NM1 - 30

# **APPROVALS**

YEAR(S):

\_2014 - 2017\_\_\_

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

Susana Martinez Governor

Tony Delfin Acting Cabinet Secretary David R. Catanach, Division Director Oil Conservation Division



November 21, 2016

Stephanie Garza R360 Environmental Solutions, LLC 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 Ms. Garza:

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s requests, dated November 14, 2016, to grant approval to apply an additional six-inch lift to the following cell(s): Cell 1, 3, and 4.

Based on the information and data provided in the request, <u>OCD hereby grants R360 Artesia</u>, <u>LLC approval to apply an additional six-inch lift of contaminated soils</u> to the above referenced landfarm cell(s) 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), the existing permit NM1-30, the transitional provisions of 19.15.36.20 NMAC, and all conditions specified in this approval;
- 2. R360 Artesia, LLC shall ensure that each landfarm cell does not exceed the maximum thickness of treated soils of two feet or approximately 3000 cubic yards per acre, pursuant to 19.15.36.15.D NMAC;
- R360 Artesia, LLC must initiate tilling, semi-annual 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; and
- 4. R360 Artesia, LLC shall compare vadose zone monitoring results to the background results or PQL (whichever is higher) 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;

R360 Artesia, LLC Permit NM1-030 November 21, 2016 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 Brad Jones on my staff at (505) 476-3487 or <a href="mailto:brad.a.jones@state.nm.us">brad.a.jones@state.nm.us</a>.

Sincerely,

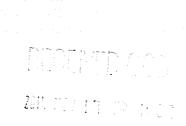
Jim Griswold

Environmental Bureau Chief

JG/baj

Cc: OCD District I Office, Hobbs





#### November 14, 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: R360 Artesia, LLC (NM-1-30-0)

Cell 3 lift Request

Mr. Jones:

This is a request to add another lift of contaminated soil to Cell 3. The most recent laboratory analysis of a treated soil demonstrates that Cell 3 has met treatment criteria outlined in permit condition "Landfarm Operation No. 6. Specifically, this condition states:

"successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 10 ppm. Comprehensive records of the laboratory analysis and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

A summary of the sample analyses for 0 to 1 foot surface layer in cell 3 is provided in Table 1. The laboratory report for the second quarter (June 1, 2016) and third quarter (September 20,2016) is provided in Appendix A. Figure 1 provides a site map of the R360 Artesia LLC facility. Figure 2 provides sample locations for Cell 1 on June 1, 2016 and figure 3 provides sample locations for Cell 3 on September 20, 2016.

Based on the laboratory analysis for samples collected on June 1, 2016 and September 20,2016, R360 requests permission to apply an additional lift to Cell 3.

Should you have any questions or comments regarding this matter, please contact me at 956-458-0515.

