5	<27.5	27.5	<27.5	27.5	<27.5	27.5	<27.5	100	<b>158</b>	1.10	<b>70.0</b>
	08/04/2015	2-3	0.0400	<0.0400	0.0400	<0.0400	0.0400	<0.0400	0.0400	<0.0400	**	**	50.0	<50.0	**	**	--	--	--	--	4.00	<20.0
	10/12/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	4.00	<4.00	50.0	<50.0	--	--	50.0	<50.0	10.0	<10	25.0	<b>173</b>
5	02/24/015	2-3	0.00546	<0.00546	0.0164	<0.0164	0.0164	<0.0164	0.0164	<0.0164	0.206	<0.206	10.9	<b>186</b>	--	--	10.9	<b>186</b>	10.8	<b>333</b>	54.4	<b>536</b>
	04/14/2015	2-3	0.0016	<0.00116	0.0016	<0.00116	0.00233	<0.00233	0.00339	<0.00339	29.1	<29.1	29.1	<29.1	29.1	<29.1	29.1	<29.1	100	<100	1.16	<b>100</b>
	08/04/2015	2-3	0.0400	<0.0400	0.0400	<0.0400	0.0400	<b>0.0802</b>	0.0400	<b>0.207</b>	**	**	50.0	<b>641</b>	**	**	--	--	--	--	4.00	<b>379</b>
	10/12/2015	2-3	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	0.0200	<0.0200	4.00	<4.00	50.0	<50.0	--	--	7.41	<50.0	10.0	<10.0	25.0	<b>1,400</b>
6	02/24/015	2-3	0.00482	<0.00482	0.0145	<0.0145	0.0145	<0.0145	0.0145	<0.0145	0.193	<0.193	10.1	<10.1	--	--	10.1	<10.1	10.2	<10.2	48.6	<b>69.8</b>
	04/14/2015	2-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08/04/2015	2-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10/12/2015	2-3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX, Permian Basin Environmental Lab, Midland, TX and Trace Analysis, Inc., Lubbock, TX

BTEX by EPA SW-846 method 8021B (BTEX)

TPH by EPA SW-846 method 8015M (GRO and DRO)

TRPH by EPA SW-846 method 418.1

Results are reported in milligram per Kilograms (mg/Kg).

RL: Reporting limit (equivalent to practical quantification limit (PQL))

--: No data available

Bold values indicates analyte was detected

Highlighted values indicate analyte was above mean background concentration

\*No vadose samples collected after treatment zone soil removed from cell and placed as additional layer on Cells 1, 3 and 4

\*\*Analysis performed by method TX1005 (no GRO or ORO available)

1. <: Less than method reporting limit

2. Depth in feet below native ground surface



**Table 3**  
**Vadose Soil Metals Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM1-30-0)**  
**Lea County, New Mexico**

Cell	Date	Depth (feet)	RL	Arsenic (mg/Kg)	RL	Barium (mg/Kg)	RL	Cadmium (mg/Kg)	RL	Chromium (mg/Kg)	RL	Lead (mg/Kg)	RL	Mercury (mg/Kg)	RL	Selenium (mg/Kg)	RL	Silver (mg/Kg)
Background: Mean Concentration:				1.63		21.0		<0.117		4.81		2.87		<0.016		0.597		<0.099
Background PQJ (RL):				0.983 - 0.995		1.97 - 1.99		0.298 - 0.295		1.97 - 1.99		0.295 - 0.298		0.0373 - 0.0406		0.491 - 0.497		0.197 - 0.199
1	11/30/2012	2 - 3	1.05	2.31	105	174	0.315	<0.105	2.10	5.53	0.315	2.82	0.0354	<0.0142	0.525	0.398	0.210	<0.105
	03/26/2013	2 - 3	1.08	5.16	2.16	70.0	0.324	0.290	2.16	13.7	0.324	7.65	0.0406	<0.0162	0.541	2.49	0.216	<0.108
	03/12/2014	2 - 3	0.645	3.77	1.29	59.7	0.193	0.131	1.29	12.9	0.193	5.60	0.0220	<0.00879	0.322	0.785	0.129	<0.0645
	04/04/2015	2 - 3	0.008	1.60	0.001	19.0	0.001	<0.001	0.091	3.50	0.011	2.50	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
2	11/30/2012	2 - 3	1.03	3.67	103	137	0.310	<0.103	2.07	8.23	0.310	3.83	0.0371	<0.0149	0.517	0.455	0.207	<0.103
	03/26/2013	2 - 3	1.01	4.46	101	1,160	0.303	0.246	2.02	7.73	0.303	3.76	0.0386	<0.0154	0.504	1.32	0.202	<0.101
	03/12/2014	2 - 3	1.10	4.65	2.21	198	0.331	0.133	2.21	6.37	0.331	3.05	0.0434	<0.0174	0.552	0.581	0.221	<0.110
	06/16/2015	2 - 3	0.568	<0.568	0.105	55.5	0.0303	<0.0303	0.118	4.14	0.140	<0.140	0.00325	<0.00325	0.451	<0.451	0.0356	<0.0356
3	11/30/2012	2 - 3	0.896	1.65	1.79	40.7	0.269	<0.0896	1.79	5.88	0.269	2.88	0.0362	<0.0145	0.488	0.370	0.179	<0.0896
	03/26/2013	2 - 3	0.989	2.95	1.98	49.3	0.297	0.198	1.98	8.91	0.297	5.29	0.0367	<0.0147	0.494	1.39	0.198	<0.0989
	03/12/2014	2 - 3	0.662	4.40	132	1,120	0.199	0.136	1.32	4.87	0.199	2.21	0.0241	<0.00964	0.331	0.571	0.132	<0.662
	04/04/2015	2 - 3	0.008	2.50	0.001	33.0	0.001	<0.001	0.091	6.20	0.011	4.00	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
4	11/30/2012	2 - 3	0.909	1.02	1.82	16.4	0.273	<0.0909	1.82	4.21	0.273	2.08	0.0369	<0.0148	0.454	0.245	0.182	<0.0909
	03/26/2013	2 - 3	0.975	1.30	1.95	25.0	0.292	0.127	1.95	4.56	0.292	4.36	0.0403	<0.0161	0.487	0.765	0.195	<0.0975
	03/12/2014	2 - 3	0.668	1.87	1.34	35.7	0.200	0.0927	1.34	7.36	0.200	4.47	0.0240	<0.00959	0.334	0.553	0.134	<0.0668
	04/04/2015	2 - 3	0.008	2.70	0.001	82.0	0.001	<0.001	0.091	5.70	0.011	3.60	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
5	11/30/2012	2 - 3	1.05	1.94	105	605	0.314	0.181	2.09	7.19	0.314	4.12	0.0383	<0.0153	0.523	0.453	0.209	<0.105
	03/22/2013	2 - 3	0.927	1.20	1.85	20.9	0.278	0.102	1.85	3.71	0.278	2.23	0.0394	<0.0158	0.463	0.756	0.185	<0.0927
	03/12/2014	2 - 3	1.19	3.98	2.38	198	0.357	0.195	2.38	11.4	0.357	6.65	0.0472	0.0204	0.595	1.05	0.238	<0.119
	04/04/2015	2 - 3	0.008	2.00	0.001	250	0.001	<0.001	0.091	4.20	0.011	2.60	0.00025	<0.00025	0.004	<0.004	0.005	<0.005
6	11/30/2012	2 - 3	0.873	1.21	1.75	19.4	0.262	<0.0873	1.75	4.02	0.262	2.15	0.0341	<0.0136	0.437	0.276	0.175	<0.0873
	03/23/2013	2 - 2.7	0.940	1.32	1.88	26.7	0.282	<0.0940	1.88	4.03	0.282	2.17	0.0380	<0.0152	0.470	0.610	0.188	<0.094
	03/12/2014	2 - 3	1.18	3.18	2.35	300	0.353	0.120	2.35	6.61	0.353	3.24	0.0228	<0.00913	0.588	0.626	0.235	<0.118
	04/04/2015	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX and Permian Basin Environmental Lab, Midland, TX by EPA SW-846 60108 and 747.

Results are reported in milligram per kilogram (mg/Kg) equivalent to parts per million (ppm)

RL: Reporting limit (equivalent to practical quantification limit (PQL))

<: Not detected at method detection limit

- No data available

\* Treated soil removed from cell therefore no vadose sample was collected

**Bold values indicate analyte was detected**  
**Highlighted values indicate that analyte was above mean background concentration**



**Table 4**  
**Vadose Soil Anion and Cation Analytical Data Summary**  
**R360 Artesia LLC Landfarm (NM1-030)**  
**Lea County, New Mexico**

Cell	Sample Date	Depth (Feet)	RL	Calcium (mg/Kg)	RL	Magnesium (mg/Kg)	RL	Potassium (mg/Kg)	RL	Sodium (mg/Kg)	RL	Alkalinity (mg/Kg)	RL	Chloride (mg/Kg)	RL	Sulfate (mg/Kg)
<b>Background:</b>																<b>5.04 ppm</b>
1	11/19/2012	2 - 3	656	<b>149,000</b>	656	<b>2,730</b>	656	<b>1,590</b>	13.1	<b>75.5</b>	52.7	<b>809</b>	5.30	<b>7.51</b>	10.6	<b>19.6</b>
	06/13/2013	2 - 3	1,270	<b>257,000</b>	12.7	<b>807</b>	12.7	<b>206</b>	12.7	<b>58.8</b>	54.6	<b>116</b>	54.6	<b>361</b>	10.9	<b>162</b>
	03/12/2014	2 - 3	80.6	<b>14,300</b>	8.06	<b>2,570</b>	8.06	<b>3,570</b>	8.06	<b>105</b>	61.9	<b>186</b>	6.11	<b>57.9</b>	12.2	<b>140</b>
	04/14/2015	2 - 3	0.081	<b>1,960</b>	0.036	<b>620</b>	0.060	<b>815</b>	0.043	<b>130</b>	2.00	<b>4,500</b>	1.09	<b>5.78</b>	0.5	<b>48.3</b>
2	11/19/2012	2 - 3	647	<b>127,000</b>	647	<b>3,920</b>	647	<b>2,430</b>	647	<b>906</b>	54.7	<b>1,130</b>	5.46	<b>59.9</b>	10.9	<b>320</b>
	06/13/2013	2 - 3	1,340	<b>163,000</b>	13.4	<b>696</b>	13.4	<b>319</b>	13.4	<b>103</b>	56.7	<b>5,080</b>	5.60	<b>100</b>	11.2	<b>424</b>
	03/12/2014	2 - 3	690	<b>208,000</b>	13.8	<b>4,300</b>	13.8	<b>1,540</b>	13.8	<b>525</b>	56.1	<b>1,310</b>	5.20	<b>124</b>	10.4	<b>392</b>
	06/16/2015	2 - 3	10	<b>20,000</b>	10	<b>1,060</b>	10	<b>890</b>	10	<b>122</b>	20	<b>530</b>	25.00	<b>256</b>	25	<b>165</b>
3	11/19/2012	2 - 3	560	<b>7,710</b>	560	<b>1,360</b>	560	<b>1,590</b>	560	<b>964</b>	50.7	<b>1,470</b>	5.11	<b>181</b>	10.2	<b>345</b>
	06/13/2013	2 - 3	1,270	<b>229,000</b>	63.7	<b>9,720</b>	63.7	<b>999</b>	63.7	<b>193</b>	55.0	<b>1,440</b>	8.59	<b>8.59</b>	4.78	<b>478</b>
	03/12/2014	2 - 3	827	<b>223,000</b>	827	<b>4,800</b>	8.27	<b>911</b>	8.27	<b>436</b>	63.5	<b>1,250</b>	5.36	<b>118</b>	10.7	<b>578</b>
	04/14/2015	2 - 3	0.081	<b>1,090</b>	0.036	<b>1,430</b>	0.060	<b>1,650</b>	0.043	<b>505</b>	2.00	<b>4,000</b>	1.10	<b>33.7</b>	0.5	<b>148</b>
4	11/19/2012	2 - 3	11.4	<b>525</b>	11.4	<b>814</b>	11.4	<b>1,020</b>	11.4	<b>75.0</b>	50.3	<b>71.0</b>	5.09	<b>72.1</b>	10.2	<b>77.6</b>
	06/13/2013	2 - 3	12.5	<b>889</b>	12.5	<b>921</b>	12.5	<b>1,250</b>	12.5	<b>22.3</b>	50.7	<b>53.2</b>	5.06	<b>103</b>	10.1	<b>29.9</b>
	03/12/2014	2 - 3	83.5	<b>12,400</b>	83.5	<b>1,980</b>	83.5	<b>1,400</b>	8.35	<b>210</b>	64.7	<b>116</b>	5.53	<b>87.7</b>	11.1	<b>1,340</b>
	04/14/2015	2 - 3	0.081	<b>35,200</b>	0.036	<b>6,920</b>	0.060	<b>1,650</b>	0.043	<b>198</b>	2.00	<b>4,000</b>	1.10	<b>70.0</b>	0.5	<b>158</b>
5	11/19/2012	2 - 3	654	<b>32,100</b>	654	<b>2,970</b>	654	<b>1,600</b>	654	<b>2,160</b>	55.4	<b>562</b>	55.0	<b>2,020</b>	110	<b>1,770</b>
	06/13/2013	2 - 3	7.50	<b>451</b>	7.50	<b>591</b>	7.50	<b>85</b>	7.50	<b>248</b>	59.3	<b>103</b>	5.99	<b>18.3</b>	12.0	<b>13.5</b>
	03/12/2014	2 - 3	744	<b>86,100</b>	14.9	<b>2,410</b>	14.9	<b>2,290</b>	14.9	<b>609</b>	62.8	<b>260</b>	59.4	<b>624</b>	11.9	<b>332</b>
	04/14/2015	2 - 3	0.081	<b>23,300</b>	0.036	<b>1,860</b>	0.060	<b>1,020</b>	0.043	<b>2,910</b>	2.00	<b>4,500</b>	1.16	<b>100</b>	0.5	<b>62.8</b>
6	11/19/2012	2 - 3	546	<b>668</b>	546	<b>663</b>	546	<b>884</b>	546	<b>23.6</b>	50.4	<b>84.7</b>	5.09	<b>58.9</b>	10.2	<b>22.5</b>
	06/13/2013	2 - 3	12.2	<b>889</b>	12.2	<b>579</b>	12.2	<b>822</b>	12.2	<b>37.1</b>	51.4	<b>189</b>	5.11	<b>13.8</b>	10.2	<b>&lt;10.2</b>
	03/12/2014	2 - 3	735	<b>102,000</b>	14.7	<b>2,270</b>	14.7	<b>1,510</b>	14.7	<b>420</b>	62.2	<b>275</b>	5.49	<b>256</b>	11.0	<b>166</b>
	04/14/2015	2 - 3	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes: Analysis performed by DHL Analytical, Round Rock, Texas and Trace Analysis, Inc., Lubbock, Texas by EPA SW-846 methods 6010B, 300.0 and 310.0

Results are reported in milligram per kilogram (mg/Kg) equivalent to parts per million (ppm).

RL: Reporting limit (equivalent to practical quantification limit (PQL))

<: Not detected at method RL

-: No data available

**Bold values indicate analyte was detected**

**Highlighted values indicate that analyte was above mean background concentration**

## Figures





Figure 1 - Topographic Map





850 0 850  
Graphic Scale in Feet

R-360 Enviromental

32°51'06.78"N  
103°48'16.35"W

**L**arson &  
Associates, Inc.  
Environmental Consultants

Figure 2 Aerial



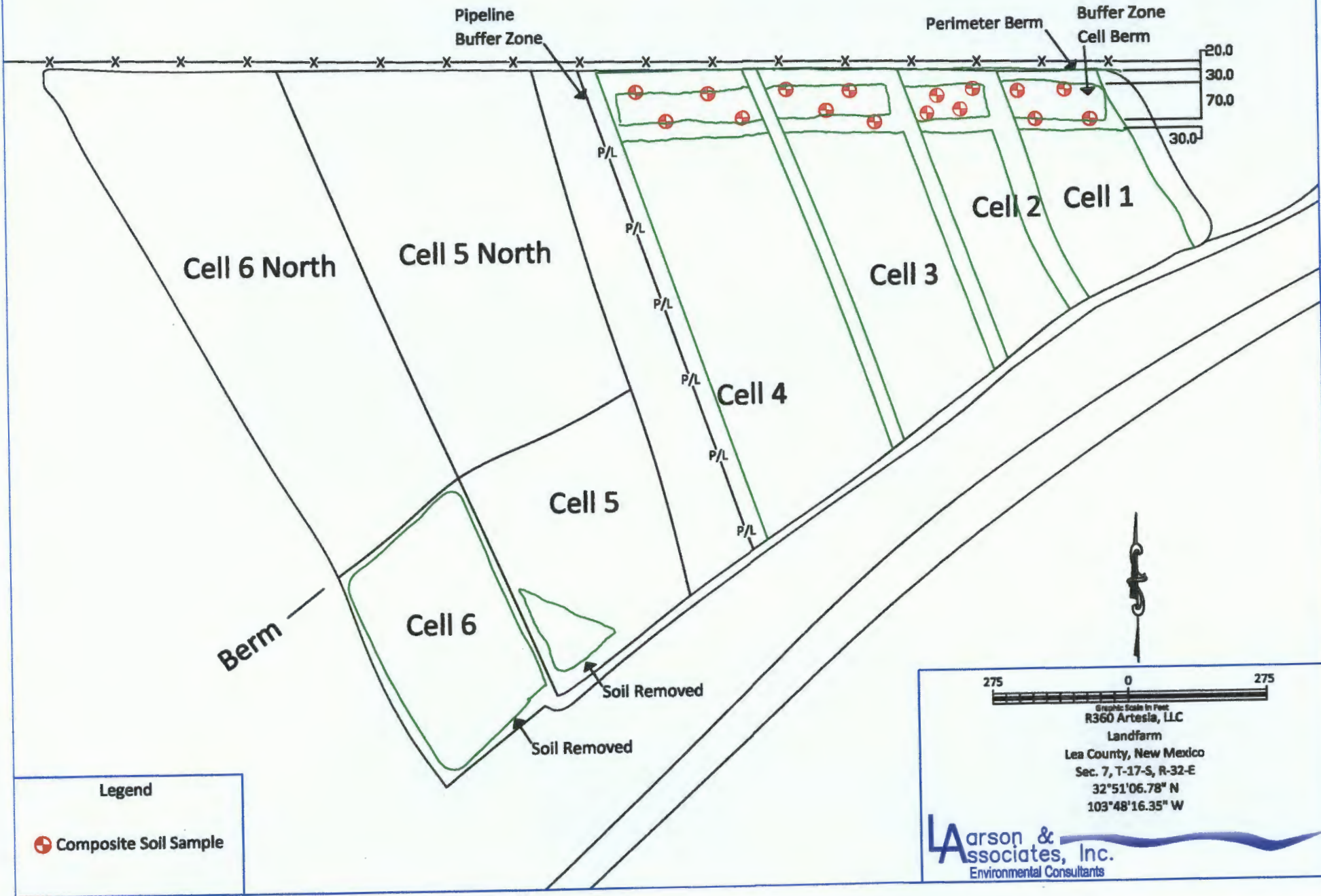


Figure 3 - Remediation Area Map

# Appendix A

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Susana Martinez**  
Governor

**David Martin**  
Cabinet Secretary

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**Jami Bailey, Division Director**  
Oil Conservation Division



November 24, 2014

Wayne Crawley  
R360 Environmental Solutions, LLC  
3 Waterway Square Place, Suite 110  
The Woodlands, Texas 77380

**RE: Request for Approval of Plan 1 – Berm and Buffer Plan**  
**Permit NM1 – 030: Commercial Surface Waste Management Facility**  
**R360 Artesia, LLC – R360 Artesia, LLC Landfarm**  
**Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM**  
**Lea County, New Mexico**

Dear Mr. Crawley:

The Oil Conservation Division (OCD) has completed the review of Larson & Associates, Inc.'s email request Plan 1, dated November 19, 2014 and submitted on the behalf of R360 Artesia, LLC, which proposes to relocate contaminated soils out of the 100 ft. buffer area, install temporary cells berms, assess the vadose zone within the exposed buffer area, and the installation of permanent cells berms.

Based on the information provided in the request, Plan 1 is hereby approved with the following understandings and conditions:

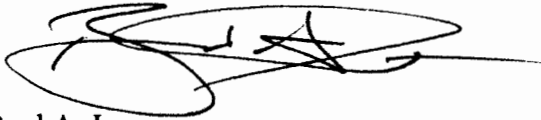
1. R360 Artesia, LLC shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), all conditions specified in this approval, and shall operate in accordance with the November 19, 2014 submittal;
2. R360 Artesia, LLC shall compare vadose zone monitoring results to the background results or PQL (whichever is higher) in order to determine if a release had occurred and if additional follow-up actions of 19.15.36.15.E.(5) NMAC are required to be completed; and
3. R360 Artesia, LLC shall obtain written approval from OCD prior to implementing any changes to the November 19, 2014 plan.

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

R360 Artesia, LLC  
Permit NM1-030  
November 24, 2014  
Page 2 of 2

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read 'Brad A. Jones', enclosed within a large, loopy circular scribble.

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX  
79701

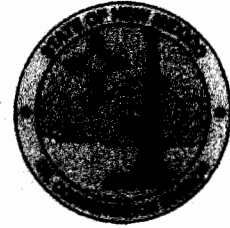
State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

Jami Bailey, Division Director  
Oil Conservation Division



October 21, 2014

Wayne Crawley  
R360 Environmental Solutions, LLC  
3 Waterway Square Place, Suite 110  
The Woodlands, Texas 77380

**RE: Request for Approval to Apply a Successive Lift  
Permit NM1 – 030: Commercial Surface Waste Management Facility  
R360 Artesia, LLC – R360 Artesia, LLC Landfarm  
Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM  
Lea County, New Mexico**

Dear Mr. Crawley:

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s email request, dated October 20, 2014 and submitted on the behalf of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): Cell 1.

Based upon the analytical results provided, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s). Also, please note that with the addition of successive lifts R360 Artesia, LLC must initiate tilling and treatment zone monitoring and resume vadose zone monitoring. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Brad A. Jones".

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX 79701



State of New Mexico  
Energy, Minerals and Natural Resources Department

---

**Susana Martinez**  
Governor

**David Martin**  
Cabinet Secretary

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**David Catanach, Division Director**  
Oil Conservation Division



March 23, 2015

Wayne Crawley  
R360 Environmental Solutions, LLC  
3 Waterway Square Place, Suite 110  
The Woodlands, Texas 77380

**RE: Request for Approval to Apply a Successive Lift  
Permit NM1 – 030: Commercial Surface Waste Management Facility  
R360 Artesia, LLC – R360 Artesia, LLC Landfarm  
Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM  
Lea County, New Mexico**

Dear Mr. Crawley:

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s email request, dated March 20, 2015 and submitted on the behalf of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): **Cell 2.**

Based on the information and data provided in the request, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s) with the following understandings and conditions:

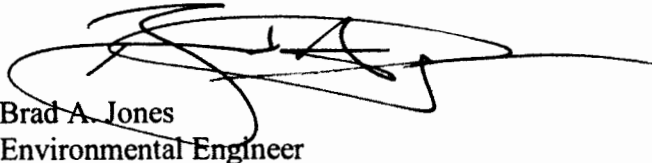
1. R360 Artesia, LLC must initiate tilling, treatment zone monitoring, and resume vadose zone monitoring with the addition of successive lifts. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.
2. R360 Artesia, LLC shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), all conditions specified in this approval, and shall operate in accordance with the November 19, 2014 Plan 1 submittal;
3. R360 Artesia, LLC shall compare vadose zone monitoring results to the background results or PQL (whichever is higher) in order to determine if a release had occurred and if additional follow-up actions of 19.15.36.15.E.(5) NMAC are required to be completed; and
4. R360 Artesia, LLC shall obtain written approval from OCD prior to implementing any changes to the November 19, 2014 Plan 1 submittal.

R360 Artesia, LLC  
Permit NM1-030  
March 23, 2015  
Page 2 of 2

**Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.**

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,



Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX  
79701

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Susana Martinez**  
Governor

**David Martin**  
Cabinet Secretary

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**David Catanach, Division Director**  
Oil Conservation Division



January 14, 2015

Wayne Crawley  
R360 Environmental Solutions, LLC  
3 Waterway Square Place, Suite 110  
The Woodlands, Texas 77380

**RE: Request for Approval to Apply a Successive Lift  
Permit NM1 – 030: Commercial Surface Waste Management Facility  
R360 Artesia, LLC – R360 Artesia, LLC Landfarm  
Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM  
Lea County, New Mexico**

Dear Mr. Crawley:

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s email request, dated January 10, 2015 and submitted on the behalf of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): **Cell 3.**

Based on the information and data provided in the request, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s) with the following understandings and conditions:

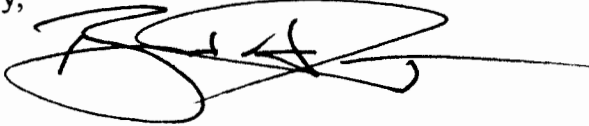
1. R360 Artesia, LLC must initiate tilling, treatment zone monitoring, and resume vadose zone monitoring with the addition of successive lifts. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.
2. R360 Artesia, LLC shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), all conditions specified in this approval, and shall operate in accordance with the November 19, 2014 Plan 1 submittal;
3. R360 Artesia, LLC shall compare vadose zone monitoring results to the background results or PQL (whichever is higher) in order to determine if a release had occurred and if additional follow-up actions of 19.15.36.15.E.(5) NMAC are required to be completed; and
4. R360 Artesia, LLC shall obtain written approval from OCD prior to implementing any changes to the November 19, 2014 Plan 1 submittal.

R360 Artesia, LLC  
Permit NM1-030  
January 14, 2015  
Page 2 of 2

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read 'Brad A. Jones', with a long horizontal line extending to the right.

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX  
79701

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Susana Martinez**  
Governor

**David Martin**  
Cabinet Secretary

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**Jami Bailey, Division Director**  
Oil Conservation Division



September 2, 2014

Mark J. Larson  
Larson & Associates, Inc.  
507 North Marienfeld, Suite 200  
Midland, Texas 79701

**RE: Request for Approval to Apply a Successive Lift  
Permit NM1 – 030: Commercial Surface Waste Management Facility  
R360 Artesia, LLC – R360 Artesia, LLC Landfarm  
Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM  
Lea County, New Mexico**

Dear Mr. Larson

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s email request, dated August 29, 2014 and submitted on the behalf of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): **Cell 4**.

Based upon the analytical results provided, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s). Also, please note that with the addition of successive lifts R360 Artesia, LLC must initiate tilling and treatment zone monitoring and resume vadose zone monitoring. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Brad A. Jones".

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Wayne Crawley, R360 Environmental Solutions, LLC, The Woodlands, TX 77380

## **Appendix B**



March 20, 2015

Mark Larson  
Larson & Associates  
507 N. Marienfeld #200  
Midland, TX 79701  
TEL: (432) 687-0901  
FAX (432) 687-0456  
RE: R360 Landfarm

Order No.: 1502214

Dear Mark Larson:

DHL Analytical, Inc. received 9 sample(s) on 2/26/2015 for the analyses presented in the following report.

REVISION#1 This revision consists of correcting the target compounds as per the client request. Please replace the original report with this revised report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-13





# Table of Contents

<b>Miscellaneous Documents .....</b>	<b>3</b>
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# CHAIN-OF-CUSTODY

**Arson & Associates, Inc.**  
Environmental Consultants

507 N. Marienfeld, Ste. 200  
Midland, TX 79701  
432-687-0901

DATE: 2/25/15 PAGE 1 OF 1  
PO #: \_\_\_\_\_ LAB WORK ORDER #: 1502214  
PROJECT LOCATION OR NAME: R360 Land Farm  
LAI PROJECT #: 15-0121-01 COLLECTOR: [Signature]

Data Reported to: cdg

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR			P=PAINT SL=SLUDGE OT=OTHER			PRESERVATION					ANALYSES	FIELD NOTES	
	TIME ZONE: Time zone/State: <u>NM</u>	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> □ NaOH □	ICE	UNPRESERVED			<input type="checkbox"/> BTEX □ <input type="checkbox"/> MTBE □ <input type="checkbox"/> TPH 418-100 □ <input type="checkbox"/> TPH 1008 □ <input type="checkbox"/> TPH 1006 □ <input type="checkbox"/> GASOLINE MOD 8015 □ <input type="checkbox"/> DIESEL - MOD 8015 □ <input type="checkbox"/> VOC 8260 □ <input type="checkbox"/> SVOC 8270 □ <input type="checkbox"/> PAH 8270 □ <input type="checkbox"/> HOLDPAH □ <input type="checkbox"/> 8082 PESTICIDES □ <input type="checkbox"/> 8151 HERBICIDES □ <input type="checkbox"/> TCLP - METALS (RCRA) □ <input type="checkbox"/> TCLP - PEST □ <input type="checkbox"/> HERB □ <input type="checkbox"/> TOTAL METALS (RCRA) □ <input type="checkbox"/> SEMI-VOC □ <input type="checkbox"/> LEAD - TOTAL □ <input type="checkbox"/> DIM-200.8 □ <input type="checkbox"/> OTHER LIST □ <input type="checkbox"/> RCI □ <input type="checkbox"/> TOX □ <input type="checkbox"/> FLASHPOINT □ <input type="checkbox"/> TDS □ <input type="checkbox"/> TSS □ <input type="checkbox"/> % MOISTURE □ <input type="checkbox"/> PH □ <input type="checkbox"/> HEXAVALENT CHROMIUM □ <input type="checkbox"/> EXPLOSIVES □ <input type="checkbox"/> CHLORIDE □ <input type="checkbox"/> ANIONS □ <input type="checkbox"/> ALKALINITY □
Cell 1 (2-3)	01	2/24/15	100	S	1				X	X	X	X		
Cell 2 (2-3)	02		200											
(0-1)	03		230											
Cell 3 (2-3)	04		300											
Cell 4 (2-3)	05		400											
Cell 5 (2-3)	06		500											
(0-1)	07		570											
Cell 6 (2-3)	08		600											
(0-1)	09		630											
TOTAL														

*Rel First, prelim report*

RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>2/25/15 6:20 PM</u>	RECEIVED BY: (Signature) <u>Lonester</u>	TURN AROUND TIME NORMAL <input checked="" type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>
RELINQUISHED BY: (Signature) <u>Lonester</u>	DATE/TIME <u>2/26/15 0830</u>	RECEIVED BY: (Signature) <u>M [Signature]</u>	LABORATORY USE ONLY: RECEIVING TEMP: <u>5.3</u> THERM #: <u>57</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # <u>Lonester</u> <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	



WWW.LSO.COM  
 Questions? Call 800-800-8984  
 Airbill No. 48852755

48852755

**1. To:** Print Name (Person) F. Barker Phone (Important) 512 3889122  
Company Name  
DHL  
Street Address (No P.O. Box or P.O. Box Zip Code Deliveries)  
300 Double Creek  
Suite / Floor  
  
City State Zip  
Brownsville TX 78664

**2. From:** Print Name (Person) L. Wolf Phone (Important) 402 531 1601  
Company Name  
LARSON & ASSOCIATES, INC.  
Street Address  
507 N. MARLENFIELD ST.  
Suite / Floor  
  
City State Zip  
MILLARD MO 64701

**3. Service:** Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.

**LSO Priority Overnight\***  
By 10:30 a.m. to most cities

**LSO Early Overnight\***  
By 8:30 a.m. select cities

**LSO Economy Next Day\***  
By 3 p.m. to most cities

**LSO 2nd Day\***

**LSO Ground**

**LSO Saturday\***

**Other** \_\_\_\_\_

\*Check commitment times and availability at www.lso.com

**Assumed LSO Priority Overnight service unless otherwise noted.**

**4. Package:** Weight: 50  
Your Company's Billing Reference Information  
15-0121-01  
Ship Date: (mm/dd/yy) 2/25/15

**FOR DRIVER USE ONLY**

Driver Number 3489

Check here if LSO Supplies are used with LSO Ground Service.

Pick-up Location 1001

Date: 2-25

Time: 1:35

City Code: AVS

**Deliver Without Delivery Signature (See Limits of Liability below)**

01  
 \_\_\_\_\_  
Release Signature

1 x W x H

**5. Payment:**

LIMIT OF LIABILITY: We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value (not to exceed \$25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. NO DELIVERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERRIGHT SERVICE. PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON LSO GROUND SERVICE. OVSZIE BATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.

DHL Analytical, Inc.

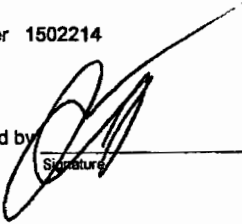
Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 2/26/2015

Work Order Number 1502214

Received by MB

Checklist completed by  2/26/2015  
Signature Date

Reviewed by  2/26/2015  
Initials Date

Carrier name Hand Delivered

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  5.3 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Any No response must be detailed in the comments section below.

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_

---

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Lab Order:** 1502214

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**CASE NARRATIVE**

Sample was analyzed using the methods outlined in the following references:

Method M8015D - DRO Analysis  
Method M8015V - GRO Analysis  
Method SW8021B - Volatile Organics by GC Analysis  
Method E300 - Anions Analysis  
Method E418.1 - Total Petroleum Hydrocarbons Analysis (Parameter not NELAC Certified)  
Method D2216 - Percent Moisture Analysis

**LOG IN**

The samples were received and log-in performed on 2/26/2015. A total of 9 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

**ANIONS ANALYSIS**

For Anions Analysis, the recovery of Chloride for the Matrix Spike and the RPD of the Matrix Spike Duplicate (1502214-09 MS/MSD) were above the method control limits. These are flagged accordingly in the QC Summary Report. This anion was within method control limits in the associated LCS. The reference sample selected for the matrix spike and matrix spike duplicate was from this work order. No further corrective actions were taken.

**BTEX AND GRO ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: NELAP requires a note that if 5035 sampling method for VOCs and GRO is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised. The client has been notified and has requested the Laboratory to proceed with analysis.

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**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Lab Order:** 1502214

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1502214-01	Cell 1 (2-3)		02/24/15 01:00 PM	2/26/2015
1502214-02	Cell 2 (2-3)		02/24/15 02:00 PM	2/26/2015
1502214-03	Cell 2 (0-1')		02/24/15 02:30 PM	2/26/2015
1502214-04	Cell 3 (2-3)		02/24/15 03:00 PM	2/26/2015
1502214-05	Cell 4 (2-3)		02/24/15 04:00 PM	2/26/2015
1502214-06	Cell 5 (2-3)		02/24/15 05:00 PM	2/26/2015
1502214-07	Cell 5 (0-1')		02/24/15 05:30 PM	2/26/2015
1502214-08	Cell 6 (2-3)		02/24/15 06:00 PM	2/26/2015
1502214-09	Cell 6 (0-1')		02/24/15 06:30 PM	2/26/2015

Lab Order: 1502214  
 Client: Larson & Associates  
 Project: R360 Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1502214-01A	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 1 (2-3)	02/24/15 01:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-02A	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 2 (2-3)	02/24/15 02:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-03A	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
1502214-04A	Cell 2 (0-1)	02/24/15 02:30 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
1502214-05A	Cell 3 (2-3)	02/24/15 03:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439



Lab Order: 1502214  
 Client: Larson & Associates  
 Project: R360 Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1502214-05A	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 4 (2-3)	02/24/15 04:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-06A	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 5 (2-3)	02/24/15 05:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-07A	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 5 (0-1)	02/24/15 05:30 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-08A	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 6 (2-3)	02/24/15 06:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486
1502214-09A	Cell 6 (0-1)	02/24/15 06:30 PM	Soil	E300	Anion Prep	03/02/15 09:09 AM	68435
	Cell 6 (0-1)	02/24/15 06:30 PM	Soil	D2216	Moisture Preparation	02/27/15 03:57 PM	68428
	Cell 6 (0-1)	02/24/15 06:30 PM	Soil	SW5030A	Purge and Trap Soils GC	03/02/15 09:50 AM	68439
	Cell 6 (0-1)	02/24/15 06:30 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	03/03/15 09:47 AM	68460
	Cell 6 (0-1)	02/24/15 06:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424

Lab Order: 1502214  
Client: Larson & Associates  
Project: R360 Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1502214-09A	Cell 6 (0-1')	02/24/15 06:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	02/27/15 09:37 AM	68424
	Cell 6 (0-1')	02/24/15 06:30 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	03/04/15 09:34 AM	68486

Lab Order: 1502214  
 Client: Larson & Associates  
 Project: R360 Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1502214-01A	Cell 1 (2-3)	Soil	E300	Anions by IC method - Soil	68435	1	03/02/15 10:44 AM	IC2_150302A
	Cell 1 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 1 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 11:00 AM	GC15_150302A
	Cell 1 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 12:00 PM	GC4_150303A
	Cell 1 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 1 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 11:49 AM	GC4_150302A
1502214-02A	Cell 2 (2-3)	Soil	E300	Anions by IC method - Soil	68435	1	03/02/15 10:59 AM	IC2_150302A
	Cell 2 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 2 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 11:09 AM	GC15_150302A
	Cell 2 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 12:25 PM	GC4_150303A
	Cell 2 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 2 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 12:14 PM	GC4_150302A
1502214-03A	Cell 2 (0-1')	Soil	E300	Anions by IC method - Soil	68435	1	03/02/15 11:13 AM	IC2_150302A
	Cell 2 (0-1')	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 2 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	10	03/02/15 11:18 AM	GC15_150302A
	Cell 2 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 12:48 PM	GC15_150302A
	Cell 2 (0-1')	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 12:49 PM	GC4_150303A
	Cell 2 (0-1')	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 2 (0-1')	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 12:40 PM	GC4_150302A
1502214-04A	Cell 3 (2-3)	Soil	E300	Anions by IC method - Soil	68435	10	03/02/15 11:32 AM	IC2_150302A
	Cell 3 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 3 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 11:27 AM	GC15_150302A
	Cell 3 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 01:13 PM	GC4_150303A
	Cell 3 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 3 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 01:05 PM	GC4_150302A
1502214-05A	Cell 4 (2-3)	Soil	E300	Anions by IC method - Soil	68435	1	03/02/15 01:21 PM	IC2_150302A
	Cell 4 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 4 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 11:36 AM	GC15_150302A

Lab Order: 1502214  
 Client: Larson & Associates  
 Project: R360 Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1502214-05A	Cell 4 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 01:37 PM	GC4_150303A
	Cell 4 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 4 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 01:30 PM	GC4_150302A
1502214-06A	Cell 5 (2-3)	Soil	E300	Anions by IC method - Soil	68435	10	03/02/15 01:35 PM	IC2_150302A
	Cell 5 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	10	03/02/15 11:45 AM	GC15_150302A
	Cell 5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 12:57 PM	GC15_150302A
	Cell 5 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 02:02 PM	GC4_150303A
	Cell 5 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 5 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 01:55 PM	GC4_150302A
	Cell 5 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	10	03/02/15 11:54 AM	GC15_150302A
1502214-07A	Cell 5 (0-1')	Soil	E300	Anions by IC method - Soil	68435	1	03/02/15 12:16 PM	IC2_150302A
	Cell 5 (0-1')	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 5 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	10	03/02/15 11:54 AM	GC15_150302A
	Cell 5 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 01:06 PM	GC15_150302A
	Cell 5 (0-1')	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 02:26 PM	GC4_150303A
	Cell 5 (0-1')	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 5 (0-1')	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 02:20 PM	GC4_150302A
1502214-08A	Cell 6 (2-3)	Soil	E300	Anions by IC method - Soil	68435	10	03/02/15 12:30 PM	IC2_150302A
	Cell 6 (2-3)	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 6 (2-3)	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 12:03 PM	GC15_150302A
	Cell 6 (2-3)	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 02:50 PM	GC4_150303A
	Cell 6 (2-3)	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 6 (2-3)	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 02:44 PM	GC4_150302A
1502214-09A	Cell 6 (0-1')	Soil	E300	Anions by IC method - Soil	68435	10	03/02/15 01:50 PM	IC2_150302A
	Cell 6 (0-1')	Soil	D2216	Percent Moisture	68428	1	03/02/15 08:50 AM	PMOIST_150227A
	Cell 6 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	10	03/02/15 12:30 PM	GC15_150302A
	Cell 6 (0-1')	Soil	M8015D	TPH Extractable by GC - Soil	68424	1	03/02/15 01:15 PM	GC15_150302A
	Cell 6 (0-1')	Soil	M8015V	TPH Purgeable by GC - Soil	68460	1	03/03/15 03:14 PM	GC4_150303A

Lab Order: 1502214  
Client: Larson & Associates  
Project: R360 Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1502214-09A	Cell 6 (0-1')	Soil	E418.1	TRPH	68486	1	03/04/15 03:05 PM	IR207_150304A
	Cell 6 (0-1')	Soil	SW8021B	Volatile Organics by GC	68439	1	03/02/15 03:09 PM	GC4_150302A

**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 1 (2-3)  
**Lab ID:** 1502214-01  
**Collection Date:** 02/24/15 01:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>			Analyst: <b>ABO</b>		
TPH-DRO C10-C28	ND	3.09	10.3		mg/Kg-dry	1	03/02/15 11:00 AM
Surr: Isopropylbenzene	75.8	0	47-142		%REC	1	03/02/15 11:00 AM
Surr: Octacosane	77.5	0	25-162		%REC	1	03/02/15 11:00 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>			Analyst: <b>AV</b>		
Gasoline Range Organics	ND	0.101	0.202		mg/Kg-dry	1	03/03/15 12:00 PM
Surr: Tetrachlorethene	102	0	70-134		%REC	1	03/03/15 12:00 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>			Analyst: <b>AV</b>		
Benzene	ND	0.00323	0.00538		mg/Kg-dry	1	03/02/15 11:49 AM
Ethylbenzene	ND	0.00538	0.0161		mg/Kg-dry	1	03/02/15 11:49 AM
Toluene	ND	0.00538	0.0161		mg/Kg-dry	1	03/02/15 11:49 AM
Xylenes, Total	ND	0.00538	0.0161		mg/Kg-dry	1	03/02/15 11:49 AM
Surr: Tetrachloroethene	106	0	79-135		%REC	1	03/02/15 11:49 AM
<b>TRPH</b>		<b>E418.1</b>			Analyst: <b>ABO</b>		
Petroleum Hydrocarbons, TR	ND	5.30	10.6	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	7.90	5.15	5.15		mg/Kg-dry	1	03/02/15 10:44 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>			Analyst: <b>JL</b>		
Percent Moisture	7.77	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 2 (2-3)  
**Lab ID:** 1502214-02  
**Collection Date:** 02/24/15 02:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>			Analyst: <b>ABO</b>		
TPH-DRO C10-C28	ND	3.80	12.7		mg/Kg-dry	1	03/02/15 11:09 AM
Surr: Isopropylbenzene	66.1	0	47-142		%REC	1	03/02/15 11:09 AM
Surr: Octacosane	74.1	0	25-162		%REC	1	03/02/15 11:09 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>			Analyst: <b>AV</b>		
Gasoline Range Organics	ND	0.123	0.246		mg/Kg-dry	1	03/03/15 12:25 PM
Surr: Tetrachlorethene	101	0	70-134		%REC	1	03/03/15 12:25 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>			Analyst: <b>AV</b>		
Benzene	ND	0.00374	0.00624		mg/Kg-dry	1	03/02/15 12:14 PM
Ethylbenzene	ND	0.00624	0.0187		mg/Kg-dry	1	03/02/15 12:14 PM
Toluene	ND	0.00624	0.0187		mg/Kg-dry	1	03/02/15 12:14 PM
Xylenes, Total	ND	0.00624	0.0187		mg/Kg-dry	1	03/02/15 12:14 PM
Surr: Tetrachloroethene	102	0	79-135		%REC	1	03/02/15 12:14 PM
<b>TRPH</b>		<b>E418.1</b>			Analyst: <b>ABO</b>		
Petroleum Hydrocarbons, TR	20.9	6.45	12.9	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>			Analyst: <b>AV</b>		
Chloride	35.2	6.49	6.49		mg/Kg-dry	1	03/02/15 10:59 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>			Analyst: <b>JL</b>		
Percent Moisture	23.8	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	



**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 2 (0-1')  
**Lab ID:** 1502214-03  
**Collection Date:** 02/24/15 02:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>			Analyst: AV		
Benzene	ND	0.00375	0.00625		mg/Kg-dry	1	03/02/15 12:40 PM
Ethylbenzene	ND	0.00625	0.0187		mg/Kg-dry	1	03/02/15 12:40 PM
Toluene	ND	0.00625	0.0187		mg/Kg-dry	1	03/02/15 12:40 PM
Xylenes, Total	ND	0.00625	0.0187		mg/Kg-dry	1	03/02/15 12:40 PM
Surr: Tetrachloroethene	98.9	0	79-135		%REC	1	03/02/15 12:40 PM
<b>TRPH</b>		<b>E418.1</b>			Analyst: ABO		
Petroleum Hydrocarbons, TR	24.4	6.18	12.4	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>			Analyst: AV		
Chloride	37.0	5.75	5.75		mg/Kg-dry	1	03/02/15 11:13 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>			Analyst: JL		
Percent Moisture	24.5	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 3 (2-3)  
**Lab ID:** 1502214-04  
**Collection Date:** 02/24/15 03:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: ABO</b>			
TPH-DRO C10-C28	ND	3.53	11.8		mg/Kg-dry	1	03/02/15 11:27 AM
Surr: Isopropylbenzene	58.5	0	47-142		%REC	1	03/02/15 11:27 AM
Surr: Octacosane	69.4	0	25-162		%REC	1	03/02/15 11:27 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	ND	0.108	0.216		mg/Kg-dry	1	03/03/15 01:13 PM
Surr: Tetrachlorethene	101	0	70-134		%REC	1	03/03/15 01:13 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	ND	0.00326	0.00543		mg/Kg-dry	1	03/02/15 01:05 PM
Ethylbenzene	ND	0.00543	0.0163		mg/Kg-dry	1	03/02/15 01:05 PM
Toluene	ND	0.00543	0.0163		mg/Kg-dry	1	03/02/15 01:05 PM
Xylenes, Total	ND	0.00543	0.0163		mg/Kg-dry	1	03/02/15 01:05 PM
Surr: Tetrachloroethene	101	0	79-135		%REC	1	03/02/15 01:05 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: ABO</b>			
Petroleum Hydrocarbons, TR	ND	6.01	12.0	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	98.8	52.7	52.7		mg/Kg-dry	10	03/02/15 11:32 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: JL</b>			
Percent Moisture	17.6	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 4 (2-3)  
**Lab ID:** 1502214-05  
**Collection Date:** 02/24/15 04:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>ABO</b>			
TPH-DRO C10-C28	ND	2.92	9.73		mg/Kg-dry	1	03/02/15 11:36 AM
Surr: Isopropylbenzene	69.7	0	47-142		%REC	1	03/02/15 11:36 AM
Surr: Octacosane	76.1	0	25-162		%REC	1	03/02/15 11:36 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	ND	0.0982	0.196		mg/Kg-dry	1	03/03/15 01:37 PM
Surr: Tetrachlorethene	111	0	70-134		%REC	1	03/03/15 01:37 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>AV</b>			
Benzene	ND	0.00304	0.00506		mg/Kg-dry	1	03/02/15 01:30 PM
Ethylbenzene	ND	0.00506	0.0152		mg/Kg-dry	1	03/02/15 01:30 PM
Toluene	ND	0.00506	0.0152		mg/Kg-dry	1	03/02/15 01:30 PM
Xylenes, Total	ND	0.00506	0.0152		mg/Kg-dry	1	03/02/15 01:30 PM
Surr: Tetrachloroethene	103	0	79-135		%REC	1	03/02/15 01:30 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	ND	4.96	9.92	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	32.3	4.67	4.67		mg/Kg-dry	1	03/02/15 01:21 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	4.46	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

CLIENT: Larson & Associates  
 Project: R360 Landfarm  
 Project No: 15-0121-01  
 Lab Order: 1502214

Client Sample ID: Cell 5 (2-3)  
 Lab ID: 1502214-06  
 Collection Date: 02/24/15 05:00 PM  
 Matrix: SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>ABO</b>			
TPH-DRO C10-C28	186	3.26	10.9		mg/Kg-dry	1	03/02/15 12:57 PM
Surr: Isopropylbenzene	68.1	0	47-142		%REC	1	03/02/15 12:57 PM
Surr: Octacosane	161	0	25-162		%REC	1	03/02/15 12:57 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	ND	0.103	0.206		mg/Kg-dry	1	03/03/15 02:02 PM
Surr: Tetrachlorethene	106	0	70-134		%REC	1	03/03/15 02:02 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>AV</b>			
Benzene	ND	0.00328	0.00546		mg/Kg-dry	1	03/02/15 01:55 PM
Ethylbenzene	ND	0.00546	0.0164		mg/Kg-dry	1	03/02/15 01:55 PM
Toluene	ND	0.00546	0.0164		mg/Kg-dry	1	03/02/15 01:55 PM
Xylenes, Total	ND	0.00546	0.0164		mg/Kg-dry	1	03/02/15 01:55 PM
Surr: Tetrachloroethene	96.5	0	79-135		%REC	1	03/02/15 01:55 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	333	5.38	10.8	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	536	54.4	54.4		mg/Kg-dry	10	03/02/15 01:35 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	9.58	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		