Sincerely,



Stephanie Garza
R360 Environmental Solutions, LLC

**Attachments** 

Figures

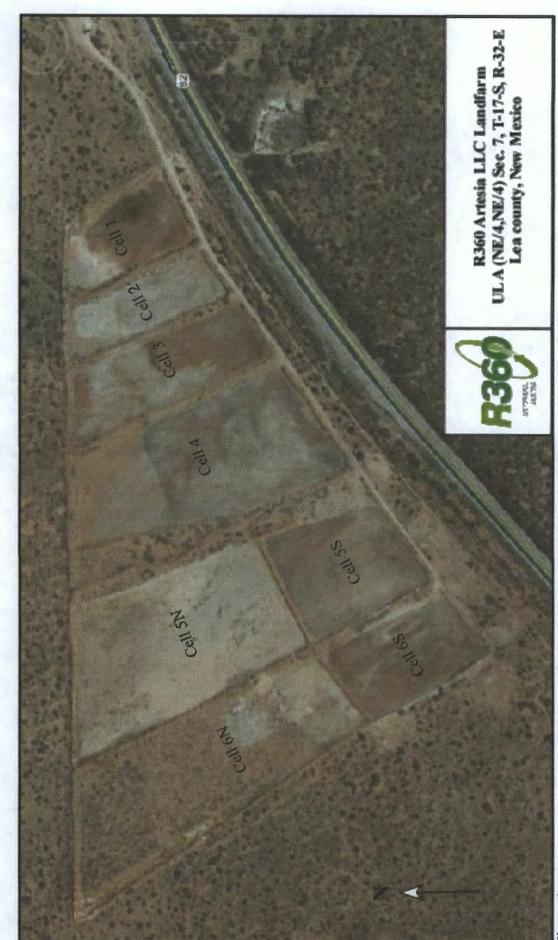


Figure 1

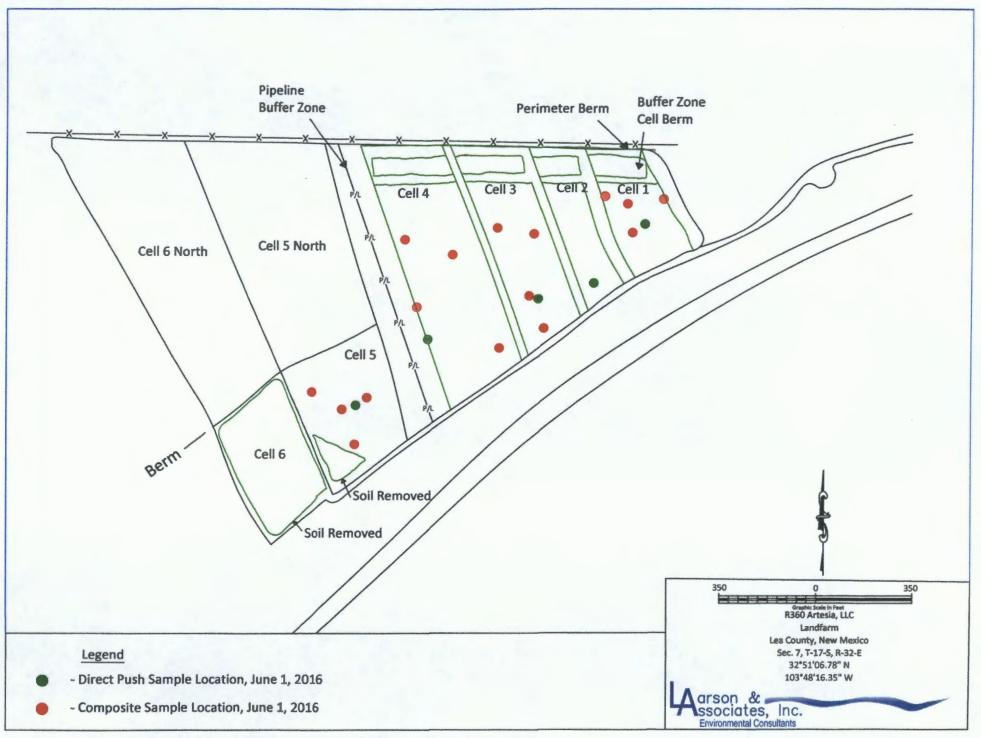


Figure 4 - Site Map Showing Direct Push and Composite Sample Locations, June 1, 2016

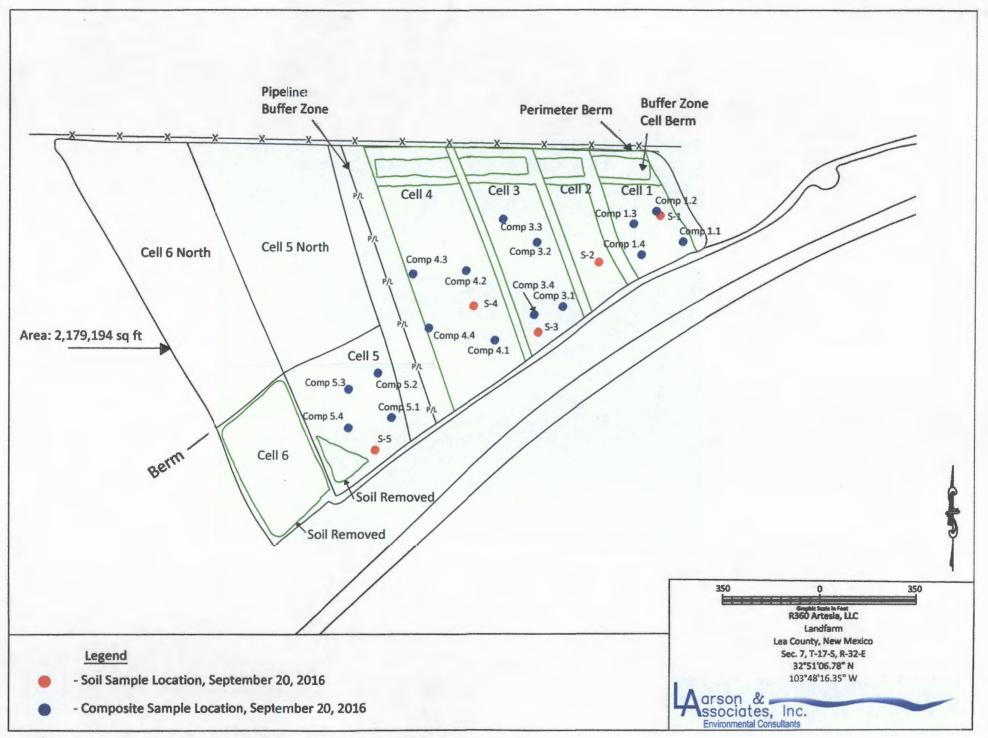


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

Tables

Table 1 **Treatment Zone Soil Analytical Data Summary** R360 Artesia LLC Landfarm (NM-1-030)

Lea County, New Mexico

Date	Depth	Benzene	BTEX	GRO	DRO	ORO	TPH	TRPH	Chloride
	(feet)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
vel:		0.2	50				500	2,500	1,000
03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00472 <0.00496	<0.0472 <0.0496	<0.190 <0.180	366 224	263 265	629 489	836 252	356 397
03/16/2016 06/01/2016	0 - 1 0 - 1	*	*	*	* *	* *	*	*	*
03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00454 <0.00436	<0.0454 <0.0436	<0.192 <0.186	273 147	235 118	508 265	644 291	177 334
03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00451 <0.00483	<0.0451 <0.0483	<0.200 <0.192	299 374	228 297	527 671	704 599	467 279
03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00493 <0.00514	<0.0493 <0.0514	<0.186 <0.20 <b>4</b>	737 467	669 447	1,406 914	2,080 498	2,100 4,630
03/16/2016 06/01/2016	0 - 1 0 - 1	**	**	**	**	**	**	**	**
	03/16/2016 03/16/2016 03/16/2016 06/01/2016 03/16/2016 06/01/2016 03/16/2016 06/01/2016 03/16/2016 06/01/2016	(feet)  rel:  03/16/2016 0-1  06/01/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1  03/16/2016 0-1	(feet)	(feet)	(feet)   (mg/Kg)   (mg/Kg)   (mg/Kg)	(feet)	(feet)	(feet)	