**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 5 (0-1')  
**Lab ID:** 1502214-07  
**Collection Date:** 02/24/15 05:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>ABO</b>			
TPH-DRO C10-C28	388	33.0	110		mg/Kg-dry	10	03/02/15 11:54 AM
Surr: Isopropylbenzene	64.4	0	47-142		%REC	10	03/02/15 11:54 AM
Surr: Octacosane	269	0	25-162	S	%REC	10	03/02/15 11:54 AM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	ND	0.102	0.203		mg/Kg-dry	1	03/03/15 02:26 PM
Surr: Tetrachlorethene	94.4	0	70-134		%REC	1	03/03/15 02:26 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>AV</b>			
Benzene	ND	0.00335	0.00558		mg/Kg-dry	1	03/02/15 02:20 PM
Ethylbenzene	ND	0.00558	0.0167		mg/Kg-dry	1	03/02/15 02:20 PM
Toluene	ND	0.00558	0.0167		mg/Kg-dry	1	03/02/15 02:20 PM
Xylenes, Total	ND	0.00558	0.0167		mg/Kg-dry	1	03/02/15 02:20 PM
Surr: Tetrachloroethene	90.0	0	79-135		%REC	1	03/02/15 02:20 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	370	5.76	11.5	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	144	5.24	5.24		mg/Kg-dry	1	03/02/15 12:16 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	16.4	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 6 (2-3)  
**Lab ID:** 1502214-08  
**Collection Date:** 02/24/15 06:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		Analyst: <b>ABO</b>			
TPH-DRO C10-C28	ND	3.04	10.1		mg/Kg-dry	1	03/02/15 12:03 PM
Surr: Isopropylbenzene	69.8	0	47-142		%REC	1	03/02/15 12:03 PM
Surr: Octacosane	76.9	0	25-162		%REC	1	03/02/15 12:03 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		Analyst: <b>AV</b>			
Gasoline Range Organics	ND	0.0966	0.193		mg/Kg-dry	1	03/03/15 02:50 PM
Surr: Tetrachlorethene	102	0	70-134		%REC	1	03/03/15 02:50 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		Analyst: <b>AV</b>			
Benzene	ND	0.00289	0.00482		mg/Kg-dry	1	03/02/15 02:44 PM
Ethylbenzene	ND	0.00482	0.0145		mg/Kg-dry	1	03/02/15 02:44 PM
Toluene	ND	0.00482	0.0145		mg/Kg-dry	1	03/02/15 02:44 PM
Xylenes, Total	ND	0.00482	0.0145		mg/Kg-dry	1	03/02/15 02:44 PM
Surr: Tetrachloroethene	105	0	79-135		%REC	1	03/02/15 02:44 PM
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	ND	5.10	10.2	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	69.8	48.6	48.6		mg/Kg-dry	10	03/02/15 12:30 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	3.39	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	



**DHL Analytical, Inc.**

Date: 20-Mar-15

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1502214

**Client Sample ID:** Cell 6 (0-1')  
**Lab ID:** 1502214-09  
**Collection Date:** 02/24/15 06:30 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: ABO</b>			
TPH-DRO C10-C28	120	3.15	10.5		mg/Kg-dry	1	03/02/15 01:15 PM
Surr: Isopropylbenzene	69.4	0	47-142		%REC	1	03/02/15 01:15 PM
Surr: Octacosane	152	0	25-162		%REC	1	03/02/15 01:15 PM
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
Gasoline Range Organics	ND	0.0998	0.200		mg/Kg-dry	1	03/03/15 03:14 PM
Surr: Tetrachlorethene	104	0	70-134		%REC	1	03/03/15 03:14 PM
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
Benzene	ND	0.00295	0.00491		mg/Kg-dry	1	03/02/15 03:09 PM
Ethylbenzene	ND	0.00491	0.0147		mg/Kg-dry	1	03/02/15 03:09 PM
Toluene	ND	0.00491	0.0147		mg/Kg-dry	1	03/02/15 03:09 PM
Xylenes, Total	ND	0.00491	0.0147		mg/Kg-dry	1	03/02/15 03:09 PM
Surr: Tetrachloroethene	91.9	0	79-135		%REC	1	03/02/15 03:09 PM
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: ABO</b>			
Petroleum Hydrocarbons, TR	57.7	5.30	10.6	N	mg/Kg-dry	1	03/04/15 03:05 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		<b>Analyst: AV</b>			
Chloride	282	50.7	50.7		mg/Kg-dry	10	03/02/15 01:50 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: JL</b>			
Percent Moisture	8.74	0	0		WT%	1	03/02/15 08:50 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC15\_150302A

The QC data in batch 68424 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID <b>MB-68424</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:15:49 AM</b>	Prep Date: <b>2/27/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	ND	10.0								
Surr: Isopropylbenzene	5.56		7.500		74.2	47	142			
Surr: Octacosane	5.99		7.500		79.8	25	162			

Sample ID <b>LCS1-68424</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:24:47 AM</b>	Prep Date: <b>2/27/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	69.7	10.0	125.0	0	55.7	50	114			
Surr: Isopropylbenzene	4.15		7.500		55.3	47	142			
Surr: Octacosane	5.48		7.500		73.1	25	162			

Sample ID <b>LCS2-68424</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:33:45 AM</b>	Prep Date: <b>2/27/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	70.2	10.0	125.0	0	56.2	50	114			
Surr: Isopropylbenzene	4.00		7.500		53.4	47	142			
Surr: Octacosane	5.40		7.500		72.0	25	162			

Sample ID <b>LCS3-68424</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:42:43 AM</b>	Prep Date: <b>2/27/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	68.9	10.0	125.0	0	55.1	50	114			
Surr: Isopropylbenzene	3.68		7.500		49.1	47	142			
Surr: Octacosane	5.37		7.500		71.6	25	162			

Sample ID <b>LCS4-68424</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:51:40 AM</b>	Prep Date: <b>2/27/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	66.6	10.0	125.0	0	53.2	50	114			
Surr: Isopropylbenzene	4.12		7.500		54.9	47	142			
Surr: Octacosane	5.17		7.500		68.9	25	162			

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_150302A

Sample ID: <b>1502214-08AMS</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 12:12:27 PM</b>	Prep Date: <b>2/27/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	70.7	9.84	123.0	0	57.5	50	114			
Surr: Isopropylbenzene	5.25		7.380		71.1	47	142			
Surr: Octacosane	5.53		7.380		74.9	25	162			

Sample ID: <b>1502214-08AMSD</b>	Batch ID: <b>68424</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 12:21:26 PM</b>	Prep Date: <b>2/27/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	70.7	9.98	124.8	0	56.6	50	114	0.098	30	
Surr: Isopropylbenzene	5.21		7.486		69.6	47	142	0	0	
Surr: Octacosane	5.48		7.486		73.1	25	162	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_150302A

Sample ID <b>ICV-150302</b>	Batch ID: <b>R78316</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 10:05:34 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	462	10.0	500.0	0	92.4	80	120			
Surr: Isopropylbenzene	27.2		25.00		109	80	120			
Surr: Octacosane	26.1		25.00		105	80	120			

Sample ID <b>CCV-150302</b>	Batch ID: <b>R78316</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 12:39:22 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	221	10.0	250.0	0	88.3	80	120			
Surr: Isopropylbenzene	14.9		12.50		119	80	120			
Surr: Octacosane	13.8		12.50		111	80	120			

Sample ID <b>CCV2-150302</b>	Batch ID: <b>R78316</b>	TestNo: <b>M8015D</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>GC15_150302A</b>	Analysis Date: <b>3/2/2015 1:33:33 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	218	10.0	250.0	0	87.1	80	120			
Surr: Isopropylbenzene	14.8		12.50		119	80	120			
Surr: Octacosane	12.8		12.50		102	80	120			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_150302A

The QC data in batch 68439 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID	LCS-68439	Batch ID:	68439	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 10:27:52 AM	Prep Date:	3/2/2015			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0960	0.00500	0.1000	0	96.0	65	113			
Toluene	0.0953	0.0150	0.1000	0	95.3	73	115			
Ethylbenzene	0.0953	0.0150	0.1000	0	95.3	74	118			
Xylenes, Total	0.287	0.0150	0.3000	0	95.8	73	119			
Surr: Tetrachloroethene	0.200		0.2000		100	79	135			

Sample ID	MB-68439	Batch ID:	68439	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 11:18:08 AM	Prep Date:	3/2/2015			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.00500								
Toluene	ND	0.0150								
Ethylbenzene	ND	0.0150								
Xylenes, Total	ND	0.0150								
Surr: Tetrachloroethene	0.205		0.2000		102	79	135			

Sample ID	1502214-09AMS	Batch ID:	68439	TestNo:	SW8021B	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 3:35:18 PM	Prep Date:	3/2/2015			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0855	0.00488	0.09767	0	87.5	65	113			
Toluene	0.0806	0.0147	0.09767	0	82.5	73	115			
Ethylbenzene	0.0772	0.0147	0.09767	0	79.1	74	118			
Xylenes, Total	0.229	0.0147	0.2930	0	78.2	73	119			
Surr: Tetrachloroethene	0.176		0.1953		90.0	79	135			

Sample ID	1502214-09AMSD	Batch ID:	68439	TestNo:	SW8021B	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 4:00:36 PM	Prep Date:	3/2/2015			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0868	0.00495	0.09908	0	87.6	65	113	1.53	30	
Toluene	0.0825	0.0149	0.09908	0	83.2	73	115	2.30	30	
Ethylbenzene	0.0780	0.0149	0.09908	0	78.7	74	118	0.998	30	
Xylenes, Total	0.229	0.0149	0.2972	0	77.0	73	119	0.104	30	
Surr: Tetrachloroethene	0.174		0.1982		88.0	79	135	0		

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_150302A

Sample ID	ICV-150302	Batch ID:	R78326	TestNo:	SW8021B	Units:	mg/Kg
SampType:	ICV	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 9:52:44 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.180	0.00500	0.2000	0	89.8	80	120			
Toluene	0.177	0.0150	0.2000	0	88.3	80	120			
Ethylbenzene	0.180	0.0150	0.2000	0	90.1	80	120			
Xylenes, Total	0.570	0.0150	0.6000	0	95.0	80	120			
Surr: Tetrachloroethene	0.188		0.2000		93.8	79	135			

Sample ID	CCV1-150302	Batch ID:	R78326	TestNo:	SW8021B	Units:	mg/Kg
SampType:	CCV	Run ID:	GC4_150302A	Analysis Date:	3/2/2015 4:31:15 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0951	0.00500	0.1000	0	95.1	80	120			
Toluene	0.0949	0.0150	0.1000	0	94.9	80	120			
Ethylbenzene	0.0944	0.0150	0.1000	0	94.4	80	120			
Xylenes, Total	0.283	0.0150	0.3000	0	94.3	80	120			
Surr: Tetrachloroethene	0.182		0.2000		90.8	79	135			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_150303A

The QC data in batch 68460 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID: <b>LCS-68460</b>	Batch ID: <b>68460</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 10:17:05 AM</b>	Prep Date: <b>3/3/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.38	0.200	5.000	0	87.6	68	126			
Surr: Tetrachlorethene	0.324		0.4000		81.0	70	134			

Sample ID: <b>MB-68460</b>	Batch ID: <b>68460</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 11:29:45 AM</b>	Prep Date: <b>3/3/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	ND	0.200								
Surr: Tetrachlorethene	0.427		0.4000		107	70	134			

Sample ID: <b>1502214-09AMS</b>	Batch ID: <b>68460</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 3:38:47 PM</b>	Prep Date: <b>3/3/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.76	0.198	4.945	0	96.2	68	126			
Surr: Tetrachlorethene	0.389		0.3956		98.3	70	134			

Sample ID: <b>1502214-09AMSD</b>	Batch ID: <b>68460</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 4:02:49 PM</b>	Prep Date: <b>3/3/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.45	0.193	4.832	0	92.1	68	126	6.70	30	
Surr: Tetrachlorethene	0.358		0.3865		92.5	70	134	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_150303A

Sample ID: <b>ICV-150303</b>	Batch ID: <b>R78349</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 9:40:46 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	9.52	0.200	10.00	0	95.2	80	120			
Surr: Tetrachlorethene	0.322		0.4000		80.5	70	134			

Sample ID: <b>CCV1-150303</b>	Batch ID: <b>R78349</b>	TestNo: <b>M8015V</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>GC4_150303A</b>	Analysis Date: <b>3/3/2015 4:31:06 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.71	0.200	5.000	0	94.1	80	120			
Surr: Tetrachlorethene	0.372		0.4000		93.1	70	134			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_150302A

The QC data in batch 68435 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID <b>MB-68435</b>	Batch ID: <b>68435</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>IC2_150302A</b>	Analysis Date: <b>3/2/2015 9:50:46 AM</b>	Prep Date: <b>3/2/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	5.00								

Sample ID <b>LCS-68435</b>	Batch ID: <b>68435</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_150302A</b>	Analysis Date: <b>3/2/2015 10:05:20 AM</b>	Prep Date: <b>3/2/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	53.6	5.00	50.00	0	107	80	120			

Sample ID <b>LCSD-68435</b>	Batch ID: <b>68435</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>LCSD</b>	Run ID: <b>IC2_150302A</b>	Analysis Date: <b>3/2/2015 10:19:55 AM</b>	Prep Date: <b>3/2/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	53.6	5.00	50.00	0	107	80	120	0.007	20	

Sample ID <b>1502214-09AMS</b>	Batch ID: <b>68435</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>IC2_150302A</b>	Analysis Date: <b>3/2/2015 2:05:01 PM</b>	Prep Date: <b>3/2/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	836	53.2	106.4	281.5	522	80	120			S

Sample ID <b>1502214-09AMSD</b>	Batch ID: <b>68435</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_150302A</b>	Analysis Date: <b>3/2/2015 2:19:36 PM</b>	Prep Date: <b>3/2/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	394	51.9	103.8	281.5	109	80	120	71.9	20	R

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: IC2\_150302A

Sample ID	ICV-150302	Batch ID:	F78309	TestNo:	E300	Units:	mg/Kg
SampType:	ICV	Run ID:	IC2_150302A	Analysis Date:	3/2/2015 9:24:08 AM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride		26.0	5.00	25.00	0	104	90 110
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Sample ID	CCV1-150302	Batch ID:	F78309	TestNo:	E300	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_150302A	Analysis Date:	3/2/2015 1:02:01 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride		10.7	5.00	10.00	0	107	90 110
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Sample ID	CCV2-150302	Batch ID:	F78309	TestNo:	E300	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_150302A	Analysis Date:	3/2/2015 2:39:30 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride		10.6	5.00	10.00	0	106	90 110
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**Qualifiers:** B Analyte detected in the associated Method Blank DF Dilution Factor  
 J Analyte detected between MDL and RL MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit R RPD outside accepted control limits  
 RL Reporting Limit S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1502214  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_150304A

The QC data in batch 68486 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID <b>ICV-150304</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	248	10.0	250.0	0	99.4	90	110			N

Sample ID <b>MB-68486</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date: <b>3/4/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	10.0								N

Sample ID <b>LCS-68486</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date: <b>3/4/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	97.0	10.0	100.0	0	97.0	80	120			N

Sample ID <b>1502214-08AMS</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date: <b>3/4/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	85.9	10.1	100.6	0	85.4	80	120			N

Sample ID <b>1502214-08AMSD</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date: <b>3/4/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	82.7	9.93	99.34	0	83.3	80	120	3.82	20	N

Sample ID <b>CCV-150304</b>	Batch ID: <b>68486</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>
SampType: <b>CCV</b>	Run ID: <b>IR207_150304A</b>	Analysis Date: <b>3/4/2015 3:05:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	252	10.0	250.0	0	101	85	115			N

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1502214  
**Project:** R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_150227A**

The QC data in batch 68428 applies to the following samples: 1502214-01A, 1502214-02A, 1502214-03A, 1502214-04A, 1502214-05A, 1502214-06A, 1502214-07A, 1502214-08A, 1502214-09A

Sample ID <b>1502196-01A-DUP</b>	Batch ID: <b>68428</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>							
SampType: <b>DUP</b>	Run ID: <b>PMOIST_150227A</b>	Analysis Date: <b>3/2/2015 8:50:00 AM</b>	Prep Date: <b>2/27/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	19.6	0	0	19.72				0.501	30	

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
10014 SCR 1213  
Midland, TX 79706**



# Analytical Report

**Prepared for:**

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

Project: Artesia Aeration Landfarm

Project Number: 15-0121-01

Location: NM

Lab Order Number: 5D16001



**NELAP/TCEQ # T104704156-13-3**

Report Date: 05/22/15

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Cell 1 NS	5D16001-01	Soil	04/14/15 11:00	04-15-2015 10:40
Cell 3 NS	5D16001-02	Soil	04/14/15 12:00	04-15-2015 10:40
Cell 4 NS	5D16001-03	Soil	04/14/15 12:30	04-15-2015 10:40
Cell 5 NS	5D16001-04	Soil	04/14/15 13:00	04-15-2015 10:40
Cell 1 Comp	5D16001-05	Soil	04/14/15 13:15	04-15-2015 10:40
Cell 3 Comp	5D16001-06	Soil	04/14/15 13:45	04-15-2015 10:40
Cell 4 Comp	5D16001-07	Soil	04/14/15 14:00	04-15-2015 10:40
Cell 5 Comp	5D16001-08	Soil	04/14/15 14:15	04-15-2015 10:40

Metals analysis was subcontracted to Test America. Their report is attached to the back of this report. Their certification number is T104704223-10-6-TX. TPH 418.1 analysis was sent to Cardinal Laboratories in Hobbs NM. There is no NELAC Certification for method 418.1



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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

Cell 1 NS  
5D16001-01 (Soil)

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

**Organics by GC**

Benzene	ND	0.00109	mg/kg dry	1	P5D1705	04/16/15	04/17/15	EPA 8021B	
Toluene	ND	0.00217	mg/kg dry	1	P5D1705	04/16/15	04/17/15	EPA 8021B	
Ethylbenzene	ND	0.00109	mg/kg dry	1	P5D1705	04/16/15	04/17/15	EPA 8021B	
Xylene (p/m)	ND	0.00217	mg/kg dry	1	P5D1705	04/16/15	04/17/15	EPA 8021B	
Xylene (o)	ND	0.00109	mg/kg dry	1	P5D1705	04/16/15	04/17/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		104 %	75-125		P5D1705	04/16/15	04/17/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		81.0 %	75-125		P5D1705	04/16/15	04/17/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Total Alkalinity	4500	2.00	mg/kg	1	P5E2205	04/21/15	04/21/15	EPA 310.1M	
Chloride	5.78	1.09	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	8.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	
Sulfate	48.3	0.500	g/kg dry wt. dr.	1	P5D1706	04/16/15	04/16/15	EPA 300.0	
TPH 418.1	ND	100	mg/kg dry	10	P5E0606	05/05/15	05/05/15	EPA 418.1	SUB-3

**Total Metals by EPA / Standard Methods**

Silver	ND	0.00500	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Arsenic	1.60	0.00800	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Barium	19.0	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	6010B	SUB-1
Calcium	1960	0.0810	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Magnesium	620	0.0360	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Potassium	815	0.0600	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Sodium	130	0.0430	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Cadmium	ND	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Chromium	3.50	0.0910	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Mercury	ND	0.0002500	mg/kg	1	P5E2206	05/01/15	05/01/15	7471	SUB-1
Lead	2.50	0.0110	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Selenium	ND	0.00400	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

Cell 1 NS  
5D16001-01 (Soil)

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.2	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C12-C28	ND	27.2	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C28-C35	ND	27.2	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		83.3 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		96.4 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.2	mg/kg dry	1	[CALC]	04/16/15	04/16/15	calc	

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

10014 SCR 1213 Midland, TX 79706 432-686-7235

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 3 NS**  
**5D16001-02 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00220	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		83.7 %			P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		101 %			P5D1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Total Alkalinity	4000	2.00	mg/kg	1	P5E2205	04/21/15	04/21/15	EPA 310.1M	
Chloride	33.7	1.10	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	9.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	
Sulfate	148	0.500	mg/kg dry wt. dr.	1	P5D1706	04/16/15	04/16/15	EPA 300.0	
TPH 418.1	ND	100	mg/kg dry	10	P5E0606	05/05/15	05/05/15	EPA 418.1	SUB-3

**Total Metals by EPA / Standard Methods**

Silver	ND	0.00500	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Arsenic	2.50	0.00800	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Barium	33.0	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	6010B	SUB-1
Calcium	1090	0.0810	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Magnesium	1430	0.0360	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Potassium	1650	0.0600	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Sodium	505	0.0430	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Cadmium	ND	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Chromium	6.20	0.0910	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Mercury	ND	0.0002500	mg/kg	1	P5E2206	05/01/15	05/01/15	7471	SUB-1
Lead	4.00	0.0110	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Selenium	ND	0.00400	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1

Permian Basin Environmental Lab, L.P.

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 3 NS**  
**5D16001-02 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		74.6 %		70-130	P5D1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		88.8 %		70-130	P5D1704	04/16/15	04/16/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	04/16/15	04/16/15	calc	

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 4 NS**  
**5D16001-03 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00220	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		94.4 %			P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		111 %			P5D1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Total Alkalinity	4000	2.00	mg/kg	1	P5E2205	04/21/15	04/21/15	EPA 310.1M	
Chloride	70.0	1.10	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	9.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	
Sulfate	262	0.500	mg/kg dry wt. dr.	1	P5D1706	04/16/15	04/16/15	EPA 300.0	
TPH 418.1	158	100	mg/kg dry	10	P5E0606	05/05/15	05/05/15	EPA 418.1	SUB-3

**Total Metals by EPA / Standard Methods**

Silver	ND	0.00500	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Arsenic	2.70	0.00800	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Barium	82.0	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	6010B	SUB-1
Calcium	35200	0.0810	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Magnesium	6920	0.0360	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Potassium	1650	0.0600	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Sodium	198	0.0430	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Cadmium	ND	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Chromium	5.70	0.0910	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Mercury	ND	0.0002500	mg/kg	1	P5E2206	05/01/15	05/01/15	7471	SUB-1
Lead	3.60	0.0110	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Selenium	ND	0.00400	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1

Permian Basin Environmental Lab, L.P.

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 4 NS**  
**5D16001-03 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.5	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		78.3 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		92.7 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
<b>Total Petroleum Hydrocarbon C6-C35</b>	ND	27.5	mg/kg dry	1	[CALC]	04/16/15	04/16/15	calc	

Permian Basin Environmental Lab, L.P.

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10014 SCR 1213 Midland, TX 79706 432-686-7235

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Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 5 NS**  
**5D16001-04 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00116	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00233	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00116	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00233	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00116	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		101 %	75-125		P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		84.8 %	75-125		P5D1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Total Alkalinity	4500	2.00	mg/kg	1	P5E2205	04/21/15	04/21/15	EPA 310.1M	
Chloride	100	1.16	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	14.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	
Sulfate	62.8	0.500	mg/kg dry wt. dr.	1	P5D1706	04/16/15	04/16/15	EPA 300.0	
TPH 418.1	ND	100	mg/kg dry	10	P5E0606	05/05/15	05/05/15	EPA 418.1	SUB-3

**Total Metals by EPA / Standard Methods**

Silver	ND	0.00500	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Arsenic	2.00	0.00800	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Barium	250	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	6010B	SUB-1
Calcium	23300	0.0810	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Magnesium	1860	0.0360	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Potassium	1020	0.0600	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Sodium	2910	0.0430	mg/kg dry	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Cadmium	ND	0.00100	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Chromium	4.20	0.0910	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Mercury	ND	0.0002500	mg/kg	1	P5E2206	05/01/15	05/01/15	7471	SUB-1
Lead	2.60	0.0110	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1
Selenium	ND	0.00400	mg/kg	1	P5E2206	04/30/15	04/30/15	EPA 6010B	SUB-1

Permian Basin Environmental Lab, L.P.

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Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Cell 5 NS**  
**5D16001-04 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		74.0 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		87.1 %		70-130	PSD1704	04/16/15	04/16/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	04/16/15	04/16/15	calc	

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**Cell 1 Comp**  
**5D16001-05 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00111	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00222	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00111	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00222	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00111	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		114 %		75-125	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		82.8 %		75-125	P5D1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	198	1.11	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	10.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	27.8	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
>C12-C28	ND	27.8	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
>C28-C35	ND	27.8	mg/kg dry	1	P5D1704	04/16/15	04/16/15	TPH 8015M	
Surrogate: 1-Chlorooctane		78.5 %		70-130	P5D1704	04/16/15	04/16/15	TPH 8015M	
Surrogate: o-Terphenyl		95.0 %		70-130	P5D1704	04/16/15	04/16/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.8	mg/kg dry	1	[CALC]	04/16/15	04/16/15	calc	

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**Cell 3 Comp**  
**5D16001-06 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00114	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00227	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00114	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00227	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00114	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		100 %	75-125		PSD1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.3 %	75-125		PSD1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	230	1.14	mg/kg dry	1	PSD1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	12.0	0.1	%	1	PSD1701	04/17/15	04/17/15	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.4	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
>C12-C28	ND	28.4	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
>C28-C35	ND	28.4	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: 1-Chlorooctane		76.5 %	70-130		PSD1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: o-Terphenyl		89.1 %	70-130		PSD1704	04/16/15	04/17/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.4	mg/kg dry	1	[CALC]	04/16/15	04/17/15	calc	

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Project Number: 15-0121-01  
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**Cell 4 Comp**  
**5D16001-07 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00115	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00230	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00115	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00230	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00115	mg/kg dry	1	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		107 %		75-125	P5D1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		80.8 %		75-125	P5D1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	133	1.15	mg/kg dry	1	P5D1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	13.0	0.1	%	1	P5D1701	04/17/15	04/17/15	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	28.7	mg/kg dry	1	P5D1704	04/16/15	04/17/15	TPH 8015M	
>C12-C28	ND	28.7	mg/kg dry	1	P5D1704	04/16/15	04/17/15	TPH 8015M	
>C28-C35	ND	28.7	mg/kg dry	1	P5D1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: 1-Chlorooctane		80.0 %		70-130	P5D1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: o-Terphenyl		93.9 %		70-130	P5D1704	04/16/15	04/17/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	28.7	mg/kg dry	1	[CALC]	04/16/15	04/17/15	calc	

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**Cell 5 Comp**  
**5D16001-08 (Soil)**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Permian Basin Environmental Lab, L.P.**

**Organics by GC**

Benzene	ND	0.00116	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Toluene	ND	0.00233	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Ethylbenzene	ND	0.00116	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Xylene (p/m)	ND	0.00233	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Xylene (o)	ND	0.00116	mg/kg dry	1	PSD1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		81.8 %		75-125	PSD1702	04/16/15	04/16/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		105 %		75-125	PSD1702	04/16/15	04/16/15	EPA 8021B	

**General Chemistry Parameters by EPA / Standard Methods**

Chloride	1070	29.1	mg/kg dry	25	PSD1706	04/16/15	04/17/15	EPA 300.0	
% Moisture	14.0	0.1	%	1	PSD1701	04/17/15	04/17/15	% calculation	

**Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M**

C6-C12	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
>C12-C28	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
>C28-C35	ND	29.1	mg/kg dry	1	PSD1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: 1-Chlorooctane		92.7 %		70-130	PSD1704	04/16/15	04/17/15	TPH 8015M	
Surrogate: o-Terphenyl		110 %		70-130	PSD1704	04/16/15	04/17/15	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	29.1	mg/kg dry	1	[CALC]	04/16/15	04/17/15	calc	

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**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch PSD1702 - General Preparation (GC)**

**Blank (PSD1702-BLK1)**

Prepared & Analyzed: 04/16/15

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
<i>Surrogate: 1,4-Difluorobenzene</i>	58.4		ug/kg	60.0		97.4	75-125			
<i>Surrogate: 4-Bromofluorobenzene</i>	61.7		"	60.0		103	75-125			

**LCS (PSD1702-BS1)**

Prepared & Analyzed: 04/16/15

Benzene	0.0998	0.00100	mg/kg wet	0.100		99.8	70-130			
Toluene	0.110	0.00200	"	0.100		110	70-130			
Ethylbenzene	0.111	0.00100	"	0.100		111	70-130			
Xylene (p/m)	0.218	0.00200	"	0.200		109	70-130			
Xylene (o)	0.105	0.00100	"	0.100		105	70-130			
<i>Surrogate: 1,4-Difluorobenzene</i>	63.2		ug/kg	60.0		105	75-125			
<i>Surrogate: 4-Bromofluorobenzene</i>	62.3		"	60.0		104	75-125			

**LCS Dup (PSD1702-BSD1)**

Prepared & Analyzed: 04/16/15

Benzene	0.103	0.00100	mg/kg wet	0.100		103	70-130	3.15	20	
Toluene	0.112	0.00200	"	0.100		112	70-130	1.84	20	
Ethylbenzene	0.127	0.00100	"	0.100		127	70-130	13.0	20	
Xylene (p/m)	0.234	0.00200	"	0.200		117	70-130	7.19	20	
Xylene (o)	0.120	0.00100	"	0.100		120	70-130	13.5	20	
<i>Surrogate: 1,4-Difluorobenzene</i>	54.2		ug/kg	60.0		90.3	75-125			
<i>Surrogate: 4-Bromofluorobenzene</i>	68.4		"	60.0		114	75-125			

**Matrix Spike (PSD1702-MS1)**

Source: 5D16006-02

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	0.111	0.00118	mg/kg dry	0.118	ND	94.0	80-120			
Toluene	0.112	0.00235	"	0.118	ND	95.4	80-120			
Ethylbenzene	0.113	0.00118	"	0.118	ND	96.3	80-120			
Xylene (p/m)	0.229	0.00235	"	0.235	ND	97.1	80-120			
Xylene (o)	0.114	0.00118	"	0.118	ND	96.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	58.5		ug/kg	60.0		97.5	75-125			
<i>Surrogate: 1,4-Difluorobenzene</i>	56.0		"	60.0		93.4	75-125			

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Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P5D1702 - General Preparation (GC)**

**Matrix Spike Dup (P5D1702-MSD1)**

Source: 5D16006-02

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	0.104	0.00118	mg/kg dry	0.118	ND	88.3	80-120	6.22	20	
Toluene	0.111	0.00235	"	0.118	ND	94.0	80-120	1.47	20	
Ethylbenzene	0.101	0.00118	"	0.118	ND	86.2	80-120	11.0	20	
Xylene (p/m)	0.199	0.00235	"	0.235	ND	84.6	80-120	13.8	20	
Xylene (o)	0.0942	0.00118	"	0.118	ND	80.1	80-120	18.7	20	
Surrogate: 4-Bromofluorobenzene	60.7		ug/kg	60.0		101	75-125			
Surrogate: 1,4-Difluorobenzene	65.1		"	60.0		108	75-125			

**Batch P5D1705 - General Preparation (GC)**

**Blank (P5D1705-BLK1)**

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0493		"	0.0600		82.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.0626		"	0.0600		104	75-125			

**LCS (P5D1705-BS1)**

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	0.0987	0.00100	mg/kg wet	0.100		98.7	70-130			
Toluene	0.112	0.00200	"	0.100		112	70-130			
Ethylbenzene	0.117	0.00100	"	0.100		117	70-130			
Xylene (p/m)	0.227	0.00200	"	0.200		113	70-130			
Xylene (o)	0.108	0.00100	"	0.100		108	70-130			
Surrogate: 4-Bromofluorobenzene	0.0673		"	0.0600		112	75-125			
Surrogate: 1,4-Difluorobenzene	0.0625		"	0.0600		104	75-125			



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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**Organics by GC - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P5D1705 - General Preparation (GC)**

**LCS Dup (P5D1705-BSD1)**

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	0.0975	0.00100	mg/kg wet	0.100		97.5	70-130	1.23	20	
Toluene	0.109	0.00200	"	0.100		109	70-130	2.46	20	
Ethylbenzene	0.116	0.00100	"	0.100		116	70-130	0.532	20	
Xylene (p/m)	0.225	0.00200	"	0.200		112	70-130	0.881	20	
Xylene (o)	0.111	0.00100	"	0.100		111	70-130	2.58	20	
Surrogate: 1,4-Difluorobenzene	0.0617		"	0.0600		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.0678		"	0.0600		113	75-125			

**Duplicate (P5D1705-DUP1)**

Source: 5D16011-07

Prepared: 04/16/15 Analyzed: 04/17/15

Benzene	0.170	0.0230	mg/kg dry		0.0761			76.5	20	R3
Toluene	1.24	0.0460	"		0.620			67.0	20	R3
Ethylbenzene	1.33	0.0230	"		1.10			18.6	20	
Xylene (p/m)	3.43	0.0460	"		2.74			22.2	20	R3
Xylene (o)	0.339	0.0230	"		0.316			7.02	20	
Surrogate: 4-Bromofluorobenzene	0.0712		"	0.0690		103	75-125			
Surrogate: 1,4-Difluorobenzene	0.0630		"	0.0690		91.3	75-125			

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

10014 SCR 1213 Midland, TX 79706 432-686-7235

Page 17 of 48

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P5D1701 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P5D1701-BLK1)</b>		Prepared & Analyzed: 04/17/15								
% Moisture	ND	0.1	%							
<b>Duplicate (P5D1701-DUP1)</b>		Source: 5D16001-01		Prepared & Analyzed: 04/17/15						
% Moisture	8.0	0.1	%		8.0			0.00	20	
<b>Duplicate (P5D1701-DUP2)</b>		Source: 5D16009-01		Prepared & Analyzed: 04/17/15						
% Moisture	14.0	0.1	%		15.0			6.90	20	

**Batch P5D1706 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P5D1706-BLK1)</b>		Prepared: 04/16/15 Analyzed: 04/17/15								
Chloride	ND	1.00	mg/kg wet							
Sulfate	ND	0.500	mg/kg dry wt. wet							
<b>LCS (P5D1706-BS1)</b>		Prepared & Analyzed: 04/16/15								
Sulfate	105	0.500	mg/kg dry wt. wet	100	105		80-120			
Chloride	100	1.00	mg/kg wet	100	100		80-120			
<b>LCS Dup (P5D1706-BSD1)</b>		Prepared & Analyzed: 04/16/15								
Sulfate	106	0.500	mg/kg dry wt. wet	100	106		80-120	1.54	20	
Chloride	99.7	1.00	mg/kg wet	100	99.7		80-120	0.699	20	
<b>Duplicate (P5D1706-DUP1)</b>		Source: 5D14007-01		Prepared: 04/16/15 Analyzed: 04/17/15						
Chloride	398	1.04	mg/kg dry		417			4.66	20	
Sulfate	16.1	0.500	mg/kg dry wt. dry		12.6			23.9	20	
<b>Duplicate (P5D1706-DUP2)</b>		Source: 5D16008-02		Prepared: 04/16/15 Analyzed: 04/17/15						
Chloride	3330	29.1	mg/kg dry		3430			3.17	20	
Sulfate	462	12.5	mg/kg dry wt. dry		462			0.00	20	

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Permian Basin Environmental Lab, L.P.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P5E2205 - \*\*\* DEFAULT PREP \*\*\***

**Blank (P5E2205-BLK1)**

Prepared & Analyzed: 04/21/15

Total Alkalinity ND 2.00 mg/kg

**Duplicate (P5E2205-DUP1)**

Source: 5D16001-04

Prepared & Analyzed: 04/21/15

Total Alkalinity 4500 2.00 mg/kg 4500 0.00 20

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

Project: Artesia Aeration Landfarm  
Project Number: 15-0121-01  
Project Manager: Mark Larson

Fax: (432) 687-0456

### Notes and Definitions

SUB-3 Subcontract of analyte/analysis to Cardinal Laboratories.  
SUB-1 Subcontract of analyte/analysis to Test America TCEQ/NELAC # T104704223-10-6-TX  
R3 The RPD exceeded the acceptance limit due to sample matrix effects.  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

5/22/2015

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.



May 05, 2015

Brent Barron

Permian Basin Environmental Lab, LP

10014 SCR 1213

Midland, TX 79706

RE: SOIL SAMPLES

Enclosed are the results of analyses for samples received by the laboratory on 04/23/15 10:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

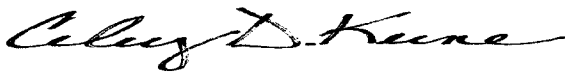
Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

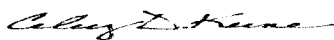
Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
--	---	------------------------------

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5D16001-01	H501051-01	Soil	16-Apr-15 11:50	23-Apr-15 10:45
5D16001-02	H501051-02	Soil	16-Apr-15 12:00	23-Apr-15 10:45
5D16001-03	H501051-03	Soil	16-Apr-15 12:05	23-Apr-15 10:45
5D16001-04	H501051-04	Soil	16-Apr-15 12:08	23-Apr-15 10:45

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
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**5D16001-01**  
**H501051-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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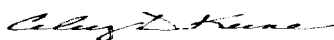
**Cardinal Laboratories**
**Organic Compounds**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
TPH 418.1	ND		100	mg/kg	10	5050504	CK	05-May-15	418.1	

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
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**5D16001-02**  
**H501051-02 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**

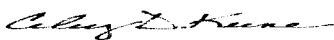
**Organic Compounds**

TPH 418.1	ND		100	mg/kg	10	5050504	CK	05-May-15	418.1	
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
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**5D16001-03**  
**H501051-03 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**


**Organic Compounds**

TPH 418.1	144		100	mg/kg	10	5050504	CK	05-May-15	418.1	
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
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**5D16001-04**  
**H501051-04 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**

**Organic Compounds**

TPH 418.1	ND		100	mg/kg	10	5050504	CK	05-May-15	418.1	
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 05-May-15 15:35
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**Organic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 5050504 - Solvent Extraction</b>										
<b>Blank (5050504-BLK1)</b>				Prepared & Analyzed: 05-May-15						
TPH 418.1	ND	100	mg/kg							
<b>LCS (5050504-BS1)</b>				Prepared & Analyzed: 05-May-15						
TPH 418.1	5020	100	mg/kg	5000		100	70-130			
<b>LCS Dup (5050504-BSD1)</b>				Prepared & Analyzed: 05-May-15						
TPH 418.1	5370	100	mg/kg	5000		107	70-130	6.84	20	
<b>Matrix Spike (5050504-MS1)</b>				Source: H501051-01		Prepared & Analyzed: 05-May-15				
TPH 418.1	5510	100	mg/kg	5000	39.7	109	70-130			
<b>Matrix Spike Dup (5050504-MSD1)</b>				Source: H501051-01		Prepared & Analyzed: 05-May-15				
TPH 418.1	5400	100	mg/kg	5000	39.7	107	70-130	1.89	20	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

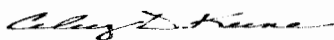
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500C-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

---

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---

Celey D. Keene, Lab Director/Quality Manager



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP
10014 S. County Road 1213
Midland, Texas 79706

Phone: 432-661-4184

Project Manager: Brent Barron

Project Name: SUBCONTRACT

Company Name: PBEL

Project #:

Company Address: 10014 SCR 1213

Project Loc:

City/State/Zip: Midland Texas

PO #:

Telephone No: 432-661-4184

Fax No:

Report Format: Standard [ ] TRRP [ ] NPDES

Sampler Signature: N/A

e-mail: brentbarron@pbelab.com

(lab use only)
ORDER #: H501051

Table with columns: LAB # (lab use only), FIELD CODE, Beginning Depth, Ending Depth, Date Sampled, Time Sampled, Field Filtered, Total # of Containers, Preservation & # of Containers (Ice, HNO3, HCl, H2SO4, NaOH, Na2S2O3, None, NaOH/ZnAc, DW=Drinking Water, SL=Sludge, GW=Groundwater, S=Soil/Solid, NP=Non-Portable, Specify Other), Matrix, Analyze For (TCLP, TOTAL), and # DAY lat.

Special Instructions:

Laboratory Comments:

Table for Chain of Custody with columns: Relinquished by, Date, Time, Received by, Date, Time. Includes handwritten signatures and dates.

Sample Containers Intact? [ ]
VOCs Free of Headspace? [ ]
Labels on container(s) [ ]
Custody seals on container(s) [ ]
Custody seals on cooler(s) [ ]
Sample Hand Delivered by Sampler/Client Rep.? [ ]
by Courier? UPS [ ] DHL [ ] FedEx [ ] Lone Star [ ]
Temperature Upon Receipt: 27 °C

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING


## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Houston  
6310 Rothway Street  
Houston, TX 77040  
Tel: (713)690-4444

TestAmerica Job ID: 600-110701-1  
Client Project/Site: 5D16001-01-02-03-04

For:  
Permian Basin Environmental Lab LP  
10014 South County Road 1213  
Midland, Texas 79706

Attn: Brent Barron



Authorized for release by:  
5/7/2015 5:51:16 PM

Lance Tigrett, Project Manager I  
(713)690-4444  
lance.tigrett@testamericainc.com

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?

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The  
Expert

Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Case Narrative

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

Job ID: 600-110701-1

Laboratory: TestAmerica Houston

## Narrative

Job Narrative  
600-110701-1

## Comments

No additional comments.

## Receipt

The samples were received on 4/29/2015 10:07 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5° C.

## Metals

Method 6010B: The method blank for Prep Batch 161389 contained Barium and Sodium above the method detection limit. These target analytes concentrations were less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 6010B: The sample duplicate (DUP) precision for Prep Batch 161389 was outside control limits for Magnesium. Sample non-homogeneity is suspected.

Method 6010B, 6010C: The following samples were diluted due to the abundance of non-target analytes: 5D16001-03 (600-110701-3), (600-110701-A-3-B DU) and (600-110701-A-3-C MS). Elevated reporting limits (RLs) are provided.

## General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Method Summary

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL HOU
7471A	Mercury (CVAA)	SW846	TAL HOU
2540B	Percent Moisture	SM20	TAL HOU

**Protocol References:**

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444



# Sample Summary

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-110701-1	5D16001-01	Solid	04/14/15 11:00	04/29/15 10:07
600-110701-2	5D16001-02	Solid	04/14/15 12:00	04/29/15 10:07
600-110701-3	5D16001-03	Solid	04/14/15 12:30	04/29/15 10:07
600-110701-4	5D16001-04	Solid	04/14/15 13:00	04/29/15 10:07

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# Client Sample Results

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

**Client Sample ID: 5D16001-01**

**Lab Sample ID: 600-110701-1**

Date Collected: 04/14/15 11:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 94.3

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.066	J	0.25	0.026	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Barium	19	B	1.0	0.031	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Silver	0.12	U	0.41	0.12	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Arsenic	1.6		1.0	0.22	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Lead	2.5		0.51	0.11	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Selenium	0.26	U	2.0	0.26	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Chromium	3.5		0.51	0.052	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Sodium	120	B	100	0.90	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Potassium	750		100	11	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Calcium	1800		100	0.88	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1
Magnesium	570		100	2.0	mg/Kg	☆	04/30/15 12:38	04/30/15 16:30	1

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.6	U	17	3.6	ug/Kg	☆	05/01/15 09:57	05/01/15 17:04	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.7		1.0	1.0	%			05/04/15 13:07	1
Percent Solids	94		1.0	1.0	%			05/04/15 13:07	1

**Client Sample ID: 5D16001-02**

**Lab Sample ID: 600-110701-2**

Date Collected: 04/14/15 12:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 91.9

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.069	J	0.27	0.027	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Barium	33	B	1.1	0.032	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Silver	0.13	U	0.43	0.13	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Arsenic	2.5		1.1	0.23	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Lead	4.0		0.53	0.11	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Selenium	0.28	U	2.1	0.28	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Chromium	6.2		0.53	0.054	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Sodium	460	B	110	0.94	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Potassium	1500		110	12	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Calcium	990		110	0.92	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1
Magnesium	1300		110	2.0	mg/Kg	☆	04/30/15 12:38	04/30/15 16:33	1

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.5	J	18	3.8	ug/Kg	☆	05/01/15 09:57	05/01/15 17:11	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.1		1.0	1.0	%			05/04/15 13:07	1
Percent Solids	92		1.0	1.0	%			05/04/15 13:07	1

TestAmerica Houston



# Client Sample Results

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

**Client Sample ID: 5D16001-03**

**Lab Sample ID: 600-110701-3**

Date Collected: 04/14/15 12:30

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 92.9

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.10	J	0.27	0.027	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Barium	82	B	1.1	0.032	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Silver	0.13	U	0.43	0.13	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Arsenic	2.7		1.1	0.23	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Selenium	0.28	U	2.1	0.28	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Chromium	5.7		0.53	0.054	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Sodium	180	B	110	0.94	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Potassium	1500		110	12	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1
Magnesium	6300		110	2.0	mg/Kg	☼	04/30/15 12:38	04/30/15 16:35	1

**Method: 6010B - Metals (ICP) - DL**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.6		1.1	0.22	mg/Kg	☼	04/30/15 12:38	05/05/15 11:18	2
Calcium	32000		210	1.8	mg/Kg	☼	04/30/15 12:38	05/05/15 11:18	2

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	8.4	J	18	3.9	ug/Kg	☼	05/01/15 09:57	05/01/15 17:16	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.1		1.0	1.0	%			05/04/15 13:07	1
Percent Solids	93		1.0	1.0	%			05/04/15 13:07	1

**Client Sample ID: 5D16001-04**

**Lab Sample ID: 600-110701-4**

Date Collected: 04/14/15 13:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 85.2

**Method: 6010B - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.090	J	0.28	0.029	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Barium	250	B	1.1	0.034	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Silver	0.13	U	0.45	0.13	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Arsenic	2.0		1.1	0.25	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Lead	2.6		0.56	0.12	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Selenium	0.29	U	2.3	0.29	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Chromium	4.2		0.56	0.057	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Sodium	2500	B	110	1.0	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Potassium	880		110	12	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Calcium	20000		110	0.98	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1
Magnesium	1600		110	2.2	mg/Kg	☼	04/30/15 12:38	04/30/15 16:42	1

**Method: 7471A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.2	U	20	4.2	ug/Kg	☼	05/01/15 09:57	05/01/15 17:18	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15		1.0	1.0	%			05/04/15 13:07	1
Percent Solids	85		1.0	1.0	%			05/04/15 13:07	1

TestAmerica Houston



## Definitions/Glossary

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

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### Qualifiers

#### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
F3	Duplicate RPD exceeds the control limit
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

## Method: 6010B - Metals (ICP)

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cadmium	0.026	U	0.25	0.026	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Barium	0.365	J	1.0	0.030	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Silver	0.12	U	0.40	0.12	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Arsenic	0.22	U	1.0	0.22	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Lead	0.10	U	0.50	0.10	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Selenium	0.26	U	2.0	0.26	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Chromium	0.051	U	0.50	0.051	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Sodium	9.40	J	100	0.89	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Potassium	11	U	100	11	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Calcium	0.86	U	100	0.86	mg/Kg		04/30/15 12:38	04/30/15 16:19	1
Magnesium	1.9	U	100	1.9	mg/Kg		04/30/15 12:38	04/30/15 16:19	1

Analyte	Spike Added	LCSSRM LCSSRM		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Cadmium	152	138		mg/Kg		90.9	81.6 - 117.8	
Barium	262	245		mg/Kg		93.4	82.8 - 117.2	
Silver	44.3	42.3		mg/Kg		95.4	74.5 - 125.5	
Arsenic	151	142		mg/Kg		94.0	80.8 - 119.9	
Lead	254	247		mg/Kg		97.3	81.5 - 120.9	
Selenium	162	151		mg/Kg		92.9	77.2 - 122.2	
Chromium	117	108		mg/Kg		92.1	79.4 - 120.5	
Sodium	746	707		mg/Kg		94.7	71.7 - 128.3	
Potassium	3040	2650		mg/Kg		87.0	70.4 - 129.6	
Calcium	6400	6050		mg/Kg		94.5	82.2 - 117.8	
Magnesium	3600	3160		mg/Kg		87.8	76.7 - 123.3	

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Cadmium	0.10	J	25.6	26.2		mg/Kg	*	102	75 - 125	
Barium	82	B	51.3	142		mg/Kg	*	116	75 - 125	
Silver	0.13	U	25.6	27.3		mg/Kg	*	106	75 - 125	
Arsenic	2.7		51.3	54.1		mg/Kg	*	100	75 - 125	
Selenium	0.28	U	51.3	49.5		mg/Kg	*	97	75 - 125	
Chromium	5.7		51.3	54.5		mg/Kg	*	95	75 - 125	

TestAmerica Houston



# QC Sample Results

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

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## Method: 6010B - Metals (ICP) (Continued)

<b>Lab Sample ID: 600-110701-3 MS</b>							<b>Client Sample ID: 5D16001-03</b>			
<b>Matrix: Solid</b>							<b>Prep Type: Total/NA</b>			
<b>Analysis Batch: 161381</b>							<b>Prep Batch: 161389</b>			
Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Sodium	180	B	513	733		mg/Kg	⊛	108	75 - 125	
Potassium	1500		513	2090		mg/Kg	⊛	118	75 - 125	
Magnesium	6300		513	7650	4	mg/Kg	⊛	259	75 - 125	

<b>Lab Sample ID: 600-110701-3 DU</b>							<b>Client Sample ID: 5D16001-03</b>			
<b>Matrix: Solid</b>							<b>Prep Type: Total/NA</b>			
<b>Analysis Batch: 161381</b>							<b>Prep Batch: 161389</b>			
Analyte	Sample	Sample	DU DU		Unit	D	RPD	RPD		
	Result	Qualifier	Result	Qualifier				Limit		
Cadmium	0.10	J	0.0930	J	mg/Kg	⊛	9	20		
Barium	82	B	74.0		mg/Kg	⊛	11	20		
Silver	0.13	U	0.12	U	mg/Kg	⊛	NC	20		
Arsenic	2.7		2.57		mg/Kg	⊛	6	20		
Selenium	0.28	U	0.25	U	mg/Kg	⊛	NC	20		
Chromium	5.7		5.42		mg/Kg	⊛	5	20		
Sodium	180	B	164		mg/Kg	⊛	8	20		
Potassium	1500		1440		mg/Kg	⊛	3	20		
Magnesium	6300		5120	F3	mg/Kg	⊛	21	20		

## Method: 6010B - Metals (ICP) - DL

<b>Lab Sample ID: 600-110701-3 MS</b>							<b>Client Sample ID: 5D16001-03</b>			
<b>Matrix: Solid</b>							<b>Prep Type: Total/NA</b>			
<b>Analysis Batch: 161670</b>							<b>Prep Batch: 161389</b>			
Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Lead - DL	3.6		51.3	56.9		mg/Kg	⊛	104	75 - 125	
Calcium - DL	32000		513	35700	4	mg/Kg	⊛	824	75 - 125	

<b>Lab Sample ID: 600-110701-3 DU</b>							<b>Client Sample ID: 5D16001-03</b>			
<b>Matrix: Solid</b>							<b>Prep Type: Total/NA</b>			
<b>Analysis Batch: 161670</b>							<b>Prep Batch: 161389</b>			
Analyte	Sample	Sample	DU DU		Unit	D	RPD	RPD		
	Result	Qualifier	Result	Qualifier				Limit		
Lead - DL	3.6		3.71		mg/Kg	⊛	3	20		
Calcium - DL	32000		27700		mg/Kg	⊛	13	20		

## Method: 7471A - Mercury (CVAA)

<b>Lab Sample ID: MB 600-161462/7-A</b>							<b>Client Sample ID: Method Blank</b>			
<b>Matrix: Solid</b>							<b>Prep Type: Total/NA</b>			
<b>Analysis Batch: 161515</b>							<b>Prep Batch: 161462</b>			
Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Mercury	3.4	U	16	3.4	ug/Kg		05/01/15 09:57	05/01/15 16:54	1	

TestAmerica Houston



# QC Sample Results

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

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## Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSSRM 600-161462/8-A ^50				Client Sample ID: Lab Control Sample			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 161515				Prep Batch: 161462			
Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5760	6070		ug/Kg		105.4	71.2 - 128.6

Lab Sample ID: 600-110701-1 MS				Client Sample ID: 5D16001-01			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 161515				Prep Batch: 161462			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	%Rec. Limits
Mercury	3.6	U	241	247		ug/Kg	75 - 125

Lab Sample ID: 600-110701-1 DU				Client Sample ID: 5D16001-01			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 161515				Prep Batch: 161462			
Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD Limit
Mercury	3.6	U	3.7	U	ug/Kg	⊛	NC 20

## Method: 2540B - Percent Moisture

Lab Sample ID: 600-110701-1 DU				Client Sample ID: 5D16001-01			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 161595				Prep Batch: 161462			
Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD Limit
Percent Moisture	5.7		5.6		%		2 20
Percent Solids	94		94		%		0.1 20

# QC Association Summary

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1



## Metals

### Analysis Batch: 161381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-1	5D16001-01	Total/NA	Solid	6010B	161389
600-110701-2	5D16001-02	Total/NA	Solid	6010B	161389
600-110701-3	5D16001-03	Total/NA	Solid	6010B	161389
600-110701-3 DU	5D16001-03	Total/NA	Solid	6010B	161389
600-110701-3 MS	5D16001-03	Total/NA	Solid	6010B	161389
600-110701-4	5D16001-04	Total/NA	Solid	6010B	161389
LCSSRM 600-161389/2-A	Lab Control Sample	Total/NA	Solid	6010B	161389
MB 600-161389/1-A	Method Blank	Total/NA	Solid	6010B	161389

### Prep Batch: 161389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-1	5D16001-01	Total/NA	Solid	3050B	
600-110701-2	5D16001-02	Total/NA	Solid	3050B	
600-110701-3 - DL	5D16001-03	Total/NA	Solid	3050B	
600-110701-3	5D16001-03	Total/NA	Solid	3050B	
600-110701-3 DU	5D16001-03	Total/NA	Solid	3050B	
600-110701-3 DU - DL	5D16001-03	Total/NA	Solid	3050B	
600-110701-3 MS - DL	5D16001-03	Total/NA	Solid	3050B	
600-110701-3 MS	5D16001-03	Total/NA	Solid	3050B	
600-110701-4	5D16001-04	Total/NA	Solid	3050B	
LCSSRM 600-161389/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 600-161389/1-A	Method Blank	Total/NA	Solid	3050B	

### Prep Batch: 161462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-1	5D16001-01	Total/NA	Solid	7471A	
600-110701-1 DU	5D16001-01	Total/NA	Solid	7471A	
600-110701-1 MS	5D16001-01	Total/NA	Solid	7471A	
600-110701-2	5D16001-02	Total/NA	Solid	7471A	
600-110701-3	5D16001-03	Total/NA	Solid	7471A	
600-110701-4	5D16001-04	Total/NA	Solid	7471A	
LCSSRM 600-161462/8-A ^50	Lab Control Sample	Total/NA	Solid	7471A	
MB 600-161462/7-A	Method Blank	Total/NA	Solid	7471A	

### Analysis Batch: 161515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-1	5D16001-01	Total/NA	Solid	7471A	161462
600-110701-1 DU	5D16001-01	Total/NA	Solid	7471A	161462
600-110701-1 MS	5D16001-01	Total/NA	Solid	7471A	161462
600-110701-2	5D16001-02	Total/NA	Solid	7471A	161462
600-110701-3	5D16001-03	Total/NA	Solid	7471A	161462
600-110701-4	5D16001-04	Total/NA	Solid	7471A	161462
LCSSRM 600-161462/8-A ^50	Lab Control Sample	Total/NA	Solid	7471A	161462
MB 600-161462/7-A	Method Blank	Total/NA	Solid	7471A	161462

### Analysis Batch: 161670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-3 - DL	5D16001-03	Total/NA	Solid	6010B	161389
600-110701-3 DU - DL	5D16001-03	Total/NA	Solid	6010B	161389
600-110701-3 MS - DL	5D16001-03	Total/NA	Solid	6010B	161389

# QC Association Summary

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

## General Chemistry

Analysis Batch: 161595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-110701-1	5D16001-01	Total/NA	Solid	2540B	
600-110701-1 DU	5D16001-01	Total/NA	Solid	2540B	
600-110701-2	5D16001-02	Total/NA	Solid	2540B	
600-110701-3	5D16001-03	Total/NA	Solid	2540B	
600-110701-4	5D16001-04	Total/NA	Solid	2540B	

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# Lab Chronicle

Client: Permian Basin Environmental Lab LP  
 Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

**Client Sample ID: 5D16001-01**

**Lab Sample ID: 600-110701-1**

Date Collected: 04/14/15 11:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 94.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.04 g	50 mL	161389	04/30/15 12:38	NER	TAL HOU
Total/NA	Analysis	6010B		1	1.04 g	50 mL	161381	04/30/15 16:30	DCL	TAL HOU
Total/NA	Prep	7471A			0.64 g	50 mL	161462	05/01/15 09:57	SCG	TAL HOU
Total/NA	Analysis	7471A		1	0.64 g	50 mL	161515	05/01/15 17:04	SCG	TAL HOU
Total/NA	Analysis	2540B		1			161595	05/04/15 13:07	MJB	TAL HOU

**Client Sample ID: 5D16001-02**

**Lab Sample ID: 600-110701-2**

Date Collected: 04/14/15 12:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.02 g	50 mL	161389	04/30/15 12:38	NER	TAL HOU
Total/NA	Analysis	6010B		1	1.02 g	50 mL	161381	04/30/15 16:33	DCL	TAL HOU
Total/NA	Prep	7471A			0.61 g	50 mL	161462	05/01/15 09:57	SCG	TAL HOU
Total/NA	Analysis	7471A		1	0.61 g	50 mL	161515	05/01/15 17:11	SCG	TAL HOU
Total/NA	Analysis	2540B		1			161595	05/04/15 13:07	MJB	TAL HOU

**Client Sample ID: 5D16001-03**

**Lab Sample ID: 600-110701-3**

Date Collected: 04/14/15 12:30

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.01 g	50 mL	161389	04/30/15 12:38	NER	TAL HOU
Total/NA	Analysis	6010B		1	1.01 g	50 mL	161381	04/30/15 16:35	DCL	TAL HOU
Total/NA	Prep	3050B	DL		1.01 g	50 mL	161389	04/30/15 12:38	NER	TAL HOU
Total/NA	Analysis	6010B	DL	2	1.01 g	50 mL	161670	05/05/15 11:18	DCL	TAL HOU
Total/NA	Prep	7471A			0.60 g	50 mL	161462	05/01/15 09:57	SCG	TAL HOU
Total/NA	Analysis	7471A		1	0.60 g	50 mL	161515	05/01/15 17:16	SCG	TAL HOU
Total/NA	Analysis	2540B		1			161595	05/04/15 13:07	MJB	TAL HOU

**Client Sample ID: 5D16001-04**

**Lab Sample ID: 600-110701-4**

Date Collected: 04/14/15 13:00

Matrix: Solid

Date Received: 04/29/15 10:07

Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.04 g	50 mL	161389	04/30/15 12:38	NER	TAL HOU
Total/NA	Analysis	6010B		1	1.04 g	50 mL	161381	04/30/15 16:42	DCL	TAL HOU
Total/NA	Prep	7471A			0.60 g	50 mL	161462	05/01/15 09:57	SCG	TAL HOU
Total/NA	Analysis	7471A		1	0.60 g	50 mL	161515	05/01/15 17:18	SCG	TAL HOU
Total/NA	Analysis	2540B		1			161595	05/04/15 13:07	MJB	TAL HOU

**Laboratory References:**

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

TestAmerica Houston



# Certification Summary

Client: Permian Basin Environmental Lab LP  
Project/Site: 5D16001-01-02-03-04

TestAmerica Job ID: 600-110701-1

## Laboratory: TestAmerica Houston

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704223	10-31-15

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
2540B		Solid	Percent Moisture
2540B		Solid	Percent Solids





## Sample Receipt Checklist

Loc: 600  
**110701**

JOB NUMBER: \_\_\_\_\_

Date/Time Received: \_\_\_\_\_

CLIENT: PBEL

UNPACKED BY: \_\_\_\_\_

CARRIER/DRIVER: FE

Custody Seal Present:  YES  NO

Number of Coolers Received: 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>BW</u>	<u>Y</u> / N	<u>Y</u> / N	<u>3.0</u>	<u>549</u>	<u>-0.1</u>	<u>3.5</u>
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CF = correction factor

Samples received on ice?  YES  NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED:  NO  YES

Base samples are >pH 12:  YES  NO      Acid preserved are <pH 2:  YES  NO

pH paper Lot # \_\_\_\_\_

VOA headspace acceptable (5-6mm):  YES  NO  NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	YES	NO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

4/29/15

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## Login Sample Receipt Checklist

Client: Permian Basin Environmental Lab LP

Job Number: 600-110701-1

Login Number: 110701

List Source: TestAmerica Houston

List Number: 1

Creator: Capps, Dana R

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

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6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1296  
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313  
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750  
E-Mail lab@traceanalysis.com WEB www.traceanalysis.com

## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

(Corrected Report)

Sarah Shissler  
Larson and Associates, Inc.

Report Date: October 20, 2015

P. O. Box 50685  
Midland, TX, 79710

Work Order: 15061746



Project Name: R360 Artesia Landfarm  
Project Number: 15-0121-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
396026	Cell 2 (NS)	soil	2015-06-16	12:45	2015-06-17

### Report Corrections (Work Order 15061746)

- 7/7/15: Corrected Project Name.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 34 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

### Notes:

*For inorganic analyses, the term MQL should actually read PQL.*

*Blair Leftwich*

---

Dr. Blair Leftwich, Director  
James Taylor, Assistant Director  
Brian Pellam, Operations Manager

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## Case Narrative

Samples for project R360 Artesia Landfarm were received by TraceAnalysis, Inc. on 2015-06-17 and assigned to work order 15061746. Samples for work order 15061746 were received intact at a temperature of 1.3 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Alkalinity	SM 2320B	103850	2015-07-01 at 09:18	122778	2015-07-01 at 09:19
As, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Ba, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
BTEX	S 8021B	103647	2015-06-22 at 15:12	122539	2015-06-23 at 07:18
Ca, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Cd, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Chloride (IC)	E 300.0	103849	2015-06-29 at 15:00	122777	2015-06-30 at 08:43
Chloride (Titration)	SM 4500-Cl B	103564	2015-06-18 at 08:35	122475	2015-06-19 at 12:51
Cr, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Hg, Total	S 7471 B	103811	2015-06-29 at 11:15	122743	2015-06-29 at 16:40
K, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Mg, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Na, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Pb, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
Se, Total	S 6010C	103886	2015-07-02 at 10:46	122879	2015-07-06 at 09:41
SO4 (IC)	E 300.0	103849	2015-06-29 at 15:00	122777	2015-06-30 at 08:43
TPH 418.1	E 418.1	103768	2015-06-26 at 13:21	122683	2015-06-26 at 13:24
TPH DRO	S 8015 D	103689	2015-06-23 at 19:36	122620	2015-06-24 at 13:02
TPH GRO	S 8015 D	103647	2015-06-22 at 15:12	122540	2015-06-23 at 07:21

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 15061746 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

The temperature of the Cold Box for storing samples was between 3.2 and 17.2 degrees C between June 26th and 29th. We do not believe this will affect your Alkalinity and SO4 results.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

# Analytical Report

## Sample: 396026 - Cell 2 (NS)

Laboratory: Lubbock  
 Analysis: Alkalinity Analytical Method: SM 2320B Prep Method: N/A  
 QC Batch: 122778 Date Analyzed: 2015-07-01 Analyzed By: LQ  
 Prep Batch: 103850 Sample Preparation: Prepared By: LQ

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Hydroxide Alkalinity	u	1	<20.0	<20.0	<20.0	mg/Kg as CaCo3	1	20.0	20	20
Carbonate Alkalinity		1	180	180	<20.0	mg/Kg as CaCo3	1	20.0	20	20
Bicarbonate Alkalinity		1	350	350	<20.0	mg/Kg as CaCo3	1	20.0	20	20
Total Alkalinity		1	530	530	<20.0	mg/Kg as CaCo3	1	20.0	20	20

## Sample: 396026 - Cell 2 (NS)

Laboratory: Midland  
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
 QC Batch: 122539 Date Analyzed: 2015-06-23 Analyzed By: AK  
 Prep Batch: 103647 Sample Preparation: 2015-06-22 Prepared By: AK

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Benzene	u	5	<0.00533	<0.0200	<0.00533	mg/Kg	1	0.00533	0.02	0.00533
Toluene	u	5	<0.00645	<0.0200	<0.00645	mg/Kg	1	0.00645	0.02	0.00645
Ethylbenzene	u	5	<0.0116	<0.0200	<0.0116	mg/Kg	1	0.0116	0.02	0.0116
Xylene	u	5	<0.00874	<0.0200	<0.00874	mg/Kg	1	0.00874	0.02	0.00874

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.93	mg/Kg	1	2.00	96	70 - 130

## Sample: 396026 - Cell 2 (NS)

Laboratory: Lubbock  
 Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A  
 QC Batch: 122777 Date Analyzed: 2015-06-30 Analyzed By: RL  
 Prep Batch: 103849 Sample Preparation: Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		3,4,6	256	256	13.8	mg/Kg	2	9.38	25	4.69

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 122475      Date Analyzed: 2015-06-19      Analyzed By: AK  
 Prep Batch: 103564      Sample Preparation: 2015-06-18      Prepared By: AK

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride			95.0	95.0	<19.2	mg/Kg	5	19.2	4	3.85

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Lubbock  
 Analysis: Salts, Total      Analytical Method: S 6010C      Prep Method: S 3050B  
 QC Batch: 122879      Date Analyzed: 2015-07-06      Analyzed By: RR  
 Prep Batch: 103886      Sample Preparation: 2015-07-02      Prepared By: RR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Calcium		2,3,4,6	20000	20000	<770	mg/Kg	100	770	10	7.7
Total Magnesium		2,3,4,6	1060	1060	<4.74	mg/Kg	1	4.74	10	4.74
Total Potassium		2,3,4,6	890	890	<5.79	mg/Kg	1	5.79	10	5.79
Total Sodium		2,3,4,6	122	122	<9.52	mg/Kg	1	9.52	10	9.52

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Lubbock  
 Analysis: SO4 (IC)      Analytical Method: E 300.0      Prep Method: N/A  
 QC Batch: 122777      Date Analyzed: 2015-06-30      Analyzed By: RL  
 Prep Batch: 103849      Sample Preparation:      Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate		3,4,6	165	165	<7.44	mg/Kg	2	7.44	25	3.72

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 7471 B	Prep Method: N/A	
QC Batch: 122743	Date Analyzed: 2015-06-29	Analyzed By: TP	
Prep Batch: 103811	Sample Preparation: 2015-06-29	Prepared By: TP	
Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 6010C	Prep Method: S 3050B	
QC Batch: 122879	Date Analyzed: 2015-07-06	Analyzed By: RR	
Prep Batch: 103886	Sample Preparation: 2015-07-02	Prepared By: RR	

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Silver	U	2,3,4,6	<0.0356	<0.500	<0.0356	mg/Kg	1	0.0356	0.5	0.0356
Total Arsenic	U	2,3,4,6	<0.568	<2.00	<0.568	mg/Kg	1	0.568	2	0.568
Total Barium		2,3,4,6	55.5	55.5	<0.105	mg/Kg	1	0.105	1	0.105
Total Cadmium	U	2,3,4,6	<0.0303	<0.500	<0.0303	mg/Kg	1	0.0303	0.5	0.0303
Total Chromium		2,3,4,6	4.14	4.14	<0.118	mg/Kg	1	0.118	0.5	0.118
Total Mercury	U	1,2,3,4,6	<0.00325	<0.0250	<0.00325	mg/Kg	1	0.00325	0.025	0.00325
Total Lead	U	2,3,4,6	<0.140	<1.00	<0.140	mg/Kg	1	0.140	1	0.14
Total Selenium	U	2,3,4,6	<0.451	<2.00	<0.451	mg/Kg	1	0.451	2	0.451

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Lubbock			
Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A	
QC Batch: 122683	Date Analyzed: 2015-06-26	Analyzed By: ZY	
Prep Batch: 103768	Sample Preparation: 2015-06-26	Prepared By: ZY	

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
TRPHC	J		9.21	<20.0	<9.06	mg/Kg	2	9.06	10	4.53

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Midland			
Analysis: TPH DRO	Analytical Method: S 8015 D	Prep Method: N/A	
QC Batch: 122620	Date Analyzed: 2015-06-24	Analyzed By: SC	
Prep Batch: 103689	Sample Preparation: 2015-06-23	Prepared By: SC	

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
DRO	J	S	11.3	<50.0	<7.41	mg/Kg	1	7.41	50	7.41



Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	J		38.1	mg/Kg	1	50.0	76	70 - 130

**Sample: 396026 - Cell 2 (NS)**

Laboratory: Midland  
 Analysis: TPH GRO                      Analytical Method: S 8015 D                      Prep Method: S 5035  
 QC Batch: 122540                      Date Analyzed: 2015-06-23                      Analyzed By: AK  
 Prep Batch: 103647                      Sample Preparation: 2015-06-22                      Prepared By: AK

Parameter	F	C	SDL	SQL	Method	Units	Dilution	SDL	SQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
GRO	u	s	<2.32	<4.00	<2.32	mg/Kg	1	2.32	4	2.32

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		2.34	mg/Kg	1	2.00	117	70 - 130
4-Bromofluorobenzene (4-BFB)	J		2.03	mg/Kg	1	2.00	102	70 - 130

## Method Blanks

### Method Blank (1)

QC Batch: 122475  
Prep Batch: 103564

Date Analyzed: 2015-06-19  
QC Preparation: 2015-06-18

Analyzed By: AK  
Prepared By: AK

Parameter	F	C	Result	Units	Reporting Limits
Chloride			<3.85	mg/Kg	3.85

### Method Blank (1)

QC Batch: 122539  
Prep Batch: 103647

Date Analyzed: 2015-06-23  
QC Preparation: 2015-06-22

Analyzed By: AK  
Prepared By: AK

Parameter	F	C	Result	Units	Reporting Limits
Benzene		s	<0.00533	mg/Kg	0.00533
Toluene		s	<0.00645	mg/Kg	0.00645
Ethylbenzene		s	<0.0116	mg/Kg	0.0116
Xylene		s	<0.00874	mg/Kg	0.00874

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

### Method Blank (1)

QC Batch: 122540  
Prep Batch: 103647

Date Analyzed: 2015-06-23  
QC Preparation: 2015-06-22

Analyzed By: AK  
Prepared By: AK

Parameter	F	C	Result	Units	Reporting Limits
GRO		s	<2.32	mg/Kg	2.32

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.33	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

**Method Blank (1)**

QC Batch: 122620                      Date Analyzed: 2015-06-24                      Analyzed By: SC  
Prep Batch: 103689                      QC Preparation: 2015-06-23                      Prepared By: SC

Parameter	F	C	Result	Units	Reporting Limits
DRO		5	<7.41	mg/Kg	7.41

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			42.2	mg/Kg	1	50.0	84	70 - 130

**Method Blank (1)**

QC Batch: 122683                      Date Analyzed: 2015-06-26                      Analyzed By: ZY  
Prep Batch: 103768                      QC Preparation: 2015-06-26                      Prepared By: ZY

Parameter	F	C	Result	Units	Reporting Limits
TRPHC			<4.53	mg/Kg	4.53

**Method Blank (1)**

QC Batch: 122743                      Date Analyzed: 2015-06-29                      Analyzed By: TP  
Prep Batch: 103811                      QC Preparation: 2015-06-29                      Prepared By: TP

Parameter	F	C	Result	Units	Reporting Limits
Total Mercury		1,2,3,4,6	<0.00325	mg/Kg	0.00325

**Method Blank (1)**

QC Batch: 122777                      Date Analyzed: 2015-06-30                      Analyzed By: RL  
Prep Batch: 103849                      QC Preparation: 2015-06-29                      Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Chloride		3,4,6	6.91	mg/Kg	4.69

**Method Blank (1)**

QC Batch: 122777                      Date Analyzed: 2015-06-30                      Analyzed By: RL  
Prep Batch: 103849                      QC Preparation: 2015-06-29                      Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Sulfate		3,4,6	<3.72	mg/Kg	3.72

**Method Blank (1)**

QC Batch: 122778                      Date Analyzed: 2015-07-01                      Analyzed By: LQ  
Prep Batch: 103850                      QC Preparation: 2015-07-01                      Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Hydroxide Alkalinity		1	<20.0	mg/Kg as CaCo3	20
Carbonate Alkalinity		1	<20.0	mg/Kg as CaCo3	20
Bicarbonate Alkalinity		1	50.0	mg/Kg as CaCo3	20
Total Alkalinity		1	50.0	mg/Kg as CaCo3	20

**Method Blank (1)**

QC Batch: 122879                      Date Analyzed: 2015-07-06                      Analyzed By: RR  
Prep Batch: 103886                      QC Preparation: 2015-07-02                      Prepared By: PM

Parameter	F	C	Result	Units	Reporting Limits
Total Calcium		2,3,4,6	<7.70	mg/Kg	7.7
Total Magnesium		2,3,4,6	<4.74	mg/Kg	4.74
Total Potassium		2,3,4,6	<5.79	mg/Kg	5.79
Total Sodium		2,3,4,6	<9.52	mg/Kg	9.52

**Method Blank (1)**

QC Batch: 122879                      Date Analyzed: 2015-07-06                      Analyzed By: RR  
Prep Batch: 103886                      QC Preparation: 2015-07-02                      Prepared By: PM

Parameter	F	C	Result	Units	Reporting Limits
Total Silver		2,3,4,6	<0.0356	mg/Kg	0.0356

*continued ...*

*method blank continued ...*

Parameter	F	C	Result	Units	Reporting Limits
Total Arsenic		2,3,4,6	<0.568	mg/Kg	0.568
Total Barium		2,3,4,6	<0.105	mg/Kg	0.105
Total Cadmium		2,3,4,6	<0.0303	mg/Kg	0.0303
Total Chromium		2,3,4,6	<0.118	mg/Kg	0.118
Total Lead		2,3,4,6	<0.140	mg/Kg	0.14
Total Selenium		2,3,4,6	<0.451	mg/Kg	0.451

## Duplicates

Duplicate (1) Duplicated Sample: 396026

QC Batch: 122778  
Prep Batch: 103850

Date Analyzed: 2015-07-01  
QC Preparation: 2015-07-01

Analyzed By: LQ  
Prepared By: RL

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		1	<20.0	<20.0	mg/Kg as CaCo3	1	0	20
Carbonate Alkalinity		1	180	180	mg/Kg as CaCo3	1	0	20
Bicarbonate Alkalinity		1	380	350	mg/Kg as CaCo3	1	8	20
Total Alkalinity		1	560	530	mg/Kg as CaCo3	1	6	20

# Laboratory Control Spikes

## Laboratory Control Spike (LCS-1)

QC Batch: 122475                      Date Analyzed: 2015-06-19                      Analyzed By: AK  
Prep Batch: 103564                      QC Preparation: 2015-06-18                      Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2560	mg/Kg	5	2500	<19.2	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	85 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

## Laboratory Control Spike (LCS-1)

QC Batch: 122539                      Date Analyzed: 2015-06-23                      Analyzed By: AK  
Prep Batch: 103647                      QC Preparation: 2015-06-22                      Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		s	1.89	mg/Kg	1	2.00	<0.00533	94	70 - 130
Toluene		s	1.80	mg/Kg	1	2.00	<0.00645	90	70 - 130
Ethylbenzene		s	1.73	mg/Kg	1	2.00	<0.0116	86	70 - 130
Xylene		s	5.64	mg/Kg	1	6.00	<0.00874	94	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		s	1.93	mg/Kg	1	2.00	<0.00533	96	70 - 130	2	20
Toluene		s	1.81	mg/Kg	1	2.00	<0.00645	90	70 - 130	1	20
Ethylbenzene		s	1.74	mg/Kg	1	2.00	<0.0116	87	70 - 130	1	20
Xylene		s	5.70	mg/Kg	1	6.00	<0.00874	95	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			1.86	1.76	mg/Kg	1	2.00	93	88	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	1.75	mg/Kg	1	2.00	92	88	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 122540                      Date Analyzed: 2015-06-23                      Analyzed By: AK  
Prep Batch: 103647                      QC Preparation: 2015-06-22                      Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		s	15.5	mg/Kg	1	20.0	<2.32	78	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		s	15.3	mg/Kg	1	20.0	<2.32	76	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			2.34	2.35	mg/Kg	1	2.00	117	118	70 - 130
4-Bromofluorobenzene (4-BFB)			2.09	2.12	mg/Kg	1	2.00	104	106	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 122620                      Date Analyzed: 2015-06-24                      Analyzed By: SC  
Prep Batch: 103689                      QC Preparation: 2015-06-23                      Prepared By: SC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		s	295	mg/Kg	1	250	<7.41	118	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		s	271	mg/Kg	1	250	<7.41	108	70 - 130	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane			49.0	42.9	mg/Kg	1	50.0	98	86	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 122683                      Date Analyzed: 2015-06-26                      Analyzed By: ZY  
Prep Batch: 103768                      QC Preparation: 2015-06-26                      Prepared By: ZY



Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC			52.2	mg/Kg	1	50.0	<4.53	104	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
TRPHC			54.2	mg/Kg	1	50.0	<4.53	108	80 - 120	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 122743  
Prep Batch: 103811

Date Analyzed: 2015-06-29  
QC Preparation: 2015-06-29

Analyzed By: TP  
Prepared By: TP

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,6	0.254	mg/Kg	1	0.250	<0.00325	102	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
Total Mercury		1,2,3,4,6	0.251	mg/Kg	1	0.250	<0.00325	100	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 122777  
Prep Batch: 103849

Date Analyzed: 2015-06-30  
QC Preparation: 2015-06-29

Analyzed By: RL  
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		3,4,6	239	mg/Kg	1	250	6.91	93	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
Chloride		3,4,6	239	mg/Kg	1	250	6.91	93	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 122777                      Date Analyzed: 2015-06-30                      Analyzed By: RL  
Prep Batch: 103849                      QC Preparation: 2015-06-29                      Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		3,4,6	254	mg/Kg	1	250	<3.72	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
Sulfate		3,4,6	241	mg/Kg	1	250	<3.72	96	90 - 110	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 122879                      Date Analyzed: 2015-07-06                      Analyzed By: RR  
Prep Batch: 103886                      QC Preparation: 2015-07-02                      Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Calcium		2,3,4,6	4500	mg/Kg	1	5000	<7.70	90	85 - 115
Total Magnesium		2,3,4,6	4560	mg/Kg	1	5000	<4.74	91	85 - 115
Total Potassium		2,3,4,6	4520	mg/Kg	1	5000	<5.79	90	85 - 115
Total Sodium		2,3,4,6	4720	mg/Kg	1	5000	<9.52	94	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
Total Calcium		2,3,4,6	4840	mg/Kg	1	5000	<7.70	97	85 - 115	7	20
Total Magnesium		2,3,4,6	4860	mg/Kg	1	5000	<4.74	97	85 - 115	6	20
Total Potassium		2,3,4,6	4750	mg/Kg	1	5000	<5.79	95	85 - 115	5	20
Total Sodium		2,3,4,6	5090	mg/Kg	1	5000	<9.52	102	85 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 122879                      Date Analyzed: 2015-07-06                      Analyzed By: RR  
Prep Batch: 103886                      QC Preparation: 2015-07-02                      Prepared By: PM

*continued ...*

*control spikes continued ...*

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		2,3,4,6	11.8	mg/Kg	1	12.5	<0.0356	94	85 - 115
Total Arsenic		2,3,4,6	43.9	mg/Kg	1	50.0	<0.568	88	85 - 115
Total Barium		2,3,4,6	87.7	mg/Kg	1	100	<0.105	88	85 - 115
Total Cadmium		2,3,4,6	22.8	mg/Kg	1	25.0	<0.0303	91	85 - 115
Total Chromium		2,3,4,6	8.73	mg/Kg	1	10.0	<0.118	87	85 - 115
Total Lead		2,3,4,6	44.5	mg/Kg	1	50.0	<0.140	89	85 - 115
Total Selenium		2,3,4,6	43.7	mg/Kg	1	50.0	<0.451	87	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		2,3,4,6	11.6	mg/Kg	1	12.5	<0.0356	93	85 - 115	2	20
Total Arsenic		2,3,4,6	47.8	mg/Kg	1	50.0	<0.568	96	85 - 115	8	20
Total Barium		2,3,4,6	94.5	mg/Kg	1	100	<0.105	94	85 - 115	8	20
Total Cadmium		2,3,4,6	24.8	mg/Kg	1	25.0	<0.0303	99	85 - 115	8	20
Total Chromium		2,3,4,6	9.09	mg/Kg	1	10.0	<0.118	91	85 - 115	4	20
Total Lead		2,3,4,6	49.3	mg/Kg	1	50.0	<0.140	99	85 - 115	10	20
Total Selenium		2,3,4,6	43.7	mg/Kg	1	50.0	<0.451	87	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

# Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 395918

QC Batch: 122475 Date Analyzed: 2015-06-19 Analyzed By: AK  
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 395922

QC Batch: 122539 Date Analyzed: 2015-06-23 Analyzed By: AK  
Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		s	1.78	mg/Kg	1	2.00	<0.00533	89	70 - 130
Toluene		s	1.72	mg/Kg	1	2.00	<0.00645	86	70 - 130
Ethylbenzene		s	1.70	mg/Kg	1	2.00	<0.0116	85	70 - 130
Xylene		s	5.63	mg/Kg	1	6.00	<0.00874	94	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		s	1.66	mg/Kg	1	2.00	<0.00533	83	70 - 130	7	20
Toluene		s	1.59	mg/Kg	1	2.00	<0.00645	80	70 - 130	8	20
Ethylbenzene		s	1.59	mg/Kg	1	2.00	<0.0116	80	70 - 130	7	20
Xylene		s	5.25	mg/Kg	1	6.00	<0.00874	88	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			1.84	1.89	mg/Kg	1	2	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.92	1.96	mg/Kg	1	2	96	98	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 395922

QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK  
Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		s	14.8	mg/Kg	1	20.0	<2.32	74	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	s	13.8	mg/Kg	1	20.0	<2.32	69	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			2.49	2.48	mg/Kg	1	2	124	124	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	2.21	mg/Kg	1	2	110	110	70 - 130

**Matrix Spike (xMS-1)** Spiked Sample: 396522

QC Batch: 122620 Date Analyzed: 2015-06-24 Analyzed By: SC  
Prep Batch: 103689 QC Preparation: 2015-06-23 Prepared By: SC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		s	268	mg/Kg	1	250	<7.41	107	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		s	292	mg/Kg	1	250	<7.41	117	70 - 130	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane			41.1	45.0	mg/Kg	1	50	82	90	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 396026

QC Batch: 122683 Date Analyzed: 2015-06-26 Analyzed By: ZY  
Prep Batch: 103768 QC Preparation: 2015-06-26 Prepared By: ZY

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC			56.1	mg/Kg	2	50.0	9.21	94	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC			58.0	mg/Kg	2	50.0	9.21	98	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1) Spiked Sample: 395714**

QC Batch: 122743  
Prep Batch: 103811

Date Analyzed: 2015-06-29  
QC Preparation: 2015-06-29

Analyzed By: TP  
Prepared By: TP

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury		1,2,3,4,6	0.258	mg/Kg	1	0.250	<0.00325	103	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury		1,2,3,4,6	0.272	mg/Kg	1	0.250	<0.00325	109	80 - 120	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1) Spiked Sample: 396611**

QC Batch: 122777  
Prep Batch: 103849

Date Analyzed: 2015-06-30  
QC Preparation: 2015-06-29

Analyzed By: RL  
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	3,4,6	856	mg/Kg	2	250	462	158	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Qs	3,4,6	773	mg/Kg	2	250	462	124	80 - 120	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 396611

QC Batch: 122777 Date Analyzed: 2015-06-30 Analyzed By: RL  
Prep Batch: 103849 QC Preparation: 2015-06-29 Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		3,4,6	395	mg/Kg	2	250	124	108	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		3,4,6	388	mg/Kg	2	250	124	106	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-2)** Spiked Sample: 396613

QC Batch: 122777 Date Analyzed: 2015-06-30 Analyzed By: RL  
Prep Batch: 103849 QC Preparation: 2015-06-29 Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q <sub>s</sub>	3,4,6	2560	mg/Kg	5	250	2010	220	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Q <sub>s</sub>	3,4,6	2500	mg/Kg	5	250	2010	196	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-2)** Spiked Sample: 396613

QC Batch: 122777 Date Analyzed: 2015-06-30 Analyzed By: RL  
Prep Batch: 103849 QC Preparation: 2015-06-29 Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		3,4,6	320	mg/Kg	5	250	71.1	100	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		3,4,6	329	mg/Kg	5	250	71.1	103	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1) Spiked Sample: 395974**

QC Batch: 122879  
Prep Batch: 103886

Date Analyzed: 2015-07-06  
QC Preparation: 2015-07-02

Analyzed By: RR  
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Calcium		2,3,4,6	5200	mg/Kg	1	5000	<7.70	104	75 - 125
Total Magnesium		2,3,4,6	4950	mg/Kg	1	5000	<4.74	99	75 - 125
Total Potassium		2,3,4,6	4870	mg/Kg	1	5000	<5.79	97	75 - 125
Total Sodium		2,3,4,6	5130	mg/Kg	1	5000	<9.52	103	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Calcium		2,3,4,6	4860	mg/Kg	1	5000	<7.70	97	75 - 125	7	20
Total Magnesium		2,3,4,6	4770	mg/Kg	1	5000	<4.74	95	75 - 125	4	20
Total Potassium		2,3,4,6	5090	mg/Kg	1	5000	<5.79	102	75 - 125	4	20
Total Sodium		2,3,4,6	4940	mg/Kg	1	5000	<9.52	99	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1) Spiked Sample: 395974**

QC Batch: 122879  
Prep Batch: 103886

Date Analyzed: 2015-07-06  
QC Preparation: 2015-07-02

Analyzed By: RR  
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver		2,3,4,6	11.4	mg/Kg	1	12.5	<0.0356	91	75 - 125
Total Arsenic		2,3,4,6	50.4	mg/Kg	1	50.0	5.69	89	75 - 125
Total Barium		2,3,4,6	163	mg/Kg	1	100	82.9	80	75 - 125
Total Cadmium		2,3,4,6	24.1	mg/Kg	1	25.0	<0.0303	96	75 - 125
Total Chromium		2,3,4,6	13.1	mg/Kg	1	10.0	4.57	85	75 - 125
Total Lead		2,3,4,6	46.8	mg/Kg	1	50.0	1.97	90	75 - 125
Total Selenium		2,3,4,6	38.9	mg/Kg	1	50.0	<0.451	78	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver		2,3,4,6	10.7	mg/Kg	1	12.5	<0.0356	86	75 - 125	6	20
Total Arsenic		2,3,4,6	44.2	mg/Kg	1	50.0	5.69	77	75 - 125	13	20
Total Barium		2,3,4,6	158	mg/Kg	1	100	82.9	75	75 - 125	3	20

*continued ...*



*matrix spikes continued ...*

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cadmium		2,3,4,6	23.4	mg/Kg	1	25.0	<0.0303	94	75 - 125	3	20
Total Chromium		2,3,4,6	12.1	mg/Kg	1	10.0	4.57	75	75 - 125	8	20
Total Lead		2,3,4,6	41.5	mg/Kg	1	50.0	1.97	79	75 - 125	12	20
Total Selenium		2,3,4,6	38.9	mg/Kg	1	50.0	<0.451	78	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

# Calibration Standards

## Standard (ICV-1)

QC Batch: 122475

Date Analyzed: 2015-06-19

Analyzed By: AK

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-19

## Standard (CCV-1)

QC Batch: 122475

Date Analyzed: 2015-06-19

Analyzed By: AK

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-19

## Standard (CCV-1)

QC Batch: 122539

Date Analyzed: 2015-06-23

Analyzed By: AK

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		s	mg/kg	0.100	0.0958	96	80 - 120	2015-06-23
Toluene		s	mg/kg	0.100	0.0891	89	80 - 120	2015-06-23
Ethylbenzene		s	mg/kg	0.100	0.0848	85	80 - 120	2015-06-23
Xylene		s	mg/kg	0.300	0.278	93	80 - 120	2015-06-23

## Standard (CCV-2)

QC Batch: 122539

Date Analyzed: 2015-06-23

Analyzed By: AK

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		s	mg/kg	0.100	0.0950	95	80 - 120	2015-06-23
Toluene		s	mg/kg	0.100	0.0905	90	80 - 120	2015-06-23

*continued ...*



Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		s	mg/Kg	250	279	112	80 - 120	2015-06-24

**Standard (ICV-1)**

QC Batch: 122683

Date Analyzed: 2015-06-26

Analyzed By: ZY

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	50.0	59.9	120	80 - 120	2015-06-26

**Standard (CCV-1)**

QC Batch: 122683

Date Analyzed: 2015-06-26

Analyzed By: ZY

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	50.0	52.2	104	80 - 120	2015-06-26

**Standard (CCV-1)**

QC Batch: 122743

Date Analyzed: 2015-06-29

Analyzed By: TP

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,6	mg/L	0.0100	0.0100	100	90 - 110	2015-06-29

**Standard (CCV-2)**

QC Batch: 122743

Date Analyzed: 2015-06-29

Analyzed By: TP

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		1,2,3,4,6	mg/L	0.0100	0.0104	104	90 - 110	2015-06-29



Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/Kg as CaCo3	0.00	<20.0		-	2015-07-01
Carbonate Alkalinity		1	mg/Kg as CaCo3	0.00	224		-	2015-07-01
Bicarbonate Alkalinity		1	mg/Kg as CaCo3	0.00	<20.0		-	2015-07-01
Total Alkalinity		1	mg/Kg as CaCo3	250	233	93	90 - 110	2015-07-01

**Standard (CCV-1)**

QC Batch: 122778

Date Analyzed: 2015-07-01

Analyzed By: LQ

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/Kg as CaCo3	0.00	<20.0		-	2015-07-01
Carbonate Alkalinity		1	mg/Kg as CaCo3	0.00	236		-	2015-07-01
Bicarbonate Alkalinity		1	mg/Kg as CaCo3	0.00	<20.0		-	2015-07-01
Total Alkalinity		1	mg/Kg as CaCo3	250	240	96	90 - 110	2015-07-01

**Standard (ICV-1)**

QC Batch: 122879

Date Analyzed: 2015-07-06

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		2,3,4,6	mg/Kg	25.5	27.2	107	90 - 110	2015-07-06
Total Magnesium		2,3,4,6	mg/Kg	25.5	27.3	107	90 - 110	2015-07-06
Total Potassium		2,3,4,6	mg/Kg	27.5	28.9	105	90 - 110	2015-07-06
Total Sodium		2,3,4,6	mg/Kg	25.5	27.1	106	90 - 110	2015-07-06

**Standard (ICV-1)**

QC Batch: 122879

Date Analyzed: 2015-07-06

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		2,3,4,6	mg/Kg	0.125	0.133	106	90 - 110	2015-07-06
Total Arsenic		2,3,4,6	mg/Kg	1.00	1.04	104	90 - 110	2015-07-06
Total Barium		2,3,4,6	mg/Kg	1.00	1.05	105	90 - 110	2015-07-06
Total Cadmium		2,3,4,6	mg/Kg	1.00	1.08	108	90 - 110	2015-07-06

*continued ...*

standard continued ...

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		2,3,4,6	mg/Kg	1.00	1.07	107	90 - 110	2015-07-06
Total Lead		2,3,4,6	mg/Kg	1.00	1.05	105	90 - 110	2015-07-06
Total Selenium		2,3,4,6	mg/Kg	1.00	1.08	108	90 - 110	2015-07-06

Standard (CCV-1)

QC Batch: 122879

Date Analyzed: 2015-07-06

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		2,3,4,6	mg/Kg	25.5	23.7	93	90 - 110	2015-07-06
Total Magnesium		2,3,4,6	mg/Kg	25.5	23.5	92	90 - 110	2015-07-06
Total Potassium		2,3,4,6	mg/Kg	27.5	25.9	94	90 - 110	2015-07-06
Total Sodium		2,3,4,6	mg/Kg	25.5	25.1	98	90 - 110	2015-07-06

Standard (CCV-1)

QC Batch: 122879

Date Analyzed: 2015-07-06

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		2,3,4,6	mg/Kg	0.125	0.123	98	90 - 110	2015-07-06
Total Arsenic		2,3,4,6	mg/Kg	1.00	0.947	95	90 - 110	2015-07-06
Total Barium		2,3,4,6	mg/Kg	1.00	0.990	99	90 - 110	2015-07-06
Total Cadmium		2,3,4,6	mg/Kg	1.00	0.988	99	90 - 110	2015-07-06
Total Chromium		2,3,4,6	mg/Kg	1.00	0.977	98	90 - 110	2015-07-06
Total Lead		2,3,4,6	mg/Kg	1.00	0.941	94	90 - 110	2015-07-06
Total Selenium		2,3,4,6	mg/Kg	1.00	0.959	96	90 - 110	2015-07-06

## Limits of Detection (LOD)

Test	Method	Matrix	Instrument	Analyte	Spike	
					Amount	Pass
Ag, Total	S 6010C	soil	PE 8300	Total Silver	0.0500	Pass
Alkalinity	SM 2320B	soil	N/A	Hydroxide Alkalinity	0.00	-
Alkalinity	SM 2320B	soil	N/A	Carbonate Alkalinity	0.00	-
Alkalinity	SM 2320B	soil	N/A	Bicarbonate Alkalinity	0.00	-
Alkalinity	SM 2320B	soil	N/A	Total Alkalinity	0.00	-
As, Total	S 6010C	soil	PE 8300	Total Arsenic	0.500	Pass
Ba, Total	S 6010C	soil	PE 8300	Total Barium	0.500	Pass
BTEX	S 8021B	soil	BTEX-2	Benzene	0.0120	Pass
BTEX	S 8021B	soil	BTEX-2	Toluene	0.0120	Pass
BTEX	S 8021B	soil	BTEX-2	Ethylbenzene	0.0120	Pass
BTEX	S 8021B	soil	BTEX-2	Xylene	0.0120	Pass
Ca, Total	S 6010C	soil	PE 8300	Total Calcium	0.500	Pass
Cd, Total	S 6010C	soil	PE 8300	Total Cadmium	0.0500	Pass
Chloride (IC)	E 300.0	soil	Dionex IC	Chloride	10.0	Pass
Chloride (Titration)	SM 4500-Cl B	soil	N/A	Chloride	10.0	Pass
Cr, Total	S 6010C	soil	PE 8300	Total Chromium	0.250	Pass
Hg, Total	S 7471 B	soil	Mercury Analyzer	Total Mercury	0.00500	Pass
K, Total	S 6010C	soil	PE 8300	Total Potassium	0.125	Pass
Mg, Total	S 6010C	soil	PE 8300	Total Magnesium	0.0500	Pass
Na, Total	S 6010C	soil	PE 8300	Total Sodium	0.100	Pass
Pb, Total	S 6010C	soil	PE 8300	Total Lead	0.500	Pass
Se, Total	S 6010C	soil	PE 8300	Total Selenium	0.500	Pass
SO4 (IC)	E 300.0	soil	Dionex IC	Sulfate	10.0	Pass
TPH 418.1	E 418.1	soil	FT-IR (2)	TRPHC	15.0	Pass
TPH DRO	S 8015 D	soil	TPH-1	DRO	30.0	Pass
TPH GRO	S 8015 D	soil	BTEX-2	GRO	5.00	Pass



# Appendix

## Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

## Laboratory Certifications

Certifying Authority	Certification Number	Laboratory Location
- NCTRCA	WFWB384444Y0909	TraceAnalysis
- DBE	VN 20657	TraceAnalysis
- HUB	1752439743100-86536	TraceAnalysis
- WBE	237019	TraceAnalysis
1 L-A-B	L2418	Lubbock
2 Kansas	Kansas E-10317	Lubbock
3 LELAP	LELAP-02003	Lubbock
4 NELAP	T104704219-15-11	Lubbock
5 NELAP	T104704392-14-8	Midland
6	2014-018	Lubbock

## Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

## **Attachments**

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.





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E-Mail lab@traceanalysis.com WEB www.traceanalysis.com

## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

(Corrected Report)

Sarah Shissler  
Larson and Associates, Inc.

Report Date: June 1, 2016

P. O. Box 50685  
Midland, TX, 79710

Work Order: 15080501



Project Name: Artesia Land Farm  
Project Number: 15-0121-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
400917	DP-Cell 1 (2-3)	soil	2015-08-04	14:00	2015-08-05
400918	Cell 1 Comp	soil	2015-08-04	14:05	2015-08-05
400919	DP-Cell 2 (2-3)	soil	2015-08-04	14:15	2015-08-05
400920	DP-Cell 3 (2-3)	soil	2015-08-04	14:30	2015-08-05
400921	Cell 3 Comp	soil	2015-08-04	14:35	2015-08-05
400922	DP-Cell 4 (2-3)	soil	2015-08-04	14:45	2015-08-05
400923	Cell 4 Comp	soil	2015-08-04	14:50	2015-08-05
400924	DP-Cell 5 (2-3)	soil	2015-08-04	15:00	2015-08-05
400925	Cell 5 Comp	soil	2015-08-04	15:05	2015-08-05

### Report Corrections (Work Order 15080501)

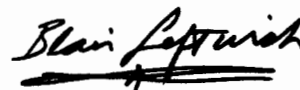
- 9/11/15: Corrected Project Name.
- 5/31/16: Added TPH DRO to all samples.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch

basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 28 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



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Dr. Blair Leftwich, Director  
James Taylor, Assistant Director  
Johnny Grindstaff, Operations Manager

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## Case Narrative

Samples for project Artesia Land Farm were received by TraceAnalysis, Inc. on 2015-08-05 and assigned to work order 15080501. Samples for work order 15080501 were received intact at a temperature of 3.6 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	104681	2015-08-06 at 15:50	123800	2015-08-07 at 07:03
Chloride (Titration)	SM 4500-Cl B	104752	2015-08-10 at 16:44	123888	2015-08-10 at 16:45
Chloride (Titration)	SM 4500-Cl B	104919	2015-08-17 at 10:10	124084	2015-08-17 at 10:12
Chloride (Titration)	SM 4500-Cl B	104945	2015-08-17 at 17:07	124119	2015-08-17 at 17:08
TPH DRO	S 8015 D	110490	2015-08-05 at 20:00	130414	2015-08-05 at 21:44

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 15080501 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.