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas by EPA SW-846 methods 80218 (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride) Results are reported in milligram per Kilograms (mg/Kg) equivelent 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

 <sup>&</sup>lt;: Less than method reporting limit (equivalent to PQL)</li>
 Depth in feet within treated soil layer

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)
Permitted Le	evel:	(icet)	0.2	50	(8/8/	(***8/**8/	7.07.07	500	2,500	1,000
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										301
2	03/16/2016	0-1	*	*	*	3¢	*	*	*	*
	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) equivelent 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

Analyte concentration exceeds closure performance standard

<sup>\*\*</sup>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 pratical quantitation limit (PQL)

Appendix A Laboratory Report (June 1, 2016)



June 15, 2016

Order No.: 1606029

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901 FAX (432) 687-0456

RE: R360 Artesia Landfarm

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



# **Table of Contents**

Miscellaneous Documents	3
CaseNarrative 1606029	7
WorkOrderSampleSummary 1606029	8
PrepDatesReport 1606029	9
AnalyticalDatesReport 1606029	12
Analytical Report 1606029	15
AnalyticalQCSummaryReport 1606029	24



2300 Double Creek Dr. 28 Round Rock, TX 78664 Phone (512) 388-8222 **X** FAX (512) 388-8229

Web: www.dhlanalytical.com E-Mail: login@dhlanalytical.com





№ 70828 CHAIN-OF-CUSTODY

CLIENT: Larson & Associations  ADDRESS: 507 N. Marien feld  PHONE: (432) 687-0901 FAX/E-MAIL:  DATA REPORTED TO: Mark Larson  ADDITIONAL REPORT COPIES TO: Carson Hughes													DATE: PROJECTEN	ECT	LOC	ΛΤΙC	ON C	OR N	٩M٤	======================================	R3	60	A	rote	510	_	ما	nife	a M	1		on Hug
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Web: www.dhlanalytical.com E-Mail: login@dhlanalytical.com



## № 7082ø CHAIN-OF-CUSTODY

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

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Quality Environmental Containers 800-255-3950 • 384-255-3900

#### Sample Receipt Checklist 6/3/2016 Client Name Larson & Associates Date Received: Work Order Number 1606029 Received by JB Checklist completed by: Carrier name **LoneStar** Yes 🔽 No 🗌 Not Present Shipping container/cooler in good condition? Yes 🗹 No 🗆 Not Present Custody seals intact on shippping container/cooler? Yes 🗍 No 🗆 Not Present V Custody seals intact on sample bottles? Yes 🗹 No 🗆 Chain of custody present? No 🖂 Yes 🔽 Chain of custody signed when relinquished and received? No 🖂 Yes 🗹 Chain of custody agrees with sample labels? No 🖂 Samples in proper container/bottle? Yes V No 🗆 Yes 🗹 Sample containers intact? Yes Y No [ Sufficient sample volume for indicated test? No 🗔 Yes 🗹 All samples received within holding time? 4.2 °C Yes 🗹 No 🗌 Container/Temp Blank temperature in compliance? Yes [] No 🗆 No VOA vials submitted 🗹 Water - VOA vials have zero headspace? No 🗆 Yes 🗌 NA Y Water - pH<2 acceptable upon receipt? LOT# Adjusted? Checked by Yes 🗌 No 🗌 NA 🗹 LOT# Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt? Adjusted? Checked by Any No response must be detailed in the comments section below Person contacted Client contacted Date contacted: Contacted by: Regarding: Comments: Corrective Action

Page 1 of 1

CLIENT:

Larson & Associates

Project:

R360 Artesia Landfarm

Lab Order:

1606029

CASE NARRATIVE

Date: 15-Jun-16

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.

Date: 15-Jun-16

CLIENT:	Larson & Associates	
Project:	R360 Artesia Landfarm	Work Order Sample Summary
Lab Order:	1606029	The state of the s

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

CLIENT: Larson & Associates

Project:

R360 Artesia Landfarm

Project No: Lab Order: 15-0121-01 1606029

Client Sample ID: Comp3

Lab ID: 1606029-02

Date: 15-Jun-16

Collection Date: 06/01/16 12:00 PM

Matrix: SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed						
TPH EXTRACTABLE BY GC -	SOIL	M80	15D				Analyst: AV						
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	189 0 25-162 <sup>\$</sup> %R			%REC	EC 1 06/09/16 11:4							
TPH PURGEABLE BY GC - Se	OIL	M80	15 <b>V</b>				Analyst: AV						
Gasoline Range Organics	<0.186	0.0931	0.186		mg/Kg-dry	1	06/07/16 12:09 PM						
Surr: Tetrachlorethene	etrachlorethene 111 0 70-134					1	06/07/16 12:09 PM						
VOLATILE ORGANICS BY GO	3	SW80	218				Analyst: BJT						
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						
TRPH		E41	8.1				Analyst: DEW						
Petroleum Hydrocarbons, TR	291	4.83	9.65	N	mg/Kg-dry	1	06/14/16 10:34 AM						
ANIONS BY IC METHOD - SO	)IL	E30	00				Analyst: AV						
Chloride	334	45.5	45.5		mg/Kg-dry	10	06/08/16 12:00 PM						
PERCENT MOISTURE		D22	216				Analyst: WB						
Percent Moisture	1.50	0	0		WT%	1	06/09/16 08:50 AM						