# Analytical Report

## Sample: 400917 - DP-Cell 1 (2-3)

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 123800  
Prep Batch: 104681

Analytical Method: S 8021B  
Date Analyzed: 2015-08-07  
Sample Preparation: 2015-08-06

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0200	mg/Kg	1	0.0200
Toluene	u	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	1	<0.0200	mg/Kg	1	0.0200
Xylene	u	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	1	2.00	96	70 - 130

## Sample: 400917 - DP-Cell 1 (2-3)

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 123888  
Prep Batch: 104752

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2015-08-10  
Sample Preparation: 2015-08-10

Prep Method: N/A  
Analyzed By: AM  
Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

## Sample: 400917 - DP-Cell 1 (2-3)

Laboratory: Midland  
Analysis: TPH DRO  
QC Batch: 130414  
Prep Batch: 110490

Analytical Method: S 8015 D  
Date Analyzed: 2015-08-05  
Sample Preparation: 2015-08-05

Prep Method: N/A  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	qr,u	1	<50.0	mg/Kg	1	50.0

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	80.6	mg/Kg	1	50.0	161	70 - 130

**Sample: 400918 - Cell 1 Comp**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 123800  
Prep Batch: 104681

Analytical Method: S 8021B  
Date Analyzed: 2015-08-07  
Sample Preparation: 2015-08-06

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	1	U	1	<0.0400	mg/Kg	2 0.0200
Toluene		U	1	<0.0400	mg/Kg	2 0.0200
Ethylbenzene		U	1	<0.0400	mg/Kg	2 0.0200
Xylene		U	1	<0.0400	mg/Kg	2 0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.21	mg/Kg	2	4.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			3.38	mg/Kg	2	4.00	84	70 - 130

**Sample: 400918 - Cell 1 Comp**

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 123888  
Prep Batch: 104752

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2015-08-10  
Sample Preparation: 2015-08-10

Prep Method: N/A  
Analyzed By: AM  
Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1100	mg/Kg	5	4.00

**Sample: 400918 - Cell 1 Comp**

Laboratory: Midland  
Analysis: TPH DRO  
QC Batch: 130414  
Prep Batch: 110490

Analytical Method: S 8015 D  
Date Analyzed: 2015-08-05  
Sample Preparation: 2015-08-05

Prep Method: N/A  
Analyzed By: AK  
Prepared By: AK

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	88.5	mg/Kg	1	50.0	177	70 - 130

**Sample: 400919 - DP-Cell 2 (2-3)**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 123800  
Prep Batch: 104681

Analytical Method: S 8021B  
Date Analyzed: 2015-08-07  
Sample Preparation: 2015-08-06

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0200	mg/Kg	1	0.0200
Toluene	u	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	1	<0.0200	mg/Kg	1	0.0200
Xylene	u	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

**Sample: 400919 - DP-Cell 2 (2-3)**

Laboratory: Midland  
Analysis: Chloride (Titration)  
QC Batch: 123888  
Prep Batch: 104752

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2015-08-10  
Sample Preparation: 2015-08-10

Prep Method: N/A  
Analyzed By: AM  
Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

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**Sample: 400919 - DP-Cell 2 (2-3)**

Laboratory: Midland  
Analysis: TPH DRO                      Analytical Method: S 8015 D                      Prep Method: N/A  
QC Batch: 130414                      Date Analyzed: 2015-08-05                      Analyzed By: AK  
Prep Batch: 110490                      Sample Preparation: 2015-08-05                      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	qr,u	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	89.3	mg/Kg	1	50.0	179	70 - 130

**Sample: 400920 - DP-Cell 3 (2-3)**

Laboratory: Midland  
Analysis: BTEX                      Analytical Method: S 8021B                      Prep Method: S 5035  
QC Batch: 123800                      Date Analyzed: 2015-08-07                      Analyzed By: AK  
Prep Batch: 104681                      Sample Preparation: 2015-08-06                      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	2	u	<0.0400	mg/Kg	2	0.0200
Toluene		u	<0.0400	mg/Kg	2	0.0200
Ethylbenzene		u	<0.0400	mg/Kg	2	0.0200
Xylene		u	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.87	mg/Kg	2	4.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			4.09	mg/Kg	2	4.00	102	70 - 130

**Sample: 400920 - DP-Cell 3 (2-3)**

Laboratory: Midland  
Analysis: Chloride (Titration)                      Analytical Method: SM 4500-Cl B                      Prep Method: N/A  
QC Batch: 123888                      Date Analyzed: 2015-08-10                      Analyzed By: AM  
Prep Batch: 104752                      Sample Preparation: 2015-08-10                      Prepared By: AM

*continued ...*

sample 400920 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

**Sample: 400920 - DP-Cell 3 (2-3)**

Laboratory: Midland  
 Analysis: TPH DRO  
 QC Batch: 130414  
 Prep Batch: 110490  
 Analytical Method: S 8015 D  
 Date Analyzed: 2015-08-05  
 Sample Preparation: 2015-08-05  
 Prep Method: N/A  
 Analyzed By: AK  
 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	91.0	mg/Kg	1	50.0	182	70 - 130

**Sample: 400921 - Cell 3 Comp**

Laboratory: Midland  
 Analysis: BTEX  
 QC Batch: 123800  
 Prep Batch: 104681  
 Analytical Method: S 8021B  
 Date Analyzed: 2015-08-07  
 Sample Preparation: 2015-08-06  
 Prep Method: S 5035  
 Analyzed By: AK  
 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	3	U	1	<0.100	mg/Kg	5 0.0200
Toluene		U	1	<0.100	mg/Kg	5 0.0200
Ethylbenzene		U	1	<0.100	mg/Kg	5 0.0200
Xylene		U	1	<0.100	mg/Kg	5 0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.21	mg/Kg	5	10.0	92	70 - 130
4-Bromofluorobenzene (4-BFB)			9.38	mg/Kg	5	10.0	94	70 - 130

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**Sample: 400921 - Cell 3 Comp**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 123888      Date Analyzed: 2015-08-10      Analyzed By: AM  
 Prep Batch: 104752      Sample Preparation: 2015-08-10      Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs		796	mg/Kg	5	4.00

**Sample: 400921 - Cell 3 Comp**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 130414      Date Analyzed: 2015-08-05      Analyzed By: AK  
 Prep Batch: 110490      Sample Preparation: 2015-08-05      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	1	51.9	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	91.8	mg/Kg	1	50.0	184	70 - 130

**Sample: 400922 - DP-Cell 4 (2-3)**

Laboratory: Midland  
 Analysis: BTEX      Analytical Method: S 8021B      Prep Method: S 5035  
 QC Batch: 123800      Date Analyzed: 2015-08-07      Analyzed By: AK  
 Prep Batch: 104681      Sample Preparation: 2015-08-06      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	4	u	<0.0400	mg/Kg	2	0.0200
Toluene		u	<0.0400	mg/Kg	2	0.0200
Ethylbenzene		u	<0.0400	mg/Kg	2	0.0200
Xylene		u	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.82	mg/Kg	2	4.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			4.03	mg/Kg	2	4.00	101	70 - 130

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**Sample: 400922 - DP-Cell 4 (2-3)**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 124084      Date Analyzed: 2015-08-17      Analyzed By: AK  
 Prep Batch: 104919      Sample Preparation: 2015-08-17      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

**Sample: 400922 - DP-Cell 4 (2-3)**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 130414      Date Analyzed: 2015-08-05      Analyzed By: AK  
 Prep Batch: 110490      Sample Preparation: 2015-08-05      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	99.4	mg/Kg	1	50.0	199	70 - 130

**Sample: 400923 - Cell 4 Comp**

Laboratory: Midland  
 Analysis: BTEX      Analytical Method: S 8021B      Prep Method: S 5035  
 QC Batch: 123800      Date Analyzed: 2015-08-07      Analyzed By: AK  
 Prep Batch: 104681      Sample Preparation: 2015-08-06      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	5 u	1	<0.0400	mg/Kg	2	0.0200
Toluene	u	1	<0.0400	mg/Kg	2	0.0200
Ethylbenzene	u	1	<0.0400	mg/Kg	2	0.0200
Xylene	u	1	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.53	mg/Kg	2	4.00	88	70 - 130

continued ...

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sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			3.82	mg/Kg	2	4.00	96	70 - 130

**Sample: 400923 - Cell 4 Comp**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 124084      Date Analyzed: 2015-08-17      Analyzed By: AK  
 Prep Batch: 104919      Sample Preparation: 2015-08-17      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

**Sample: 400923 - Cell 4 Comp**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 130414      Date Analyzed: 2015-08-05      Analyzed By: AK  
 Prep Batch: 110490      Sample Preparation: 2015-08-05      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr,U	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	80.0	mg/Kg	1	50.0	160	70 - 130

**Sample: 400924 - DP-Cell 5 (2-3)**

Laboratory: Midland  
 Analysis: BTEX      Analytical Method: S 8021B      Prep Method: S 5035  
 QC Batch: 123800      Date Analyzed: 2015-08-07      Analyzed By: AK  
 Prep Batch: 104681      Sample Preparation: 2015-08-06      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0400	mg/Kg	2	0.0200
Toluene		1	0.0802	mg/Kg	2	0.0200

continued ...



sample 400924 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Ethylbenzene		1	<0.0400	mg/Kg	2	0.0200
Xylene		1	0.207	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.59	mg/Kg	2	4.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			4.76	mg/Kg	2	4.00	119	70 - 130

**Sample: 400924 - DP-Cell 5 (2-3)**

Laboratory: Midland  
 Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
 QC Batch: 124119      Date Analyzed: 2015-08-17      Analyzed By: AM  
 Prep Batch: 104945      Sample Preparation: 2015-08-17      Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			379	mg/Kg	5	4.00

**Sample: 400924 - DP-Cell 5 (2-3)**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 130414      Date Analyzed: 2015-08-05      Analyzed By: AK  
 Prep Batch: 110490      Sample Preparation: 2015-08-05      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	1	641	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	115	mg/Kg	5	50.0	230	70 - 130

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**Sample: 400925 - Cell 5 Comp**

Laboratory: Midland  
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
 QC Batch: 123800 Date Analyzed: 2015-08-07 Analyzed By: AK  
 Prep Batch: 104681 Sample Preparation: 2015-08-06 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0400	mg/Kg	2	0.0200
Toluene	u	1	<0.0400	mg/Kg	2	0.0200
Ethylbenzene	u	1	<0.0400	mg/Kg	2	0.0200
Xylene	u	1	<0.0400	mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			3.72	mg/Kg	2	4.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			4.01	mg/Kg	2	4.00	100	70 - 130

**Sample: 400925 - Cell 5 Comp**

Laboratory: Midland  
 Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A  
 QC Batch: 124119 Date Analyzed: 2015-08-17 Analyzed By: AM  
 Prep Batch: 104945 Sample Preparation: 2015-08-17 Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3790	mg/Kg	5	4.00

**Sample: 400925 - Cell 5 Comp**

Laboratory: Midland  
 Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A  
 QC Batch: 130414 Date Analyzed: 2015-08-05 Analyzed By: AK  
 Prep Batch: 110490 Sample Preparation: 2015-08-05 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	qr,u	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	qr	qr	88.4	mg/Kg	1	50.0	177	70 - 130

## Method Blanks

### Method Blank (1) QC Batch: 123800

QC Batch: 123800  
Prep Batch: 104681

Date Analyzed: 2015-08-07  
QC Preparation: 2015-08-06

Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00533	mg/Kg	0.02
Toluene		1	<0.00645	mg/Kg	0.02
Ethylbenzene		1	<0.0116	mg/Kg	0.02
Xylene		1	<0.00874	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70 - 130

### Method Blank (1) QC Batch: 123888

QC Batch: 123888  
Prep Batch: 104752

Date Analyzed: 2015-08-10  
QC Preparation: 2015-08-10

Analyzed By: AM  
Prepared By: AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

### Method Blank (1) QC Batch: 124084

QC Batch: 124084  
Prep Batch: 104919

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

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Method Blank (1) QC Batch: 124119

QC Batch: 124119  
Prep Batch: 104945

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AM  
Prepared By: AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 130414

QC Batch: 130414  
Prep Batch: 110490

Date Analyzed: 2015-08-05  
QC Preparation: 2015-08-05

Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			57.4	mg/Kg	1	50.0	115	70 - 130

## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 123800  
Prep Batch: 104681

Date Analyzed: 2015-08-07  
QC Preparation: 2015-08-06

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.90	mg/Kg	1	2.00	<0.00533	95	70 - 130
Toluene		1	1.89	mg/Kg	1	2.00	<0.00645	94	70 - 130
Ethylbenzene		1	1.81	mg/Kg	1	2.00	<0.0116	90	70 - 130
Xylene		1	5.59	mg/Kg	1	6.00	<0.00874	93	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.92	mg/Kg	1	2.00	<0.00533	96	70 - 130	1	20
Toluene		1	1.95	mg/Kg	1	2.00	<0.00645	98	70 - 130	3	20
Ethylbenzene		1	1.83	mg/Kg	1	2.00	<0.0116	92	70 - 130	1	20
Xylene		1	5.66	mg/Kg	1	6.00	<0.00874	94	70 - 130	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.88	1.95	mg/Kg	1	2.00	94	98	70 - 130
4-Bromofluorobenzene (4-BFB)	2.07	2.14	mg/Kg	1	2.00	104	107	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 123888  
Prep Batch: 104752

Date Analyzed: 2015-08-10  
QC Preparation: 2015-08-10

Analyzed By: AM  
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2290	mg/Kg	5	2500	<19.2	92	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

*continued ...*

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*control spikes continued ...*

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2190	mg/Kg	5	2500	<19.2	88	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 124084  
Prep Batch: 104919

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2340	mg/Kg	5	2500	<19.2	94	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2440	mg/Kg	5	2500	<19.2	98	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 124119  
Prep Batch: 104945

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AM  
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2180	mg/Kg	5	2500	<19.2	87	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2180	mg/Kg	5	2500	<19.2	87	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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**Laboratory Control Spike (LCS-1)**

QC Batch: 130414  
Prep Batch: 110490

Date Analyzed: 2015-08-05  
QC Preparation: 2015-08-05

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	204	mg/Kg	1	250	<7.41	82	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	<sup>7</sup> Q <sub>s</sub>	Q <sub>s</sub> 1	172	mg/Kg	1	250	<7.41	69	70 - 130	17	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	Q <sub>er</sub>	Q <sub>er</sub>	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	Q <sub>er</sub>	Q <sub>er</sub>	73.4	63.4	mg/Kg	1	50.0	147	127	70 - 130

# Matrix Spikes

**Matrix Spike (MS-1)** Spiked Sample: 401175

QC Batch: 123800  
Prep Batch: 104681

Date Analyzed: 2015-08-07  
QC Preparation: 2015-08-06

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.47	mg/Kg	1	2.00	<0.00533	74	70 - 130
Toluene		1	1.60	mg/Kg	1	2.00	0.0221	79	70 - 130
Ethylbenzene		1	1.89	mg/Kg	1	2.00	0.0297	93	70 - 130
Xylene		1	5.42	mg/Kg	1	6.00	0.0646	89	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Limit	RPD	RPD Limit	
Benzene		1	1.51	mg/Kg	1	2.00	<0.00533	76	70 - 130	3	20
Toluene		1	1.62	mg/Kg	1	2.00	0.0221	80	70 - 130	1	20
Ethylbenzene		1	1.70	mg/Kg	1	2.00	0.0297	84	70 - 130	11	20
Xylene		1	5.17	mg/Kg	1	6.00	0.0646	85	70 - 130	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.79	1.90	mg/Kg	1	2	90	95	70 - 130
4-Bromofluorobenzene (4-BFB)	2.26	2.11	mg/Kg	1	2	113	106	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 400921

QC Batch: 123888  
Prep Batch: 104752

Date Analyzed: 2015-08-10  
QC Preparation: 2015-08-10

Analyzed By: AM  
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2890	mg/Kg	5	2500	<19.2	116	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

*continued ...*



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*matrix spikes continued ...*

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Q <sub>n</sub>	Q <sub>n</sub>	3080	mg/Kg	5	2500	<19.2	123	78.9 - 121	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 401077

QC Batch: 124084  
Prep Batch: 104919

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2540	mg/Kg	5	2500	<19.2	102	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2440	mg/Kg	5	2500	<19.2	98	78.9 - 121	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 402017

QC Batch: 124119  
Prep Batch: 104945

Date Analyzed: 2015-08-17  
QC Preparation: 2015-08-17

Analyzed By: AM  
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2460	mg/Kg	5	2500	95	95	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2560	mg/Kg	5	2500	95	99	78.9 - 121	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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**Matrix Spike (xMS-1)** Spiked Sample: 400914

QC Batch: 130414  
Prep Batch: 110490

Date Analyzed: 2015-08-05  
QC Preparation: 2015-08-05

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	270	mg/Kg	1	250	14.5	102	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
DRO	Qr	Qr	1	218	mg/Kg	1	250	14.5	81	70 - 130	21	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit		
n-Tricosane	Qtr	Qtr	81.7	65.0	mg/Kg	1	50	163	130	70 - 130

## Calibration Standards

### Standard (CCV-2)

QC Batch: 123800

Date Analyzed: 2015-08-07

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0934	93	80 - 120	2015-08-07
Toluene		1	mg/kg	0.100	0.0902	90	80 - 120	2015-08-07
Ethylbenzene		1	mg/kg	0.100	0.0860	86	80 - 120	2015-08-07
Xylene		1	mg/kg	0.300	0.261	87	80 - 120	2015-08-07

### Standard (CCV-3)

QC Batch: 123800

Date Analyzed: 2015-08-07

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0959	96	80 - 120	2015-08-07
Toluene		1	mg/kg	0.100	0.0914	91	80 - 120	2015-08-07
Ethylbenzene		1	mg/kg	0.100	0.0861	86	80 - 120	2015-08-07
Xylene		1	mg/kg	0.300	0.265	88	80 - 120	2015-08-07

### Standard (ICV-1)

QC Batch: 123888

Date Analyzed: 2015-08-10

Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-08-10

### Standard (CCV-1)

QC Batch: 123888

Date Analyzed: 2015-08-10

Analyzed By: AM

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-08-10

**Standard (ICV-1)**

QC Batch: 124084

Date Analyzed: 2015-08-17

Analyzed By: AK

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-08-17

**Standard (CCV-1)**

QC Batch: 124084

Date Analyzed: 2015-08-17

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-08-17

**Standard (ICV-1)**

QC Batch: 124119

Date Analyzed: 2015-08-17

Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	94.0	94	85 - 115	2015-08-17

**Standard (CCV-1)**

QC Batch: 124119

Date Analyzed: 2015-08-17

Analyzed By: AM

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	106	106	85 - 115	2015-08-17

**Standard (CCV-1)**

QC Batch: 130414

Date Analyzed: 2015-08-05

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	212	85	80 - 120	2015-08-05

**Standard (CCV-2)**

QC Batch: 130414

Date Analyzed: 2015-08-05

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	269	108	80 - 120	2015-08-05

**Standard (CCV-3)**

QC Batch: 130414

Date Analyzed: 2015-08-05

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	217	87	80 - 120	2015-08-05

## Appendix

### Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

### Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-14-8	Midland

### Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

### Result Comments

- 1 Dilution due to surfactants.
- 2 Dilution due to surfactants.
- 3 Dilution due to surfactants.
- 4 Dilution due to surfactants.
- 5 Dilution due to surfactants.
- 6 Dilution due to surfactants.
- 7 RPD within control limits.

## Attachments

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.







6701 Aberdeen Avenue, Suite 9      Lubbock, Texas 79424      800-378-1296      806-794-1296      FAX 806-794-1296  
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## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Sarah Shissler  
Larson and Associates, Inc.

Report Date: June 2, 2016

P. O. Box 50685  
Midland, TX, 79710

Work Order: 15101304



Project Name: R360 Artesia Landfarm  
Project Number: 15-0121-01

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

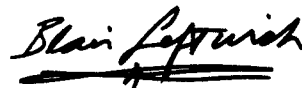
Sample	Description	Matrix	Date Taken	Time Taken	Date Received
406087	DP-1	soil	2015-10-12	12:15	2015-10-13
406088	DP-2	soil	2015-10-12	12:30	2015-10-13
406089	DP-3	soil	2015-10-12	12:45	2015-10-13
406090	DP-4	soil	2015-10-12	13:00	2015-10-13
406091	DP-5	soil	2015-10-12	13:15	2015-10-13
406092	Comp-1	soil	2015-10-12	13:30	2015-10-13
406093	Comp-3	soil	2015-10-12	13:45	2015-10-13
406094	Comp-4	soil	2015-10-12	14:00	2015-10-13
406095	Comp-5	soil	2015-10-12	14:15	2015-10-13

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 40 pages and shall not be reproduced except in its entirety, without written approval of

TraceAnalysis, Inc.

A handwritten signature in black ink that reads "Blair Leftwich". The signature is written in a cursive style and is positioned above a horizontal line.

---

Dr. Blair Leftwich, Director  
James Taylor, Assistant Director  
Johnny Grindstaff, Operations Manager

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## Case Narrative

Samples for project R360 Artesia Landfarm were received by TraceAnalysis, Inc. on 2015-10-13 and assigned to work order 15101304. Samples for work order 15101304 were received intact at a temperature of 1.3 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	106233	2015-10-14 at 08:29	125591	2015-10-15 at 09:02
Chloride (IC)	E 300.0	106258	2015-10-15 at 11:00	125621	2015-10-15 at 12:01
Chloride (IC)	E 300.0	106322	2015-10-19 at 12:30	125692	2015-10-19 at 13:01
TPH 418.1	E 418.1	106421	2015-10-21 at 12:00	125797	2015-10-21 at 12:00
TPH DRO	S 8015 D	106226	2015-10-14 at 07:16	125580	2015-10-14 at 15:30
TPH DRO	S 8015 D	106228	2015-10-14 at 16:00	125601	2015-10-15 at 12:35
TPH DRO	S 8015 D	106256	2015-10-15 at 07:18	125613	2015-10-15 at 16:00
TPH GRO	S 8015 D	106233	2015-10-14 at 08:29	125587	2015-10-15 at 08:30

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 15101304 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

# Analytical Report

## Sample: 406087 - DP-1

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 125591  
Prep Batch: 106233

Analytical Method: S 8021B  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.200	mg/Kg	10	0.0200
Toluene	u	s	<0.200	mg/Kg	10	0.0200
Ethylbenzene		s	<b>0.366</b>	mg/Kg	10	0.0200
Xylene		s	<b>2.17</b>	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			18.8	mg/Kg	10	20.0	94	70 - 130
4-Bromofluorobenzene (4-BFB)			19.3	mg/Kg	10	20.0	96	70 - 130

## Sample: 406087 - DP-1

Laboratory: Lubbock  
Analysis: Chloride (IC)  
QC Batch: 125621  
Prep Batch: 106258

Analytical Method: E 300.0  
Date Analyzed: 2015-10-15  
Sample Preparation:

Prep Method: N/A  
Analyzed By: RL  
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	<b>231</b>	mg/Kg	5	25.0

## Sample: 406087 - DP-1

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 125797  
Prep Batch: 106421

Analytical Method: E 418.1  
Date Analyzed: 2015-10-21  
Sample Preparation: 2015-10-21

Prep Method: N/A  
Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			<b>3130</b>	mg/Kg	100	10.0

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**Sample: 406087 - DP-1**

Laboratory: Midland  
 Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A  
 QC Batch: 125580 Date Analyzed: 2015-10-14 Analyzed By: AK  
 Prep Batch: 106226 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	s	3450	mg/Kg	20	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	275	mg/Kg	20	50.0	550	70 - 130

**Sample: 406087 - DP-1**

Laboratory: Midland  
 Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035  
 QC Batch: 125587 Date Analyzed: 2015-10-15 Analyzed By: AK  
 Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		s	49.1	mg/Kg	10	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			18.0	mg/Kg	10	20.0	90	70 - 130
4-Bromofluorobenzene (4-BFB)			20.0	mg/Kg	10	20.0	100	70 - 130

**Sample: 406088 - DP-2**

Laboratory: Midland  
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
 QC Batch: 125591 Date Analyzed: 2015-10-15 Analyzed By: AK  
 Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1	2.00	98	70 - 130

**Sample: 406088 - DP-2**

Laboratory: Lubbock  
 Analysis: Chloride (IC)      Analytical Method: E 300.0      Prep Method: N/A  
 QC Batch: 125621      Date Analyzed: 2015-10-15      Analyzed By: RL  
 Prep Batch: 106258      Sample Preparation:      Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	<25.0	mg/Kg	1	25.0

**Sample: 406088 - DP-2**

Laboratory: Lubbock  
 Analysis: TPH 418.1      Analytical Method: E 418.1      Prep Method: N/A  
 QC Batch: 125797      Date Analyzed: 2015-10-21      Analyzed By: ZY  
 Prep Batch: 106421      Sample Preparation: 2015-10-21      Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			21.8	mg/Kg	1	10.0

**Sample: 406088 - DP-2**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 125580      Date Analyzed: 2015-10-14      Analyzed By: AK  
 Prep Batch: 106226      Sample Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			55.0	mg/Kg	1	50.0	110	70 - 130



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**Sample: 406088 - DP-2**

Laboratory: Midland  
Analysis: TPH GRO  
QC Batch: 125587  
Prep Batch: 106233

Analytical Method: S 8015 D  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs, U	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

**Sample: 406089 - DP-3**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 125591  
Prep Batch: 106233

Analytical Method: S 8021B  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.89	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	70 - 130

**Sample: 406089 - DP-3**

Laboratory: Lubbock  
Analysis: Chloride (IC)  
QC Batch: 125621  
Prep Batch: 106258

Analytical Method: E 300.0  
Date Analyzed: 2015-10-15  
Sample Preparation:

Prep Method: N/A  
Analyzed By: RL  
Prepared By: RL

*continued ...*

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	33.7	mg/Kg	1	25.0

**Sample: 406089 - DP-3**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 125797  
Prep Batch: 106421

Analytical Method: E 418.1  
Date Analyzed: 2015-10-21  
Sample Preparation: 2015-10-21

Prep Method: N/A  
Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			16.0	mg/Kg	1	10.0

**Sample: 406089 - DP-3**

Laboratory: Midland  
Analysis: TPH DRO  
QC Batch: 125580  
Prep Batch: 106226

Analytical Method: S 8015 D  
Date Analyzed: 2015-10-14  
Sample Preparation: 2015-10-14

Prep Method: N/A  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			59.8	mg/Kg	1	50.0	120	70 - 130

**Sample: 406089 - DP-3**

Laboratory: Midland  
Analysis: TPH GRO  
QC Batch: 125587  
Prep Batch: 106233

Analytical Method: S 8015 D  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

continued ...

sample 406089 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.81	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

**Sample: 406090 - DP-4**

Laboratory: Midland  
 Analysis: BTEX  
 QC Batch: 125591  
 Prep Batch: 106233  
 Analytical Method: S 8021B  
 Date Analyzed: 2015-10-15  
 Sample Preparation: 2015-10-14  
 Prep Method: S 5035  
 Analyzed By: AK  
 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.86	mg/Kg	1	2.00	93	70 - 130

**Sample: 406090 - DP-4**

Laboratory: Lubbock  
 Analysis: Chloride (IC)  
 QC Batch: 125621  
 Prep Batch: 106258  
 Analytical Method: E 300.0  
 Date Analyzed: 2015-10-15  
 Sample Preparation:  
 Prep Method: N/A  
 Analyzed By: RL  
 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	173	mg/Kg	5	25.0

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**Sample: 406090 - DP-4**

Laboratory: Lubbock  
 Analysis: TPH 418.1      Analytical Method: E 418.1      Prep Method: N/A  
 QC Batch: 125797      Date Analyzed: 2015-10-21      Analyzed By: ZY  
 Prep Batch: 106421      Sample Preparation: 2015-10-21      Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC	u		<10.0	mg/Kg	1	10.0

**Sample: 406090 - DP-4**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 125580      Date Analyzed: 2015-10-14      Analyzed By: AK  
 Prep Batch: 106226      Sample Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	qr,u	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			55.8	mg/Kg	1	50.0	112	70 - 130

**Sample: 406090 - DP-4**

Laboratory: Midland  
 Analysis: TPH GRO      Analytical Method: S 8015 D      Prep Method: S 5035  
 QC Batch: 125587      Date Analyzed: 2015-10-15      Analyzed By: AK  
 Prep Batch: 106233      Sample Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

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**Sample: 406091 - DP-5**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 125591  
Prep Batch: 106233

Analytical Method: S 8021B  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	70 - 130

**Sample: 406091 - DP-5**

Laboratory: Lubbock  
Analysis: Chloride (IC)  
QC Batch: 125621  
Prep Batch: 106258

Analytical Method: E 300.0  
Date Analyzed: 2015-10-15  
Sample Preparation:

Prep Method: N/A  
Analyzed By: RL  
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	1400	mg/Kg	5	25.0

**Sample: 406091 - DP-5**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 125797  
Prep Batch: 106421

Analytical Method: E 418.1  
Date Analyzed: 2015-10-21  
Sample Preparation: 2015-10-21

Prep Method: N/A  
Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			<10.0	mg/Kg	1	10.0

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**Sample: 406091 - DP-5**

Laboratory: Midland  
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A  
QC Batch: 125601 Date Analyzed: 2015-10-15 Analyzed By: AK  
Prep Batch: 106228 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	u	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			55.1	mg/Kg	1	50.0	110	70 - 130

**Sample: 406091 - DP-5**

Laboratory: Midland  
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035  
QC Batch: 125587 Date Analyzed: 2015-10-15 Analyzed By: AK  
Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

**Sample: 406092 - Comp-1**

Laboratory: Midland  
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
QC Batch: 125591 Date Analyzed: 2015-10-15 Analyzed By: AK  
Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

**Sample: 406092 - Comp-1**

Laboratory: Lubbock  
 Analysis: Chloride (IC)      Analytical Method: E 300.0      Prep Method: N/A  
 QC Batch: 125692      Date Analyzed: 2015-10-19      Analyzed By: RL  
 Prep Batch: 106322      Sample Preparation:      Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	97.8	mg/Kg	1	25.0

**Sample: 406092 - Comp-1**

Laboratory: Lubbock  
 Analysis: TPH 418.1      Analytical Method: E 418.1      Prep Method: N/A  
 QC Batch: 125797      Date Analyzed: 2015-10-21      Analyzed By: ZY  
 Prep Batch: 106421      Sample Preparation: 2015-10-21      Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			16.0	mg/Kg	1	10.0

**Sample: 406092 - Comp-1**

Laboratory: Midland  
 Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
 QC Batch: 125601      Date Analyzed: 2015-10-15      Analyzed By: AK  
 Prep Batch: 106228      Sample Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Ja	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			56.9	mg/Kg	1	50.0	114	70 - 130

**Sample: 406092 - Comp-1**

Laboratory: Midland  
 Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035  
 QC Batch: 125587 Date Analyzed: 2015-10-15 Analyzed By: AK  
 Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.77	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			1.81	mg/Kg	1	2.00	90	70 - 130

**Sample: 406093 - Comp-3**

Laboratory: Midland  
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035  
 QC Batch: 125591 Date Analyzed: 2015-10-15 Analyzed By: AK  
 Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

**Sample: 406093 - Comp-3**

Laboratory: Lubbock  
 Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A  
 QC Batch: 125621 Date Analyzed: 2015-10-15 Analyzed By: RL  
 Prep Batch: 106258 Sample Preparation: Prepared By: RL

*continued ...*



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sample 406093 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	100	mg/Kg	1	25.0

**Sample: 406093 - Comp-3**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 125797  
Prep Batch: 106421

Analytical Method: E 418.1  
Date Analyzed: 2015-10-21  
Sample Preparation: 2015-10-21

Prep Method: N/A  
Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			306	mg/Kg	25	10.0

**Sample: 406093 - Comp-3**

Laboratory: Midland  
Analysis: TPH DRO  
QC Batch: 125613  
Prep Batch: 106256

Analytical Method: S 8015 D  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-15

Prep Method: N/A  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		s	139	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	77.9	mg/Kg	1	50.0	156	70 - 130

**Sample: 406093 - Comp-3**

Laboratory: Midland  
Analysis: TPH GRO  
QC Batch: 125587  
Prep Batch: 106233

Analytical Method: S 8015 D  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

continued ...

sample 406093 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

**Sample: 406094 - Comp-4**

Laboratory: Midland  
 Analysis: BTEX                      Analytical Method: S 8021B                      Prep Method: S 5035  
 QC Batch: 125591                      Date Analyzed: 2015-10-15                      Analyzed By: AK  
 Prep Batch: 106233                      Sample Preparation: 2015-10-14                      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

**Sample: 406094 - Comp-4**

Laboratory: Lubbock  
 Analysis: Chloride (IC)                      Analytical Method: E 300.0                      Prep Method: N/A  
 QC Batch: 125621                      Date Analyzed: 2015-10-15                      Analyzed By: RL  
 Prep Batch: 106258                      Sample Preparation:                      Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	48.1	mg/Kg	1	25.0

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**Sample: 406094 - Comp-4**

Laboratory: Lubbock  
Analysis: TPH 418.1      Analytical Method: E 418.1      Prep Method: N/A  
QC Batch: 125797      Date Analyzed: 2015-10-21      Analyzed By: ZY  
Prep Batch: 106421      Sample Preparation: 2015-10-21      Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			50.3	mg/Kg	1	10.0

**Sample: 406094 - Comp-4**

Laboratory: Midland  
Analysis: TPH DRO      Analytical Method: S 8015 D      Prep Method: N/A  
QC Batch: 125613      Date Analyzed: 2015-10-15      Analyzed By: AK  
Prep Batch: 106256      Sample Preparation: 2015-10-15      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			62.3	mg/Kg	1	50.0	125	70 - 130

**Sample: 406094 - Comp-4**

Laboratory: Midland  
Analysis: TPH GRO      Analytical Method: S 8015 D      Prep Method: S 5035  
QC Batch: 125587      Date Analyzed: 2015-10-15      Analyzed By: AK  
Prep Batch: 106233      Sample Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	70 - 130

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**Sample: 406095 - Comp-5**

Laboratory: Midland  
Analysis: BTEX  
QC Batch: 125591  
Prep Batch: 106233

Analytical Method: S 8021B  
Date Analyzed: 2015-10-15  
Sample Preparation: 2015-10-14

Prep Method: S 5035  
Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	s	<0.0200	mg/Kg	1	0.0200
Toluene	u	s	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	s	<0.0200	mg/Kg	1	0.0200
Xylene	u	s	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1	2.00	97	70 - 130

**Sample: 406095 - Comp-5**

Laboratory: Lubbock  
Analysis: Chloride (IC)  
QC Batch: 125621  
Prep Batch: 106258

Analytical Method: E 300.0  
Date Analyzed: 2015-10-15  
Sample Preparation:

Prep Method: N/A  
Analyzed By: RL  
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,4	426	mg/Kg	10	25.0

**Sample: 406095 - Comp-5**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 125797  
Prep Batch: 106421

Analytical Method: E 418.1  
Date Analyzed: 2015-10-21  
Sample Preparation: 2015-10-21

Prep Method: N/A  
Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
TRPHC			17.9	mg/Kg	1	10.0

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**Sample: 406095 - Comp-5**

Laboratory: Midland  
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A  
QC Batch: 125580 Date Analyzed: 2015-10-14 Analyzed By: AK  
Prep Batch: 106226 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qr, U	s	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			51.5	mg/Kg	1	50.0	103	70 - 130

**Sample: 406095 - Comp-5**

Laboratory: Midland  
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035  
QC Batch: 125587 Date Analyzed: 2015-10-15 Analyzed By: AK  
Prep Batch: 106233 Sample Preparation: 2015-10-14 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	s	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

## Method Blanks

**Method Blank (1)**      QC Batch: 125580

QC Batch: 125580      Date Analyzed: 2015-10-14      Analyzed By: AK  
Prep Batch: 106226      QC Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		s	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			50.6	mg/Kg	1	50.0	101	70 - 130

**Method Blank (1)**      QC Batch: 125587

QC Batch: 125587      Date Analyzed: 2015-10-15      Analyzed By: AK  
Prep Batch: 106233      QC Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		s	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	70 - 130

**Method Blank (1)**      QC Batch: 125591

QC Batch: 125591      Date Analyzed: 2015-10-15      Analyzed By: AK  
Prep Batch: 106233      QC Preparation: 2015-10-14      Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		s	<0.00533	mg/Kg	0.02
Toluene		s	<0.00645	mg/Kg	0.02
Ethylbenzene		s	<0.0116	mg/Kg	0.02

*continued ...*

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
Xylene		s	<0.00874	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

**Method Blank (1)**      QC Batch: 125601

QC Batch: 125601  
Prep Batch: 106228

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		s	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			50.3	mg/Kg	1	50.0	101	70 - 130

**Method Blank (1)**      QC Batch: 125613

QC Batch: 125613  
Prep Batch: 106256

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-15

Analyzed By: AK  
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		s	<7.41	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			49.9	mg/Kg	1	50.0	100	70 - 130

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Method Blank (1)      QC Batch: 125621

QC Batch: 125621  
Prep Batch: 106258

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-15

Analyzed By: RL  
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,4	<8.34	mg/Kg	25

Method Blank (1)      QC Batch: 125692

QC Batch: 125692  
Prep Batch: 106322

Date Analyzed: 2015-10-19  
QC Preparation: 2015-10-19

Analyzed By: RL  
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,4	<8.34	mg/Kg	25

Method Blank (1)      QC Batch: 125797

QC Batch: 125797  
Prep Batch: 106421

Date Analyzed: 2015-10-21  
QC Preparation: 2015-10-21

Analyzed By: ZY  
Prepared By: ZY

Parameter	Flag	Cert	MDL Result	Units	RL
TRPHC			<4.53	mg/Kg	10



## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 125580  
Prep Batch: 106226

Date Analyzed: 2015-10-14  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		s	217	mg/Kg	1	250	<7.41	87	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		s	211	mg/Kg	1	250	<7.41	84	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	53.2	51.6	mg/Kg	1	50.0	106	103	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 125587  
Prep Batch: 106233

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		s	21.7	mg/Kg	1	20.0	<2.32	108	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		s	22.7	mg/Kg	1	20.0	<2.32	114	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.84	mg/Kg	1	2.00	92	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.72	1.75	mg/Kg	1	2.00	86	88	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 125591  
Prep Batch: 106233

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		s	2.30	mg/Kg	1	2.00	<0.00533	115	70 - 130
Toluene		s	2.00	mg/Kg	1	2.00	<0.00645	100	70 - 130
Ethylbenzene		s	1.82	mg/Kg	1	2.00	<0.0116	91	70 - 130
Xylene		s	5.47	mg/Kg	1	6.00	<0.00874	91	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		s	2.35	mg/Kg	1	2.00	<0.00533	118	70 - 130	2	20
Toluene		s	2.08	mg/Kg	1	2.00	<0.00645	104	70 - 130	4	20
Ethylbenzene		s	1.90	mg/Kg	1	2.00	<0.0116	95	70 - 130	4	20
Xylene		s	5.65	mg/Kg	1	6.00	<0.00874	94	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.64	1.66	mg/Kg	1	2.00	82	83	70 - 130
4-Bromofluorobenzene (4-BFB)	1.86	1.81	mg/Kg	1	2.00	93	90	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 125601  
Prep Batch: 106228

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		s	236	mg/Kg	1	250	<7.41	94	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		s	245	mg/Kg	1	250	<7.41	98	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	55.2	57.6	mg/Kg	1	50.0	110	115	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 125613  
Prep Batch: 106256

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-15

Analyzed By: AK  
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		s	202	mg/Kg	1	250	<7.41	81	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		s	207	mg/Kg	1	250	<7.41	83	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	45.9	46.0	mg/Kg	1	50.0	92	92	70 - 130

**Laboratory Control Spike (LCS-1)**

QC Batch: 125621  
Prep Batch: 106258

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-15

Analyzed By: RL  
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,4	260	mg/Kg	1	250	<8.34	104	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,4	259	mg/Kg	1	250	<8.34	104	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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**Laboratory Control Spike (LCS-1)**

QC Batch: 125692  
Prep Batch: 106322

Date Analyzed: 2015-10-19  
QC Preparation: 2015-10-19

Analyzed By: RL  
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,4	256	mg/Kg	1	250	<8.34	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,4	251	mg/Kg	1	250	<8.34	100	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 125797  
Prep Batch: 106421

Date Analyzed: 2015-10-21  
QC Preparation: 2015-10-21

Analyzed By: ZY  
Prepared By: ZY

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC			50.3	mg/Kg	1	50.0	<4.53	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC			52.3	mg/Kg	1	50.0	<4.53	105	80 - 120	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

## Matrix Spikes

### Matrix Spike (MS-1) Spiked Sample: 406095

QC Batch: 125580  
Prep Batch: 106226

Date Analyzed: 2015-10-14  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	q <sub>s</sub>	q <sub>s</sub>	s	166	mg/Kg	1	250	<7.41	66 70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	q <sub>r</sub>	q <sub>r</sub>	s	212	mg/Kg	1	250	<7.41	85 70 - 130	24	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	44.0	56.9	mg/Kg	1	50	88	114	70 - 130

### Matrix Spike (MS-1) Spiked Sample: 406088

QC Batch: 125587  
Prep Batch: 106233

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	q <sub>s</sub>	q <sub>s</sub>	s	12.2	mg/Kg	1	20.0	<2.32	61 70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	q <sub>s</sub>	q <sub>s</sub>	s	12.7	mg/Kg	1	20.0	<2.32	64 70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.70	mg/Kg	1	2	91	85	70 - 130
4-Bromofluorobenzene (4-BFB)	1.96	1.88	mg/Kg	1	2	98	94	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 406017

QC Batch: 125591  
Prep Batch: 106233

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		s	1.64	mg/Kg	1	2.00	<0.00533	82	70 - 130
Toluene		s	1.55	mg/Kg	1	2.00	<0.00645	78	70 - 130
Ethylbenzene		s	1.55	mg/Kg	1	2.00	<0.0116	78	70 - 130
Xylene		s	4.45	mg/Kg	1	6.00	<0.00874	74	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		s	1.70	mg/Kg	1	2.00	<0.00533	85	70 - 130	4	20
Toluene		s	1.71	mg/Kg	1	2.00	<0.00645	86	70 - 130	10	20
Ethylbenzene		s	1.71	mg/Kg	1	2.00	<0.0116	86	70 - 130	10	20
Xylene		s	4.92	mg/Kg	1	6.00	<0.00874	82	70 - 130	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.79	mg/Kg	1	2	91	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.93	1.81	mg/Kg	1	2	96	90	70 - 130

**Matrix Spike (xMS-1)** Spiked Sample: 406344

QC Batch: 125601  
Prep Batch: 106228

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-14

Analyzed By: AK  
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	qs	qs	s	6340	mg/Kg	1	250	5710	252 70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	qs	qs	s	6760	mg/Kg	1	250	5710	420 70 - 130	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

*continued ...*

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q <sub>sr</sub> Q <sub>sr</sub> 582	366	mg/Kg	1	50	1164	732	70 - 130

**Matrix Spike (xMS-1)** Spiked Sample: 406430

QC Batch: 125613 Date Analyzed: 2015-10-15 Analyzed By: AK  
Prep Batch: 106256 QC Preparation: 2015-10-15 Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q <sub>s</sub> Q <sub>s</sub>	s	602	mg/Kg	1	250	926	-128	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Q <sub>s</sub> Q <sub>s</sub>	s	652	mg/Kg	1	250	926	-108	70 - 130	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q <sub>sr</sub> Q <sub>sr</sub> 81.4	85.2	mg/Kg	1	50	163	170	70 - 130

**Matrix Spike (MS-1)** Spiked Sample: 406093

QC Batch: 125621 Date Analyzed: 2015-10-15 Analyzed By: RL  
Prep Batch: 106258 QC Preparation: 2015-10-15 Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,4	340	mg/Kg	1	250	100	96	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,4	349	mg/Kg	1	250	100	100	80 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-2)** Spiked Sample: 406256

QC Batch: 125621  
Prep Batch: 106258

Date Analyzed: 2015-10-15  
QC Preparation: 2015-10-15

Analyzed By: RL  
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q <sub>m</sub>	Q <sub>s</sub>	2600	mg/Kg	5	250	2470	52	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Q <sub>m</sub>	Q <sub>s</sub>	2470	mg/Kg	5	250	2470	0	80 - 120	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 406375

QC Batch: 125692  
Prep Batch: 106322

Date Analyzed: 2015-10-19  
QC Preparation: 2015-10-19

Analyzed By: RL  
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			264	mg/Kg	1	250	10.8	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			260	mg/Kg	1	250	10.8	100	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)** Spiked Sample: 406090

QC Batch: 125797  
Prep Batch: 106421

Date Analyzed: 2015-10-21  
QC Preparation: 2015-10-21

Analyzed By: ZY  
Prepared By: ZY

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC			50.3	mg/Kg	1	50.0	<4.53	101	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.



Report Date: June 2, 2016  
15-0121-01

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R360 Artesia Landfarm

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC			50.3	mg/Kg	1	50.0	<4.53	101	80 - 120	0	20

---

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

## Calibration Standards

### Standard (CCV-1)

QC Batch: 125580

Date Analyzed: 2015-10-14

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		s	mg/Kg	250	242	97	80 - 120	2015-10-14

### Standard (CCV-2)

QC Batch: 125580

Date Analyzed: 2015-10-14

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		s	mg/Kg	250	212	85	80 - 120	2015-10-14

### Standard (CCV-3)

QC Batch: 125580

Date Analyzed: 2015-10-14

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		s	mg/Kg	250	226	90	80 - 120	2015-10-14

### Standard (CCV-1)

QC Batch: 125587

Date Analyzed: 2015-10-15

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		s	mg/Kg	1.00	1.03	103	80 - 120	2015-10-15







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15-0121-01

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	25.6	102	90 - 110	2015-10-19

---

**Standard (CCV-2)**

QC Batch: 125692

Date Analyzed: 2015-10-19

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,4	mg/Kg	25.0	25.5	102	90 - 110	2015-10-19

---

**Standard (ICV-1)**

QC Batch: 125797

Date Analyzed: 2015-10-21

Analyzed By: ZY

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	50.0	42.7	85	80 - 120	2015-10-21

---

**Standard (CCV-1)**

QC Batch: 125797

Date Analyzed: 2015-10-21

Analyzed By: ZY

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	50.0	50.3	101	80 - 120	2015-10-21

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# Appendix

## Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

## Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	LELAP	LELAP-02003	Lubbock
2	NELAP	T104704219-16-12	Lubbock
3	NELAP	T104704392-14-8	Midland
4		2015-066	Lubbock

## Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

## **Result Comments**

- 1 dilution due to hydrocarbons.

## **Attachments**

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.



WO # : 15101304

CHAIN-OF-CUSTODY

**La**arson & Associates, Inc.  
Environmental Consultants

507 N. Marienfeld, Ste. 200  
Midland, TX 79701  
432-687-0901

DATE: 10/13/2015 PAGE 1 OF 1

PO #: \_\_\_\_\_ LAB WORK ORDER #: \_\_\_\_\_

PROJECT LOCATION OR NAME: R360 Artesia Land Farm

LAI PROJECT #: 15-0121-01 COLLECTOR: Sarah Hirsch

Data Reported to:

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR			P=PAINT SL=SLUDGE OT=OTHER			PRESERVATION					ANALYSES BTEX <input checked="" type="checkbox"/> MTBE <input type="checkbox"/> TPH 418.1 <input checked="" type="checkbox"/> TPH 1005 <input type="checkbox"/> GASOLINE MOD 8015 <input checked="" type="checkbox"/> DIESEL - MOD 8015 <input checked="" type="checkbox"/> VOC 8280 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLD/PAH <input type="checkbox"/> 8081 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/> TCPP - METALS (RCRA) <input type="checkbox"/> TCPL <input type="checkbox"/> LEAD - PEST <input type="checkbox"/> HERB <input type="checkbox"/> Semi-VOC <input type="checkbox"/> RCI <input type="checkbox"/> TOTAL <input type="checkbox"/> DW 200.8 <input type="checkbox"/> OTHER LIST <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/> EXPLOSIVES <input type="checkbox"/> PERCHLORATE <input type="checkbox"/> CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>	FIELD NOTES
	TIME ZONE: Time zone/State: <u>NM</u>	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED		
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/>	ICE	UNPRESERVED	ANALYSES	FIELD NOTES	
DP-1		10/12/15	12:15	S	1				X		X X X X	406087	
DP-2			12:30									406088	
DP-3			12:45									406089	
DP-4			1:00									406090	
DP-5			1:15									406091	
COMP 1			1:30									406092	
COMP 3			1:45									406093	
COMP 4			2:00									406094	
COMP 5			2:15									406095	

TOTAL

RELINQUISHED BY: (Signature) <u>Sarah Hirsch</u>	DATE/TIME <u>10/13/15 9:00AM</u>	RECEIVED BY: (Signature) <u>Nancy TA</u>	DATE/TIME <u>10-13-15 9:00</u>	TURN AROUND TIME NORMAL <input checked="" type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY: RECEIVING TEMP: <u>1.3</u> THERM #: <u>IR-1</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # _____ <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>10-13-15 10:00</u>	RECEIVED BY: (Signature) <u>Brenda Ward</u>	DATE/TIME <u>10/14/15 8:45</u>	TURN AROUND TIME NORMAL <input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY: RECEIVING TEMP: _____ THERM #: _____ CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # _____ <input type="checkbox"/> HAND DELIVERED

3.4/36 23 ZT021282

RECEIVED

2016 MAR 10 P 2:27

March 7, 2016

Mr. Brad Jones  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

Re: Buffer (Vadose) Zone Sampling Results, R360 Artesia, LLC Landfarm (NM1-30-0), Unit B  
(NW/4, NE/4), Section 7, Township 17 South, Range 32 East, Lea County, New Mexico

Mr. Jones:

The enclosed data tables present laboratory results of random independent samples that were analyzed for TRPH, BTEX, chlorides, and constituents listed in subsection A and B of 20.6.2.3103. The samples were collected in the buffer zone at the R360 Artesia, LLC (formerly Artesia Aeration) Landfarm on, December 2, 2015. R360 would like to request a meeting in Santa Fe with you and Jim Griswold, Environmental Bureau Chief to discuss collection of additional background data, prescribed path to closure, and to explore the option for a risk based approach. You may contact me at (956) 458-0515 or by email at [StephanieG@r360es.com](mailto:StephanieG@r360es.com).