#### Qualiflers:

- 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
- Parameter not NELAC certified

- Analyte detected in the associated Method Blank В
- DF Dilution Factor
- Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- Spike Recovery outside control limits

Appendix B Laboratory Report (September 20,2016)



September 30, 2016

Order No.: 1609206

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901

FAX (432) 687-0456

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



# **Table of Contents**

Miscellaneous Documents	3
CaseNarrative 1609206	6
WorkOrderSampleSummary 1609206	8
PrepDatesReport 1609206	9
AnalyticalDatesReport 1609206	11
Analytical Report 1609206	13
AnalyticalQCSummaryReport 1609206	22



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





### Nº 70834 CHAIN-OF-CUSTODY

CLIENT: Larson 3 Associates  ADDRESS: 507 N. Marion Acid St. Ste 205, Midlend Tx												•	DATE	:<	9/21	110	0												PAGE	1	O		
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#### WWW.LSO.COM Questions? Call 800-800-8984

Airbill No. 49614848



Phone (Important) 2. From: I. To: (512) 325-8222 Barker 832-607-0901 Company Nan Analytical IMPROVE & ROSCOUPURO Street Address (No P.O. Box of P.O. Box Zip Co Sveet Address Suite / Floor BOY YORTH MERZENELLD Creek 204 Rock  $\overline{\mathcal{I}}_{X}$ 78664 MITTER SECTION 70701 Visit www.tso.com lei avoilebility of services to your destination and enjoy added teatmes by creating your shipping label anthre. FOR DRIVER 3. Service: 4. Package: USE ONLY LSO Priority Overalght" LSO Ground by 10:30 o.m. to most cities LSO Saturday\* 121 LSO Early Overnight\*
By 8:30 a.m. select diles Ship Dale: (mm/do/yy) 🔘 🦳 Other. \*Check commitment times and ovailability Sy 3 p.m. to most cities 5. Payment: at www.lso.com Assumed L50 Priority Overnight service unless otherwise noted. LSO 2ed Day\* Deliver Without Delivery Signature (See Limits of Liability below) Release Signature

LIGHT OF LIABILITY: We are not responsible for claims in excess of \$100 for any reason unless your. 1) declare a greater value (not to exceed \$25,000); 2) pay an admitional fee; 3) and document your actual loss in a literal memoer. We will not pay any claim in excess of the extual loss. We are not listor for any special or consequential damages, Additional limitations of listority are contained in our current Service Guide. If you ask us to deliver a package without obtaining a delevery signature, you reason so of all listory for claims requiring from survice. NO CELIVERY SIGNATURE WILL BE DETAILMED FOR LISE GROWN OF SERVICE OVERSIZE RATES MAY APPLY. DELIVERY COMMITMENTS MAY VARY, ADDITIONAL FEES MAY APPLY.





#### Sample Receipt Checklist

Client Name Larson & Associates			Date Receiv	red:	9/22/2016
Work Order Number 1609206			Received by	JT	
Checklist completed by: Signature	9/22/201 Date Carrier name	6 <u>LoneStar</u>	Reviewed by	miles	9/22/2016 Oate
Shipping container/cooler in good condition?		Yes 🗹	No L	Not Prese	ent 🗀
Custody seals Intact on shippping container/coo	ler?	Yes 🛂	No 🗀	Not Prese	ent 🗀
Custody seals intact on sample bottles?		Yes	No 🗀	Not Prese	ent 🗹
Chain of custody present?		Yes 🗹	No 🗔		
Chain of custody signed when relinquished and	received?	Yes 🗹	No 🗀		
Chain of custody agrees with sample labels?		Yes 🔨	Noti		
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 complian	ce?	Yes 🗹	No 🗔	1.1 °C	•
Water - VOA vials have zero headspace?		Yes 🔛	No	No VOA vi	als submitted 🗹
Water - pH<2 acceptable upon receipt?		Yes 🗀	No 🛄	NA 🖍	LOT#
		Adjusted?	an distribution of the Manager of	Checke	ed by
Water - ph>9 (S) or ph>12 (CN) acceptable upo	on receipt?	Yes	No 🗔	NA 📆	LOT#
		Adjusted?		Check	ed by
Any No response must be detailed in the comm	nents section below.				
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Page 1 of 1

Larson & Associates

Project: R360 Artesia Aeration Landfarm NM

Lab Order: 1609206

CLIENT:

**CASE NARRATIVE** 

Date: 30-Sep-16

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.

CLIENT: Larson & Associates

Project:

R360 Artesia Aeration Landfarm NM

Project No:

15-0121-01

Lab Order: 1609206

Date: 30-Sep-16

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
TPH EXTRACTABLE BY GC - SOIL		M8015D				Analyst: DB	
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
TPH PURGEABLE BY GC - SOIL		M80	15V				Analyst: AV
Gasolina 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
VOLATILE ORGANICS BY GC		SW8021B					Analyst: AV
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
TRPH	E418.1						Analyst: DEW
Petroleum Hydrocarbons, TR	102	5.19	10.4	N	mg/Kg-dry	1	09/28/16 04:15 PM
ANIONS BY IC METHOD - SOIL	E300				Analyst: AV		
Chloride	112	5.17	5.17		mg/Kg-dry	1	09/27/16 12:23 PM
PERCENT MOISTURE		D2216					Analyst: SP
Percent Moisture	4,23	0	0		WT%	1	09/28/16 08:20 AM

#### Qualiflers:

- \* 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



#### November 14, 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: R360 Artesia, LLC (NM-1-30-0)

Cell 4 lift Request

Mr. Jones:

This is a request to add another lift of contaminated soil to Cell 4. The most recent laboratory analysis of a treated soil demonstrates that Cell 4 has met treatment criteria outlined in permit condition "Landfarm Operation No. 6. Specifically, this condition states:

"successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 10 ppm. Comprehensive records of the laboratory analysis and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

A summary of the sample analyses for 0 to 1 foot surface layer in cell 4 is provided in Table 1. The laboratory report for the third quarter (September 20,2016) is provided in Appendix A. Figure 1 provides a site map of the R360 Artesia LLC facility. Figure 2 provides sample locations for Cell 4 on September 20, 2016.