Sincerely,



Stephanie Garza  
Environmental Specialist  
[StephanieG@r360es.com](mailto:StephanieG@r360es.com)

Table 2a. Cell 1 Buffer Resample for Inorganic Parameters and TRPH

Sample	Date	Depth (Feet)	TRPH	Cyanide	Chloride	Fluoride	Nitrate-N	Sulfate	pH
Mean Background Concentration:			<4.89	<0.22	<2.52	<0.83	<2.52	<8.5	7.6
Reporting Limit (PQL)			<9.78	<0.439	<5.04	<1.01	<5.04	<10.1	
PQL Range (RL)			9.55 - 10.0	0.428 - 0.450	5.02 - 5.06	1.00 - 1.01	5.02 - 5.06	10.0 - 10.1	
Cell 1-1	12/02/15	2 - 3	<10.9	<0.561	15.6	3.43	<5.04	70.6	8.16
Cell 1-2	12/02/15	2 - 3	<10.1	<0.530	22.7	4.31	<5.34	48.5	8.43
Cell 1-3	12/02/15	2 - 3	<11.3	<0.549	1,580	3.17	10.1	210	7.82
Cell 1-4	12/02/15	2 - 3	<11.0	<0.565	556	7.13	<5.43	746	8.90

Sample	Date	Depth (Feet)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese
Mean Background Concentration:			1.63	21.0	<0.148	4.81	1.45	5,380	2.87	48.0
Reporting Limit (PQL)			0.99	1.98	<0.297	1.98	1.98	61.8	0.297	1.98
PQL (RL)			0.983 - 0.995	1.97 - 1.99	0.298 - 0.295	1.97 - 1.99	1.97 - 1.99	61.4 - 62.2	0.295 - 0.298	1.97 - 1.99
Cell 1-1	12/02/15	2 - 3	3.90	605	<0.297	14.1	6.10	12,300	5.50	327
Cell 1-2	12/02/15	2 - 3	3.32	511	<0.293	18.7	6.84	17,700	10.5	1,630
Cell 1-3	12/02/15	2 - 3	6.24	582	<0.323	16.8	5.27	11,500	6.18	386
Cell 1-4	12/02/15	2 - 3	4.13	157	<0.331	21.0	6.88	19,200	9.67	922

Sample	Date	Depth (Feet)	Mercury	Selenium	Silver	Zinc
Mean Background Concentration:			<0.019	0.579	<0.098	10.35
Reporting Limit (PQL)			<0.039	0.494	<0.198	2.48
PQL (RL)			0.0373 - 0.0406	0.491 - 0.497	0.197 - 0.199	2.46 - 2.49
Cell 1-1	12/02/15	2 - 3	<0.0396	0.887	<0.198	25.9
Cell 1-2	12/02/15	2 - 3	<0.0370	1.38	<0.195	36.4
Cell 1-3	12/02/15	2 - 3	<0.0401	0.865	<0.216	24.4
Cell 1-4	12/02/15	2 - 3	<0.0421	1.70	<0.221	39.7

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

1. TRPH - Total Recoverable Hydrocarbons, Method 418.1

2. Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

3. Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 3a. Cell 1 Buffer Resample for Volatile, Semi-Volatile and PCB

Sample	Date	Depth feet	Benzene	Toluene	Carbon tetra chloride	1,2-Dichloro ethane	1,1-Dichloro ethylene	Tetrachloro ethylene	Trichloro ethylene	Ethyl benzene	Total Xylenes	Methylene chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 1-1	12/02/15	2 - 3	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550
Cell 1-2	12/02/15	2 - 3	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524
Cell 1-3	12/02/15	2 - 3	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568
Cell 1-4	12/02/15	2 - 3	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573

Sample	Date	Depth feet	Chloroform	1,1-Dichloro ethane	Ethylene bromide	1,1,1-Trichloro ethane	1,1,2-Trichloro ethane	1,1,2,2-Tetrachloroethane	Vinyl chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 1-1	12/02/15	2 - 3	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550	<0.00550
Cell 1-2	12/02/15	2 - 3	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524	<0.00524
Cell 1-3	12/02/15	2 - 3	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568	<0.00568
Cell 1-4	12/02/15	2 - 3	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573	<0.00573

Sample	Date	Depth feet	1-Methylnaphthalene	2-Methyl naphthalene	Naphthalene	Benzo[a] pyrene	2,3,4,6-Tetrachlorophenol	2,4,5-Trichloro phenol	2,4,6-Trichloro phenol	2,4-Dichloro phenol	2,4-Dimethyl phenol	2,4-Dinitro phenol	2,6-Dichloro phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0663	<0.0134
Reporting Limit (PQL)			<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.133	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268
Cell 1-1	12/02/15	2 - 3	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.150	<0.0302
Cell 1-2	12/02/15	2 - 3	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.139	<0.0281
Cell 1-3	12/02/15	2 - 3	<0.0295	<0.0295	<0.0295	<0.0295	<0.0295	<0.0295	<0.0295	<0.0295	<0.0295	<0.146	<0.0295
Cell 1-4	12/02/15	2 - 3	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.0302	<0.150	<0.0302

Sample	Date	Depth feet	2-Chloro phenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methyl phenol	4-Chloro-3-methyl phenol	4-Methyl phenol	4-Nitro phenol	Pentachloro phenol	Phenol	Total Phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0331	<0.0134	<0.0134	<0.0663	<0.0134	<0.0134	<0.0134
Reporting Limit (PQL)			<0.0267	0.0267	<0.0267	0.0662	<0.0267	<0.0267	<0.133	<0.0267	<0.0267	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0659 - 0.0666	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268
Cell 1-1	12/02/15	2 - 3	<0.0302	<0.0302	<0.0302	<0.0750	<0.0302	<0.0302	<0.150	<0.0302	<0.0302	<0.0302
Cell 1-2	12/02/15	2 - 3	<0.0281	<0.0281	<0.0281	<0.0697	<0.0281	<0.0281	<0.139	<0.0281	<0.0281	<0.0281
Cell 1-3	12/02/15	2 - 3	<0.0295	<0.0295	<0.0295	<0.0731	<0.0295	<0.0295	<0.146	<0.0295	<0.0295	<0.0295
Cell 1-4	12/02/15	2 - 3	<0.0302	<0.0302	<0.0302	<0.0749	<0.0302	<0.0302	<0.150	<0.0302	<0.0302	<0.0302

Sample	Date	Depth feet	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Mean Background Concentration:			<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167
Reporting Limit (PQL)			<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335
PQL (RL) range			0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336
Cell 1-1	12/02/15	2 - 3	<0.0379	<0.0379	<0.0379	<0.0379	<0.0379	<0.0379	<0.0379
Cell 1-2	12/02/15	2 - 3	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352
Cell 1-3	12/02/15	2 - 3	<0.0369	<0.0369	<0.0369	<0.0369	<0.0369	<0.0369	<0.0369
Cell 1-4	12/02/15	2 - 3	<0.0378	<0.0378	<0.0378	<0.0378	<0.0378	<0.0378	<0.0378

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

.. Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

.. Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 2b. Cell 2 Buffer Resample for Inorganic Parameters and TRPH

Sample	Date	Depth (Feet)	TRPH	Cyanide	Chloride	Fluoride	Nitrate-N	Sulfate	pH
Mean Background Concentration:			<4.89	<0.22	<2.52	<0.83	<2.52	<8.5	7.6
Reporting Limit (PQL)			<9.78	<0.439	<5.04	<1.01	<5.04	<10.1	
PQL Range (RL)			9.55 - 10.0	0.428 - 0.450	5.02 - 5.06	1.00 - 1.01	5.02 - 5.06	10.0 - 10.1	
Cell 2-1	12/02/15	2 - 3	<10.7	<0.545	249	13.7	<5.55	157	8.92
Cell 2-2	12/02/15	2 - 3	<10.8	<0.524	486	8.34	<5.16	402	8.94
Cell 2-3	12/02/15	2 - 3	<10.3	<0.501	130	1.72	<4.97	324	9.08
Cell 2-4	12/02/15	2 - 3	<12.2	<0.618	10.6	11.7	<6.09	111	9.30

Sample	Date	Depth (Feet)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese
Mean Background Concentration:			1.63	21.0	<0.148	4.81	1.45	5,380	2.87	48.0
Reporting Limit (PQL)			0.99	1.98	<0.297	1.98	1.98	61.8	0.297	1.98
PQL (RL)			0.983 - 0.995	1.97 - 1.99	0.298 - 0.295	1.97 - 1.99	1.97 - 1.99	61.4 - 62.2	0.295 - 0.298	1.97 - 1.99
Cell 2-1	12/02/15	2 - 3	2.70	109	<0.261	7.87	3.45	5,380	3.32	104
Cell 2-2	12/02/15	2 - 3	1.79	52.1	<0.307	8.05	2.02	7,040	2.97	59.8
Cell 2-3	12/02/15	2 - 3	1.60	44.4	<0.279	7.35	2.08	6,530	3.06	65.9
Cell 2-4	12/02/15	2 - 3	3.60	1,260	<0.345	7.17	4.63	5,810	2.93	220

Sample	Date	Depth (Feet)	Mercury	Selenium	Silver	Zinc
Mean Background Concentration:			<0.019	0.579	<0.098	10.35
Reporting Limit (PQL)			<0.039	0.494	<0.198	2.48
PQL (RL)			0.0373 - 0.0406	0.491 - 0.497	0.197 - 0.199	2.46 - 2.49
Cell 2-1	12/02/15	2 - 3	<0.0407	0.487	<0.174	14.4
Cell 2-2	12/02/15	2 - 3	<0.0376	0.374	<0.205	14.7
Cell 2-3	12/02/15	2 - 3	<0.0354	0.378	<0.186	13.4
Cell 2-4	12/02/15	2 - 3	<0.0474	0.645	<0.230	11.8

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

1. TRPH - Total Recoverable Hydrocarbons, Method 418.1
2. Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.
3. Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 3b. Cell 2 Buffer Resample for Volatile, Semi-Volatile and PCB

Sample	Date	Depth feet	Benzene	Toluene	Carbon tetra chloride	1,2-Dichloro ethane	1,1-Dichloro ethylene	Tetrachloro ethylene	Trichloro ethylene	Ethyl benzene	Total Xylenes	Methylene chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 2-1	12/02/15	2-3	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528
Cell 2-2	12/02/15	2-3	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516
Cell 2-3	12/02/15	2-3	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494
Cell 2-4	12/02/15	2-3	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579

Sample	Date	Depth feet	Chloroform	1,1-Dichloro ethane	Ethylene bromide	1,1,1-Trichloro ethane	1,1,2-Trichloro ethane	1,1,2,2-Tetrachloroethane	Vinyl chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 2-1	12/02/15	2-3	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528	<0.00528
Cell 2-2	12/02/15	2-3	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516	<0.00516
Cell 2-3	12/02/15	2-3	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494	<0.00494
Cell 2-4	12/02/15	2-3	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579	<0.00579

Sample	Date	Depth feet	1-Methylnaphthalene	2-Methyl naphthalene	Naphthalene	Benzo[a] pyrene	2,3,4,6-Tetrachloro phenol	2,4,5-Trichloro phenol	2,4,6-Trichloro phenol	2,4-Dichloro phenol	2,4-Dimethyl phenol	2,4-Dinitro phenol	2,6-Dichloro phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0663	<0.0134
Reporting Limit (PQL)			<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.133	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268
Cell 2-1	12/02/15	2-3	<0.0284	<0.0284	<0.0284	<0.0284	<0.0284	<0.0284	<0.0284	<0.0284	<0.0284	<0.141	<0.0284
Cell 2-2	12/02/15	2-3	<0.0287	<0.0287	<0.0287	<0.0287	<0.0287	<0.0287	<0.0287	<0.0287	<0.0287	<0.142	<0.0287
Cell 2-3	12/02/15	2-3	<0.0274	<0.0274	<0.0274	<0.0274	<0.0274	<0.0274	<0.0274	<0.0274	<0.0274	<0.136	<0.0274
Cell 2-4	12/02/15	2-3	<0.0321	<0.0321	<0.0321	<0.0321	<0.0321	<0.0321	<0.0321	<0.0321	<0.0321	<0.159	<0.0321

Sample	Date	Depth feet	2-Chloro phenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methyl phenol	4-Chloro-3-methyl phenol	4-Methyl phenol	4-Nitro phenol	Pentachloro phenol	Phenol	Total Phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0331	<0.0134	<0.0134	<0.0663	<0.0134	<0.0134	<0.0134
Reporting Limit (PQL)			<0.0267	0.0267	<0.0267	0.0662	<0.0267	<0.0267	<0.133	<0.0267	<0.0267	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0659 - 0.0666	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268
Cell 2-1	12/02/15	2-3	<0.0284	<0.0284	<0.0284	<0.0704	<0.0284	<0.0284	<0.141	<0.0284	<0.0284	<0.0284
Cell 2-2	12/02/15	2-3	<0.0287	<0.0287	<0.0287	<0.0711	<0.0287	<0.0287	<0.142	<0.0287	<0.0287	<0.0287
Cell 2-3	12/02/15	2-3	<0.0274	<0.0274	<0.0274	<0.0680	<0.0274	<0.0274	<0.136	<0.0274	<0.0274	<0.0274
Cell 2-4	12/02/15	2-3	<0.0321	<0.0321	<0.0321	<0.0795	<0.0321	<0.0321	<0.159	<0.0321	<0.0321	<0.0321

Sample	Date	Depth feet	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Mean Background Concentration:			<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167
Reporting Limit (PQL)			<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335
PQL (RL) range			0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336
Cell 2-1	12/02/15	2-3	<0.0356	<0.0356	<0.0356	<0.0356	<0.0356	<0.0356	<0.0356
Cell 2-2	12/02/15	2-3	<0.0359	<0.0359	<0.0359	<0.0359	<0.0359	<0.0359	<0.0359
Cell 2-3	12/02/15	2-3	<0.0344	<0.0344	<0.0344	<0.0344	<0.0344	<0.0344	<0.0344
Cell 2-4	12/02/15	2-3	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402	<0.0402

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 2c. Cell 3 Buffer Resample for Inorganic Parameters and TRPH

Sample	Date	Depth (Feet)	TRPH	Cyanide	Chloride	Fluoride	Nitrate-N	Sulfate	pH
Mean Background Concentration:			<4.89	<0.22	<2.52	<0.83	<2.52	<8.5	7.6
Reporting Limit (PQL)			<9.78	<0.439	<5.04	<1.01	<5.04	<10.1	
PQL Range (RL)			9.55 - 10.0	0.428 - 0.450	5.02 - 5.06	1.00 - 1.01	5.02 - 5.06	10.0 - 10.1	
Cell 3-1	12/02/15	2 - 3	<11.3	<0.560	790	3.33	<5.51	258	7.93
Cell 3-2	12/02/15	2 - 3	<11.2	<0.553	958	3.70	<5.47	244	7.96
Cell 3-3	12/02/15	2 - 3	<10.7	<0.547	701	2.04	<5.03	44.9	7.64
Cell 3-4	12/02/15	2 - 3	<11.9	<0.608	31.5	17.2	<5.95	241	8.41

Sample	Date	Depth (Feet)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese
Mean Background Concentration:			1.63	21.0	<0.148	4.81	1.45	5,380	2.87	48.0
Reporting Limit (PQL)			0.99	1.98	<0.297	1.98	1.98	61.8	0.297	1.98
PQL (RL)			0.983 - 0.995	1.97 - 1.99	0.298 - 0.295	1.97 - 1.99	1.97 - 1.99	61.4 - 62.2	0.295 - 0.298	1.97 - 1.99
Cell 3-1	12/02/15	2 - 3	3.19	1,110	<0.292	6.93	3.46	6,250	3.13	168
Cell 3-2	12/02/15	2 - 3	4.19	1,100	<0.325	12.7	5.38	10,900	5.17	171
Cell 3-3	12/02/15	2 - 3	1.89	63.9	<0.288	12.5	2.28	9,770	5.18	57.4
Cell 3-4	12/02/15	2 - 3	8.35	1,910	<0.299	25.0	9.13	20,300	8.87	190

Sample	Date	Depth (Feet)	Mercury	Selenium	Silver	Zinc
Mean Background Concentration:			<0.019	0.579	<0.098	10.35
Reporting Limit (PQL)			<0.039	0.494	<0.198	2.48
PQL (RL)			0.0373 - 0.0406	0.491 - 0.497	0.197 - 0.199	2.46 - 2.49
Cell 3-1	12/02/15	2 - 3	<0.0415	0.470	<0.195	11.0
Cell 3-2	12/02/15	2 - 3	<0.0398	0.913	<0.217	17.0
Cell 3-3	12/02/15	2 - 3	<0.0366	0.650	<0.192	23.0
Cell 3-4	12/02/15	2 - 3	<0.0466	1.27	<0.199	37.2

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

1. TRPH - Total Recoverable Hydrocarbons, Method 418.1

2. Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

3. Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 3c. Cell 3 Buffer Resample for Volatile, Semi-Volatile and PCB

Sample	Date	Depth feet	Benzene	Toluene	Carbon tetra chloride	1,2-Dichloro ethane	1,1-Dichloro ethylene	Tetrachloro ethylene	Trichloro ethylene	Ethyl benzene	Total Xylenes	Methylene chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 3-1	12/02/15	2-3	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559
Cell 3-2	12/02/15	2-3	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570
Cell 3-3	12/02/15	2-3	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499
Cell 3-4	12/02/15	2-3	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557

Sample	Date	Depth feet	Chloroform	1,1-Dichloro ethane	Ethylene bromide	1,1,1-Trichloro ethane	1,1,2-Trichloro ethane	1,1,2,2-Tetrachloroethane	Vinyl chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 3-1	12/02/15	2-3	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559	<0.00559
Cell 3-2	12/02/15	2-3	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570	<0.00570
Cell 3-3	12/02/15	2-3	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499	<0.00499
Cell 3-4	12/02/15	2-3	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557	<0.00557

Sample	Date	Depth feet	1-Methylnaphthalene	2-Methyl naphthalene	Naphthalene	Benzo[a] pyrene	2,3,4,6-Tetrachloro phenol	2,4,5-Trichloro phenol	2,4,6-Trichloro phenol	2,4-Dichloro phenol	2,4-Dimethyl phenol	2,4-Dinitro phenol	2,6-Dichloro phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0663	<0.0134
Reporting Limit (PQL)			<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.133	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268
Cell 3-1	12/02/15	2-3	<0.0288	<0.0288	<0.0288	<0.0288	<0.0288	<0.0288	<0.0288	<0.0288	<0.0288	<0.143	<0.0288
Cell 3-2	12/02/15	2-3	<0.0304	<0.0304	<0.0304	<0.0304	<0.0304	<0.0304	<0.0304	<0.0304	<0.0304	<0.151	<0.0304
Cell 3-3	12/02/15	2-3	<0.0291	<0.0291	<0.0291	<0.0291	<0.0291	<0.0291	<0.0291	<0.0291	<0.0291	<0.144	<0.0291
Cell 3-4	12/02/15	2-3	<0.0317	<0.0317	<0.0317	<0.0317	<0.0317	<0.0317	<0.0317	<0.0317	<0.0317	<0.157	<0.0317

Sample	Date	Depth feet	2-Chloro phenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methyl phenol	4-Chloro-3-methyl phenol	4-Methyl phenol	4-Nitro phenol	Pentachloro phenol	Phenol	Total Phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0331	<0.0134	<0.0134	<0.0663	<0.0134	<0.0134	<0.0134
Reporting Limit (PQL)			<0.0267	0.0267	<0.0267	0.0662	<0.0267	<0.0267	<0.133	<0.0267	<0.0267	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0659 - 0.0666	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268
Cell 3-1	12/02/15	2-3	<0.0288	<0.0288	<0.0288	<0.0715	<0.0288	<0.0288	<0.143	<0.0288	<0.0288	<0.0288
Cell 3-2	12/02/15	2-3	<0.0304	<0.0304	<0.0304	<0.0755	<0.0304	<0.0304	<0.151	<0.0304	<0.0304	<0.0304
Cell 3-3	12/02/15	2-3	<0.0291	<0.0291	<0.0291	<0.0721	<0.0291	<0.0291	<0.144	<0.0291	<0.0291	<0.0291
Cell 3-4	12/02/15	2-3	<0.0317	<0.0317	<0.0317	<0.0786	<0.0317	<0.0317	<0.157	<0.0317	<0.0317	<0.0317

Sample	Date	Depth feet	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Mean Background Concentration:			<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167
Reporting Limit (PQL)			<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335
PQL (RL) range			0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336
Cell 3-1	12/02/15	2-3	<0.0361	<0.0361	<0.0361	<0.0361	<0.0361	<0.0361	<0.0361
Cell 3-2	12/02/15	2-3	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381
Cell 3-3	12/02/15	2-3	<0.0364	<0.0364	<0.0364	<0.0364	<0.0364	<0.0364	<0.0364
Cell 3-4	12/02/15	2-3	<0.0397	<0.0397	<0.0397	<0.0397	<0.0397	<0.0397	<0.0397

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 2d. Cell 4 Buffer Resample for Inorganic Parameters and TRPH

Sample	Date	Depth (Feet)	TRPH	Cyanide	Chloride	Fluoride	Nitrate-N	Sulfate	pH
Mean Background Concentration:			<4.89	<0.22	<2.52	<0.83	<2.52	<8.5	7.6
Reporting Limit (PQL)			<9.78	<0.439	<5.04	<1.01	<5.04	<10.1	
PQL Range (RL)			9.55 - 10.0	0.428 - 0.450	5.02 - 5.06	1.00 - 1.01	5.02 - 5.06	10.0 - 10.1	
Cell 4-1	12/02/15	2 - 3	<10.6	<0.518	<5.03	2.25	<5.03	<10.1	8.49
Cell 4-2	12/02/15	2 - 3	<10.7	<0.533	<5.27	1.24	<5.27	<10.5	8.36
Cell 4-3	12/02/15	2 - 3	<10.8	<0.541	<4.84	0.998	<4.84	19.5	8.57
Cell 4-4	12/02/15	2 - 3	<10.9	<0.577	7.48	3.86	<5.76	57.6	8.47

Sample	Date	Depth (Feet)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese
Mean Background Concentration:			1.63	21.0	<0.148	4.81	1.45	5,380	2.87	48.0
Reporting Limit (PQL)			0.99	1.98	<0.297	1.98	1.98	61.8	0.297	1.98
PQL (RL)			0.983 - 0.995	1.97 - 1.99	0.298 - 0.295	1.97 - 1.99	1.97 - 1.99	61.4 - 62.2	0.295 - 0.298	1.97 - 1.99
Cell 4-1	12/02/15	2 - 3	1.96	78.9	<0.264	6.93	2.48	6,320	3.09	61.8
Cell 4-2	12/02/15	2 - 3	1.47	31.1	<0.288	7.34	2.15	6,840	3.12	58.5
Cell 4-3	12/02/15	2 - 3	1.91	88.5	<0.286	4.78	1.72	4,310	2.32	44.0
Cell 4-4	12/02/15	2 - 3	2.77	107	<0.283	8.93	2.23	8,570	4.09	73.5

Sample	Date	Depth (Feet)	Mercury	Selenium	Silver	Zinc
Mean Background Concentration:			<0.019	0.579	<0.098	10.35
Reporting Limit (PQL)			<0.039	0.494	<0.198	2.48
PQL (RL)			0.0373 - 0.0406	0.491 - 0.497	0.197 - 0.199	2.46 - 2.49
Cell 4-1	12/02/15	2 - 3	<0.0402	0.503	<0.176	13.2
Cell 4-2	12/02/15	2 - 3	<0.0390	0.496	<0.192	13.5
Cell 4-3	12/02/15	2 - 3	<0.0380	0.430	<0.190	8.55
Cell 4-4	12/02/15	2 - 3	<0.0415	0.700	<0.189	18.3

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

1. TRPH - Total Recoverable Hydrocarbons, Method 418.1

2. Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

3. Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



Table 3d. Cell 4 Buffer Resample for Volatile, Semi-Volatile and PCB

Sample	Date	Depth feet	Benzene	Toluene	Carbon tetra chloride	1,2-Dichloro ethane	1,1-Dichloro ethylene	Tetrachloro ethylene	Trichloro ethylene	Ethyl benzene	Total Xylenes	Methylene chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 4-1	12/02/15	2-3	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539
Cell 4-2	12/02/15	2-3	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531
Cell 4-3	12/02/15	2-3	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541
Cell 4-4	12/02/15	2-3	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534

Sample	Date	Depth feet	Chloroform	1,1-Dichloro ethane	Ethylene bromide	1,1,1-Trichloro ethane	1,1,2-Trichloro ethane	1,1,2,2-Tetrachloroethane	Vinyl chloride
Mean Background Concentration:			<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239	<0.00239
Reporting Limit (PQL)			<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479	<0.00479
PQL (RL) range			0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507	0.00450 - 0.00507
Cell 4-1	12/02/15	2-3	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539	<0.00539
Cell 4-2	12/02/15	2-3	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531	<0.00531
Cell 4-3	12/02/15	2-3	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541	<0.00541
Cell 4-4	12/02/15	2-3	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534	<0.00534

Sample	Date	Depth feet	1-Methylnaphthalene	2-Methyl naphthalene	Naphthalene	Benzo[a] pyrene	2,3,4,6-Tetrachloro phenol	2,4,5-Trichloro phenol	2,4,6-Trichloro phenol	2,4-Dichloro phenol	2,4-Dimethyl phenol	2,4-Dinitro phenol	2,6-Dichloro phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0663	<0.0134
Reporting Limit (PQL)			<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.0267	<0.133	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268
Cell 4-1	12/02/15	2-3	<0.0289	<0.0289	<0.0289	<0.0289	<0.0289	<0.0289	<0.0289	<0.0289	<0.0289	<0.143	<0.0289
Cell 4-2	12/02/15	2-3	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.140	<0.0281
Cell 4-3	12/02/15	2-3	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.0281	<0.140	<0.0281
Cell 4-4	12/02/15	2-3	<0.0305	<0.0305	<0.0305	<0.0305	<0.0305	<0.0305	<0.0305	<0.0305	<0.0305	<0.151	<0.0305

Sample	Date	Depth feet	2-Chloro phenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methyl phenol	4-Chloro-3-methyl phenol	4-Methyl phenol	4-Nitro phenol	Pentachloro phenol	Phenol	Total Phenol
Mean Background Concentration:			<0.0134	<0.0134	<0.0134	<0.0331	<0.0134	<0.0134	<0.0663	<0.0134	<0.0134	<0.0134
Reporting Limit (PQL)			<0.0267	0.0267	<0.0267	0.0662	<0.0267	<0.0267	<0.133	<0.0267	<0.0267	<0.0267
PQL (RL) range			0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268	0.0659 - 0.0666	0.0266 - 0.0268	0.0266 - 0.0268	0.132 - 0.133	0.0266 - 0.0268	0.0266 - 0.0268	0.0266 - 0.0268
Cell 4-1	12/02/15	2-3	<0.0289	<0.0289	<0.0289	<0.0717	<0.0289	<0.0289	<0.143	<0.0289	<0.0289	<0.0289
Cell 4-2	12/02/15	2-3	<0.0281	<0.0281	<0.0281	<0.0698	<0.0281	<0.0281	<0.140	<0.0281	<0.0281	<0.0281
Cell 4-3	12/02/15	2-3	<0.0281	<0.0281	<0.0281	<0.0698	<0.0281	<0.0281	<0.140	<0.0281	<0.0281	<0.0281
Cell 4-4	12/02/15	2-3	<0.0305	<0.0305	<0.0305	<0.0756	<0.0305	<0.0305	<0.151	<0.0305	<0.0305	<0.0305

Sample	Date	Depth feet	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Mean Background Concentration:			<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167	<0.0167
Reporting Limit (PQL)			<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335	<0.0335
PQL (RL) range			0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336	0.0333 - 0.0336
Cell 4-1	12/02/15	2-3	<0.0362	<0.0362	<0.0362	<0.0362	<0.0362	<0.0362	<0.0362
Cell 4-2	12/02/15	2-3	<0.0353	<0.0353	<0.0353	<0.0353	<0.0353	<0.0353	<0.0353
Cell 4-3	12/02/15	2-3	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352	<0.0352
Cell 4-4	12/02/15	2-3	<0.0382	<0.0382	<0.0382	<0.0382	<0.0382	<0.0382	<0.0382

Notes: Analysis performed by method SW-846-9056 by DHL Analytical, Inc., Round Rock, Texas

Results are reported in milligram per Kilograms (mg/Kg).

Mean Background Concentration: for < (less than) values, 1/2 of the detection value was used for calculation.

Reporting Limit Value (PQL): for < (less than) values, the two RL values were used to calculate the RL value



December 15, 2015

Mark Larson  
Larson & Associates  
507 N. Marienfeld #200  
Midland, TX 79701  
TEL: (432) 687-0901  
FAX (432) 687-0456  
RE: R360 Artesia Landfarm

Order No.: 1512052

Dear Mark Larson:

DHL Analytical, Inc. received 16 sample(s) on 12/4/2015 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "John DuPont".

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-15-15



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Questions? Call 800-800-8984  
Airbill No. 49614851

49614851

1A  
1B

<b>1. To:</b> <small>Print Name (Person)</small> J. Barker <small>Phone (Important)</small> (512) 228-8222		<b>2. From:</b> <small>Print Name (Person)</small> <small>Phone (Important)</small> 432-687-6001	
<small>Company Name</small> DHL Analytical		<small>Company Name</small> PARSON & ASSOCIATES	
<small>Street Address (No P.O. Box or P.O. Box Zip Code*Deliver to)</small> 2300 Double Creek Dr		<small>Street Address</small> 507 NORTH MARIEFELD	
<small>State / Floor</small>		<small>State / Floor</small> 205	
<small>City</small> Round Rock <small>State</small> TX <small>Zip</small> 78664		<small>City</small> MILLAND <small>State</small> TX <small>Zip</small> 78701	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>4. Package:</b> <small>Weight:</small> <small>Your Company's Billing Reference Information</small>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> By 10:30 a.m. to most cities <input type="checkbox"/> <b>LSO Early Overnight*</b> By 8:30 a.m. select cities <input type="checkbox"/> <b>LSO Economy Next Day*</b> By 3 p.m. to most cities <input type="checkbox"/> <b>LSO 2nd Day*</b> <input type="checkbox"/> <b>Deliver Without Delivery Signature</b> (See Limits of Liability below)		<input type="checkbox"/> <b>LSO Ground</b> <input type="checkbox"/> <b>LSO Saturday*</b> <input type="checkbox"/> <b>Other</b> _____ <small>*Check commitment times and availability at www.lso.com</small> <b>Assumed LSO Priority Overnight service unless otherwise noted.</b>	
<small>Release Signature</small>		<b>5. Payment:</b>	
x W x H		<small>FOR DRIVER USE ONLY</small> <small>Driver Number</small> 4007 <input type="checkbox"/> <small>Check here if LSO Supply was used with LSO Ground Service.</small> <small>Pick-up Location</small> M <small>Date</small> 12/21/06 <small>Time</small> 1:47 <small>City Code</small>	

LIMIT OF LIABILITY: We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value (not to exceed \$25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. Additional limitations of liability are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. NO DELIVERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERNIGHT SERVICE. PACKAGING PROVIDED BY LSO IS NOT INTENDED FOR USE ON LSO GROUND SERVICE. OVSZISE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY.

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 12/4/2015

Work Order Number 1512052

Received by JB

Checklist completed by [Signature] 12/4/2015  
Signature Date

Reviewed by SS 12/4/2015  
Initials Date

Carrier name LoneStar

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  3.2 °C M-3
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Any No response must be detailed in the comments section below.

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_



**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1512052

**CASE NARRATIVE**

Sample was analyzed using the methods outlined in the following references:

- Method SW6020A - Metals Analysis
- Method SW7471B - Mercury Analysis
- Method SW8260C - Volatiles Organics Analysis
- Method SW8270D - Semivolatiles Organics Analysis (The compound 1-Methylnaphthalene is not NELCAC Certified)
- Method E418.1 - Petroleum Hydrocarbons, TR Analysis (This parameter is not NELAC Certified)
- Method SW8270D - PCBs Analysis (Calculation for PCB is not NELAC Certified)
- Method SW9014 - Cyanide Analysis
- Method E300 - Anions Analysis
- Method SW9045D - pH of Soil Analysis
- Method D2216 - Percent Moisture Analysis

**LOG IN**

The samples were received and log-in performed on 12/4/2015. A total of 16 samples were received and analyzed. The samples arrived in good condition and were properly packaged. Analysis for two samples were cancelled per the client's request on 12/4/2015.

**VOLATILES ANALYSIS**

As per the TCEQ-NELAP accreditation requirement the following must be noted: The TCEQ remediation division guidance on the collection of soil for VOC analysis recommends but does not require the use of Method 5035. For analyses reported to the Texas Railroad Commission, bulk sampling is allowed. NELAP requires a note that if 5035 sampling method for VOCs is not utilized, the results of samples collected in bulk containers for low level volatile components may be compromised. The client has been notified and has requested the Laboratory to proceed with analysis.

**SEMIVOLATILES ANALYSIS**

For Semivolatiles Analysis, the recovery of 4-Methylphenol for the Initial Calibration Verification (ICV-151208) was slightly below the method control limits specified in SW8270D (80-120% recovery). This is flagged accordingly in the QC Summary report. The number of target analytes outside of the method control limits for the ICV are less than 20% of the total number of compounds being reported; this is allowed in SW8260C specifications. This compound was within method control limits in the associated LCS; there is no adverse effect on the data. No further corrective action was taken.

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**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1512052

## CASE NARRATIVE

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For Semivolatiles Analysis, the recalculated concentration of Pentachlorophenol for the Low Calibration Point was above the method control limits (157.5% recovery and upper limit is 130%). The remaining calibration points were within method control limits. No further corrective action was taken.

### METALS ANALYSIS

For Metals Analysis, the recoveries of Iron and Manganese for the Matrix Spike and Matrix Spike Duplicate (1512052-04 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS. The reference sample selected for the Batch QC was from this workorder. No further corrective action was taken.

### ANIONS ANALYSIS

For Anions Analysis, the recoveries of up to three anions for the Matrix Spike and Matrix Spike Duplicate (1512052-07, -14 MS/MSD) were below the method control limits. These are flagged accordingly in the QC Summary Report. These anions were within method control limits in the associated LCS. The reference samples selected for the Batch QC was from this workorder. No further corrective action was taken.

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Lab Order:** 1512052

**Work Order Sample Summary**

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<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
1512052-01	Cell 1 DP-1		12/02/15 01:25 PM	12/4/2015
1512052-02	Cell 1 DP-2		12/02/15 01:35 PM	12/4/2015
1512052-03	Cell 1 DP-3		12/02/15 01:45 PM	12/4/2015
1512052-04	Cell 1 DP-4		12/02/15 02:00 PM	12/4/2015
1512052-05	Cell 2 DP-1		12/02/15 02:40 PM	12/4/2015
1512052-06	Cell 2 DP-2		12/02/15 02:50 PM	12/4/2015
1512052-07	Cell 2 DP-3		12/02/15 03:00 PM	12/4/2015
1512052-08	Cell 2 DP-4		12/02/15 03:10 PM	12/4/2015
1512052-09	Cell 3 DP-1		12/02/15 03:40 PM	12/4/2015
1512052-10	Cell 3 DP-2		12/02/15 03:50 PM	12/4/2015
1512052-11	Cell 3 DP-3		12/02/15 04:00 PM	12/4/2015
1512052-12	Cell 3 DP-4		12/02/15 04:10 PM	12/4/2015
1512052-13	Cell 4 DP-1		12/02/15 04:40 PM	12/4/2015
1512052-14	Cell 4 DP-2		12/02/15 04:50 PM	12/4/2015
1512052-15	Cell 4 DP-3		12/02/15 05:00 PM	12/4/2015
1512052-16	Cell 4 DP-4		12/02/15 05:10 PM	12/4/2015

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-01A	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-01B	Cell 1 DP-1	12/02/15 01:25 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-01C	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-01D	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	D2216	Moisture Preparation	12/04/15 03:59 PM	72571
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 1 DP-1	12/02/15 01:25 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-02A	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-02B	Cell 1 DP-2	12/02/15 01:35 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-02C	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-02D	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	D2216	Moisture Preparation	12/04/15 03:59 PM	72571
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 1 DP-2	12/02/15 01:35 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-03A	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-03B	Cell 1 DP-3	12/02/15 01:45 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-03C	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-03C	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-03D	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	D2216	Moisture Preparation	12/04/15 03:59 PM	72571
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 1 DP-3	12/02/15 01:45 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-04A	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-04B	Cell 1 DP-4	12/02/15 02:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-04C	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-04D	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	D2216	Moisture Preparation	12/04/15 03:59 PM	72571
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 1 DP-4	12/02/15 02:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-05A	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-05B	Cell 2 DP-1	12/02/15 02:40 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-05C	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-05D	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-05D	Cell 2 DP-1	12/02/15 02:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-06A	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-06B	Cell 2 DP-2	12/02/15 02:50 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-06C	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-06D	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 2 DP-2	12/02/15 02:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-07A	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-07B	Cell 2 DP-3	12/02/15 03:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-07C	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-07D	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 2 DP-3	12/02/15 03:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-08A	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-08B	Cell 2 DP-4	12/02/15 03:10 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-08C	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-08D	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-09A	Cell 2 DP-4	12/02/15 03:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
	1512052-09B	Cell 3 DP-1	12/02/15 03:40 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM
Cell 3 DP-1		12/02/15 03:40 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
Cell 3 DP-1		12/02/15 03:40 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
Cell 3 DP-1		12/02/15 03:40 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-09C	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-09D	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 3 DP-1	12/02/15 03:40 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-10A	Cell 3 DP-1	12/02/15 03:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
	1512052-10B	Cell 3 DP-2	12/02/15 03:50 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM
Cell 3 DP-2		12/02/15 03:50 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
Cell 3 DP-2		12/02/15 03:50 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
Cell 3 DP-2		12/02/15 03:50 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-10C	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-10D	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-10D	Cell 3 DP-2	12/02/15 03:50 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 3 DP-2	12/02/15 03:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-11A	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-11B	Cell 3 DP-3	12/02/15 04:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-11C	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-11D	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 3 DP-3	12/02/15 04:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-12A	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-12B	Cell 3 DP-4	12/02/15 04:10 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-12C	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-12D	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 3 DP-4	12/02/15 04:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-13A	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-13B	Cell 4 DP-1	12/02/15 04:40 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593



Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-13B	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-13C	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
1512052-13D	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
1512052-14A	Cell 4 DP-1	12/02/15 04:40 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 4 DP-1	12/02/15 04:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-14B	Cell 4 DP-2	12/02/15 04:50 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-14C	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-14D	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-15A	Cell 4 DP-2	12/02/15 04:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-15B	Cell 4 DP-3	12/02/15 05:00 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-15C	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-15D	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**PREP DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1512052-15D	Cell 4 DP-3	12/02/15 05:00 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 4 DP-3	12/02/15 05:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
1512052-16A	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW5030C	Purge and Trap Soils GC/MS	12/07/15 09:49 AM	72585
1512052-16B	Cell 4 DP-4	12/02/15 05:10 PM	Soil	E300	Anion Prep	12/07/15 02:59 PM	72593
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW9010C	Cyanide Soil Prep	12/09/15 09:32 AM	72628
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW9045C	pH Preparation	12/07/15 09:00 AM	72575
1512052-16C	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW3550C	Soil Prep Sonication: BNA	12/07/15 09:06 AM	72576
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW3550C	Soil Prep Sonication: PCB	12/07/15 09:16 AM	72578
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW3550C	Soil Prep Sonication: TRPH	12/14/15 08:49 AM	72702
1512052-16D	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW7471B	Mercury Soil Prep, Total	12/09/15 08:30 AM	72606
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	D2216	Moisture Preparation	12/07/15 09:18 AM	72579
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605
	Cell 4 DP-4	12/02/15 05:10 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	12/09/15 08:30 AM	72605

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-01A	Cell 1 DP-1	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 01:28 PM	GCMS1_151207A
1512052-01B	Cell 1 DP-1	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 05:09 PM	IC2_151208B
	Cell 1 DP-1	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:23 PM	UV/VIS_2_151209A
	Cell 1 DP-1	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-01C	Cell 1 DP-1	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 12:50 PM	GCMS8_151208A
	Cell 1 DP-1	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 08:57 PM	GCMS9_151208C
	Cell 1 DP-1	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-01D	Cell 1 DP-1	Soil	D2216	Percent Moisture	72571	1	12/07/15 08:00 AM	PMOIST_151204A
	Cell 1 DP-1	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:20 PM	CETAC2_HG_151209C
	Cell 1 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:06 PM	ICP-MS4_151210A
	Cell 1 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:28 PM	ICP-MS4_151210A
1512052-02A	Cell 1 DP-2	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 01:59 PM	GCMS1_151207A
1512052-02B	Cell 1 DP-2	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 05:24 PM	IC2_151208B
	Cell 1 DP-2	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:26 PM	UV/VIS_2_151209A
	Cell 1 DP-2	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-02C	Cell 1 DP-2	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 01:22 PM	GCMS8_151208A
	Cell 1 DP-2	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 09:22 PM	GCMS9_151208C
	Cell 1 DP-2	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-02D	Cell 1 DP-2	Soil	D2216	Percent Moisture	72571	1	12/07/15 08:00 AM	PMOIST_151204A
	Cell 1 DP-2	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:22 PM	CETAC2_HG_151209C
	Cell 1 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:08 PM	ICP-MS4_151210A
	Cell 1 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:29 PM	ICP-MS4_151210A
1512052-03A	Cell 1 DP-3	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 02:30 PM	GCMS1_151207A
1512052-03B	Cell 1 DP-3	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 05:39 PM	IC2_151208B
	Cell 1 DP-3	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 01:38 PM	IC2_151208B
	Cell 1 DP-3	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:26 PM	UV/VIS_2_151209A
	Cell 1 DP-3	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-03C	Cell 1 DP-3	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 01:53 PM	GCMS8_151208A
	Cell 1 DP-3	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 09:47 PM	GCMS9_151208C
	Cell 1 DP-3	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-03D	Cell 1 DP-3	Soil	D2216	Percent Moisture	72571	1	12/07/15 08:00 AM	PMOIST_151204A
	Cell 1 DP-3	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:24 PM	CETAC2_HG_151209C
	Cell 1 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:31 PM	ICP-MS4_151210A
	Cell 1 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:10 PM	ICP-MS4_151210A
1512052-04A	Cell 1 DP-4	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 03:01 PM	GCMS1_151207A
1512052-04B	Cell 1 DP-4	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 05:53 PM	IC2_151208B
	Cell 1 DP-4	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 01:53 PM	IC2_151208B
	Cell 1 DP-4	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:26 PM	UV/VIS_2_151209A
	Cell 1 DP-4	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-04C	Cell 1 DP-4	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 02:24 PM	GCMS8_151208A
	Cell 1 DP-4	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 10:12 PM	GCMS9_151208C
	Cell 1 DP-4	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-04D	Cell 1 DP-4	Soil	D2216	Percent Moisture	72571	1	12/07/15 08:00 AM	PMOIST_151204A
	Cell 1 DP-4	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:27 PM	CETAC2_HG_151209C
	Cell 1 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:24 PM	ICP-MS4_151210A
	Cell 1 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:02 PM	ICP-MS4_151210A
1512052-05A	Cell 2 DP-1	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 03:32 PM	GCMS1_151207A
1512052-05B	Cell 2 DP-1	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 06:08 PM	IC2_151208B
	Cell 2 DP-1	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:26 PM	UV/VIS_2_151209A
	Cell 2 DP-1	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-05C	Cell 2 DP-1	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 02:56 PM	GCMS8_151208A
	Cell 2 DP-1	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 10:37 PM	GCMS9_151208C
	Cell 2 DP-1	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-05D	Cell 2 DP-1	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATA REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-05D	Cell 2 DP-1	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:38 PM	CETAC2_HG_151209C
	Cell 2 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:33 PM	ICP-MS4_151210A
	Cell 2 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:12 PM	ICP-MS4_151210A
1512052-06A	Cell 2 DP-2	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 04:03 PM	GCMS1_151207A
1512052-06B	Cell 2 DP-2	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 06:22 PM	IC2_151208B
	Cell 2 DP-2	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 02:08 PM	IC2_151208B
	Cell 2 DP-2	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:28 PM	UV/VIS_2_151209A
	Cell 2 DP-2	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-06C	Cell 2 DP-2	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 03:27 PM	GCMS8_151208A
	Cell 2 DP-2	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 11:01 PM	GCMS9_151208C
	Cell 2 DP-2	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-06D	Cell 2 DP-2	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 2 DP-2	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:40 PM	CETAC2_HG_151209C
	Cell 2 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:35 PM	ICP-MS4_151210A
	Cell 2 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:14 PM	ICP-MS4_151210A
1512052-07A	Cell 2 DP-3	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 04:35 PM	GCMS1_151207A
1512052-07B	Cell 2 DP-3	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 06:37 PM	IC2_151208B
	Cell 2 DP-3	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:28 PM	UV/VIS_2_151209A
	Cell 2 DP-3	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-07C	Cell 2 DP-3	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 03:59 PM	GCMS8_151208A
	Cell 2 DP-3	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 11:26 PM	GCMS9_151208C
	Cell 2 DP-3	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-07D	Cell 2 DP-3	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 2 DP-3	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:43 PM	CETAC2_HG_151209C
	Cell 2 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:37 PM	ICP-MS4_151210A
	Cell 2 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:16 PM	ICP-MS4_151210A

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATA REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-08A	Cell 2 DP-4	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 05:06 PM	GCMS1_151207A
1512052-08B	Cell 2 DP-4	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 07:21 PM	IC2_151208B
	Cell 2 DP-4	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:28 PM	UV/VIS_2_151209A
	Cell 2 DP-4	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-08C	Cell 2 DP-4	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 04:30 PM	GCMS8_151208A
	Cell 2 DP-4	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/08/15 11:51 PM	GCMS9_151208C
	Cell 2 DP-4	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-08D	Cell 2 DP-4	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 2 DP-4	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:45 PM	CETAC2_HG_151209C
	Cell 2 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:39 PM	ICP-MS4_151210A
	Cell 2 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:18 PM	ICP-MS4_151210A
1512052-09A	Cell 3 DP-1	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 05:37 PM	GCMS1_151207A
1512052-09B	Cell 3 DP-1	Soil	E300	Anions by IC method - Soil	72593	1	12/08/15 07:35 PM	IC2_151208B
	Cell 3 DP-1	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 02:22 PM	IC2_151208B
	Cell 3 DP-1	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:28 PM	UV/VIS_2_151209A
	Cell 3 DP-1	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-09C	Cell 3 DP-1	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 05:02 PM	GCMS8_151208A
	Cell 3 DP-1	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 12:16 AM	GCMS9_151208C
	Cell 3 DP-1	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-09D	Cell 3 DP-1	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 3 DP-1	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:47 PM	CETAC2_HG_151209C
	Cell 3 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:41 PM	ICP-MS4_151210A
	Cell 3 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:20 PM	ICP-MS4_151210A
1512052-10A	Cell 3 DP-2	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 06:08 PM	GCMS1_151207A
1512052-10B	Cell 3 DP-2	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 09:15 AM	IC2_151208B
	Cell 3 DP-2	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 02:37 PM	IC2_151208B
	Cell 3 DP-2	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:30 PM	UV/VIS_2_151209A

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-10B	Cell 3 DP-2	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-10C	Cell 3 DP-2	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 05:33 PM	GCMS8_151208A
	Cell 3 DP-2	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 12:41 AM	GCMS9_151208C
	Cell 3 DP-2	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-10D	Cell 3 DP-2	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 3 DP-2	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:49 PM	CETAC2_HG_151209C
	Cell 3 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 03:22 PM	ICP-MS4_151210A
	Cell 3 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:43 PM	ICP-MS4_151210A
1512052-11A	Cell 3 DP-3	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 06:39 PM	GCMS1_151207A
1512052-11B	Cell 3 DP-3	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 10:16 AM	IC2_151208B
	Cell 3 DP-3	Soil	E300	Anions by IC method - Soil	72593	10	12/09/15 02:51 PM	IC2_151208B
	Cell 3 DP-3	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:30 PM	UV/VIS_2_151209A
	Cell 3 DP-3	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-11C	Cell 3 DP-3	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 06:05 PM	GCMS8_151208A
	Cell 3 DP-3	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 01:06 AM	GCMS9_151208C
	Cell 3 DP-3	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-11D	Cell 3 DP-3	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 3 DP-3	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:56 PM	CETAC2_HG_151209C
	Cell 3 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:42 PM	ICP-MS4_151210A
	Cell 3 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 12:55 PM	ICP-MS4_151210A
1512052-12A	Cell 3 DP-4	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 07:10 PM	GCMS1_151207A
1512052-12B	Cell 3 DP-4	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 10:31 AM	IC2_151208B
	Cell 3 DP-4	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:30 PM	UV/VIS_2_151209A
	Cell 3 DP-4	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-12C	Cell 3 DP-4	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 06:36 PM	GCMS8_151208A
	Cell 3 DP-4	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 01:30 AM	GCMS9_151208C
	Cell 3 DP-4	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A

Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-12D	Cell 3 DP-4	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 3 DP-4	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 12:58 PM	CETAC2_HG_151209C
	Cell 3 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:44 PM	ICP-MS4_151210A
	Cell 3 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 12:57 PM	ICP-MS4_151210A
1512052-13A	Cell 4 DP-1	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 07:41 PM	GCMS1_151207A
1512052-13B	Cell 4 DP-1	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 10:45 AM	IC2_151208B
	Cell 4 DP-1	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:34 PM	UV/VIS_2_151209A
	Cell 4 DP-1	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-13C	Cell 4 DP-1	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 07:07 PM	GCMS8_151208A
	Cell 4 DP-1	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 01:55 AM	GCMS9_151208C
	Cell 4 DP-1	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-13D	Cell 4 DP-1	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 4 DP-1	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 01:01 PM	CETAC2_HG_151209C
	Cell 4 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 12:59 PM	ICP-MS4_151210A
	Cell 4 DP-1	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:46 PM	ICP-MS4_151210A
1512052-14A	Cell 4 DP-2	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 08:12 PM	GCMS1_151207A
1512052-14B	Cell 4 DP-2	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 11:00 AM	IC2_151208B
	Cell 4 DP-2	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:34 PM	UV/VIS_2_151209A
	Cell 4 DP-2	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-14C	Cell 4 DP-2	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 07:38 PM	GCMS8_151208A
	Cell 4 DP-2	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 02:20 AM	GCMS9_151208C
	Cell 4 DP-2	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-14D	Cell 4 DP-2	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 4 DP-2	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 01:03 PM	CETAC2_HG_151209C
	Cell 4 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:01 PM	ICP-MS4_151210A
	Cell 4 DP-2	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:48 PM	ICP-MS4_151210A



Lab Order: 1512052  
 Client: Larson & Associates  
 Project: R360 Artesia Landfarm