Based on the laboratory analysis for samples collected on September 20,2016, R360 requests permission to apply an additional lift to Cell 4.

Should you have any questions or comments regarding this matter, please contact me at 956-458-0515.

Sincerely,



Stephanie Garza
R360 Environmental Solutions, LLC

Attachments

Figures



Figure 1

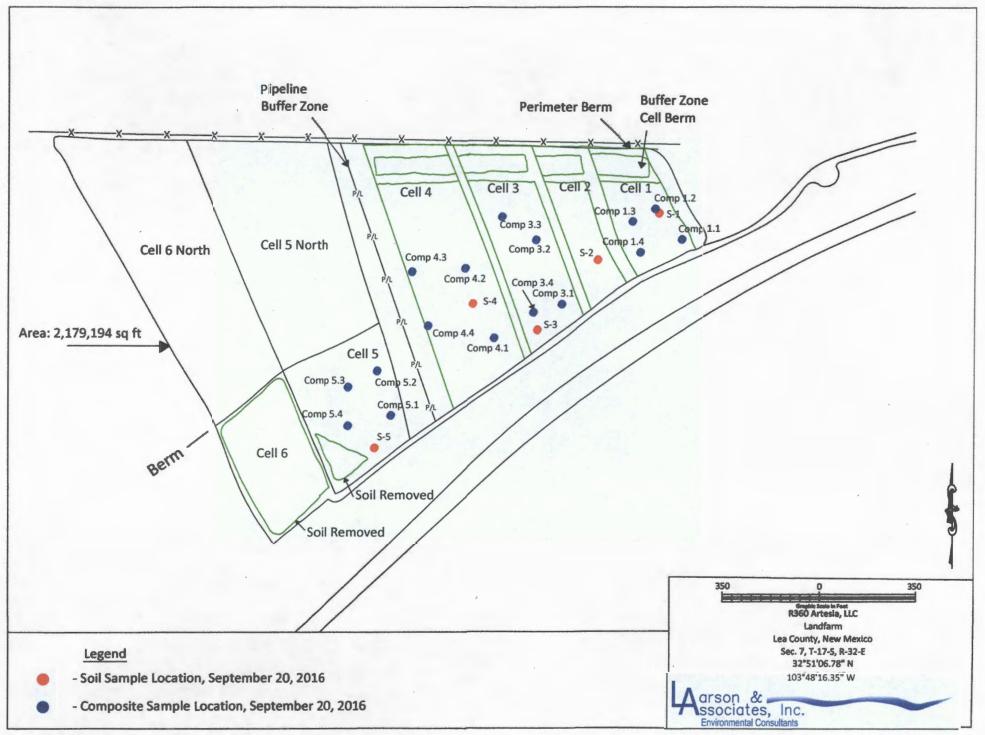


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

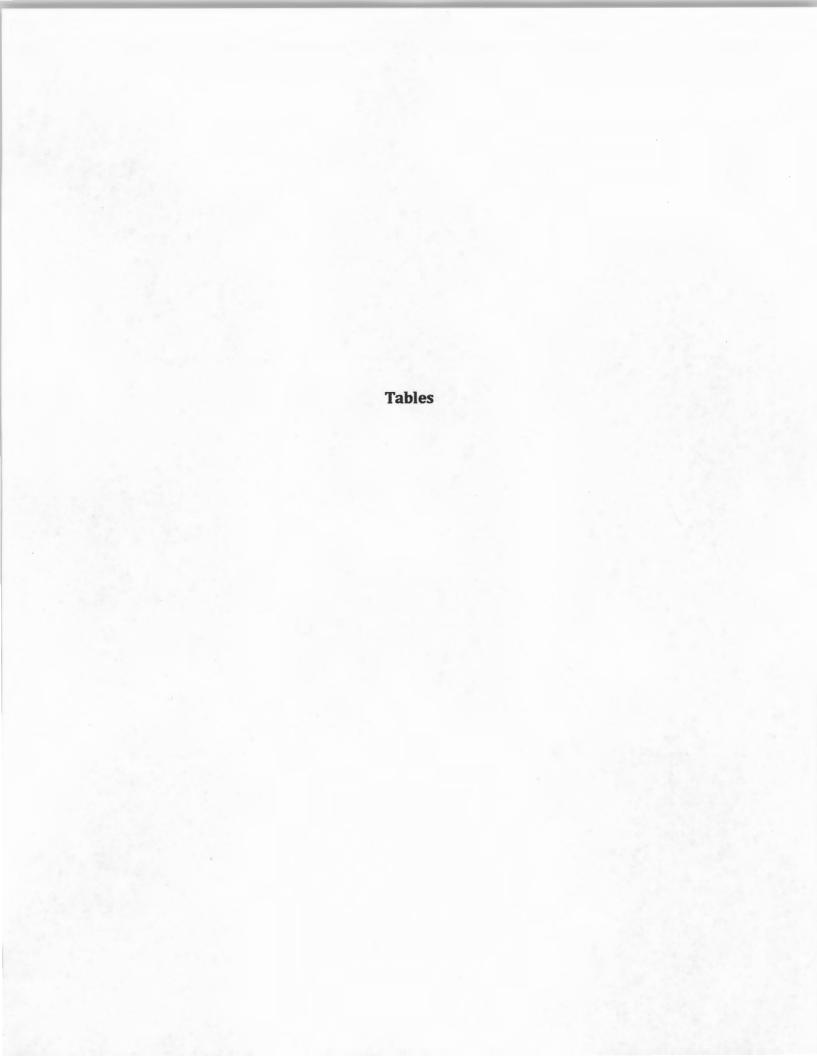


Table 1 **Treatment Zone Soil Analytical Data Summary** R360 Artesia LLC Landfarm (NM-1-030)

Lea County, New Mexico

Cell	Date	Depth (feet)	Benzene (mg/kg)	BTEX (mg/Vg)	GRO	DRO	ORO (mg/kg)	TPH (mg/Yg)	TRPH (mg/Kg)	Chloride (mg/Kg
ermitted Le	walt	(reet)	(mg/Kg) 0.2	(mg/Kg) 50	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg) 500	2,500	1,000
THE RESERVE OF THE PERSON NAMED IN		0.4			0.100	266	262		THE RESIDENCE OF THE PARTY OF T	And in concession of the local districts in concession of the
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	**	**	**	**	161.00	**	16 th	**
							VALUAVIEN FIGUR			

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas by EPA SW-846 methods 80218 (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride) Results are reported in milligram per Kilograms (mg/Kg) equivelent to parts per million (ppm) Depth is feet within treated soil layer

Analyte concentration exceeds closure performance standard

<sup>\*</sup>Cell approved for additional lift howeverno 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

<sup>&</sup>lt;: Analytte concentration less than method reporting limit (RL) equivalent to pratical quantitation limit (PQL)</p>

Appendix A Laboratory Report (September 20, 2016)



September 30, 2016

Order No.: 1609206

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901 FAX (432) 687-0456

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



# Table of Contents

Miscellaneous Documents	3
CaseNarrative 1609206	6
WorkOrderSampleSummary 1609206	8
PrepDatesReport 1609206	9
AnalyticalDatesReport 1609206	11
Analytical Report 1609206	13
AnalyticalOCSummaryReport 1609206	22



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





## Nº 70834 **CHAIN-OF-CUSTODY**

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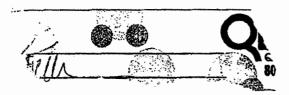
#### WWW.LSO.COM Questions? Call 800-800-8984

Airbill No. 49614848



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Kound Rock Tx 78664	City State VCIDIARIO TX	* <b>Zo</b> 70702
3. Service: Visit want to come it or	4. Package:	FOR DRIVER USE ONLY
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Deliver Without Delivery Signature (See Limits of Liability below)		City Code:
Release Signature		

LIAIT OF LIABILITY. We are not responsible for chains in micess of \$100 for any respon urbest year. If declare a greater value (not to extend \$25,000); 25 pay an administration for, 3) and document your actual loss in a superior in component of the page of the acqual loss, if we are not table for any special company, administrational limitations of librity are contained in our convert Service Guide. If you state to to deliver a packety without obtaining a delivery signature, you reases us of all fairby for calling resulting from such service. HO DELIVERY SIGNATURE WILL BE DETAILED FOR LSO EARLY OVERHIGHT SERVICE. PACKAGINI PROVIDED BY ITS OF THE THE THE PARK AND ALL THE PARK AND ALL TESS MAY APPLY.





#### Sample Receipt Checklist

Client Name Larson & Associates	•	·	Date Receiv	ved:	9/22/2016
Work Order Number 1609206			Received by	JT	
Checklist completed by: Signature	9/22/2010 Dele Carrier name	6 LoneStar	Reviewed by	y .	9/22/2016 Date
Shipping container/cooler in good condition?		Yes 🗹	Notil	Not Pres	ent 🗀
Custody seals intact on shippping container/cool	er?	Yes 🔀	No 🗀	Not Pres	***
Custody seals intact on sample bottles?		Yes 🛄	No 🗀	Not Pres	sent 🗹
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 i j		
Samples in proper container/bottle?		Yes 🕅	No 🗔		
Sample containers intact?	-	Yes ☑	No □		
Sufficient sample volume for indicated test?		Yes 🔀	No L		
All samples received within holding time?		Yes 🛂	No 🗔		
Container/Temp Blank temperature in compliance	ce?	Yes 🗹 .	No 🗔	1.1 °C	
Water - VOA vials have zero headspace?		Yes !!	No :!!	No VOA v	ials submitted 🗹
Water - pH<2 acceptable upon receipt?		Yes 门	No 🗀	NA 🗹	LOT#
		Adjusted?		Check	ked by
Water - ph>9 (S) or ph>12 (CN) acceptable upo	n receipt?	Yes 🗔	No 🗀	NA 😯	LOT#
		Adjusted?		Chec	ked by
Any No response must be detailed in the comm	ents section below.	par - ; IS have priver been	100 mm17		
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Corrective Action					
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Page 1 of 1

Date: 30-Sep-16

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.