**ANALYTICAL DATES REPORT**

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1512052-15A	Cell 4 DP-3	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 08:43 PM	GCMS1_151207A
1512052-15B	Cell 4 DP-3	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 11:44 AM	IC2_151208B
	Cell 4 DP-3	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:34 PM	UV/VIS_2_151209A
	Cell 4 DP-3	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-15C	Cell 4 DP-3	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 08:09 PM	GCMS8_151208A
	Cell 4 DP-3	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 02:45 AM	GCMS9_151208C
	Cell 4 DP-3	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-15D	Cell 4 DP-3	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 4 DP-3	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 01:05 PM	CETAC2_HG_151209C
	Cell 4 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:03 PM	ICP-MS4_151210A
	Cell 4 DP-3	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:50 PM	ICP-MS4_151210A
1512052-16A	Cell 4 DP-4	Soil	SW8260C	8260 Soil Volatiles by GC/MS	72585	1	12/07/15 09:15 PM	GCMS1_151207A
1512052-16B	Cell 4 DP-4	Soil	E300	Anions by IC method - Soil	72593	1	12/09/15 11:59 AM	IC2_151208B
	Cell 4 DP-4	Soil	SW9014	Cyanide - Solid Sample	72628	1	12/09/15 05:34 PM	UV/VIS_2_151209A
	Cell 4 DP-4	Soil	SW9045D	pH of Solid (Corrosivity)	72575	1	12/07/15 10:30 AM	PH_151207A
1512052-16C	Cell 4 DP-4	Soil	SW8270D	PCB by GC/MS - Soil/Solid	72578	1	12/08/15 08:40 PM	GCMS8_151208A
	Cell 4 DP-4	Soil	SW8270D	Semivolatiles by GC/MS - Soil	72576	1	12/09/15 03:10 AM	GCMS9_151208C
	Cell 4 DP-4	Soil	E418.1	TRPH	72702	1	12/14/15 10:35 AM	IR207_151214A
1512052-16D	Cell 4 DP-4	Soil	D2216	Percent Moisture	72579	1	12/08/15 09:32 AM	PMOIST_151207A
	Cell 4 DP-4	Soil	SW7471B	Total Mercury: Soil/Solid	72606	1	12/09/15 01:08 PM	CETAC2_HG_151209C
	Cell 4 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	50	12/10/15 02:52 PM	ICP-MS4_151210A
	Cell 4 DP-4	Soil	SW6020A	Trace Metals: ICP-MS - Solid	72605	5	12/10/15 01:05 PM	ICP-MS4_151210A

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-1  
**Lab ID:** 1512052-01  
**Collection Date:** 12/02/15 01:25 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>			<b>Analyst: ABO</b>		
Mercury	<0.0396	0.0159	0.0396		mg/Kg-dry	1	12/09/15 12:20 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>			<b>Analyst: RO</b>		
Arsenic	3.90	0.496	0.991		mg/Kg-dry	5	12/10/15 01:28 PM
Barium	605	4.96	19.8		mg/Kg-dry	50	12/10/15 03:06 PM
Cadmium	<0.297	0.0991	0.297		mg/Kg-dry	5	12/10/15 01:28 PM
Chromium	14.1	0.496	1.98		mg/Kg-dry	5	12/10/15 01:28 PM
Copper	6.10	0.496	1.98		mg/Kg-dry	5	12/10/15 01:28 PM
Iron	12300	124	124		mg/Kg-dry	50	12/10/15 03:06 PM
Lead	5.50	0.0991	0.297		mg/Kg-dry	5	12/10/15 01:28 PM
Manganese	327	0.496	1.98		mg/Kg-dry	5	12/10/15 01:28 PM
Selenium	0.887	0.149	0.496		mg/Kg-dry	5	12/10/15 01:28 PM
Silver	<0.198	0.0991	0.198		mg/Kg-dry	5	12/10/15 01:28 PM
Zinc	25.9	0.991	2.48		mg/Kg-dry	5	12/10/15 01:28 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
1-Methylnaphthalene	<0.0302	0.0114	0.0302	N	mg/Kg-dry	1	12/08/15 08:57 PM
2-Methylnaphthalene	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
Naphthalene	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
Benzo[a]pyrene	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,3,4,6-Tetrachlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,4,5-Trichlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,4,6-Trichlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,4-Dichlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,4-Dimethylphenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2,4-Dinitrophenol	<0.150	0.0568	0.150		mg/Kg-dry	1	12/08/15 08:57 PM
2,6-Dichlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2-Chlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2-Methylphenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
2-Nitrophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
4,6-Dinitro-2-methylphenol	<0.0750	0.0341	0.0750		mg/Kg-dry	1	12/08/15 08:57 PM
4-Chloro-3-methylphenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
4-Methylphenol	<0.0302	0.0227	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
4-Nitrophenol	<0.150	0.0568	0.150		mg/Kg-dry	1	12/08/15 08:57 PM
Pentachlorophenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
Phenol	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
Total Phenol (Calculated)	<0.0302	0.0114	0.0302		mg/Kg-dry	1	12/08/15 08:57 PM
Surr: 2,4,6-Tribromophenol	71.0	0	45-126		%REC	1	12/08/15 08:57 PM
Surr: 2-Fluorobiphenyl	69.0	0	60-125		%REC	1	12/08/15 08:57 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 B Analyte detected in the associated Method Blank  
 C Sample Result or QC discussed in the Case Narrative  
 DF Dilution Factor  
 E TPH pattern not Gas or Diesel Range Pattern  
 J Analyte detected between MDL and RL  
 MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-1  
**Lab ID:** 1512052-01  
**Collection Date:** 12/02/15 01:25 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	66.0	0	37-125		%REC	1	12/08/15 08:57 PM
Surr: 4-Terphenyl-d14	76.0	0	45-125		%REC	1	12/08/15 08:57 PM
Surr: Nitrobenzene-d5	62.0	0	45-125		%REC	1	12/08/15 08:57 PM
Surr: Phenol-d5	64.0	0	40-125		%REC	1	12/08/15 08:57 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1221	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1232	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1242	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1248	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1254	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Aroclor 1260	<0.0379	0.0189	0.0379		mg/Kg-dry	1	12/08/15 12:50 PM
Polychlorinated biphenyls	<0.0379	0.0189	0.0379	N	mg/Kg-dry	1	12/08/15 12:50 PM
Surr: 2-Fluorobiphenyl	86.6	0	43-125		%REC	1	12/08/15 12:50 PM
Surr: 4-Terphenyl-d14	81.3	0	32-125		%REC	1	12/08/15 12:50 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Toluene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Carbon tetrachloride	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,2-Dichloroethane	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,1-Dichloroethylene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Tetrachloroethylene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Trichloroethylene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Ethylbenzene	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Total Xylenes	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Methylene chloride	<0.00550	0.00550	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Chloroform	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,1-Dichloroethane	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Ethylene bromide	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,1,1-Trichloroethane	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,1,2-Trichloroethane	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
1,1,2,2-Tetrachloroethane	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Vinyl chloride	<0.00550	0.00110	0.00550		mg/Kg-dry	1	12/07/15 01:28 PM
Surr: 1,2-Dichloroethane-d4	104	0	52-149		%REC	1	12/07/15 01:28 PM
Surr: 4-Bromofluorobenzene	99.2	0	84-118		%REC	1	12/07/15 01:28 PM
Surr: Dibromofluoromethane	104	0	65-135		%REC	1	12/07/15 01:28 PM
Surr: Toluene-d8	91.4	0	84-116		%REC	1	12/07/15 01:28 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-1  
**Lab ID:** 1512052-01  
**Collection Date:** 12/02/15 01:25 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.9	5.46	10.9	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.561	0.225	0.561		mg/Kg-dry	1	12/09/15 05:23 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	15.6	5.04	5.04		mg/Kg-dry	1	12/08/15 05:09 PM
Fluoride	3.43	1.01	1.01		mg/Kg-dry	1	12/08/15 05:09 PM
Nitrate-N	<5.04	5.04	5.04		mg/Kg-dry	1	12/08/15 05:09 PM
Sulfate	70.6	10.1	10.1		mg/Kg-dry	1	12/08/15 05:09 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.16	0	0		pH Units@21.4°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>BJT</b>
Percent Moisture	12.3	0	0		WT%	1	12/07/15 08:00 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-2  
**Lab ID:** 1512052-02  
**Collection Date:** 12/02/15 01:35 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0370	0.0148	0.0370		mg/Kg-dry	1	12/09/15 12:22 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	3.32	0.488	0.976		mg/Kg-dry	5	12/10/15 01:29 PM
Barium	511	4.88	19.5		mg/Kg-dry	50	12/10/15 03:08 PM
Cadmium	<0.293	0.0976	0.293		mg/Kg-dry	5	12/10/15 01:29 PM
Chromium	18.7	0.488	1.95		mg/Kg-dry	5	12/10/15 01:29 PM
Copper	6.84	0.488	1.95		mg/Kg-dry	5	12/10/15 01:29 PM
Iron	17700	122	122		mg/Kg-dry	50	12/10/15 03:08 PM
Lead	10.5	0.0976	0.293		mg/Kg-dry	5	12/10/15 01:29 PM
Manganese	1630	4.88	19.5		mg/Kg-dry	50	12/10/15 03:08 PM
Selenium	1.38	0.146	0.488		mg/Kg-dry	5	12/10/15 01:29 PM
Silver	<0.195	0.0976	0.195		mg/Kg-dry	5	12/10/15 01:29 PM
Zinc	36.4	0.976	2.44		mg/Kg-dry	5	12/10/15 01:29 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0281	0.0106	0.0281	N	mg/Kg-dry	1	12/08/15 09:22 PM
2-Methylnaphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
Naphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
Benzo[a]pyrene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,3,4,6-Tetrachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,4,5-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,4,6-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,4-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,4-Dimethylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2,4-Dinitrophenol	<0.139	0.0528	0.139		mg/Kg-dry	1	12/08/15 09:22 PM
2,6-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2-Chlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2-Methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
2-Nitrophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
4,6-Dinitro-2-methylphenol	<0.0697	0.0317	0.0697		mg/Kg-dry	1	12/08/15 09:22 PM
4-Chloro-3-methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
4-Methylphenol	<0.0281	0.0211	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
4-Nitrophenol	<0.139	0.0528	0.139		mg/Kg-dry	1	12/08/15 09:22 PM
Pentachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
Phenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
Total Phenol (Calculated)	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/08/15 09:22 PM
Surr: 2,4,6-Tribromophenol	82.0	0	45-126		%REC	1	12/08/15 09:22 PM
Surr: 2-Fluorobiphenyl	76.0	0	60-125		%REC	1	12/08/15 09:22 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-2  
**Lab ID:** 1512052-02  
**Collection Date:** 12/02/15 01:35 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	73.0	0	37-125		%REC	1	12/08/15 09:22 PM
Surr: 4-Terphenyl-d14	86.0	0	45-125		%REC	1	12/08/15 09:22 PM
Surr: Nitrobenzene-d5	67.0	0	45-125		%REC	1	12/08/15 09:22 PM
Surr: Phenol-d5	73.0	0	40-125		%REC	1	12/08/15 09:22 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1221	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1232	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1242	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1248	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1254	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Aroclor 1260	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 01:22 PM
Polychlorinated biphenyls	<0.0352	0.0176	0.0352	N	mg/Kg-dry	1	12/08/15 01:22 PM
Surr: 2-Fluorobiphenyl	90.3	0	43-125		%REC	1	12/08/15 01:22 PM
Surr: 4-Terphenyl-d14	84.1	0	32-125		%REC	1	12/08/15 01:22 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Toluene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Carbon tetrachloride	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,2-Dichloroethane	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,1-Dichloroethylene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Tetrachloroethylene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Trichloroethylene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Ethylbenzene	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Total Xylenes	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Methylene chloride	<0.00524	0.00524	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Chloroform	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,1-Dichloroethane	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Ethylene bromide	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,1,1-Trichloroethane	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,1,2-Trichloroethane	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
1,1,2,2-Tetrachloroethane	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Vinyl chloride	<0.00524	0.00105	0.00524		mg/Kg-dry	1	12/07/15 01:59 PM
Surr: 1,2-Dichloroethane-d4	106	0	52-149		%REC	1	12/07/15 01:59 PM
Surr: 4-Bromofluorobenzene	99.5	0	84-118		%REC	1	12/07/15 01:59 PM
Surr: Dibromofluoromethane	105	0	65-135		%REC	1	12/07/15 01:59 PM
Surr: Toluene-d8	92.3	0	84-116		%REC	1	12/07/15 01:59 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-2  
**Lab ID:** 1512052-02  
**Collection Date:** 12/02/15 01:35 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.1	5.06	10.1	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.530	0.212	0.530		mg/Kg-dry	1	12/09/15 05:26 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	22.7	5.34	5.34		mg/Kg-dry	1	12/08/15 05:24 PM
Fluoride	4.31	1.07	1.07		mg/Kg-dry	1	12/08/15 05:24 PM
Nitrate-N	<5.34	5.34	5.34		mg/Kg-dry	1	12/08/15 05:24 PM
Sulfate	48.5	10.7	10.7		mg/Kg-dry	1	12/08/15 05:24 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.43	0	0		pH Units@21.1°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>BJT</b>
Percent Moisture	9.28	0	0		WT%	1	12/07/15 08:00 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-3  
**Lab ID:** 1512052-03  
**Collection Date:** 12/02/15 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0401	0.0161	0.0401		mg/Kg-dry	1	12/09/15 12:24 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	6.24	0.539	1.08		mg/Kg-dry	5	12/10/15 01:31 PM
Barium	582	5.39	21.6		mg/Kg-dry	50	12/10/15 03:10 PM
Cadmium	<0.323	0.108	0.323		mg/Kg-dry	5	12/10/15 01:31 PM
Chromium	16.8	0.539	2.16		mg/Kg-dry	5	12/10/15 01:31 PM
Copper	5.27	0.539	2.16		mg/Kg-dry	5	12/10/15 01:31 PM
Iron	11500	135	135		mg/Kg-dry	50	12/10/15 03:10 PM
Lead	6.18	0.108	0.323		mg/Kg-dry	5	12/10/15 01:31 PM
Manganese	386	0.539	2.16		mg/Kg-dry	5	12/10/15 01:31 PM
Selenium	0.865	0.162	0.539		mg/Kg-dry	5	12/10/15 01:31 PM
Silver	<0.216	0.108	0.216		mg/Kg-dry	5	12/10/15 01:31 PM
Zinc	24.4	1.08	2.69		mg/Kg-dry	5	12/10/15 01:31 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0295	0.0111	0.0295	N	mg/Kg-dry	1	12/08/15 09:47 PM
2-Methylnaphthalene	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
Naphthalene	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
Benzo[a]pyrene	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,3,4,6-Tetrachlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,4,5-Trichlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,4,6-Trichlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,4-Dichlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,4-Dimethylphenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2,4-Dinitrophenol	<0.146	0.0554	0.146		mg/Kg-dry	1	12/08/15 09:47 PM
2,6-Dichlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2-Chlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2-Methylphenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
2-Nitrophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
4,6-Dinitro-2-methylphenol	<0.0731	0.0332	0.0731		mg/Kg-dry	1	12/08/15 09:47 PM
4-Chloro-3-methylphenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
4-Methylphenol	<0.0295	0.0222	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
4-Nitrophenol	<0.146	0.0554	0.146		mg/Kg-dry	1	12/08/15 09:47 PM
Pentachlorophenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
Phenol	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
Total Phenol (Calculated)	<0.0295	0.0111	0.0295		mg/Kg-dry	1	12/08/15 09:47 PM
Surr: 2,4,6-Tribromophenol	73.0	0	45-126		%REC	1	12/08/15 09:47 PM
Surr: 2-Fluorobiphenyl	68.0	0	60-125		%REC	1	12/08/15 09:47 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-3  
**Lab ID:** 1512052-03  
**Collection Date:** 12/02/15 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	66.0	0	37-125		%REC	1	12/08/15 09:47 PM
Surr: 4-Terphenyl-d14	78.0	0	45-125		%REC	1	12/08/15 09:47 PM
Surr: Nitrobenzene-d5	63.0	0	45-125		%REC	1	12/08/15 09:47 PM
Surr: Phenol-d5	65.0	0	40-125		%REC	1	12/08/15 09:47 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1221	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1232	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1242	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1248	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1254	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Aroclor 1260	<0.0369	0.0185	0.0369		mg/Kg-dry	1	12/08/15 01:53 PM
Polychlorinated biphenyls	<0.0369	0.0185	0.0369	N	mg/Kg-dry	1	12/08/15 01:53 PM
Surr: 2-Fluorobiphenyl	81.9	0	43-125		%REC	1	12/08/15 01:53 PM
Surr: 4-Terphenyl-d14	80.8	0	32-125		%REC	1	12/08/15 01:53 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Toluene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Carbon tetrachloride	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,2-Dichloroethane	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,1-Dichloroethylene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Tetrachloroethylene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Trichloroethylene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Ethylbenzene	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Total Xylenes	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Methylene chloride	<0.00568	0.00568	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Chloroform	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,1-Dichloroethane	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Ethylene bromide	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,1,1-Trichloroethane	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,1,2-Trichloroethane	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
1,1,2,2-Tetrachloroethane	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Vinyl chloride	<0.00568	0.00114	0.00568		mg/Kg-dry	1	12/07/15 02:30 PM
Surr: 1,2-Dichloroethane-d4	106	0	52-149		%REC	1	12/07/15 02:30 PM
Surr: 4-Bromofluorobenzene	99.9	0	84-118		%REC	1	12/07/15 02:30 PM
Surr: Dibromofluoromethane	104	0	65-135		%REC	1	12/07/15 02:30 PM
Surr: Toluene-d8	91.3	0	84-116		%REC	1	12/07/15 02:30 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Paramctcr not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-3  
**Lab ID:** 1512052-03  
**Collection Date:** 12/02/15 01:45 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b> Petroleum Hydrocarbons, TR	<11.3	<b>E418.1</b> 5.66	11.3	N	mg/Kg-dry	1	Analyst: <b>ABO</b> 12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b> Cyanide, Total	<0.549	<b>SW9014</b> 0.220	0.549		mg/Kg-dry	1	Analyst: <b>JL</b> 12/09/15 05:26 PM
<b>ANIONS BY IC METHOD - SOIL</b> Chloride	1580	<b>E300</b> 55.1	55.1		mg/Kg-dry	10	Analyst: <b>AV</b> 12/09/15 01:38 PM
Fluoride	3.17	1.10	1.10		mg/Kg-dry	1	12/08/15 05:39 PM
Nitrate-N	10.1	5.51	5.51		mg/Kg-dry	1	12/08/15 05:39 PM
Sulfate	210	11.0	11.0		mg/Kg-dry	1	12/08/15 05:39 PM
<b>PH OF SOLID (CORROSIVITY)</b> pH	7.82	<b>SW9045D</b> 0	0		pH Units@21.2°C	1	Analyst: <b>BJT</b> 12/07/15 10:30 AM
<b>PERCENT MOISTURE</b> Percent Moisture	14.1	<b>D2216</b> 0	0		WT%	1	Analyst: <b>BJT</b> 12/07/15 08:00 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-4  
**Lab ID:** 1512052-04  
**Collection Date:** 12/02/15 02:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0421	0.0168	0.0421		mg/Kg-dry	1	12/09/15 12:27 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	4.13	0.551	1.10		mg/Kg-dry	5	12/10/15 01:24 PM
Barium	157	0.551	2.21		mg/Kg-dry	5	12/10/15 01:24 PM
Cadmium	<0.331	0.110	0.331		mg/Kg-dry	5	12/10/15 01:24 PM
Chromium	21.0	0.551	2.21		mg/Kg-dry	5	12/10/15 01:24 PM
Copper	6.88	0.551	2.21		mg/Kg-dry	5	12/10/15 01:24 PM
Iron	19200	138	138		mg/Kg-dry	50	12/10/15 03:02 PM
Lead	9.67	0.110	0.331		mg/Kg-dry	5	12/10/15 01:24 PM
Manganese	922	5.51	22.1		mg/Kg-dry	50	12/10/15 03:02 PM
Selenium	1.70	0.165	0.551		mg/Kg-dry	5	12/10/15 01:24 PM
Silver	<0.221	0.110	0.221		mg/Kg-dry	5	12/10/15 01:24 PM
Zinc	39.7	1.10	2.76		mg/Kg-dry	5	12/10/15 01:24 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0302	0.0113	0.0302	N	mg/Kg-dry	1	12/08/15 10:12 PM
2-Methylnaphthalene	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
Naphthalene	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
Benzo[a]pyrene	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,3,4,6-Tetrachlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,4,5-Trichlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,4,6-Trichlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,4-Dichlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,4-Dimethylphenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2,4-Dinitrophenol	<0.150	0.0567	0.150		mg/Kg-dry	1	12/08/15 10:12 PM
2,6-Dichlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2-Chlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2-Methylphenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
2-Nitrophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
4,6-Dinitro-2-methylphenol	<0.0749	0.0340	0.0749		mg/Kg-dry	1	12/08/15 10:12 PM
4-Chloro-3-methylphenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
4-Methylphenol	<0.0302	0.0227	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
4-Nitrophenol	<0.150	0.0567	0.150		mg/Kg-dry	1	12/08/15 10:12 PM
Pentachlorophenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
Phenol	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
Total Phenol (Calculated)	<0.0302	0.0113	0.0302		mg/Kg-dry	1	12/08/15 10:12 PM
Surr: 2,4,6-Tribromophenol	80.0	0	45-126		%REC	1	12/08/15 10:12 PM
Surr: 2-Fluorobiphenyl	75.0	0	60-125		%REC	1	12/08/15 10:12 PM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- B Analyte detected in the associated Method Blank
- C Sample Result or QC discussed in the Case Narrative
- DF Dilution Factor
- E TPH pattern not Gas or Diesel Range Pattern
- J Analyte detected between MDL and RL
- MDL Method Detection Limit
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- S Spike Recovery outside control limits
- N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-4  
**Lab ID:** 1512052-04  
**Collection Date:** 12/02/15 02:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	73.0	0	37-125		%REC	1	12/08/15 10:12 PM
Surr: 4-Terphenyl-d14	87.0	0	45-125		%REC	1	12/08/15 10:12 PM
Surr: Nitrobenzene-d5	68.0	0	45-125		%REC	1	12/08/15 10:12 PM
Surr: Phenol-d5	72.0	0	40-125		%REC	1	12/08/15 10:12 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1221	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1232	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1242	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1248	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1254	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Aroclor 1260	<0.0378	0.0189	0.0378		mg/Kg-dry	1	12/08/15 02:24 PM
Polychlorinated biphenyls	<0.0378	0.0189	0.0378	N	mg/Kg-dry	1	12/08/15 02:24 PM
Surr: 2-Fluorobiphenyl	89.4	0	43-125		%REC	1	12/08/15 02:24 PM
Surr: 4-Terphenyl-d14	86.6	0	32-125		%REC	1	12/08/15 02:24 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Toluene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Carbon tetrachloride	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,2-Dichloroethane	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,1-Dichloroethylene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Tetrachloroethylene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Trichloroethylene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Ethylbenzene	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Total Xylenes	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Methylene chloride	<0.00573	0.00573	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Chloroform	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,1-Dichloroethane	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Ethylene bromide	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,1,1-Trichloroethane	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,1,2-Trichloroethane	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
1,1,2,2-Tetrachloroethane	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Vinyl chloride	<0.00573	0.00115	0.00573		mg/Kg-dry	1	12/07/15 03:01 PM
Surr: 1,2-Dichloroethane-d4	106	0	52-149		%REC	1	12/07/15 03:01 PM
Surr: 4-Bromofluorobenzene	99.1	0	84-118		%REC	1	12/07/15 03:01 PM
Surr: Dibromofluoromethane	102	0	65-135		%REC	1	12/07/15 03:01 PM
Surr: Toluene-d8	91.8	0	84-116		%REC	1	12/07/15 03:01 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 1 DP-4  
**Lab ID:** 1512052-04  
**Collection Date:** 12/02/15 02:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<11.0	5.50	11.0	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.565	0.226	0.565		mg/Kg-dry	1	12/09/15 05:26 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	556	54.3	54.3		mg/Kg-dry	10	12/09/15 01:53 PM
Fluoride	7.13	1.09	1.09		mg/Kg-dry	1	12/08/15 05:53 PM
Nitrate-N	<5.43	5.43	5.43		mg/Kg-dry	1	12/08/15 05:53 PM
Sulfate	746	10.9	10.9		mg/Kg-dry	1	12/08/15 05:53 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.90	0	0		pH Units@21.3°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>BJT</b>
Percent Moisture	14.4	0	0		WT%	1	12/07/15 08:00 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-1  
**Lab ID:** 1512052-05  
**Collection Date:** 12/02/15 02:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0407	0.0163	0.0407		mg/Kg-dry	1	12/09/15 12:38 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	2.70	0.435	0.869		mg/Kg-dry	5	12/10/15 01:33 PM
Barium	109	0.435	1.74		mg/Kg-dry	5	12/10/15 01:33 PM
Cadmium	<0.261	0.0869	0.261		mg/Kg-dry	5	12/10/15 01:33 PM
Chromium	7.87	0.435	1.74		mg/Kg-dry	5	12/10/15 01:33 PM
Copper	3.45	0.435	1.74		mg/Kg-dry	5	12/10/15 01:33 PM
Iron	5830	109	109		mg/Kg-dry	50	12/10/15 03:12 PM
Lead	3.32	0.0869	0.261		mg/Kg-dry	5	12/10/15 01:33 PM
Manganese	104	0.435	1.74		mg/Kg-dry	5	12/10/15 01:33 PM
Selenium	0.487	0.130	0.435		mg/Kg-dry	5	12/10/15 01:33 PM
Silver	<0.174	0.0869	0.174		mg/Kg-dry	5	12/10/15 01:33 PM
Zinc	14.4	0.869	2.17		mg/Kg-dry	5	12/10/15 01:33 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0284	0.0107	0.0284	N	mg/Kg-dry	1	12/08/15 10:37 PM
2-Methylnaphthalene	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
Naphthalene	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
Benzo[a]pyrene	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,3,4,6-Tetrachlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,4,5-Trichlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,4,6-Trichlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,4-Dichlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,4-Dimethylphenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2,4-Dinitrophenol	<0.141	0.0534	0.141		mg/Kg-dry	1	12/08/15 10:37 PM
2,6-Dichlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2-Chlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2-Methylphenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
2-Nitrophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
4,6-Dinitro-2-methylphenol	<0.0704	0.0320	0.0704		mg/Kg-dry	1	12/08/15 10:37 PM
4-Chloro-3-methylphenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
4-Methylphenol	<0.0284	0.0213	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
4-Nitrophenol	<0.141	0.0534	0.141		mg/Kg-dry	1	12/08/15 10:37 PM
Pentachlorophenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
Phenol	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
Total Phenol (Calculated)	<0.0284	0.0107	0.0284		mg/Kg-dry	1	12/08/15 10:37 PM
Surr: 2,4,6-Tribromophenol	81.0	0	45-126		%REC	1	12/08/15 10:37 PM
Surr: 2-Fluorobiphenyl	76.0	0	60-125		%REC	1	12/08/15 10:37 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-1  
**Lab ID:** 1512052-05  
**Collection Date:** 12/02/15 02:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	75.0	0	37-125		%REC	1	12/08/15 10:37 PM
Surr: 4-Terphenyl-d14	87.0	0	45-125		%REC	1	12/08/15 10:37 PM
Surr: Nitrobenzene-d5	70.0	0	45-125		%REC	1	12/08/15 10:37 PM
Surr: Phenol-d5	74.0	0	40-125		%REC	1	12/08/15 10:37 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1221	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1232	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1242	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1248	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1254	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Aroclor 1260	<0.0356	0.0178	0.0356		mg/Kg-dry	1	12/08/15 02:56 PM
Polychlorinated biphenyls	<0.0356	0.0178	0.0356	N	mg/Kg-dry	1	12/08/15 02:56 PM
Surr: 2-Fluorobiphenyl	92.3	0	43-125		%REC	1	12/08/15 02:56 PM
Surr: 4-Terphenyl-d14	88.5	0	32-125		%REC	1	12/08/15 02:56 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Toluene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Carbon tetrachloride	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,2-Dichloroethane	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,1-Dichloroethylene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Tetrachloroethylene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Trichloroethylene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Ethylbenzene	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Total Xylenes	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Methylene chloride	<0.00528	0.00528	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Chloroform	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,1-Dichloroethane	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Ethylene bromide	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,1,1-Trichloroethane	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,1,2-Trichloroethane	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
1,1,2,2-Tetrachloroethane	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Vinyl chloride	<0.00528	0.00106	0.00528		mg/Kg-dry	1	12/07/15 03:32 PM
Surr: 1,2-Dichloroethane-d4	106	0	52-149		%REC	1	12/07/15 03:32 PM
Surr: 4-Bromofluorobenzene	99.6	0	84-118		%REC	1	12/07/15 03:32 PM
Surr: Dibromofluoromethane	104	0	65-135		%REC	1	12/07/15 03:32 PM
Surr: Toluene-d8	91.7	0	84-116		%REC	1	12/07/15 03:32 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-1  
**Lab ID:** 1512052-05  
**Collection Date:** 12/02/15 02:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.7	5.35	10.7	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.545	0.218	0.545		mg/Kg-dry	1	12/09/15 05:26 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	249	5.55	5.55		mg/Kg-dry	1	12/08/15 06:08 PM
Fluoride	13.7	1.11	1.11		mg/Kg-dry	1	12/08/15 06:08 PM
Nitrate-N	<5.55	5.55	5.55		mg/Kg-dry	1	12/08/15 06:08 PM
Sulfate	157	11.1	11.1		mg/Kg-dry	1	12/08/15 06:08 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.92	0	0		pH Units@21.3°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	10.1	0	0		WT%	1	12/08/15 09:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- B Analyte detected in the associated Method Blank
- C Sample Result or QC discussed in the Case Narrative
- DF Dilution Factor
- E TPH pattern not Gas or Diesel Range Pattern
- J Analyte detected between MDL and RL
- MDL Method Detection Limit
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- S Spike Recovery outside control limits
- N Parameter not NELAC certified



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-2  
**Lab ID:** 1512052-06  
**Collection Date:** 12/02/15 02:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0376	0.0151	0.0376		mg/Kg-dry	1	12/09/15 12:40 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	1.79	0.512	1.02		mg/Kg-dry	5	12/10/15 01:35 PM
Barium	52.1	0.512	2.05		mg/Kg-dry	5	12/10/15 01:35 PM
Cadmium	<0.307	0.102	0.307		mg/Kg-dry	5	12/10/15 01:35 PM
Chromium	8.05	0.512	2.05		mg/Kg-dry	5	12/10/15 01:35 PM
Copper	2.02	0.512	2.05	J	mg/Kg-dry	5	12/10/15 01:35 PM
Iron	7040	128	128		mg/Kg-dry	50	12/10/15 03:14 PM
Lead	2.97	0.102	0.307		mg/Kg-dry	5	12/10/15 01:35 PM
Manganese	59.8	0.512	2.05		mg/Kg-dry	5	12/10/15 01:35 PM
Selenium	0.374	0.153	0.512	J	mg/Kg-dry	5	12/10/15 01:35 PM
Silver	<0.205	0.102	0.205		mg/Kg-dry	5	12/10/15 01:35 PM
Zinc	14.7	1.02	2.56		mg/Kg-dry	5	12/10/15 01:35 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0287	0.0108	0.0287	N	mg/Kg-dry	1	12/08/15 11:01 PM
2-Methylnaphthalene	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
Naphthalene	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
Benzo[a]pyrene	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,3,4,6-Tetrachlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,4,5-Trichlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,4,6-Trichlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,4-Dichlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,4-Dimethylphenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2,4-Dinitrophenol	<0.142	0.0539	0.142		mg/Kg-dry	1	12/08/15 11:01 PM
2,6-Dichlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2-Chlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2-Methylphenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
2-Nitrophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
4,6-Dinitro-2-methylphenol	<0.0711	0.0323	0.0711		mg/Kg-dry	1	12/08/15 11:01 PM
4-Chloro-3-methylphenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
4-Methylphenol	<0.0287	0.0215	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
4-Nitrophenol	<0.142	0.0539	0.142		mg/Kg-dry	1	12/08/15 11:01 PM
Pentachlorophenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
Phenol	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
Total Phenol (Calculated)	<0.0287	0.0108	0.0287		mg/Kg-dry	1	12/08/15 11:01 PM
Surr: 2,4,6-Tribromophenol	80.0	0	45-126		%REC	1	12/08/15 11:01 PM
Surr: 2-Fluorobiphenyl	78.0	0	60-125		%REC	1	12/08/15 11:01 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-2  
**Lab ID:** 1512052-06  
**Collection Date:** 12/02/15 02:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	76.0	0	37-125		%REC	1	12/08/15 11:01 PM
Surr: 4-Terphenyl-d14	87.0	0	45-125		%REC	1	12/08/15 11:01 PM
Surr: Nitrobenzene-d5	72.0	0	45-125		%REC	1	12/08/15 11:01 PM
Surr: Phenol-d5	74.0	0	40-125		%REC	1	12/08/15 11:01 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1221	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1232	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1242	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1248	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1254	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Aroclor 1260	<0.0359	0.0180	0.0359		mg/Kg-dry	1	12/08/15 03:27 PM
Polychlorinated biphenyls	<0.0359	0.0180	0.0359	N	mg/Kg-dry	1	12/08/15 03:27 PM
Surr: 2-Fluorobiphenyl	84.0	0	43-125		%REC	1	12/08/15 03:27 PM
Surr: 4-Terphenyl-d14	78.4	0	32-125		%REC	1	12/08/15 03:27 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Toluene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Carbon tetrachloride	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,2-Dichloroethane	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,1-Dichloroethylene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Tetrachloroethylene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Trichloroethylene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Ethylbenzene	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Total Xylenes	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Methylene chloride	<0.00516	0.00516	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Chloroform	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,1-Dichloroethane	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Ethylene bromide	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,1,1-Trichloroethane	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,1,2-Trichloroethane	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
1,1,2,2-Tetrachloroethane	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Vinyl chloride	<0.00516	0.00103	0.00516		mg/Kg-dry	1	12/07/15 04:03 PM
Surr: 1,2-Dichloroethane-d4	108	0	52-149		%REC	1	12/07/15 04:03 PM
Surr: 4-Bromofluorobenzene	99.2	0	84-118		%REC	1	12/07/15 04:03 PM
Surr: Dibromofluoromethane	104	0	65-135		%REC	1	12/07/15 04:03 PM
Surr: Toluene-d8	91.9	0	84-116		%REC	1	12/07/15 04:03 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-2  
**Lab ID:** 1512052-06  
**Collection Date:** 12/02/15 02:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.8	5.40	10.8	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.524	0.210	0.524		mg/Kg-dry	1	12/09/15 05:28 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	486	51.6	51.6		mg/Kg-dry	10	12/09/15 02:08 PM
Fluoride	8.34	1.03	1.03		mg/Kg-dry	1	12/08/15 06:22 PM
Nitrate-N	<5.16	5.16	5.16		mg/Kg-dry	1	12/08/15 06:22 PM
Sulfate	402	10.3	10.3		mg/Kg-dry	1	12/08/15 06:22 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.94	0	0		pH Units@21.4°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	7.79	0	0		WT%	1	12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-3  
**Lab ID:** 1512052-07  
**Collection Date:** 12/02/15 03:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0354	0.0142	0.0354		mg/Kg-dry	1	12/09/15 12:43 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	1.60	0.465	0.931		mg/Kg-dry	5	12/10/15 01:37 PM
Barium	44.4	0.465	1.86		mg/Kg-dry	5	12/10/15 01:37 PM
Cadmium	<0.279	0.0931	0.279		mg/Kg-dry	5	12/10/15 01:37 PM
Chromium	7.35	0.465	1.86		mg/Kg-dry	5	12/10/15 01:37 PM
Copper	2.08	0.465	1.86		mg/Kg-dry	5	12/10/15 01:37 PM
Iron	6530	116	116		mg/Kg-dry	50	12/10/15 03:16 PM
Lead	3.06	0.0931	0.279		mg/Kg-dry	5	12/10/15 01:37 PM
Manganese	65.9	0.465	1.86		mg/Kg-dry	5	12/10/15 01:37 PM
Selenium	0.378	0.140	0.465	J	mg/Kg-dry	5	12/10/15 01:37 PM
Silver	<0.186	0.0931	0.186		mg/Kg-dry	5	12/10/15 01:37 PM
Zinc	13.4	0.931	2.33		mg/Kg-dry	5	12/10/15 01:37 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0274	0.0103	0.0274	N	mg/Kg-dry	1	12/08/15 11:26 PM
2-Methylnaphthalene	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
Naphthalene	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
Benzo[a]pyrene	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,3,4,6-Tetrachlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,4,5-Trichlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,4,6-Trichlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,4-Dichlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,4-Dimethylphenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2,4-Dinitrophenol	<0.136	0.0515	0.136		mg/Kg-dry	1	12/08/15 11:26 PM
2,6-Dichlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2-Chlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2-Methylphenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
2-Nitrophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
4,6-Dinitro-2-methylphenol	<0.0680	0.0309	0.0680		mg/Kg-dry	1	12/08/15 11:26 PM
4-Chloro-3-methylphenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
4-Methylphenol	<0.0274	0.0206	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
4-Nitrophenol	<0.136	0.0515	0.136		mg/Kg-dry	1	12/08/15 11:26 PM
Pentachlorophenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
Phenol	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
Total Phenol (Calculated)	<0.0274	0.0103	0.0274		mg/Kg-dry	1	12/08/15 11:26 PM
Surr: 2,4,6-Tribromophenol	86.0	0	45-126		%REC	1	12/08/15 11:26 PM
Surr: 2-Fluorobiphenyl	81.0	0	60-125		%REC	1	12/08/15 11:26 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-3  
**Lab ID:** 1512052-07  
**Collection Date:** 12/02/15 03:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	79.0	0	37-125		%REC	1	12/08/15 11:26 PM
Surr: 4-Terphenyl-d14	92.0	0	45-125		%REC	1	12/08/15 11:26 PM
Surr: Nitrobenzene-d5	75.0	0	45-125		%REC	1	12/08/15 11:26 PM
Surr: Phenol-d5	78.0	0	40-125		%REC	1	12/08/15 11:26 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1221	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1232	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1242	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1248	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1254	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Aroclor 1260	<0.0344	0.0172	0.0344		mg/Kg-dry	1	12/08/15 03:59 PM
Polychlorinated biphenyls	<0.0344	0.0172	0.0344	N	mg/Kg-dry	1	12/08/15 03:59 PM
Surr: 2-Fluorobiphenyl	94.5	0	43-125		%REC	1	12/08/15 03:59 PM
Surr: 4-Terphenyl-d14	88.1	0	32-125		%REC	1	12/08/15 03:59 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Toluene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Carbon tetrachloride	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,2-Dichloroethane	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,1-Dichloroethylene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Tetrachloroethylene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Trichloroethylene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Ethylbenzene	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Total Xylenes	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Methylene chloride	<0.00494	0.00494	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Chloroform	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,1-Dichloroethane	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Ethylene bromide	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,1,1-Trichloroethane	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,1,2-Trichloroethane	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
1,1,2,2-Tetrachloroethane	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Vinyl chloride	<0.00494	0.000987	0.00494		mg/Kg-dry	1	12/07/15 04:35 PM
Surr: 1,2-Dichloroethane-d4	107	0	52-149		%REC	1	12/07/15 04:35 PM
Surr: 4-Bromofluorobenzene	98.3	0	84-118		%REC	1	12/07/15 04:35 PM
Surr: Dibromofluoromethane	102	0	65-135		%REC	1	12/07/15 04:35 PM
Surr: Toluene-d8	92.8	0	84-116		%REC	1	12/07/15 04:35 PM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- B Analyte detected in the associated Method Blank
- C Sample Result or QC discussed in the Case Narrative
- DF Dilution Factor
- E TPH pattern not Gas or Diesel Rangc Pattern
- J Analyte detected between MDL and RL
- MDL Method Detection Limit
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- S Spike Recovery outside control limits
- N Parameter not NELAC certified

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-3  
**Lab ID:** 1512052-07  
**Collection Date:** 12/02/15 03:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	<10.3	5.17	10.3	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>		Analyst: <b>JL</b>			
Cyanide, Total	<0.501	0.200	0.501		mg/Kg-dry	1	12/09/15 05:28 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	130	4.97	4.97		mg/Kg-dry	1	12/08/15 06:37 PM
Fluoride	1.72	0.995	0.995		mg/Kg-dry	1	12/08/15 06:37 PM
Nitrate-N	<4.97	4.97	4.97		mg/Kg-dry	1	12/08/15 06:37 PM
Sulfate	324	9.95	9.95		mg/Kg-dry	1	12/08/15 06:37 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>		Analyst: <b>BJT</b>			
pH	9.08	0	0		pH Units@21.5°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	4.07	0	0		WT%	1	12/08/15 09:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-4  
**Lab ID:** 1512052-08  
**Collection Date:** 12/02/15 03:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0474	0.0190	0.0474		mg/Kg-dry	1	12/09/15 12:45 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	3.60	0.575	1.15		mg/Kg-dry	5	12/10/15 01:39 PM
Barium	1260	5.75	23.0		mg/Kg-dry	50	12/10/15 03:18 PM
Cadmium	<0.345	0.115	0.345		mg/Kg-dry	5	12/10/15 01:39 PM
Chromium	7.17	0.575	2.30		mg/Kg-dry	5	12/10/15 01:39 PM
Copper	4.63	0.575	2.30		mg/Kg-dry	5	12/10/15 01:39 PM
Iron	5810	144	144		mg/Kg-dry	50	12/10/15 03:18 PM
Lead	2.93	0.115	0.345		mg/Kg-dry	5	12/10/15 01:39 PM
Manganese	220	0.575	2.30		mg/Kg-dry	5	12/10/15 01:39 PM
Selenium	0.645	0.173	0.575		mg/Kg-dry	5	12/10/15 01:39 PM
Silver	<0.230	0.115	0.230		mg/Kg-dry	5	12/10/15 01:39 PM
Zinc	11.8	1.15	2.88		mg/Kg-dry	5	12/10/15 01:39 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0321	0.0121	0.0321	N	mg/Kg-dry	1	12/08/15 11:51 PM
2-Methylnaphthalene	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
Naphthalene	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
Benzo[a]pyrene	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,3,4,6-Tetrachlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,4,5-Trichlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,4,6-Trichlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,4-Dichlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,4-Dimethylphenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2,4-Dinitrophenol	<0.159	0.0603	0.159		mg/Kg-dry	1	12/08/15 11:51 PM
2,6-Dichlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2-Chlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2-Methylphenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
2-Nitrophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
4,6-Dinitro-2-methylphenol	<0.0795	0.0362	0.0795		mg/Kg-dry	1	12/08/15 11:51 PM
4-Chloro-3-methylphenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
4-Methylphenol	<0.0321	0.0241	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
4-Nitrophenol	<0.159	0.0603	0.159		mg/Kg-dry	1	12/08/15 11:51 PM
Pentachlorophenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
Phenol	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
Total Phenol (Calculated)	<0.0321	0.0121	0.0321		mg/Kg-dry	1	12/08/15 11:51 PM
Surr: 2,4,6-Tribromophenol	73.0	0	45-126		%REC	1	12/08/15 11:51 PM
Surr: 2-Fluorobiphenyl	68.0	0	60-125		%REC	1	12/08/15 11:51 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Dicsel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-4  
**Lab ID:** 1512052-08  
**Collection Date:** 12/02/15 03:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	68.0	0	37-125		%REC	1	12/08/15 11:51 PM
Surr: 4-Terphenyl-d14	81.0	0	45-125		%REC	1	12/08/15 11:51 PM
Surr: Nitrobenzene-d5	64.0	0	45-125		%REC	1	12/08/15 11:51 PM
Surr: Phenol-d5	66.0	0	40-125		%REC	1	12/08/15 11:51 PM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1221	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1232	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1242	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1248	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1254	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Aroclor 1260	<0.0402	0.0201	0.0402		mg/Kg-dry	1	12/08/15 04:30 PM
Polychlorinated biphenyls	<0.0402	0.0201	0.0402	N	mg/Kg-dry	1	12/08/15 04:30 PM
Surr: 2-Fluorobiphenyl	90.3	0	43-125		%REC	1	12/08/15 04:30 PM
Surr: 4-Terphenyl-d14	86.8	0	32-125		%REC	1	12/08/15 04:30 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Toluene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Carbon tetrachloride	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,2-Dichloroethane	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,1-Dichloroethylene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Tetrachloroethylene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Trichloroethylene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Ethylbenzene	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Total Xylenes	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Methylene chloride	<0.00579	0.00579	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Chloroform	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,1-Dichloroethane	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Ethylene bromide	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,1,1-Trichloroethane	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,1,2-Trichloroethane	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
1,1,2,2-Tetrachloroethane	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Vinyl chloride	<0.00579	0.00116	0.00579		mg/Kg-dry	1	12/07/15 05:06 PM
Surr: 1,2-Dichloroethane-d4	105	0	52-149		%REC	1	12/07/15 05:06 PM
Surr: 4-Bromofluorobenzene	99.0	0	84-118		%REC	1	12/07/15 05:06 PM
Surr: Dibromofluoromethane	104	0	65-135		%REC	1	12/07/15 05:06 PM
Surr: Toluene-d8	92.8	0	84-116		%REC	1	12/07/15 05:06 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 2 DP-4  
**Lab ID:** 1512052-08  
**Collection Date:** 12/02/15 03:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<12.2	6.09	12.2	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.618	0.247	0.618		mg/Kg-dry	1	12/09/15 05:28 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	10.6	6.09	6.09		mg/Kg-dry	1	12/08/15 07:21 PM
Fluoride	11.7	1.22	1.22		mg/Kg-dry	1	12/08/15 07:21 PM
Nitrate-N	<6.09	6.09	6.09		mg/Kg-dry	1	12/08/15 07:21 PM
Sulfate	111	12.2	12.2		mg/Kg-dry	1	12/08/15 07:21 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	9.30	0	0		pH Units@21.2°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	19.6	0	0		WT%	1	12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-1  
**Lab ID:** 1512052-09  
**Collection Date:** 12/02/15 03:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0415	0.0166	0.0415		mg/Kg-dry	1	12/09/15 12:47 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	3.19	0.487	0.974		mg/Kg-dry	5	12/10/15 01:41 PM
Barium	1110	4.87	19.5		mg/Kg-dry	50	12/10/15 03:20 PM
Cadmium	<0.292	0.0974	0.292		mg/Kg-dry	5	12/10/15 01:41 PM
Chromium	6.93	0.487	1.95		mg/Kg-dry	5	12/10/15 01:41 PM
Copper	3.46	0.487	1.95		mg/Kg-dry	5	12/10/15 01:41 PM
Iron	6250	122	122		mg/Kg-dry	50	12/10/15 03:20 PM
Lead	3.13	0.0974	0.292		mg/Kg-dry	5	12/10/15 01:41 PM
Manganese	168	0.487	1.95		mg/Kg-dry	5	12/10/15 01:41 PM
Selenium	0.470	0.146	0.487	J	mg/Kg-dry	5	12/10/15 01:41 PM
Silver	<0.195	0.0974	0.195		mg/Kg-dry	5	12/10/15 01:41 PM
Zinc	11.0	0.974	2.43		mg/Kg-dry	5	12/10/15 01:41 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0288	0.0108	0.0288	N	mg/Kg-dry	1	12/09/15 12:16 AM
2-Methylnaphthalene	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
Naphthalene	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
Benzo[a]pyrene	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,3,4,6-Tetrachlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,4,5-Trichlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,4,6-Trichlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,4-Dichlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,4-Dimethylphenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2,4-Dinitrophenol	<0.143	0.0542	0.143		mg/Kg-dry	1	12/09/15 12:16 AM
2,6-Dichlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2-Chlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2-Methylphenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
2-Nitrophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
4,6-Dinitro-2-methylphenol	<0.0715	0.0325	0.0715		mg/Kg-dry	1	12/09/15 12:16 AM
4-Chloro-3-methylphenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
4-Methylphenol	<0.0288	0.0217	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
4-Nitrophenol	<0.143	0.0542	0.143		mg/Kg-dry	1	12/09/15 12:16 AM
Pentachlorophenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
Phenol	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
Total Phenol (Calculated)	<0.0288	0.0108	0.0288		mg/Kg-dry	1	12/09/15 12:16 AM
Surr: 2,4,6-Tribromophenol	84.0	0	45-126		%REC	1	12/09/15 12:16 AM
Surr: 2-Fluorobiphenyl	71.0	0	60-125		%REC	1	12/09/15 12:16 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-1  
**Lab ID:** 1512052-09  
**Collection Date:** 12/02/15 03:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	77.0	0	37-125		%REC	1	12/09/15 12:16 AM
Surr: 4-Terphenyl-d14	87.0	0	45-125		%REC	1	12/09/15 12:16 AM
Surr: Nitrobenzene-d5	67.0	0	45-125		%REC	1	12/09/15 12:16 AM
Surr: Phenol-d5	70.0	0	40-125		%REC	1	12/09/15 12:16 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1221	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1232	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1242	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1248	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1254	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Aroclor 1260	<0.0361	0.0181	0.0361		mg/Kg-dry	1	12/08/15 05:02 PM
Polychlorinated biphenyls	<0.0361	0.0181	0.0361	N	mg/Kg-dry	1	12/08/15 05:02 PM
Surr: 2-Fluorobiphenyl	91.8	0	43-125		%REC	1	12/08/15 05:02 PM
Surr: 4-Terphenyl-d14	91.0	0	32-125		%REC	1	12/08/15 05:02 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Toluene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Carbon tetrachloride	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,2-Dichloroethane	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,1-Dichloroethylene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Tetrachloroethylene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Trichloroethylene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Ethylbenzene	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Total Xylenes	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Methylene chloride	<0.00559	0.00559	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Chloroform	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,1-Dichloroethane	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Ethylene bromide	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,1,1-Trichloroethane	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,1,2-Trichloroethane	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
1,1,2,2-Tetrachloroethane	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Vinyl chloride	<0.00559	0.00112	0.00559		mg/Kg-dry	1	12/07/15 05:37 PM
Surr: 1,2-Dichloroethane-d4	109	0	52-149		%REC	1	12/07/15 05:37 PM
Surr: 4-Bromofluorobenzene	99.2	0	84-118		%REC	1	12/07/15 05:37 PM
Surr: Dibromofluoromethane	107	0	65-135		%REC	1	12/07/15 05:37 PM
Surr: Toluene-d8	91.6	0	84-116		%REC	1	12/07/15 05:37 PM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-1  
**Lab ID:** 1512052-09  
**Collection Date:** 12/02/15 03:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>		Analyst: <b>ABO</b>			
Petroleum Hydrocarbons, TR	<11.3	5.65	11.3	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>		Analyst: <b>JL</b>			
Cyanide, Total	<0.560	0.224	0.560		mg/Kg-dry	1	12/09/15 05:28 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>		Analyst: <b>AV</b>			
Chloride	790	55.1	55.1		mg/Kg-dry	10	12/09/15 02:22 PM
Fluoride	3.33	1.10	1.10		mg/Kg-dry	1	12/08/15 07:35 PM
Nitrate-N	<5.51	5.51	5.51		mg/Kg-dry	1	12/08/15 07:35 PM
Sulfate	258	11.0	11.0		mg/Kg-dry	1	12/08/15 07:35 PM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>		Analyst: <b>BJT</b>			
pH	7.93	0	0		pH Units@21°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		Analyst: <b>JL</b>			
Percent Moisture	13.0	0	0		WT%	1	12/08/15 09:32 AM