CLIENT:

Larson & Associates

Project:

R360 Artesia Aeration Landfarm NM

Project No: Lab Order: 15-0121-01

1609206

Date: 30-Sep-16

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
TPH EXTRACTABLE BY GC - SO	IL	M80	15D				Analyst: DB
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	8	%REC	1	09/29/16 12:55 PM
TPH PURGEABLE BY GC - SOIL		M80	15V				Analyst: AV
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
VOLATILE ORGANICS BY GC		SW80	21B				Analyst: AV
Benzene	< 0.00465	0.00279	0.00465		mg/Kg-dry	1	09/27/16 04:13 PM
Elhylbenzene	<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
TRPH		E41	8.1				Analyst: DEW
Petroleum Hydrocarbons, TR	110	5.02	10.0	N	mg/Kg-dry	1	09/28/16 04:15 PM
ANIONS BY IC METHOD - SOIL		E36	00				Analyst: AV
Chloride	81,4	5.14	5.14		mg/Kg-dry	1	09/27/16 12:08 PM
PERCENT MOISTURE		D22	16				Analyst: SP
Percent Moisture	5.41	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



#### November 14, 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: R360 Artesia, LLC (NM-1-30-0)

Cell 1 lift Request

Mr. Jones:

This is a request to add another lift of contaminated soil to Cell 1. The most recent laboratory analysis of a treated soil demonstrates that Cell 1 has met treatment criteria outlined in permit condition "Landfarm Operation No. 6. Specifically, this condition states:

"successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 10 ppm. Comprehensive records of the laboratory analysis and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

A summary of the sample analyses for 0 to 1 foot surface layer in cell 1 is provided in Table 1. The laboratory report for the second quarter (June 1, 2016) and third quarter (September 20,2016) is provided in Appendix A. Figure 1 provides a site map of the R360 Artesia LLC facility. Figure 2 provides sample locations for Cell 1 on June 1, 2016 and figure 3 provides sample locations for Cell 1 on September 20, 2016.

Based on the laboratory analysis for samples collected on June 1, 2016 and September 20,2016, R360 requests permission to apply an additional lift to Cell 1.

Should you have any questions or comments regarding this matter, please contact me at 956-458-0515.



Stephanie Garza

R360 Environmental Solutions, LLC

Attachments





Figure 1

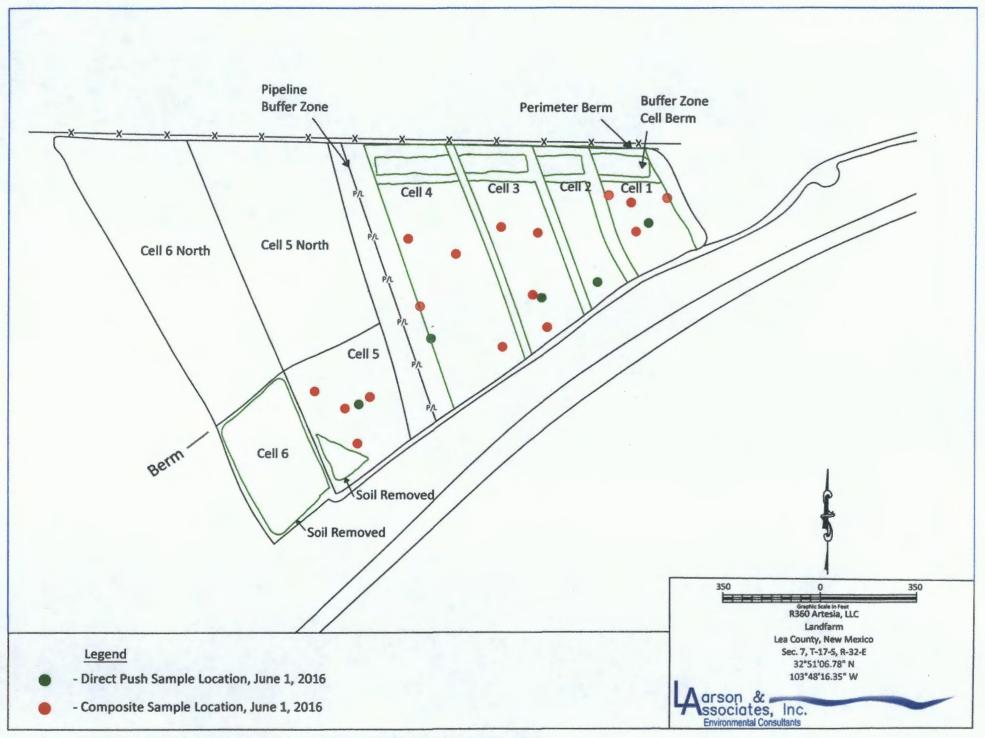


Figure 4 - Site Map Showing Direct Push and Composite Sample Locations, June 1, 2016