**Qualifiers:**

* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
RL Reporting Limit	S Spike Recovery outside control limits
N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-2  
**Lab ID:** 1512052-10  
**Collection Date:** 12/02/15 03:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0398	0.0159	0.0398		mg/Kg-dry	1	12/09/15 12:49 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	4.19	0.542	1.08		mg/Kg-dry	5	12/10/15 01:43 PM
Barium	1100	5.42	21.7		mg/Kg-dry	50	12/10/15 03:22 PM
Cadmium	<0.325	0.108	0.325		mg/Kg-dry	5	12/10/15 01:43 PM
Chromium	12.7	0.542	2.17		mg/Kg-dry	5	12/10/15 01:43 PM
Copper	5.38	0.542	2.17		mg/Kg-dry	5	12/10/15 01:43 PM
Iron	10900	136	136		mg/Kg-dry	50	12/10/15 03:22 PM
Lead	5.17	0.108	0.325		mg/Kg-dry	5	12/10/15 01:43 PM
Manganese	171	0.542	2.17		mg/Kg-dry	5	12/10/15 01:43 PM
Selenium	0.913	0.163	0.542		mg/Kg-dry	5	12/10/15 01:43 PM
Silver	<0.217	0.108	0.217		mg/Kg-dry	5	12/10/15 01:43 PM
Zinc	17.0	1.08	2.71		mg/Kg-dry	5	12/10/15 01:43 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0304	0.0114	0.0304	N	mg/Kg-dry	1	12/09/15 12:41 AM
2-Methylnaphthalene	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
Naphthalene	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
Benzo[a]pyrene	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,3,4,6-Tetrachlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,4,5-Trichlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,4,6-Trichlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,4-Dichlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,4-Dimethylphenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2,4-Dinitrophenol	<0.151	0.0572	0.151		mg/Kg-dry	1	12/09/15 12:41 AM
2,6-Dichlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2-Chlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2-Methylphenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
2-Nitrophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
4,6-Dinitro-2-methylphenol	<0.0755	0.0343	0.0755		mg/Kg-dry	1	12/09/15 12:41 AM
4-Chloro-3-methylphenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
4-Methylphenol	<0.0304	0.0229	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
4-Nitrophenol	<0.151	0.0572	0.151		mg/Kg-dry	1	12/09/15 12:41 AM
Pentachlorophenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
Phenol	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
Total Phenol (Calculated)	<0.0304	0.0114	0.0304		mg/Kg-dry	1	12/09/15 12:41 AM
Surr: 2,4,6-Tribromophenol	84.0	0	45-126		%REC	1	12/09/15 12:41 AM
Surr: 2-Fluorobiphenyl	70.0	0	60-125		%REC	1	12/09/15 12:41 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level B Analyte detected in the associated Method Blank  
C Sample Result or QC discussed in the Case Narrative DF Dilution Factor  
E TPH pattern not Gas or Diesel Range Pattern J Analyte detected between MDL and RL  
MDL Method Detection Limit ND Not Detected at the Method Detection Limit  
RL Reporting Limit S Spike Recovery outside control limits  
N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-2  
**Lab ID:** 1512052-10  
**Collection Date:** 12/02/15 03:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	76.0	0	37-125		%REC	1	12/09/15 12:41 AM
Surr: 4-Terphenyl-d14	87.0	0	45-125		%REC	1	12/09/15 12:41 AM
Surr: Nitrobenzene-d5	72.0	0	45-125		%REC	1	12/09/15 12:41 AM
Surr: Phenol-d5	75.0	0	40-125		%REC	1	12/09/15 12:41 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1221	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1232	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1242	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1248	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1254	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Aroclor 1260	<0.0381	0.0191	0.0381		mg/Kg-dry	1	12/08/15 05:33 PM
Polychlorinated biphenyls	<0.0381	0.0191	0.0381	N	mg/Kg-dry	1	12/08/15 05:33 PM
Surr: 2-Fluorobiphenyl	93.0	0	43-125		%REC	1	12/08/15 05:33 PM
Surr: 4-Terphenyl-d14	87.0	0	32-125		%REC	1	12/08/15 05:33 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Toluene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Carbon tetrachloride	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,2-Dichloroethane	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,1-Dichloroethylene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Tetrachloroethylene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Trichloroethylene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Ethylbenzene	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Total Xylenes	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Methylene chloride	<0.00570	0.00570	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Chloroform	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,1-Dichloroethane	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Ethylene bromide	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,1,1-Trichloroethane	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,1,2-Trichloroethane	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
1,1,2,2-Tetrachloroethane	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Vinyl chloride	<0.00570	0.00114	0.00570		mg/Kg-dry	1	12/07/15 06:08 PM
Surr: 1,2-Dichloroethane-d4	112	0	52-149		%REC	1	12/07/15 06:08 PM
Surr: 4-Bromofluorobenzene	99.9	0	84-118		%REC	1	12/07/15 06:08 PM
Surr: Dibromofluoromethane	106	0	65-135		%REC	1	12/07/15 06:08 PM
Surr: Toluene-d8	92.0	0	84-116		%REC	1	12/07/15 06:08 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-2  
**Lab ID:** 1512052-10  
**Collection Date:** 12/02/15 03:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<11.2	5.60	11.2	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.553	0.221	0.553		mg/Kg-dry	1	12/09/15 05:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	958	54.7	54.7		mg/Kg-dry	10	12/09/15 02:37 PM
Fluoride	3.70	1.09	1.09		mg/Kg-dry	1	12/09/15 09:15 AM
Nitrate-N	<5.47	5.47	5.47		mg/Kg-dry	1	12/09/15 09:15 AM
Sulfate	244	10.9	10.9		mg/Kg-dry	1	12/09/15 09:15 AM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	7.96	0	0		pH Units@20.8°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	13.9	0	0		WT%	1	12/08/15 09:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- B Analyte detected in the associated Method Blank
- C Sample Result or QC discussed in the Case Narrative
- DF Dilution Factor
- E TPH pattern not Gas or Diesel Range Pattern
- J Analyte detected between MDL and RL
- MDL Method Detection Limit
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- S Spike Recovery outside control limits
- N Parameter not NELAC certified

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-3  
**Lab ID:** 1512052-11  
**Collection Date:** 12/02/15 04:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0366	0.0146	0.0366		mg/Kg-dry	1	12/09/15 12:56 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	1.89	0.480	0.960		mg/Kg-dry	5	12/10/15 12:55 PM
Barium	63.9	0.480	1.92		mg/Kg-dry	5	12/10/15 12:55 PM
Cadmium	<0.288	0.0960	0.288		mg/Kg-dry	5	12/10/15 12:55 PM
Chromium	12.5	0.480	1.92		mg/Kg-dry	5	12/10/15 12:55 PM
Copper	2.28	0.480	1.92		mg/Kg-dry	5	12/10/15 12:55 PM
Iron	9770	120	120		mg/Kg-dry	50	12/10/15 02:42 PM
Lead	5.18	0.0960	0.288		mg/Kg-dry	5	12/10/15 12:55 PM
Manganese	57.4	0.480	1.92		mg/Kg-dry	5	12/10/15 12:55 PM
Selenium	0.650	0.144	0.480		mg/Kg-dry	5	12/10/15 12:55 PM
Silver	<0.192	0.0960	0.192		mg/Kg-dry	5	12/10/15 12:55 PM
Zinc	23.0	0.960	2.40		mg/Kg-dry	5	12/10/15 12:55 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0291	0.0109	0.0291	N	mg/Kg-dry	1	12/09/15 01:06 AM
2-Methylnaphthalene	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
Naphthalene	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
Benzo[a]pyrene	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,3,4,6-Tetrachlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,4,5-Trichlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,4,6-Trichlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,4-Dichlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,4-Dimethylphenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2,4-Dinitrophenol	<0.144	0.0547	0.144		mg/Kg-dry	1	12/09/15 01:06 AM
2,6-Dichlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2-Chlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2-Methylphenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
2-Nitrophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
4,6-Dinitro-2-methylphenol	<0.0721	0.0328	0.0721		mg/Kg-dry	1	12/09/15 01:06 AM
4-Chloro-3-methylphenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
4-Methylphenol	<0.0291	0.0219	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
4-Nitrophenol	<0.144	0.0547	0.144		mg/Kg-dry	1	12/09/15 01:06 AM
Pentachlorophenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
Phenol	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
Total Phenol (Calculated)	<0.0291	0.0109	0.0291		mg/Kg-dry	1	12/09/15 01:06 AM
Surr: 2,4,6-Tribromophenol	90.0	0	45-126		%REC	1	12/09/15 01:06 AM
Surr: 2-Fluorobiphenyl	80.0	0	60-125		%REC	1	12/09/15 01:06 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-3  
**Lab ID:** 1512052-11  
**Collection Date:** 12/02/15 04:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>		<b>Analyst: DEW</b>			
Surr: 2-Fluorophenol	78.0	0	37-125		%REC	1	12/09/15 01:06 AM
Surr: 4-Terphenyl-d14	94.0	0	45-125		%REC	1	12/09/15 01:06 AM
Surr: Nitrobenzene-d5	73.0	0	45-125		%REC	1	12/09/15 01:06 AM
Surr: Phenol-d5	80.0	0	40-125		%REC	1	12/09/15 01:06 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>		<b>Analyst: KL</b>			
Aroclor 1016	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1221	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1232	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1242	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1248	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1254	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Aroclor 1260	<0.0364	0.0182	0.0364		mg/Kg-dry	1	12/08/15 06:05 PM
Polychlorinated biphenyls	<0.0364	0.0182	0.0364	N	mg/Kg-dry	1	12/08/15 06:05 PM
Surr: 2-Fluorobiphenyl	106	0	43-125		%REC	1	12/08/15 06:05 PM
Surr: 4-Terphenyl-d14	98.7	0	32-125		%REC	1	12/08/15 06:05 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>		<b>Analyst: SW</b>			
Benzene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Toluene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Carbon tetrachloride	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,2-Dichloroethane	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,1-Dichloroethylene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Tetrachloroethylene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Trichloroethylene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Ethylbenzene	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Total Xylenes	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Methylene chloride	<0.00499	0.00499	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Chloroform	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,1-Dichloroethane	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Ethylene bromide	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,1,1-Trichloroethane	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,1,2-Trichloroethane	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
1,1,2,2-Tetrachloroethane	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Vinyl chloride	<0.00499	0.000999	0.00499		mg/Kg-dry	1	12/07/15 06:39 PM
Surr: 1,2-Dichloroethane-d4	107	0	52-149		%REC	1	12/07/15 06:39 PM
Surr: 4-Bromofluorobenzene	99.5	0	84-118		%REC	1	12/07/15 06:39 PM
Surr: Dibromofluoromethane	106	0	65-135		%REC	1	12/07/15 06:39 PM
Surr: Toluene-d8	91.9	0	84-116		%REC	1	12/07/15 06:39 PM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-3  
**Lab ID:** 1512052-11  
**Collection Date:** 12/02/15 04:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b> Petroleum Hydrocarbons, TR	<10.7	<b>E418.1</b> 5.36	10.7	N	mg/Kg-dry	1	Analyst: <b>ABO</b> 12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b> Cyanide, Total	<0.547	<b>SW9014</b> 0.219	0.547		mg/Kg-dry	1	Analyst: <b>JL</b> 12/09/15 05:30 PM
<b>ANIONS BY IC METHOD - SOIL</b> Chloride	701	<b>E300</b> 50.3	50.3		mg/Kg-dry	10	Analyst: <b>AV</b> 12/09/15 02:51 PM
Fluoride	2.04	1.01	1.01		mg/Kg-dry	1	12/09/15 10:16 AM
Nitrate-N	<5.03	5.03	5.03		mg/Kg-dry	1	12/09/15 10:16 AM
Sulfate	44.9	10.1	10.1		mg/Kg-dry	1	12/09/15 10:16 AM
<b>PH OF SOLID (CORROSIVITY)</b> pH	7.64	<b>SW9045D</b> 0	0		pH Units@21.1°C	1	Analyst: <b>BJT</b> 12/07/15 10:30 AM
<b>PERCENT MOISTURE</b> Percent Moisture	8.64	<b>D2216</b> 0	0		WT%	1	Analyst: <b>JL</b> 12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-4  
**Lab ID:** 1512052-12  
**Collection Date:** 12/02/15 04:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0466	0.0187	0.0466		mg/Kg-dry	1	12/09/15 12:58 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	8.35	0.498	0.997		mg/Kg-dry	5	12/10/15 12:57 PM
Barium	1910	4.98	19.9		mg/Kg-dry	50	12/10/15 02:44 PM
Cadmium	<0.299	0.0997	0.299		mg/Kg-dry	5	12/10/15 12:57 PM
Chromium	25.0	0.498	1.99		mg/Kg-dry	5	12/10/15 12:57 PM
Copper	9.13	0.498	1.99		mg/Kg-dry	5	12/10/15 12:57 PM
Iron	20300	125	125		mg/Kg-dry	50	12/10/15 02:44 PM
Lead	8.87	0.0997	0.299		mg/Kg-dry	5	12/10/15 12:57 PM
Manganese	190	0.498	1.99		mg/Kg-dry	5	12/10/15 12:57 PM
Selenium	1.27	0.150	0.498		mg/Kg-dry	5	12/10/15 12:57 PM
Silver	<0.199	0.0997	0.199		mg/Kg-dry	5	12/10/15 12:57 PM
Zinc	37.2	0.997	2.49		mg/Kg-dry	5	12/10/15 12:57 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0317	0.0119	0.0317	N	mg/Kg-dry	1	12/09/15 01:30 AM
2-Methylnaphthalene	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
Naphthalene	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
Benzo[a]pyrene	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,3,4,6-Tetrachlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,4,5-Trichlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,4,6-Trichlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,4-Dichlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,4-Dimethylphenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2,4-Dinitrophenol	<0.157	0.0595	0.157		mg/Kg-dry	1	12/09/15 01:30 AM
2,6-Dichlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2-Chlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2-Methylphenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
2-Nitrophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
4,6-Dinitro-2-methylphenol	<0.0786	0.0357	0.0786		mg/Kg-dry	1	12/09/15 01:30 AM
4-Chloro-3-methylphenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
4-Methylphenol	<0.0317	0.0238	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
4-Nitrophenol	<0.157	0.0595	0.157		mg/Kg-dry	1	12/09/15 01:30 AM
Pentachlorophenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
Phenol	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
Total Phenol (Calculated)	<0.0317	0.0119	0.0317		mg/Kg-dry	1	12/09/15 01:30 AM
Surr: 2,4,6-Tribromophenol	80.0	0	45-126		%REC	1	12/09/15 01:30 AM
Surr: 2-Fluorobiphenyl	76.0	0	60-125		%REC	1	12/09/15 01:30 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-4  
**Lab ID:** 1512052-12  
**Collection Date:** 12/02/15 04:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	75.0	0	37-125		%REC	1	12/09/15 01:30 AM
Surr: 4-Terphenyl-d14	86.0	0	45-125		%REC	1	12/09/15 01:30 AM
Surr: Nitrobenzene-d5	71.0	0	45-125		%REC	1	12/09/15 01:30 AM
Surr: Phenol-d5	73.0	0	40-125		%REC	1	12/09/15 01:30 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1221	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1232	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1242	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1248	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1254	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Aroclor 1260	<0.0397	0.0198	0.0397		mg/Kg-dry	1	12/08/15 06:36 PM
Polychlorinated biphenyls	<0.0397	0.0198	0.0397	N	mg/Kg-dry	1	12/08/15 06:36 PM
Surr: 2-Fluorobiphenyl	94.1	0	43-125		%REC	1	12/08/15 06:36 PM
Surr: 4-Terphenyl-d14	88.5	0	32-125		%REC	1	12/08/15 06:36 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Toluene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Carbon tetrachloride	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,2-Dichloroethane	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,1-Dichloroethylene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Tetrachloroethylene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Trichloroethylene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Ethylbenzene	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Total Xylenes	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Methylene chloride	<0.00557	0.00557	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Chloroform	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,1-Dichloroethane	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Ethylene bromide	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,1,1-Trichloroethane	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,1,2-Trichloroethane	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
1,1,2,2-Tetrachloroethane	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Vinyl chloride	<0.00557	0.00111	0.00557		mg/Kg-dry	1	12/07/15 07:10 PM
Surr: 1,2-Dichloroethane-d4	111	0	52-149		%REC	1	12/07/15 07:10 PM
Surr: 4-Bromofluorobenzene	99.7	0	84-118		%REC	1	12/07/15 07:10 PM
Surr: Dibromofluoromethane	106	0	65-135		%REC	1	12/07/15 07:10 PM
Surr: Toluene-d8	91.3	0	84-116		%REC	1	12/07/15 07:10 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 3 DP-4  
**Lab ID:** 1512052-12  
**Collection Date:** 12/02/15 04:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<11.9	5.93	11.9	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.608	0.243	0.608		mg/Kg-dry	1	12/09/15 05:30 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	31.5	5.95	5.95		mg/Kg-dry	1	12/09/15 10:31 AM
Fluoride	17.2	1.19	1.19		mg/Kg-dry	1	12/09/15 10:31 AM
Nitrate-N	<5.95	5.95	5.95		mg/Kg-dry	1	12/09/15 10:31 AM
Sulfate	241	11.9	11.9		mg/Kg-dry	1	12/09/15 10:31 AM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.41	0	0		pH Units@21.2°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	17.8	0	0		WT%	1	12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-1  
**Lab ID:** 1512052-13  
**Collection Date:** 12/02/15 04:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0402	0.0161	0.0402		mg/Kg-dry	1	12/09/15 01:01 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	1.96	0.440	0.879		mg/Kg-dry	5	12/10/15 12:59 PM
Barium	78.9	0.440	1.76		mg/Kg-dry	5	12/10/15 12:59 PM
Cadmium	<0.264	0.0879	0.264		mg/Kg-dry	5	12/10/15 12:59 PM
Chromium	6.93	0.440	1.76		mg/Kg-dry	5	12/10/15 12:59 PM
Copper	2.48	0.440	1.76		mg/Kg-dry	5	12/10/15 12:59 PM
Iron	6320	110	110		mg/Kg-dry	50	12/10/15 02:46 PM
Lead	3.09	0.0879	0.264		mg/Kg-dry	5	12/10/15 12:59 PM
Manganese	61.8	0.440	1.76		mg/Kg-dry	5	12/10/15 12:59 PM
Selenium	0.503	0.132	0.440		mg/Kg-dry	5	12/10/15 12:59 PM
Silver	<0.176	0.0879	0.176		mg/Kg-dry	5	12/10/15 12:59 PM
Zinc	13.2	0.879	2.20		mg/Kg-dry	5	12/10/15 12:59 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0289	0.0109	0.0289	N	mg/Kg-dry	1	12/09/15 01:55 AM
2-Methylnaphthalene	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
Naphthalene	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
Benzo[a]pyrene	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,3,4,6-Tetrachlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,4,5-Trichlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,4,6-Trichlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,4-Dichlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,4-Dimethylphenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2,4-Dinitrophenol	<0.143	0.0543	0.143		mg/Kg-dry	1	12/09/15 01:55 AM
2,6-Dichlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2-Chlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2-Methylphenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
2-Nitrophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
4,6-Dinitro-2-methylphenol	<0.0717	0.0326	0.0717		mg/Kg-dry	1	12/09/15 01:55 AM
4-Chloro-3-methylphenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
4-Methylphenol	<0.0289	0.0217	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
4-Nitrophenol	<0.143	0.0543	0.143		mg/Kg-dry	1	12/09/15 01:55 AM
Pentachlorophenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
Phenol	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
Total Phenol (Calculated)	<0.0289	0.0109	0.0289		mg/Kg-dry	1	12/09/15 01:55 AM
Surr: 2,4,6-Tribromophenol	81.0	0	45-126		%REC	1	12/09/15 01:55 AM
Surr: 2-Fluorobiphenyl	79.0	0	60-125		%REC	1	12/09/15 01:55 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-1  
**Lab ID:** 1512052-13  
**Collection Date:** 12/02/15 04:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	77.0	0	37-125		%REC	1	12/09/15 01:55 AM
Surr: 4-Terphenyl-d14	88.0	0	45-125		%REC	1	12/09/15 01:55 AM
Surr: Nitrobenzene-d5	72.0	0	45-125		%REC	1	12/09/15 01:55 AM
Surr: Phenol-d5	76.0	0	40-125		%REC	1	12/09/15 01:55 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1221	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1232	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1242	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1248	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1254	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Aroclor 1260	<0.0362	0.0181	0.0362		mg/Kg-dry	1	12/08/15 07:07 PM
Polychlorinated biphenyls	<0.0362	0.0181	0.0362	N	mg/Kg-dry	1	12/08/15 07:07 PM
Surr: 2-Fluorobiphenyl	99.3	0	43-125		%REC	1	12/08/15 07:07 PM
Surr: 4-Terphenyl-d14	91.3	0	32-125		%REC	1	12/08/15 07:07 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Toluene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Carbon tetrachloride	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,2-Dichloroethane	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,1-Dichloroethylene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Tetrachloroethylene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Trichloroethylene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Ethylbenzene	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Total Xylenes	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Methylene chloride	<0.00539	0.00539	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Chloroform	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,1-Dichloroethane	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Ethylene bromide	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,1,1-Trichloroethane	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,1,2-Trichloroethane	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
1,1,2,2-Tetrachloroethane	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Vinyl chloride	<0.00539	0.00108	0.00539		mg/Kg-dry	1	12/07/15 07:41 PM
Surr: 1,2-Dichloroethane-d4	108	0	52-149		%REC	1	12/07/15 07:41 PM
Surr: 4-Bromofluorobenzene	101	0	84-118		%REC	1	12/07/15 07:41 PM
Surr: Dibromofluoromethane	106	0	65-135		%REC	1	12/07/15 07:41 PM
Surr: Toluene-d8	92.5	0	84-116		%REC	1	12/07/15 07:41 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-1  
**Lab ID:** 1512052-13  
**Collection Date:** 12/02/15 04:40 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.6	5.31	10.6	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.518	0.207	0.518		mg/Kg-dry	1	12/09/15 05:34 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	<5.03	5.03	5.03		mg/Kg-dry	1	12/09/15 10:45 AM
Fluoride	2.25	1.01	1.01		mg/Kg-dry	1	12/09/15 10:45 AM
Nitrate-N	<5.03	5.03	5.03		mg/Kg-dry	1	12/09/15 10:45 AM
Sulfate	<10.1	10.1	10.1		mg/Kg-dry	1	12/09/15 10:45 AM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.49	0	0		pH Units@21.2°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	9.71	0	0		WT%	1	12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-2  
**Lab ID:** 1512052-14  
**Collection Date:** 12/02/15 04:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0390	0.0156	0.0390		mg/Kg-dry	1	12/09/15 01:03 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	1.47	0.480	0.961		mg/Kg-dry	5	12/10/15 01:01 PM
Barium	31.1	0.480	1.92		mg/Kg-dry	5	12/10/15 01:01 PM
Cadmium	<0.288	0.0961	0.288		mg/Kg-dry	5	12/10/15 01:01 PM
Chromium	7.34	0.480	1.92		mg/Kg-dry	5	12/10/15 01:01 PM
Copper	2.15	0.480	1.92		mg/Kg-dry	5	12/10/15 01:01 PM
Iron	6840	120	120		mg/Kg-dry	50	12/10/15 02:48 PM
Lead	3.12	0.0961	0.288		mg/Kg-dry	5	12/10/15 01:01 PM
Manganese	58.5	0.480	1.92		mg/Kg-dry	5	12/10/15 01:01 PM
Selenium	0.496	0.144	0.480		mg/Kg-dry	5	12/10/15 01:01 PM
Silver	<0.192	0.0961	0.192		mg/Kg-dry	5	12/10/15 01:01 PM
Zinc	13.5	0.961	2.40		mg/Kg-dry	5	12/10/15 01:01 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0281	0.0106	0.0281	N	mg/Kg-dry	1	12/09/15 02:20 AM
2-Methylnaphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
Naphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
Benzo[a]pyrene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,3,4,6-Tetrachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,4,5-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,4,6-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,4-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,4-Dimethylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2,4-Dinitrophenol	<0.140	0.0529	0.140		mg/Kg-dry	1	12/09/15 02:20 AM
2,6-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2-Chlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2-Methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
2-Nitrophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
4,6-Dinitro-2-methylphenol	<0.0698	0.0317	0.0698		mg/Kg-dry	1	12/09/15 02:20 AM
4-Chloro-3-methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
4-Methylphenol	<0.0281	0.0212	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
4-Nitrophenol	<0.140	0.0529	0.140		mg/Kg-dry	1	12/09/15 02:20 AM
Pentachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
Phenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
Total Phenol (Calculated)	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:20 AM
Surr: 2,4,6-Tribromophenol	90.0	0	45-126		%REC	1	12/09/15 02:20 AM
Surr: 2-Fluorobiphenyl	82.0	0	60-125		%REC	1	12/09/15 02:20 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-2  
**Lab ID:** 1512052-14  
**Collection Date:** 12/02/15 04:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	80.0	0	37-125		%REC	1	12/09/15 02:20 AM
Surr: 4-Terphenyl-d14	91.0	0	45-125		%REC	1	12/09/15 02:20 AM
Surr: Nitrobenzene-d5	76.0	0	45-125		%REC	1	12/09/15 02:20 AM
Surr: Phenol-d5	80.0	0	40-125		%REC	1	12/09/15 02:20 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1221	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1232	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1242	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1248	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1254	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Aroclor 1260	<0.0353	0.0176	0.0353		mg/Kg-dry	1	12/08/15 07:38 PM
Polychlorinated biphenyls	<0.0353	0.0176	0.0353	N	mg/Kg-dry	1	12/08/15 07:38 PM
Surr: 2-Fluorobiphenyl	96.8	0	43-125		%REC	1	12/08/15 07:38 PM
Surr: 4-Terphenyl-d14	88.4	0	32-125		%REC	1	12/08/15 07:38 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Toluene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Carbon tetrachloride	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,2-Dichloroethane	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,1-Dichloroethylene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Tetrachloroethylene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Trichloroethylene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Ethylbenzene	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Total Xylenes	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Methylene chloride	<0.00531	0.00531	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Chloroform	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,1-Dichloroethane	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Ethylene bromide	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,1,1-Trichloroethane	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,1,2-Trichloroethane	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
1,1,2,2-Tetrachloroethane	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Vinyl chloride	<0.00531	0.00106	0.00531		mg/Kg-dry	1	12/07/15 08:12 PM
Surr: 1,2-Dichloroethane-d4	108	0	52-149		%REC	1	12/07/15 08:12 PM
Surr: 4-Bromofluorobenzene	101	0	84-118		%REC	1	12/07/15 08:12 PM
Surr: Dibromofluoromethane	106	0	65-135		%REC	1	12/07/15 08:12 PM
Surr: Toluene-d8	91.3	0	84-116		%REC	1	12/07/15 08:12 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-2  
**Lab ID:** 1512052-14  
**Collection Date:** 12/02/15 04:50 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b> Petroleum Hydrocarbons, TR	<10.7	<b>E418.1</b> 5.36	10.7	N	mg/Kg-dry	1	Analyst: <b>ABO</b> 12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b> Cyanide, Total	<0.533	<b>SW9014</b> 0.213	0.533		mg/Kg-dry	1	Analyst: <b>JL</b> 12/09/15 05:34 PM
<b>ANIONS BY IC METHOD - SOIL</b> Chloride	<5.27	<b>E300</b> 5.27	5.27		mg/Kg-dry	1	Analyst: <b>AV</b> 12/09/15 11:00 AM
Fluoride	1.24	1.05	1.05		mg/Kg-dry	1	12/09/15 11:00 AM
Nitrate-N	<5.27	5.27	5.27		mg/Kg-dry	1	12/09/15 11:00 AM
Sulfate	<10.5	10.5	10.5		mg/Kg-dry	1	12/09/15 11:00 AM
<b>PH OF SOLID (CORROSIVITY)</b> pH	8.36	<b>SW9045D</b> 0	0		pH Units@21.3°C	1	Analyst: <b>BJT</b> 12/07/15 10:30 AM
<b>PERCENT MOISTURE</b> Percent Moisture	7.07	<b>D2216</b> 0	0		WT%	1	Analyst: <b>JL</b> 12/08/15 09:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-3  
**Lab ID:** 1512052-15  
**Collection Date:** 12/02/15 05:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					<b>Analyst: ABO</b>
Mercury	<0.0380	0.0152	0.0380		mg/Kg-dry	1	12/09/15 01:05 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					<b>Analyst: RO</b>
Arsenic	1.91	0.476	0.952		mg/Kg-dry	5	12/10/15 01:03 PM
Barium	88.5	0.476	1.90		mg/Kg-dry	5	12/10/15 01:03 PM
Cadmium	<0.286	0.0952	0.286		mg/Kg-dry	5	12/10/15 01:03 PM
Chromium	4.78	0.476	1.90		mg/Kg-dry	5	12/10/15 01:03 PM
Copper	1.72	0.476	1.90	J	mg/Kg-dry	5	12/10/15 01:03 PM
Iron	4310	119	119		mg/Kg-dry	50	12/10/15 02:50 PM
Lead	2.32	0.0952	0.286		mg/Kg-dry	5	12/10/15 01:03 PM
Manganese	44.0	0.476	1.90		mg/Kg-dry	5	12/10/15 01:03 PM
Selenium	0.430	0.143	0.476	J	mg/Kg-dry	5	12/10/15 01:03 PM
Silver	<0.190	0.0952	0.190		mg/Kg-dry	5	12/10/15 01:03 PM
Zinc	8.55	0.952	2.38		mg/Kg-dry	5	12/10/15 01:03 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					<b>Analyst: DEW</b>
1-Methylnaphthalene	<0.0281	0.0106	0.0281	N	mg/Kg-dry	1	12/09/15 02:45 AM
2-Methylnaphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
Naphthalene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
Benzo[a]pyrene	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,3,4,6-Tetrachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,4,5-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,4,6-Trichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,4-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,4-Dimethylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2,4-Dinitrophenol	<0.140	0.0529	0.140		mg/Kg-dry	1	12/09/15 02:45 AM
2,6-Dichlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2-Chlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2-Methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
2-Nitrophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
4,6-Dinitro-2-methylphenol	<0.0698	0.0317	0.0698		mg/Kg-dry	1	12/09/15 02:45 AM
4-Chloro-3-methylphenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
4-Methylphenol	<0.0281	0.0211	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
4-Nitrophenol	<0.140	0.0529	0.140		mg/Kg-dry	1	12/09/15 02:45 AM
Pentachlorophenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
Phenol	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
Total Phenol (Calculated)	<0.0281	0.0106	0.0281		mg/Kg-dry	1	12/09/15 02:45 AM
Surr: 2,4,6-Tribromophenol	83.0	0	45-126		%REC	1	12/09/15 02:45 AM
Surr: 2-Fluorobiphenyl	81.0	0	60-125		%REC	1	12/09/15 02:45 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-3  
**Lab ID:** 1512052-15  
**Collection Date:** 12/02/15 05:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	81.0	0	37-125		%REC	1	12/09/15 02:45 AM
Surr: 4-Terphenyl-d14	93.0	0	45-125		%REC	1	12/09/15 02:45 AM
Surr: Nitrobenzene-d5	76.0	0	45-125		%REC	1	12/09/15 02:45 AM
Surr: Phenol-d5	81.0	0	40-125		%REC	1	12/09/15 02:45 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1221	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1232	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1242	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1248	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1254	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Aroclor 1260	<0.0352	0.0176	0.0352		mg/Kg-dry	1	12/08/15 08:09 PM
Polychlorinated biphenyls	<0.0352	0.0176	0.0352	N	mg/Kg-dry	1	12/08/15 08:09 PM
Surr: 2-Fluorobiphenyl	89.0	0	43-125		%REC	1	12/08/15 08:09 PM
Surr: 4-Terphenyl-d14	82.5	0	32-125		%REC	1	12/08/15 08:09 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Toluene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Carbon tetrachloride	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,2-Dichloroethane	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,1-Dichloroethylene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Tetrachloroethylene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Trichloroethylene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Ethylbenzene	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Total Xylenes	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Methylene chloride	<0.00541	0.00541	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Chloroform	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,1-Dichloroethane	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Ethylene bromide	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,1,1-Trichloroethane	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,1,2-Trichloroethane	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
1,1,2,2-Tetrachloroethane	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Vinyl chloride	<0.00541	0.00108	0.00541		mg/Kg-dry	1	12/07/15 08:43 PM
Surr: 1,2-Dichloroethane-d4	108	0	52-149		%REC	1	12/07/15 08:43 PM
Surr: 4-Bromofluorobenzene	101	0	84-118		%REC	1	12/07/15 08:43 PM
Surr: Dibromofluoromethane	105	0	65-135		%REC	1	12/07/15 08:43 PM
Surr: Toluene-d8	91.1	0	84-116		%REC	1	12/07/15 08:43 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-3  
**Lab ID:** 1512052-15  
**Collection Date:** 12/02/15 05:00 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.8	5.39	10.8	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.541	0.217	0.541		mg/Kg-dry	1	12/09/15 05:34 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	<4.84	4.84	4.84		mg/Kg-dry	1	12/09/15 11:44 AM
Fluoride	0.998	0.969	0.969		mg/Kg-dry	1	12/09/15 11:44 AM
Nitrate-N	<4.84	4.84	4.84		mg/Kg-dry	1	12/09/15 11:44 AM
Sulfate	19.5	9.69	9.69		mg/Kg-dry	1	12/09/15 11:44 AM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.57	0	0		pH Units@21.3°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	9.44	0	0		WT%	1	12/08/15 09:32 AM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-4  
**Lab ID:** 1512052-16  
**Collection Date:** 12/02/15 05:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TOTAL MERCURY: SOIL/SOLID</b>		<b>SW7471B</b>					Analyst: <b>ABO</b>
Mercury	<0.0415	0.0166	0.0415		mg/Kg-dry	1	12/09/15 01:08 PM
<b>TRACE METALS: ICP-MS - SOLID</b>		<b>SW6020A</b>					Analyst: <b>RO</b>
Arsenic	2.77	0.472	0.943		mg/Kg-dry	5	12/10/15 01:05 PM
Barium	107	0.472	1.89		mg/Kg-dry	5	12/10/15 01:05 PM
Cadmium	<0.283	0.0943	0.283		mg/Kg-dry	5	12/10/15 01:05 PM
Chromium	8.93	0.472	1.89		mg/Kg-dry	5	12/10/15 01:05 PM
Copper	2.23	0.472	1.89		mg/Kg-dry	5	12/10/15 01:05 PM
Iron	8570	118	118		mg/Kg-dry	50	12/10/15 02:52 PM
Lead	4.09	0.0943	0.283		mg/Kg-dry	5	12/10/15 01:05 PM
Manganese	73.5	0.472	1.89		mg/Kg-dry	5	12/10/15 01:05 PM
Selenium	0.700	0.142	0.472		mg/Kg-dry	5	12/10/15 01:05 PM
Silver	<0.189	0.0943	0.189		mg/Kg-dry	5	12/10/15 01:05 PM
Zinc	18.3	0.943	2.36		mg/Kg-dry	5	12/10/15 01:05 PM
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>					Analyst: <b>DEW</b>
1-Methylnaphthalene	<0.0305	0.0115	0.0305	N	mg/Kg-dry	1	12/09/15 03:10 AM
2-Methylnaphthalene	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
Naphthalene	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
Benzo[a]pyrene	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,3,4,6-Tetrachlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,4,5-Trichlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,4,6-Trichlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,4-Dichlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,4-Dimethylphenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2,4-Dinitrophenol	<0.151	0.0573	0.151		mg/Kg-dry	1	12/09/15 03:10 AM
2,6-Dichlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2-Chlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2-Methylphenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
2-Nitrophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
4,6-Dinitro-2-methylphenol	<0.0756	0.0344	0.0756		mg/Kg-dry	1	12/09/15 03:10 AM
4-Chloro-3-methylphenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
4-Methylphenol	<0.0305	0.0229	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
4-Nitrophenol	<0.151	0.0573	0.151		mg/Kg-dry	1	12/09/15 03:10 AM
Pentachlorophenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
Phenol	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
Total Phenol (Calculated)	<0.0305	0.0115	0.0305		mg/Kg-dry	1	12/09/15 03:10 AM
Surr: 2,4,6-Tribromophenol	81.0	0	45-126		%REC	1	12/09/15 03:10 AM
Surr: 2-Fluorobiphenyl	78.0	0	60-125		%REC	1	12/09/15 03:10 AM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 B Analyte detected in the associated Method Blank  
 C Sample Result or QC discussed in the Case Narrative  
 DF Dilution Factor  
 E TPH pattern not Gas or Diesel Range Pattern  
 J Analyte detected between MDL and RL  
 MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-4  
**Lab ID:** 1512052-16  
**Collection Date:** 12/02/15 05:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>SEMIVOLATILES BY GC/MS - SOIL</b>		<b>SW8270D</b>			<b>Analyst: DEW</b>		
Surr: 2-Fluorophenol	77.0	0	37-125		%REC	1	12/09/15 03:10 AM
Surr: 4-Terphenyl-d14	88.0	0	45-125		%REC	1	12/09/15 03:10 AM
Surr: Nitrobenzene-d5	72.0	0	45-125		%REC	1	12/09/15 03:10 AM
Surr: Phenol-d5	75.0	0	40-125		%REC	1	12/09/15 03:10 AM
<b>PCB BY GC/MS - SOIL/SOLID</b>		<b>SW8270D</b>			<b>Analyst: KL</b>		
Aroclor 1016	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1221	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1232	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1242	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1248	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1254	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Aroclor 1260	<0.0382	0.0191	0.0382		mg/Kg-dry	1	12/08/15 08:40 PM
Polychlorinated biphenyls	<0.0382	0.0191	0.0382	N	mg/Kg-dry	1	12/08/15 08:40 PM
Surr: 2-Fluorobiphenyl	93.6	0	43-125		%REC	1	12/08/15 08:40 PM
Surr: 4-Terphenyl-d14	89.8	0	32-125		%REC	1	12/08/15 08:40 PM
<b>8260 SOIL VOLATILES BY GC/MS</b>		<b>SW8260C</b>			<b>Analyst: SW</b>		
Benzene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Toluene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Carbon tetrachloride	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,2-Dichloroethane	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,1-Dichloroethylene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Tetrachloroethylene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Trichloroethylene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Ethylbenzene	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Total Xylenes	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Methylene chloride	<0.00534	0.00534	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Chloroform	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,1-Dichloroethane	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Ethylene bromide	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,1,1-Trichloroethane	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,1,2-Trichloroethane	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
1,1,2,2-Tetrachloroethane	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Vinyl chloride	<0.00534	0.00107	0.00534		mg/Kg-dry	1	12/07/15 09:15 PM
Surr: 1,2-Dichloroethane-d4	112	0	52-149		%REC	1	12/07/15 09:15 PM
Surr: 4-Bromofluorobenzene	102	0	84-118		%REC	1	12/07/15 09:15 PM
Surr: Dibromofluoromethane	107	0	65-135		%REC	1	12/07/15 09:15 PM
Surr: Toluene-d8	91.5	0	84-116		%REC	1	12/07/15 09:15 PM

**Qualifiers:** \* Value exceeds TCLP Maximum Concentration Level  
 C Sample Result or QC discussed in the Case Narrative  
 E TPH pattern not Gas or Diesel Range Pattern  
 MDL Method Detection Limit  
 RL Reporting Limit  
 N Parameter not NELAC certified  
 B Analyte detected in the associated Method Blank  
 DF Dilution Factor  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 S Spike Recovery outside control limits



**DHL Analytical, Inc.**

Date: 15-Dec-15

**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Landfarm  
**Project No:** 15-0121-01  
**Lab Order:** 1512052

**Client Sample ID:** Cell 4 DP-4  
**Lab ID:** 1512052-16  
**Collection Date:** 12/02/15 05:10 PM  
**Matrix:** SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TRPH</b>		<b>E418.1</b>					Analyst: <b>ABO</b>
Petroleum Hydrocarbons, TR	<10.9	5.43	10.9	N	mg/Kg-dry	1	12/14/15 10:35 AM
<b>CYANIDE - SOLID SAMPLE</b>		<b>SW9014</b>					Analyst: <b>JL</b>
Cyanide, Total	<0.577	0.231	0.577		mg/Kg-dry	1	12/09/15 05:34 PM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>E300</b>					Analyst: <b>AV</b>
Chloride	7.48	5.76	5.76		mg/Kg-dry	1	12/09/15 11:59 AM
Fluoride	3.86	1.15	1.15		mg/Kg-dry	1	12/09/15 11:59 AM
Nitrate-N	<5.76	5.76	5.76		mg/Kg-dry	1	12/09/15 11:59 AM
Sulfate	57.6	11.5	11.5		mg/Kg-dry	1	12/09/15 11:59 AM
<b>PH OF SOLID (CORROSIVITY)</b>		<b>SW9045D</b>					Analyst: <b>BJT</b>
pH	8.47	0	0		pH Units@21.1°C	1	12/07/15 10:30 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: <b>JL</b>
Percent Moisture	13.8	0	0		WT%	1	12/08/15 09:32 AM

**Qualifiers:**

- \* Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- E TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- B Analyte detected in the associated Method Blank
- DF Dilution Factor
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- S Spike Recovery outside control limits

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

**RunID:** CETAC2\_HG\_151209C

The QC data in batch 72606 applies to the following samples: 1512052-01D, 1512052-02D, 1512052-03D, 1512052-04D, 1512052-05D, 1512052-06D, 1512052-07D, 1512052-08D, 1512052-09D, 1512052-10D, 1512052-11D, 1512052-12D, 1512052-13D, 1512052-14D, 1512052-15D, 1512052-16D

Sample ID <b>MB-72606</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>MBLK</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:11:56 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.0400	0.0400								

Sample ID <b>LCS-72606</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCS</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:14:12 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.218	0.0400	0.2000	0	109	85	115			

Sample ID <b>LCSD-72606</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCSD</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:18:05 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.214	0.0400	0.2000	0	107	85	115	1.85	25	

Sample ID <b>1512052-04D SD</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>SD</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:29:24 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	<0.210	0.210	0	0				0	10	

Sample ID <b>1512052-04D PDS</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>PDS</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:31:40 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.281	0.0421	0.2630	0	107	85	115			

Sample ID <b>1512052-04D MS</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:33:56 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.226	0.0403	0.2015	0	112	80	120			

Sample ID <b>1512052-04D MSD</b>	Batch ID: <b>72606</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:36:12 PM</b>	Prep Date: <b>12/9/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.213	0.0393	0.1963	0	108	80	120	5.79	25	

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: CETAC2\_HG\_151209C**

Sample ID <b>ICV-151209</b>	Batch ID: <b>R83014</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 11:20:05 AM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00396	0.0400	0.004000	0	99.0	90	110			

Sample ID <b>CCV1-151209</b>	Batch ID: <b>R83014</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:07:22 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00208	0.0400	0.002000	0	104	90	110			

Sample ID <b>CCV2-151209</b>	Batch ID: <b>R83014</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 12:52:06 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00208	0.0400	0.002000	0	104	90	110			

Sample ID <b>CCV3-151209</b>	Batch ID: <b>R83014</b>	TestNo: <b>SW7471B</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>CETAC2_HG_151209C</b>	Analysis Date: <b>12/9/2015 1:10:19 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00209	0.0400	0.002000	0	104	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

The QC data in batch 72605 applies to the following samples: 1512052-01D, 1512052-02D, 1512052-03D, 1512052-04D, 1512052-05D, 1512052-06D, 1512052-07D, 1512052-08D, 1512052-09D, 1512052-10D, 1512052-11D, 1512052-12D, 1512052-13D, 1512052-14D, 1512052-15D, 1512052-16D

Sample ID: <b>MB-72605</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:16:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	<1.00	1.00								
Barium	<2.00	2.00								
Cadmium	<0.300	0.300								
Chromium	<2.00	2.00								
Copper	<2.00	2.00								
Iron	<37.5	37.5								
Lead	<0.300	0.300								
Manganese	<2.00	2.00								
Selenium	<0.500	0.500								
Silver	<0.200	0.200								
Zinc	<2.50	2.50								

Sample ID: <b>LCS-72605</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:18:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	52.5	1.00	50.00	0	105	80	120			
Barium	52.3	2.00	50.00	0	105	80	120			
Cadmium	51.9	0.300	50.00	0	104	80	120			
Chromium	52.8	2.00	50.00	0	106	80	120			
Copper	53.9	2.00	50.00	0	108	80	120			
Iron	265	37.5	250.0	0	106	80	120			
Lead	50.0	0.300	50.00	0	100	80	120			
Manganese	52.5	2.00	50.00	0	105	80	120			
Selenium	51.1	0.500	50.00	0	102	80	120			
Silver	52.0	0.200	50.00	0	104	80	120			
Zinc	52.7	2.50	50.00	0	105	80	120			

Sample ID: <b>LCSD-72605</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg</b>
SampType: <b>LCSD</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:20:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	52.2	1.00	50.00	0	104	80	120	0.635	20	
Barium	50.5	2.00	50.00	0	101	80	120	3.49	20	
Cadmium	50.7	0.300	50.00	0	101	80	120	2.36	20	
Chromium	52.4	2.00	50.00	0	105	80	120	0.682	20	
Copper	53.1	2.00	50.00	0	106	80	120	1.47	20	
Iron	265	37.5	250.0	0	106	80	120	0.073	20	
Lead	49.6	0.300	50.00	0	99.1	80	120	0.839	20	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

Sample ID	<b>LCSD-72605</b>	Batch ID:	<b>72605</b>	TestNo:	<b>SW6020A</b>	Units:	<b>mg/Kg</b>			
SampType:	<b>LCSD</b>	Run ID:	<b>ICP-MS4_151210A</b>	Analysis Date:	<b>12/10/2015 1:20:00 PM</b>	Prep Date:	<b>12/9/2015</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	51.7	2.00	50.00	0	103	80	120	1.52	20	
Selenium	51.2	0.500	50.00	0	102	80	120	0.139	20	
Silver	50.5	0.200	50.00	0	101	80	120	2.82	20	
Zinc	52.0	2.50	50.00	0	104	80	120	1.31	20	

Sample ID	<b>1512052-04D SD</b>	Batch ID:	<b>72605</b>	TestNo:	<b>SW6020A</b>	Units:	<b>mg/Kg-dry</b>			
SampType:	<b>SD</b>	Run ID:	<b>ICP-MS4_151210A</b>	Analysis Date:	<b>12/10/2015 1:26:00 PM</b>	Prep Date:	<b>12/9/2015</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.09	5.51	0	4.130				0.946	10	
Barium	155	11.0	0	157.0				1.20	10	
Cadmium	<1.65	1.65	0	0				0	10	
Chromium	21.6	11.0	0	20.97				3.16	10	
Copper	7.18	11.0	0	6.876				4.32	10	
Lead	9.40	1.65	0	9.673				2.83	10	
Selenium	1.86	2.76	0	1.700				8.90	10	
Silver	<1.10	1.10	0	0				0	10	
Zinc	41.0	13.8	0	39.67				3.22	10	

Sample ID	<b>1512052-04D PDS</b>	Batch ID:	<b>72605</b>	TestNo:	<b>SW6020A</b>	Units:	<b>mg/Kg-dry</b>			
SampType:	<b>PDS</b>	Run ID:	<b>ICP-MS4_151210A</b>	Analysis Date:	<b>12/10/2015 1:45:00 PM</b>	Prep Date:	<b>12/9/2015</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	61.3	1.10	55.14	4.130	104	80	120			
Barium	219	2.21	55.14	157.0	112	80	120			
Cadmium	55.2	0.331	55.14	0	100	80	120			
Chromium	77.1	2.21	55.14	20.97	102	80	120			
Copper	62.5	2.21	55.14	6.876	101	80	120			
Lead	65.1	0.331	55.14	9.673	100	80	120			
Selenium	57.0	0.551	55.14	1.700	100	80	120			
Silver	54.1	0.221	55.14	0	98.1	80	120			
Zinc	95.3	2.76	55.14	39.67	101	80	120			

Sample ID	<b>1512052-04D MS</b>	Batch ID:	<b>72605</b>	TestNo:	<b>SW6020A</b>	Units:	<b>mg/Kg-dry</b>			
SampType:	<b>MS</b>	Run ID:	<b>ICP-MS4_151210A</b>	Analysis Date:	<b>12/10/2015 1:47:00 PM</b>	Prep Date:	<b>12/9/2015</b>			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	60.1	1.10	55.14	4.130	102	80	120			
Barium	216	2.21	55.14	157.0	106	80	120			
Cadmium	54.2	0.331	55.14	0	98.2	80	120			
Chromium	74.0	2.21	55.14	20.97	96.1	80	120			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

Sample ID <b>1512052-04D MS</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:47:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	61.6	2.21	55.14	6.876	99.3	80	120			
Iron	17500	41.4	275.7	17960	-160	80	120			S
Lead	63.4	0.331	55.14	9.673	97.5	80	120			
Manganese	973	2.21	55.14	868.5	190	80	120			S
Selenium	54.6	0.551	55.14	1.700	95.9	80	120			
Silver	53.5	0.221	55.14	0	97.0	80	120			
Zinc	93.3	2.76	55.14	39.67	97.3	80	120			

Sample ID <b>1512052-04D MSD</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:49:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	58.1	1.05	52.65	4.130	103	80	120	3.37	20	
Barium	212	2.11	52.65	157.0	105	80	120	1.63	20	
Cadmium	52.4	0.316	52.65	0	99.5	80	120	3.32	20	
Chromium	70.7	2.11	52.65	20.97	94.4	80	120	4.57	20	
Copper	59.2	2.11	52.65	6.876	99.4	80	120	3.97	20	
Iron	16900	39.5	263.3	17960	-398	80	120	3.53	20	S
Lead	60.4	0.316	52.65	9.673	96.3	80	120	4.93	20	
Manganese	871	2.11	52.65	868.5	4.81	80	120	11.1	20	S
Selenium	53.3	0.527	52.65	1.700	98.0	80	120	2.34	20	
Silver	51.6	0.211	52.65	0	98.1	80	120	3.46	20	
Zinc	88.7	2.63	52.65	39.67	93.1	80	120	5.08	20	

Sample ID <b>1512052-04D SD</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>SD</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 3:04:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	19500	2070	0	19170				1.70	10	
Manganese	926	110	0	921.6				0.483	10	

Sample ID <b>1512052-04D PDS</b>	Batch ID: <b>72605</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>PDS</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 3:24:00 PM</b>	Prep Date: <b>12/9/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	32200	414	13780	19170	94.6	80	120			
Manganese	1450	22.1	551.4	921.6	96.3	80	120			

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL                                      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit                              R RPD outside accepted control limits  
 RL Reporting Limit    S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL                                      N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

Sample ID <b>ICV-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>ICV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 10:42:00 A</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.101	0.00500	0.100	0	101	90	110			
Barium	0.0994	0.0100	0.100	0	99.4	90	110			
Cadmium	0.100	0.00100	0.100	0	100	90	110			
Chromium	0.105	0.00500	0.100	0	105	90	110			
Copper	0.106	0.0100	0.100	0	106	90	110			
Iron	2.54	0.100	2.50	0	102	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
Manganese	0.100	0.0100	0.100	0	100	90	110			
Selenium	0.100	0.00500	0.100	0	100	90	110			
Silver	0.101	0.00200	0.100	0	101	90	110			
Zinc	0.103	0.00500	0.100	0	103	90	110			

Sample ID <b>LCVL-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 10:46:00 A</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00506	0.00500	0.00500	0	101	70	130			
Barium	0.00502	0.0100	0.00500	0	100	70	130			
Cadmium	0.000948	0.00100	0.00100	0	94.8	70	130			
Chromium	0.00518	0.00500	0.00500	0	104	70	130			
Copper	0.00538	0.0100	0.00500	0	108	70	130			
Iron	0.103	0.100	0.100	0	103	70	130			
Lead	0.000936	0.00100	0.00100	0	93.6	70	130			
Manganese	0.00497	0.0100	0.00500	0	99.4	70	130			
Selenium	0.00560	0.00500	0.00500	0	112	70	130			
Silver	0.00210	0.00200	0.00200	0	105	70	130			
Zinc	0.00492	0.00500	0.00500	0	98.4	70	130			

Sample ID <b>CCV3-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 12:32:00 P</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.207	0.00500	0.200	0	104	90	110			
Barium	0.197	0.0100	0.200	0	98.4	90	110			
Cadmium	0.200	0.00100	0.200	0	99.9	90	110			
Chromium	0.203	0.00500	0.200	0	101	90	110			
Copper	0.211	0.0100	0.200	0	105	90	110			
Lead	0.195	0.00100	0.200	0	97.5	90	110			
Manganese	0.204	0.0100	0.200	0	102	90	110			
Selenium	0.203	0.00500	0.200	0	101	90	110			
Silver	0.199	0.00200	0.200	0	99.7	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

Sample ID <b>CCV3-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 12:32:00 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.208	0.00500	0.200	0	104	90	110			

Sample ID <b>LCVL3-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 12:37:00 P</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00523	0.00500	0.00500	0	105	70	130			
Barium	0.00498	0.0100	0.00500	0	99.6	70	130			
Cadmium	0.000951	0.00100	0.00100	0	95.1	70	130			
Chromium	0.00510	0.00500	0.00500	0	102	70	130			
Copper	0.00528	0.0100	0.00500	0	106	70	130			
Lead	0.000898	0.00100	0.00100	0	89.8	70	130			
Manganese	0.00506	0.0100	0.00500	0	101	70	130			
Selenium	0.00518	0.00500	0.00500	0	104	70	130			
Silver	0.00204	0.00200	0.00200	0	102	70	130			
Zinc	0.00513	0.00500	0.00500	0	103	70	130			

Sample ID <b>CCV4-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:07:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.205	0.00500	0.200	0	102	90	110			
Barium	0.200	0.0100	0.200	0	100	90	110			
Cadmium	0.200	0.00100	0.200	0	99.8	90	110			
Chromium	0.205	0.00500	0.200	0	102	90	110			
Copper	0.210	0.0100	0.200	0	105	90	110			
Iron	5.17	0.100	5.00	0	103	90	110			
Lead	0.196	0.00100	0.200	0	98.2	90	110			
Manganese	0.204	0.0100	0.200	0	102	90	110			
Selenium	0.201	0.00500	0.200	0	100	90	110			
Silver	0.202	0.00200	0.200	0	101	90	110			
Zinc	0.206	0.00500	0.200	0	103	90	110			

Sample ID <b>LCVL4-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>							
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:11:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00508	0.00500	0.00500	0	102	70	130			
Barium	0.00493	0.0100	0.00500	0	98.6	70	130			
Cadmium	0.00100	0.00100	0.00100	0	100	70	130			
Chromium	0.00511	0.00500	0.00500	0	102	70	130			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4\_151210A

Sample ID: <b>LCVL4-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:11:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.00523	0.0100	0.00500	0	105	70	130			
Iron	0.103	0.100	0.100	0	103	70	130			
Lead	0.000892	0.00100	0.00100	0	89.2	70	130			
Manganese	0.00504	0.0100	0.00500	0	101	70	130			
Selenium	0.00560	0.00500	0.00500	0	112	70	130			
Silver	0.00202	0.00200	0.00200	0	101	70	130			
Zinc	0.00503	0.00500	0.00500	0	101	70	130			

Sample ID: <b>CCV5-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:51:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.206	0.00500	0.200	0	103	90	110			
Barium	0.201	0.0100	0.200	0	100	90	110			
Cadmium	0.199	0.00100	0.200	0	99.4	90	110			
Chromium	0.207	0.00500	0.200	0	103	90	110			
Copper	0.212	0.0100	0.200	0	106	90	110			
Iron	5.20	0.100	5.00	0	104	90	110			
Lead	0.194	0.00100	0.200	0	96.9	90	110			
Manganese	0.206	0.0100	0.200	0	103	90	110			
Selenium	0.204	0.00500	0.200	0	102	90	110			
Silver	0.200	0.00200	0.200	0	100	90	110			
Zinc	0.207	0.00500	0.200	0	103	90	110			

Sample ID: <b>LCVL5-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 1:56:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00526	0.00500	0.00500	0	105	70	130			
Barium	0.00515	0.0100	0.00500	0	103	70	130			
Cadmium	0.00104	0.00100	0.00100	0	104	70	130			
Chromium	0.00512	0.00500	0.00500	0	102	70	130			
Copper	0.00539	0.0100	0.00500	0	108	70	130			
Iron	0.108	0.100	0.100	0	108	70	130			
Lead	0.000868	0.00100	0.00100	0	86.8	70	130			
Manganese	0.00521	0.0100	0.00500	0	104	70	130			
Selenium	0.00570	0.00500	0.00500	0	114	70	130			
Silver	0.00205	0.00200	0.00200	0	103	70	130			
Zinc	0.00517	0.00500	0.00500	0	103	70	130			

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

**RunID: ICP-MS4\_151210A**

Sample ID <b>CCV6-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 2:24:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.201	0.0100	0.200	0	101	90	110			
Iron	5.21	0.100	5.00	0	104	90	110			

Sample ID <b>LCVL6-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 2:30:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.00498	0.0100	0.00500	0	99.6	70	130			
Iron	0.106	0.100	0.100	0	106	70	130			

Sample ID <b>CCV7-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 2:54:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.200	0.0100	0.200	0	100	90	110			
Iron	5.13	0.100	5.00	0	103	90	110			
Manganese	0.204	0.0100	0.200	0	102	90	110			

Sample ID <b>LCVL7-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 2:58:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.00503	0.0100	0.00500	0	101	70	130			
Iron	0.106	0.100	0.100	0	106	70	130			
Manganese	0.00503	0.0100	0.00500	0	101	70	130			

Sample ID <b>CCV8-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>CCV</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 3:26:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.203	0.0100	0.200	0	101	90	110			
Iron	5.19	0.100	5.00	0	104	90	110			
Manganese	0.203	0.0100	0.200	0	102	90	110			

Sample ID <b>LCVL8-151210</b>	Batch ID: <b>R83060</b>	TestNo: <b>SW6020A</b>	Units: <b>mg/L</b>
SampType: <b>LCVL</b>	Run ID: <b>ICP-MS4_151210A</b>	Analysis Date: <b>12/10/2015 3:31:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.00508	0.0100	0.00500	0	102	70	130			
Iron	0.107	0.100	0.100	0	107	70	130			
Manganese	0.00513	0.0100	0.00500	0	103	70	130			

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL  
 DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8\_151208A

The QC data in batch 72578 applies to the following samples: 1512052-01C, 1512052-02C, 1512052-03C, 1512052-04C, 1512052-05C, 1512052-06C, 1512052-07C, 1512052-08C, 1512052-09C, 1512052-10C, 1512052-11C, 1512052-12C, 1512052-13C, 1512052-14C, 1512052-15C, 1512052-16C

Sample ID <b>LCS-72578</b>	Batch ID: <b>72578</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 10:47:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.654	0.0333	0.6667	0	98.1	41	138			
Aroclor 1260	0.576	0.0333	0.6667	0	86.4	61	131			
Polychlorinated biphenyls	1.23	0.0333	1.333	0	92.3	41	138			N
Surr: 2-Fluorobiphenyl	0.653		0.6667		97.9	43	125			
Surr: 4-Terphenyl-d14	0.613		0.6667		91.9	32	125			

Sample ID <b>1512052-07CMS</b>	Batch ID: <b>72578</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 11:17:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.640	0.0341	0.6822	0	93.8	41	138			
Aroclor 1260	0.565	0.0341	0.6822	0	82.9	61	131			
Polychlorinated biphenyls	1.21	0.0341	1.364	0	88.3	41	138			N
Surr: 2-Fluorobiphenyl	0.654		0.6822		95.8	43	125			
Surr: 4-Terphenyl-d14	0.599		0.6822		87.8	32	125			

Sample ID <b>1512052-07CMSD</b>	Batch ID: <b>72578</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 11:48:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.622	0.0334	0.6682	0	93.0	41	138	2.93	50	
Aroclor 1260	0.545	0.0334	0.6682	0	81.6	61	131	3.59	50	
Polychlorinated biphenyls	1.17	0.0334	1.336	0	87.3	41	138	3.24	50	N
Surr: 2-Fluorobiphenyl	0.635		0.6682		95.1	43	125	0	0	
Surr: 4-Terphenyl-d14	0.575		0.6682		86.1	32	125	0	0	

Sample ID <b>MB-72578</b>	Batch ID: <b>72578</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 12:19:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	<0.0333	0.0333								
Aroclor 1221	<0.0333	0.0333								
Aroclor 1232	<0.0333	0.0333								
Aroclor 1242	<0.0333	0.0333								
Aroclor 1248	<0.0333	0.0333								
Aroclor 1254	<0.0333	0.0333								
Aroclor 1260	<0.0333	0.0333								
Polychlorinated biphenyls	<0.0333	0.0333								N
Surr: 2-Fluorobiphenyl	0.592		0.6667		88.8	43	125			

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS8\_151208A**

Sample ID <b>MB-72578</b>	Batch ID: <b>72578</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>							
SampType: <b>MBLK</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 12:19:00 PM</b>	Prep Date: <b>12/7/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.567		0.6667		85.0	32	125			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS8\_151208A**

Sample ID <b>ICV-151208</b>	Batch ID: <b>R83000</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GCMS8_151208A</b>	Analysis Date: <b>12/8/2015 10:16:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.37	0.0500	2.000	0	119	80	120			
Aroclor 1260	2.07	0.0500	2.000	0	104	80	120			
Polychlorinated biphenyls	4.44	0.0500	4.000	0	111	80	120			N
Surr: 2-Fluorobiphenyl	2.30		2.000		115	80	120			
Surr: 4-Terphenyl-d14	1.97		2.000		98.7	80	120			

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: GCMS9\_151208C

The QC data in batch 72576 applies to the following samples: 1512052-01C, 1512052-02C, 1512052-03C, 1512052-04C, 1512052-05C, 1512052-06C, 1512052-07C, 1512052-08C, 1512052-09C, 1512052-10C, 1512052-11C, 1512052-12C, 1512052-13C, 1512052-14C, 1512052-15C, 1512052-16C

Sample ID	<b>LCS-72576</b>	Batch ID:	<b>72576</b>	TestNo:	<b>SW8270D</b>	Units:	<b>mg/Kg</b>
SampType:	<b>LCS</b>	Run ID:	<b>GCMS9_151208C</b>	Analysis Date:	<b>12/8/2015 5:13:00 PM</b>	Prep Date:	<b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	1.06	0.0266	1.340	0	79.2	40	125			N
2,3,4,6-Tetrachlorophenol	1.33	0.0266	1.340	0	99.1	40	125			
2,4,5-Trichlorophenol	1.19	0.0266	1.340	0	89.0	49	125			
2,4,6-Trichlorophenol	1.21	0.0266	1.340	0	90.1	43	125			
2,4-Dichlorophenol	1.14	0.0266	1.340	0	85.0	45	125			
2,4-Dimethylphenol	1.03	0.0266	1.340	0	77.0	32	125			
2,4-Dinitrophenol	1.25	0.132	1.340	0	93.0	25	132			
2,6-Dichlorophenol	1.11	0.0266	1.340	0	82.5	38	125			
2-Chlorophenol	1.10	0.0266	1.340	0	82.4	44	125			
2-Methylnaphthalene	1.08	0.0266	1.340	0	80.6	47	125			
2-Methylphenol	1.02	0.0266	1.340	0	76.3	40	125			
2-Nitrophenol	1.11	0.0266	1.340	0	83.0	42	125			
4,6-Dinitro-2-methylphenol	1.23	0.0660	1.340	0	91.9	29	137			
4-Chloro-3-methylphenol	1.09	0.0266	1.340	0	81.4	46	125			
4-Methylphenol	0.905	0.0266	1.340	0	67.6	41	125			
4-Nitrophenol	1.33	0.132	1.340	0	99.1	25	138			
Benzo[a]pyrene	1.25	0.0266	1.340	0	93.4	50	125			
Naphthalene	1.10	0.0266	1.340	0	82.0	40	125			
Pentachlorophenol	1.46	0.0266	1.340	0	109	25	125			
Phenol	1.08	0.0266	1.340	0	80.8	25	125			
Total Phenol (Calculated)	17.5	0.0266	0	0	0	0	0			
Surr: 2,4,6-Tribromophenol	0.567		0.6670		85.0	45	138			
Surr: 2-Fluorobiphenyl	0.527		0.6670		79.0	60	135			
Surr: 2-Fluorophenol	0.513		0.6670		77.0	37	125			
Surr: 4-Terphenyl-d14	0.567		0.6670		85.0	60	129			
Surr: Nitrobenzene-d5	0.513		0.6670		77.0	45	125			
Surr: Phenol-d5	0.500		0.6670		75.0	40	125			

Sample ID	<b>1512052-07CMS</b>	Batch ID:	<b>72576</b>	TestNo:	<b>SW8270D</b>	Units:	<b>mg/Kg-dry</b>
SampType:	<b>MS</b>	Run ID:	<b>GCMS9_151208C</b>	Analysis Date:	<b>12/8/2015 5:38:00 PM</b>	Prep Date:	<b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	1.11	0.0271	1.366	0	81.1	40	125			N
2,3,4,6-Tetrachlorophenol	1.36	0.0271	1.366	0	99.4	40	125			
2,4,5-Trichlorophenol	1.25	0.0271	1.366	0	91.6	49	125			
2,4,6-Trichlorophenol	1.27	0.0271	1.366	0	93.1	43	125			
2,4-Dichlorophenol	1.20	0.0271	1.366	0	87.9	45	125			
2,4-Dimethylphenol	1.12	0.0271	1.366	0	82.2	32	125			
2,4-Dinitrophenol	0.512	0.135	1.366	0	37.5	25	132			

**Qualifiers:** B Analyte detected in the associated Method Blank DF Dilution Factor  
 J Analyte detected between MDL and RL MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit R RPD outside accepted control limits  
 RL Reporting Limit S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS9\_151208C**

Sample ID: <b>1512052-07CMS</b>	Batch ID: <b>72576</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GCMS9_151208C</b>	Analysis Date: <b>12/8/2015 5:38:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,6-Dichlorophenol	1.17	0.0271	1.366	0	85.9	38	125			
2-Chlorophenol	1.17	0.0271	1.366	0	85.8	44	125			
2-Methylnaphthalene	1.12	0.0271	1.366	0	82.2	47	125			
2-Methylphenol	1.10	0.0271	1.366	0	80.4	40	125			
2-Nitrophenol	1.13	0.0271	1.366	0	82.6	42	125			
4,6-Dinitro-2-methylphenol	0.868	0.0673	1.366	0	63.6	29	137			
4-Chloro-3-methylphenol	1.15	0.0271	1.366	0	84.0	46	125			
4-Methylphenol	0.959	0.0271	1.366	0	70.2	41	125			
4-Nitrophenol	1.30	0.135	1.366	0	95.2	25	138			
Benzo[a]pyrene	1.28	0.0271	1.366	0	94.0	50	125			
Naphthalene	1.13	0.0271	1.366	0	83.0	40	125			
Pentachlorophenol	1.32	0.0271	1.366	0	96.4	25	125			
Phenol	1.16	0.0271	1.366	0	84.7	25	125			
Surr: 2,4,6-Tribromophenol	0.598		0.6799		88.0	45	138			
Surr: 2-Fluorobiphenyl	0.564		0.6799		83.0	60	135			
Surr: 2-Fluorophenol	0.550		0.6799		81.0	37	125			
Surr: 4-Terphenyl-d14	0.612		0.6799		90.0	60	129			
Surr: Nitrobenzene-d5	0.544		0.6799		80.0	45	125			
Surr: Phenol-d5	0.530		0.6799		78.0	40	125			

Sample ID: <b>1512052-07CMSD</b>	Batch ID: <b>72576</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GCMS9_151208C</b>	Analysis Date: <b>12/8/2015 6:03:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	1.15	0.0272	1.369	0	83.8	40	125	3.45	30	N
2,3,4,6-Tetrachlorophenol	1.43	0.0272	1.369	0	105	40	125	5.32	30	
2,4,5-Trichlorophenol	1.30	0.0272	1.369	0	95.2	49	125	3.98	30	
2,4,6-Trichlorophenol	1.30	0.0272	1.369	0	94.6	43	125	1.79	30	
2,4-Dichlorophenol	1.26	0.0272	1.369	0	92.1	45	125	4.84	30	
2,4-Dimethylphenol	1.17	0.0272	1.369	0	85.4	32	125	4.05	30	
2,4-Dinitrophenol	0.675	0.135	1.369	0	49.4	25	132	27.6	30	
2,6-Dichlorophenol	1.22	0.0272	1.369	0	89.0	38	125	3.72	30	
2-Chlorophenol	1.20	0.0272	1.369	0	87.4	44	125	2.09	30	
2-Methylnaphthalene	1.15	0.0272	1.369	0	84.1	47	125	2.47	30	
2-Methylphenol	1.16	0.0272	1.369	0	84.4	40	125	5.02	30	
2-Nitrophenol	1.15	0.0272	1.369	0	84.1	42	125	1.99	30	
4,6-Dinitro-2-methylphenol	1.00	0.0674	1.369	0	73.3	29	137	14.4	30	
4-Chloro-3-methylphenol	1.29	0.0272	1.369	0	94.2	46	125	11.6	30	
4-Methylphenol	1.02	0.0272	1.369	0	74.2	41	125	5.71	30	
4-Nitrophenol	1.34	0.135	1.369	0	98.0	25	138	3.08	30	
Benzo[a]pyrene	1.30	0.0272	1.369	0	94.8	50	125	1.09	30	

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL

DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GCMS9\_151208C

Sample ID: <b>1512052-07CMSD</b>	Batch ID: <b>72576</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GCMS9_151208C</b>	Analysis Date: <b>12/8/2015 6:03:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.13	0.0272	1.369	0	82.4	40	125	0.586	30	
Pentachlorophenol	1.38	0.0272	1.369	0	101	25	125	4.88	30	
Phenol	1.19	0.0272	1.369	0	87.3	25	125	3.15	30	
Surr: 2,4,6-Tribromophenol	0.620		0.6812		91.0	45	138	0	0	
Surr: 2-Fluorobiphenyl	0.552		0.6812		81.0	60	135	0	0	
Surr: 2-Fluorophenol	0.552		0.6812		81.0	37	125	0	0	
Surr: 4-Terphenyl-d14	0.626		0.6812		92.0	60	129	0	0	
Surr: Nitrobenzene-d5	0.545		0.6812		80.0	45	125	0	0	
Surr: Phenol-d5	0.545		0.6812		80.0	40	125	0	0	

Sample ID: <b>MB-72576</b>	Batch ID: <b>72576</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GCMS9_151208C</b>	Analysis Date: <b>12/8/2015 7:18:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	<0.0266	0.0266								N
2,3,4,6-Tetrachlorophenol	<0.0266	0.0266								
2,4,5-Trichlorophenol	<0.0266	0.0266								
2,4,6-Trichlorophenol	<0.0266	0.0266								
2,4-Dichlorophenol	<0.0266	0.0266								
2,4-Dimethylphenol	<0.0266	0.0266								
2,4-Dinitrophenol	<0.132	0.132								
2,6-Dichlorophenol	<0.0266	0.0266								
2-Chlorophenol	<0.0266	0.0266								
2-Methylnaphthalene	<0.0266	0.0266								
2-Methylphenol	<0.0266	0.0266								
2-Nitrophenol	<0.0266	0.0266								
4,6-Dinitro-2-methylphenol	<0.0660	0.0660								
4-Chloro-3-methylphenol	<0.0266	0.0266								
4-Methylphenol	<0.0266	0.0266								
4-Nitrophenol	<0.132	0.132								
Benzo[a]pyrene	<0.0266	0.0266								
Naphthalene	<0.0266	0.0266								
Pentachlorophenol	<0.0266	0.0266								
Phenol	<0.0266	0.0266								
Total Phenol (Calculated)	<0.0266	0.0266								
Surr: 2,4,6-Tribromophenol	0.620		0.6670		93.0	45	138			
Surr: 2-Fluorobiphenyl	0.573		0.6670		86.0	60	135			
Surr: 2-Fluorophenol	0.560		0.6670		84.0	37	125			
Surr: 4-Terphenyl-d14	0.660		0.6670		99.0	60	129			
Surr: Nitrobenzene-d5	0.533		0.6670		80.0	45	125			
Surr: Phenol-d5	0.573		0.6670		86.0	40	125			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS9\_151208C**

Sample ID <b>ICV-151208</b>	Batch ID: <b>R82999</b>	TestNo: <b>SW8270D</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GCMS9_151208C</b>	Analysis Date: <b>12/8/2015 4:49:00 PM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	3.44	0.0266	4.000	0	86.1	80	120			N
2,3,4,6-Tetrachlorophenol	4.38	0.0266	4.000	0	110	80	120			
2,4,5-Trichlorophenol	4.00	0.0266	4.000	0	99.9	80	120			
2,4,6-Trichlorophenol	4.04	0.0266	4.000	0	101	80	120			
2,4-Dichlorophenol	3.94	0.0266	4.000	0	98.5	80	120			
2,4-Dimethylphenol	3.76	0.0266	4.000	0	94.0	80	120			
2,4-Dinitrophenol	3.92	0.132	4.000	0	97.9	80	120			
2,6-Dichlorophenol	3.72	0.0266	4.000	0	93.0	80	120			
2-Chlorophenol	3.89	0.0266	4.000	0	97.2	80	120			
2-Methylnaphthalene	3.45	0.0266	4.000	0	86.2	80	120			
2-Methylphenol	3.52	0.0266	4.000	0	88.0	80	120			
2-Nitrophenol	3.92	0.0266	4.000	0	98.0	80	120			
4,6-Dinitro-2-methylphenol	3.96	0.0660	4.000	0	99.1	80	120			
4-Chloro-3-methylphenol	3.97	0.0266	4.000	0	99.4	80	120			
4-Methylphenol	2.98	0.0266	4.000	0	74.5	80	120			S
4-Nitrophenol	3.89	0.132	4.000	0	97.2	80	120			
Benzo[a]pyrene	3.69	0.0266	4.000	0	92.2	80	120			
Naphthalene	3.41	0.0266	4.000	0	85.3	80	120			
Pentachlorophenol	4.29	0.0266	4.000	0	107	80	120			
Phenol	3.56	0.0266	4.000	0	89.0	80	120			
Total Phenol (Calculated)	57.8	0.0266	0							
Surr: 2,4,6-Tribromophenol	4.29		4.000		107	80	120			
Surr: 2-Fluorobiphenyl	3.28		4.000		82.0	80	120			
Surr: 2-Fluorophenol	4.05		4.000		101	80	120			
Surr: 4-Terphenyl-d14	3.30		4.000		82.5	80	120			
Surr: Nitrobenzene-d5	3.91		4.000		97.8	80	120			
Surr: Phenol-d5	3.70		4.000		92.5	80	120			

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GCMS1\_151207A

The QC data in batch 72585 applies to the following samples: 1512052-01A, 1512052-02A, 1512052-03A, 1512052-04A, 1512052-05A, 1512052-06A, 1512052-07A, 1512052-08A, 1512052-09A, 1512052-10A, 1512052-11A, 1512052-12A, 1512052-13A, 1512052-14A, 1512052-15A, 1512052-16A

Sample ID: <b>LCS-72585</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 11:54:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0246	0.00500	0.0232	0	106	68	130			
1,1,2,2-Tetrachloroethane	0.0226	0.00500	0.0232	0	97.4	59	140			
1,1,2-Trichloroethane	0.0256	0.00500	0.0232	0	110	62	127			
1,1-Dichloroethane	0.0241	0.00500	0.0232	0	104	73	125			
1,1-Dichloroethylene	0.0231	0.00500	0.0232	0	99.6	65	136			
1,2-Dichloroethane	0.0246	0.00500	0.0232	0	106	72	137			
Benzene	0.0244	0.00500	0.0232	0	105	75	125			
Carbon tetrachloride	0.0253	0.00500	0.0232	0	109	67	133			
Chloroform	0.0248	0.00500	0.0232	0	107	72	124			
Ethylbenzene	0.0215	0.00500	0.0232	0	92.7	75	125			
Ethylene bromide	0.0216	0.00500	0.0232	0	93.2	70	124			
Methylene chloride	0.0268	0.00500	0.0232	0	116	63	137			
Tetrachloroethylene	0.0220	0.00500	0.0232	0	94.8	67	139			
Toluene	0.0250	0.00500	0.0232	0	108	75	125			
Trichloroethylene	0.0244	0.00500	0.0232	0	105	77	124			
Vinyl chloride	0.0215	0.00500	0.0232	0	92.8	58	126			
Total Xylenes	0.0657	0.00500	0.0696	0	94.4	75	125			
Surr: 1,2-Dichloroethane-d4	51.2		50.00		102	52	149			
Surr: 4-Bromofluorobenzene	49.5		50.00		99.0	84	118			
Surr: Dibromofluoromethane	52.3		50.00		105	65	135			
Surr: Toluene-d8	45.8		50.00		91.6	84	116			

Sample ID: <b>MB-72585</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 12:57:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	<0.00500	0.00500								
1,1,2,2-Tetrachloroethane	<0.00500	0.00500								
1,1,2-Trichloroethane	<0.00500	0.00500								
1,1-Dichloroethane	<0.00500	0.00500								
1,1-Dichloroethylene	<0.00500	0.00500								
1,2-Dichloroethane	<0.00500	0.00500								
Benzene	<0.00500	0.00500								
Carbon tetrachloride	<0.00500	0.00500								
Chloroform	<0.00500	0.00500								
Ethylbenzene	<0.00500	0.00500								
Ethylene bromide	<0.00500	0.00500								
Methylene chloride	<0.00500	0.00500								
Tetrachloroethylene	<0.00500	0.00500								

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL

DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GCMS1\_151207A

Sample ID <b>MB-72585</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 12:57:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	<0.00500	0.00500								
Trichloroethylene	<0.00500	0.00500								
Vinyl chloride	<0.00500	0.00500								
Total Xylenes	<0.00500	0.00500								
Surr: 1,2-Dichloroethane-d4	50.7		50.00		101	52	149			
Surr: 4-Bromofluorobenzene	49.9		50.00		99.8	84	118			
Surr: Dibromofluoromethane	51.9		50.00		104	65	135			
Surr: Toluene-d8	45.7		50.00		91.4	84	116			

Sample ID <b>1512052-01AMS</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 9:46:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0232	0.00520	0.0241	0	96.0	68	130			
1,1,2,2-Tetrachloroethane	0.0175	0.00520	0.0241	0	72.4	59	140			
1,1,2-Trichloroethane	0.0237	0.00520	0.0241	0	98.3	62	127			
1,1-Dichloroethane	0.0231	0.00520	0.0241	0	95.8	73	125			
1,1-Dichloroethylene	0.0219	0.00520	0.0241	0	90.9	65	136			
1,2-Dichloroethane	0.0241	0.00520	0.0241	0	99.9	72	137			
Benzene	0.0225	0.00520	0.0241	0	93.2	73	126			
Carbon tetrachloride	0.0236	0.00520	0.0241	0	97.7	67	133			
Chloroform	0.0232	0.00520	0.0241	0	96.1	72	124			
Ethylbenzene	0.0193	0.00520	0.0241	0	80.0	74	127			
Ethylene bromide	0.0204	0.00520	0.0241	0	84.4	70	124			
Methylene chloride	0.0261	0.00520	0.0241	0	108	63	137			
Tetrachloroethylene	0.0189	0.00520	0.0241	0	78.2	67	139			
Toluene	0.0225	0.00520	0.0241	0	93.2	71	127			
Trichloroethylene	0.0248	0.00520	0.0241	0	103	77	124			
Vinyl chloride	0.0200	0.00520	0.0241	0	82.8	58	126			
Total Xylenes	0.0577	0.00520	0.0724	0	79.7	75	125			
Surr: 1,2-Dichloroethane-d4	57.2		52.00		110	52	149			
Surr: 4-Bromofluorobenzene	51.6		52.00		99.2	84	118			
Surr: Dibromofluoromethane	56.3		52.00		108	65	135			
Surr: Toluene-d8	48.8		52.00		93.8	84	116			

Sample ID <b>1512052-01AMSD</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 10:17:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0230	0.00528	0.0245	0	93.9	68	130	0.727	30	
1,1,2,2-Tetrachloroethane	0.0174	0.00528	0.0245	0	71.0	59	140	0.472	30	

**Qualifiers:** B Analyte detected in the associated Method Blank      DF Dilution Factor  
 J Analyte detected between MDL and RL      MDL Method Detection Limit  
 ND Not Detected at the Method Detection Limit      R RPD outside accepted control limits  
 RL Reporting Limit      S Spike Recovery outside control limits  
 J Analyte detected between SDL and RL      N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS1\_151207A**

Sample ID: <b>1512052-01AMSD</b>	Batch ID: <b>72585</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 10:17:00 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	0.0234	0.00528	0.0245	0	95.7	62	127	1.18	30	
1,1-Dichloroethane	0.0227	0.00528	0.0245	0	92.9	73	125	1.58	30	
1,1-Dichloroethylene	0.0214	0.00528	0.0245	0	87.6	65	136	2.28	30	
1,2-Dichloroethane	0.0237	0.00528	0.0245	0	96.7	72	137	1.85	30	
Benzene	0.0224	0.00528	0.0245	0	91.5	73	126	0.354	30	
Carbon tetrachloride	0.0232	0.00528	0.0245	0	94.7	67	133	1.65	30	
Chloroform	0.0230	0.00528	0.0245	0	93.9	72	124	0.879	30	
Ethylbenzene	0.0192	0.00528	0.0245	0	78.4	74	127	0.504	30	
Ethylene bromide	0.0202	0.00528	0.0245	0	82.4	70	124	0.975	30	
Methylene chloride	0.0251	0.00528	0.0245	0	102	63	137	4.00	30	
Tetrachloroethylene	0.0185	0.00528	0.0245	0	75.4	67	139	2.14	30	
Toluene	0.0222	0.00528	0.0245	0	90.7	71	127	1.16	30	
Trichloroethylene	0.0247	0.00528	0.0245	0	101	77	124	0.384	30	
Vinyl chloride	0.0195	0.00528	0.0245	0	79.6	58	126	2.48	30	
Total Xylenes	0.0575	0.00528	0.0735	0	78.3	75	125	0.208	30	
Surr: 1,2-Dichloroethane-d4	57.2		52.77		108	52	149	0	0	
Surr: 4-Bromofluorobenzene	52.4		52.77		99.3	84	118	0	0	
Surr: Dibromofluoromethane	56.2		52.77		107	65	135	0	0	
Surr: Toluene-d8	48.5		52.77		92.0	84	116	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: GCMS1\_151207A**

Sample ID <b>ICV-151207</b>	Batch ID: <b>R82950</b>	TestNo: <b>SW8260C</b>	Units: <b>mg/Kg</b>
SampType: <b>ICV</b>	Run ID: <b>GCMS1_151207A</b>	Analysis Date: <b>12/7/2015 11:15:00 AM</b>	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	0.0498	0.00500	0.0464	0	107	80	120			
1,1,2,2-Tetrachloroethane	0.0434	0.00500	0.0464	0	93.6	80	120			
1,1,2-Trichloroethane	0.0508	0.00500	0.0464	0	109	80	120			
1,1-Dichloroethane	0.0486	0.00500	0.0464	0	105	80	120			
1,1-Dichloroethylene	0.0473	0.00500	0.0464	0	102	80	120			
1,2-Dichloroethane	0.0489	0.00500	0.0464	0	105	80	120			
Benzene	0.0491	0.00500	0.0464	0	106	80	120			
Carbon tetrachloride	0.0520	0.00500	0.0464	0	112	80	120			
Chloroform	0.0493	0.00500	0.0464	0	106	80	120			
Ethylbenzene	0.0440	0.00500	0.0464	0	94.8	80	120			
Ethylene bromide	0.0428	0.00500	0.0464	0	92.3	80	120			
Methylene chloride	0.0519	0.00500	0.0464	0	112	80	120			
Tetrachloroethylene	0.0437	0.00500	0.0464	0	94.1	80	120			
Toluene	0.0504	0.00500	0.0464	0	109	80	120			
Trichloroethylene	0.0492	0.00500	0.0464	0	106	80	120			
Vinyl chloride	0.0442	0.00500	0.0464	0	95.3	80	120			
Total Xylenes	0.135	0.00500	0.139	0	97.2	80	120			
Surr: 1,2-Dichloroethane-d4	52.5		50.00		105	52	149			
Surr: 4-Bromofluorobenzene	49.5		50.00		99.0	84	118			
Surr: Dibromofluoromethane	52.4		50.00		105	65	135			
Surr: Toluene-d8	45.6		50.00		91.1	84	116			

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_151208B

The QC data in batch 72593 applies to the following samples: 1512052-01B, 1512052-02B, 1512052-03B, 1512052-04B, 1512052-05B, 1512052-06B, 1512052-07B, 1512052-08B, 1512052-09B, 1512052-10B, 1512052-11B, 1512052-12B, 1512052-13B, 1512052-14B, 1512052-15B, 1512052-16B

Sample ID <b>MB-72593</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 3:51:06 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<5.00	5.00								
Fluoride	<1.00	1.00								
Nitrate-N	<5.00	5.00								
Sulfate	<10.0	10.0								

Sample ID <b>LCS-72593</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 4:20:19 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	51.0	5.00	50.00	0	102	80	120			
Fluoride	20.3	1.00	20.00	0	101	80	120			
Nitrate-N	23.9	5.00	25.00	0	95.5	80	120			
Sulfate	133	10.0	150.0	0	88.6	80	120			

Sample ID <b>LCSD-72593</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg</b>
SampType: <b>LCSD</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 4:34:55 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	49.5	5.00	50.00	0	98.9	80	120	3.11	20	
Fluoride	20.0	1.00	20.00	0	99.9	80	120	1.42	20	
Nitrate-N	23.3	5.00	25.00	0	93.4	80	120	2.20	20	
Sulfate	130	10.0	150.0	0	86.7	80	120	2.13	20	

Sample ID <b>1512052-07BMS</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 6:52:03 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	212	5.13	102.6	129.9	79.6	80	120			
Fluoride	101	1.03	102.6	1.719	97.2	80	120			
Nitrate-N	22.6	5.13	23.17	0	97.4	80	120			
Sulfate	383	10.3	102.6	323.8	57.6	80	120			S

Sample ID <b>1512052-07BMSD</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 7:06:40 PM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	206	5.02	100.4	129.9	75.9	80	120	2.62	20	S
Fluoride	103	1.00	100.4	1.719	101	80	120	1.22	20	
Nitrate-N	22.8	5.02	22.68	0	100	80	120	0.862	20	

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|--|---|
| <b>Qualifiers:</b><br>B Analyte detected in the associated Method Blank<br>J Analyte detected between MDL and RL<br>ND Not Detected at the Method Detection Limit<br>RL Reporting Limit<br>J Analyte detected between SDL and RL | DF Dilution Factor<br>MDL Method Detection Limit<br>R RPD outside accepted control limits<br>S Spike Recovery outside control limits<br>N Parameter not NELAC certified |
|--|---|

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: IC2\_151208B**

Sample ID <b>1512052-07BMSD</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/8/2015 7:06:40 PM</b>	Prep Date: <b>12/7/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	362	10.0	100.4	323.8	38.4	80	120	5.51	20	S

Sample ID <b>1512052-14BMS</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/9/2015 11:15:12 AM</b>	Prep Date: <b>12/7/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	114	5.06	101.1	0	113	80	120			
Fluoride	75.7	1.01	101.1	1.241	73.6	80	120			S
Nitrate-N	23.9	5.06	22.84	0	105	80	120			
Sulfate	102	10.1	101.1	0	101	80	120			

Sample ID <b>1512052-14BMSD</b>	Batch ID: <b>72593</b>	TestNo: <b>E300</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>IC2_151208B</b>	Analysis Date: <b>12/9/2015 11:29:48 AM</b>	Prep Date: <b>12/7/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	109	4.83	96.59	0	113	80	120	4.81	20	
Fluoride	73.8	0.966	96.59	1.241	75.1	80	120	2.50	20	S
Nitrate-N	22.9	4.83	21.81	0	105	80	120	4.08	20	
Sulfate	98.1	9.66	96.59	0	102	80	120	4.15	20	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_151208B

Sample ID	ICV-151208	Batch ID:	R83059	TestNo:	E300	Units:	mg/Kg			
SampType:	ICV	Run ID:	IC2_151208B	Analysis Date:	12/8/2015 3:13:39 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	24.4	5.00	25.00	0	97.5	90	110			
Fluoride	10.2	1.00	10.00	0	102	90	110			
Nitrate-N	12.6	5.00	12.50	0	101	90	110			
Sulfate	71.9	10.0	75.00	0	95.9	90	110			

Sample ID	CCV1-151208	Batch ID:	R83059	TestNo:	E300	Units:	mg/Kg			
SampType:	CCV	Run ID:	IC2_151208B	Analysis Date:	12/9/2015 9:44:13 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.6	5.00	10.00	0	106	90	110			
Fluoride	3.71	1.00	4.000	0	92.6	90	110			
Nitrate-N	4.68	5.00	5.000	0	93.7	90	110			
Sulfate	27.0	10.0	30.00	0	90.1	90	110			

Sample ID	CCV2-151208	Batch ID:	R83059	TestNo:	E300	Units:	mg/Kg			
SampType:	CCV	Run ID:	IC2_151208B	Analysis Date:	12/9/2015 1:05:35 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.4	5.00	10.00	0	104	90	110			
Fluoride	4.06	1.00	4.000	0	102	90	110			
Nitrate-N	4.80	5.00	5.000	0	95.9	90	110			
Sulfate	28.1	10.0	30.00	0	93.8	90	110			

Sample ID	CCV3-151208	Batch ID:	R83059	TestNo:	E300	Units:	mg/Kg			
SampType:	CCV	Run ID:	IC2_151208B	Analysis Date:	12/9/2015 3:06:34 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.8	5.00	10.00	0	108	90	110			
Fluoride	4.10	1.00	4.000	0	102	90	110			
Nitrate-N	4.92	5.00	5.000	0	98.4	90	110			
Sulfate	28.5	10.0	30.00	0	95.1	90	110			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1512052  
 Project: R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: IR207\_151214A**

The QC data in batch 72702 applies to the following samples: 1512052-01C, 1512052-02C, 1512052-03C, 1512052-04C, 1512052-05C, 1512052-06C, 1512052-07C, 1512052-08C, 1512052-09C, 1512052-10C, 1512052-11C, 1512052-12C, 1512052-13C, 1512052-14C, 1512052-15C, 1512052-16C

Sample ID <b>ICV-151214</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	254	10.0	250.0	0	102	90	110			N

Sample ID <b>MB-72702</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>							
SampType: <b>MBLK</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	<10.0	10.0								N

Sample ID <b>LCS-72702</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>							
SampType: <b>LCS</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	103	10.0	100.0	0	103	80	120			N

Sample ID <b>1512052-05CMS</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MS</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	95.4	10.5	105.5	0	90.5	80	120			N

Sample ID <b>1512052-05CMSD</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg-dry</b>							
SampType: <b>MSD</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date: <b>12/14/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	99.8	10.5	105.3	0	94.8	80	120	4.48	20	N

Sample ID <b>CCV1-151214</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	253	10.0	250.0	0	101	85	115			N

Sample ID <b>CCV2-151214</b>	Batch ID: <b>72702</b>	TestNo: <b>E418.1</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>IR207_151214A</b>	Analysis Date: <b>12/14/2015 10:35:00 A</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	254	10.0	250.0	0	101	85	115			N

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

**ANALYTICAL QC SUMMARY REPORT**

**RunID: PH\_151207A**

The QC data in batch 72575 applies to the following samples: 1512052-01B, 1512052-02B, 1512052-03B, 1512052-04B, 1512052-05B, 1512052-06B, 1512052-07B, 1512052-08B, 1512052-09B, 1512052-10B, 1512052-11B, 1512052-12B, 1512052-13B, 1512052-14B, 1512052-15B, 1512052-16B

Sample ID **1512052-01B-DUP** Batch ID: **72575** TestNo: **SW9045D** Units: **pH Units@21.2°C**  
 SampType: **DUP** Run ID: **PH\_151207A** Analysis Date: **12/7/2015 10:30:00 AM** Prep Date: **12/7/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	8.20	0	0	8.160				0.489		5

Sample ID **1512052-11B-DUP** Batch ID: **72575** TestNo: **SW9045D** Units: **pH Units@21.1°C**  
 SampType: **DUP** Run ID: **PH\_151207A** Analysis Date: **12/7/2015 10:30:00 AM** Prep Date: **12/7/2015**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.61	0	0	7.640				0.393		5

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL

DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PH\_151207A**

Sample ID <b>SSCV-151207</b>	Batch ID: <b>PH_S-12/07/2015</b>	TestNo: <b>SW9045D</b>	Units: <b>pH Units@21.4°C</b>
SampType: <b>ICV</b>	Run ID: <b>PH_151207A</b>	Analysis Date: <b>12/7/2015 10:30:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.02	0	7.000	0	100	99	101			

Sample ID <b>CCV1-151207</b>	Batch ID: <b>PH_S-12/07/2015</b>	TestNo: <b>SW9045D</b>	Units: <b>pH Units@21.3°C</b>
SampType: <b>CCV</b>	Run ID: <b>PH_151207A</b>	Analysis Date: <b>12/7/2015 10:30:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.02	0	7.000	0	100	97.1	102.9			

Sample ID <b>CCV2-151207</b>	Batch ID: <b>PH_S-12/07/2015</b>	TestNo: <b>SW9045D</b>	Units: <b>pH Units@21.2°C</b>
SampType: <b>CCV</b>	Run ID: <b>PH_151207A</b>	Analysis Date: <b>12/7/2015 10:30:00 AM</b>	Prep Date: <b>12/7/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.02	0	7.000	0	100	97.1	102.9			

- |  |   |
|--|---|
| <p><b>Qualifiers:</b></p> <ul style="list-style-type: none"> <li>B Analyte detected in the associated Method Blank</li> <li>J Analyte detected between MDL and RL</li> <li>ND Not Detected at the Method Detection Limit</li> <li>RL Reporting Limit</li> <li>J Analyte detected between SDL and RL</li> </ul> | <ul style="list-style-type: none"> <li>DF Dilution Factor</li> <li>MDL Method Detection Limit</li> <li>R RPD outside accepted control limits</li> <li>S Spike Recovery outside control limits</li> <li>N Parameter not NELAC certified</li> </ul> |
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**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_151204A**

The QC data in batch 72571 applies to the following samples: 1512052-01D, 1512052-02D, 1512052-03D, 1512052-04D

Sample ID <b>1512054-04A-DUP</b>	Batch ID: <b>72571</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>
SampType: <b>DUP</b>	Run ID: <b>PMOIST_151204A</b>	Analysis Date: <b>12/7/2015 8:00:00 AM</b>	Prep Date: <b>12/4/2015</b>

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	18.7	0	0	18.02				3.85	30	

**Qualifiers:** B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL

DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_151207A**

The QC data in batch 72579 applies to the following samples: 1512052-05D, 1512052-06D, 1512052-07D, 1512052-08D, 1512052-09D, 1512052-10D, 1512052-11D, 1512052-12D, 1512052-13D, 1512052-14D, 1512052-15D, 1512052-16D

Sample ID <b>1512052-16D-DUP</b>	Batch ID: <b>72579</b>	TestNo: <b>D2216</b>	Units: <b>WT%</b>							
SampType: <b>DUP</b>	Run ID: <b>PMOIST_151207A</b>	Analysis Date: <b>12/8/2015 9:32:00 AM</b>	Prep Date: <b>12/7/2015</b>							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	13.4	0	0	13.82				3.44	30	

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- J Analyte detected between SDL and RL

- DF Dilution Factor
- MDL Method Detection Limit
- R RPD outside accepted control limits
- S Spike Recovery outside control limits
- N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID:** UV/VIS\_2\_151209A

The QC data in batch 72628 applies to the following samples: 1512052-01B, 1512052-02B, 1512052-03B, 1512052-04B, 1512052-05B, 1512052-06B, 1512052-07B, 1512052-08B, 1512052-09B, 1512052-10B, 1512052-11B, 1512052-12B, 1512052-13B, 1512052-14B, 1512052-15B, 1512052-16B

Sample ID <b>MB-72628</b>	Batch ID: <b>72628</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg</b>
SampType: <b>MBLK</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:20:00 PM</b>	Prep Date: <b>12/9/2015</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Cyanide, Total	<0.498	0.498	

Sample ID <b>LCS-72628</b>	Batch ID: <b>72628</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg</b>
SampType: <b>LCS</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:23:00 PM</b>	Prep Date: <b>12/9/2015</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Cyanide, Total	4.71	0.500	5.000 0 94.2 85 115

Sample ID <b>1512052-01BMS</b>	Batch ID: <b>72628</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MS</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:23:00 PM</b>	Prep Date: <b>12/9/2015</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Cyanide, Total	5.36	0.538	5.376 0 99.8 75 125

Sample ID <b>1512052-01BMSD</b>	Batch ID: <b>72628</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg-dry</b>
SampType: <b>MSD</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:23:00 PM</b>	Prep Date: <b>12/9/2015</b>
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Cyanide, Total	5.25	0.540	5.402 0 97.2 75 125 2.17 30

**Qualifiers:** B Analyte detected in the associated Method Blank  
J Analyte detected between MDL and RL  
ND Not Detected at the Method Detection Limit  
RL Reporting Limit  
J Analyte detected between SDL and RL  
DF Dilution Factor  
MDL Method Detection Limit  
R RPD outside accepted control limits  
S Spike Recovery outside control limits  
N Parameter not NELAC certified

**CLIENT:** Larson & Associates  
**Work Order:** 1512052  
**Project:** R360 Artesia Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: UV/VIS\_2\_151209A**

Sample ID <b>ICV-151209</b>	Batch ID: <b>R83065</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg</b>							
SampType: <b>ICV</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:20:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Total	0.0937	0.500	0.1000	0	93.7	85	115			

Sample ID <b>CCV-151209</b>	Batch ID: <b>R83065</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:30:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Total	0.184	0.500	0.2000	0	92.2	85	115			

Sample ID <b>CCV-151209</b>	Batch ID: <b>R83065</b>	TestNo: <b>SW9014</b>	Units: <b>mg/Kg</b>							
SampType: <b>CCV</b>	Run ID: <b>UV/VIS_2_151209A</b>	Analysis Date: <b>12/9/2015 5:35:00 PM</b>	Prep Date:							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Total	0.183	0.500	0.2000	0	91.5	85	115			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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