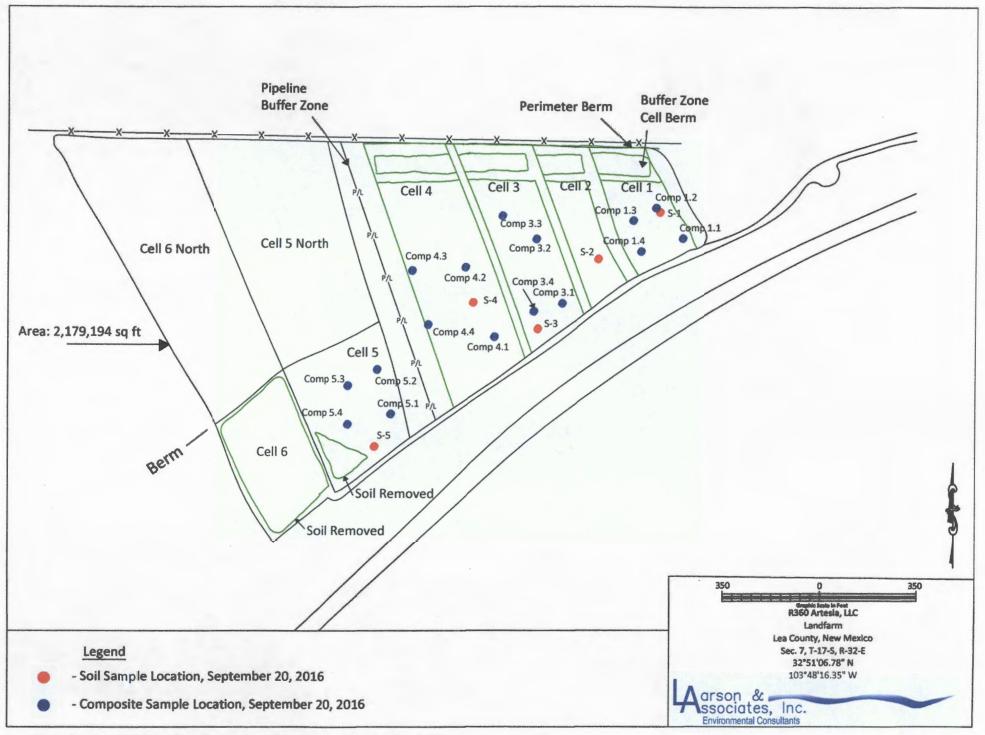


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

Tables

Table 1 **Treatment Zone Soil Analytical Data Summary** R360 Artesia LLC Landfarm (NM-1-030)

Lea County, New Mexico

Cell	Date	Depth	Benzene	ВТЕХ	GRO	DRO	ORO	TPH	TRPH	Chloride
		(feet)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
Permitted Lev	el:		0.2	50				500	2,500	1,000
1	03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00472 <0.00496	<0.0472 <0.0496	<0.190 <0.180	366 224	263 265	629 489	836 252	356 397
2	03/16/2016 06/01/2016	0 - 1 0 - 1	*	*	*	*	*	*	*	*
3	03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00454 <0.00436	<0.0454 <0.0436	<0.192 <0.186	273 147	235 118	508 265	644 291	177 334
4	03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00451 <0.00483	<0.0451 <0.0483	<0.200 <0.192	299 374	228 297	527 671	704 599	467 279
5	03/16/2016 06/01/2016	0 - 1 0 - 1	<0.00493 <0.00514	<0.0493 <0.0514	<0.186 <0.204	737 467	669 447	1.406 914	2,080 498	2,100 4,630
6	03/16/2016 06/01/2016	0 - 1 0 - 1	**	** **	**	**	**	**	**	** **

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas by EPA SW-846 methods 80218 (BTEX), 8015M (GRO and DRO), 418.1 (TRPH) and 300.0 (chloride)

Results are reported in milligram per Kilograms (mg/Kg) equivelent to parts per million (ppm) RL: Reporting limit (equivalent to practical quantification limit (PQL))

<sup>\*</sup>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

<sup>1. &</sup>lt;: Less than method reporting limit (equivalent to PQL)

<sup>2.</sup> Depth in feet within treated soil layer

Table 1 **Treatment Zone Soil Analytical Data Summary** R360 Artesia LLC Landfarm (NM-1-030)

Lea County, New Mexico

Cell	Date	Depth	Benzene	BTEX	GRO	DRO	ORO	TPH	TRPH	Chloride
		(feet)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg
mitted Le			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	**	**	**	**	10:10	**	**	**

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) equivelent to parts per million (ppm) Depth is feet within treated soil layer

Analyte concentration exceeds closure performance standard

<sup>\*</sup>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

<sup>&</sup>lt;: Analylte concentration less than method reporting limit (RL) equivalent to pratical quantitation limit (PQL)

Appendix A Laboratory Report (June 1, 2016)



June 15, 2016

Order No.: 1606029

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901

FAX (432) 687-0456

RE: R360 Artesia Landfarm

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



# **Table of Contents**

Miscellaneous Documents	
CaseNarrative 1606029	7
WorkOrderSampleSummary 1606029	8
PrepDatesReport 1606029	9
AnalyticalDatesReport 1606029	12
Analytical Report 1606029	15
AnalyticalQCSummaryReport 1606029	24



2300 Double Creek Dr. **國** Round Rock, TX 78664 Phone (512) 388-8222 **國** FAX (512) 388-8229

Web: www.dhlanalytical.com E-Mail: login@dhlanalytical.com





## № 70828 CHAIN-OF-CUSTODY

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2300 Double Creek Dr. Round ck, TX 78664 Phone (512) 388-8222 FAX (512) 388-8229

Web: www.dhlanalytical.com E-Mail: login@dhlanalytical.com





## № 70828 **CHAIN-OF-CUSTODY**

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#### Sample Receipt Checklist Client Name Larson & Associates Date Received: 8/3/2016 Work Order Number 1606029 Received by JB Checklist completed by: Carrier name **LoneStar** Yes 🗹 No 🗆 Not Present Shipping container/cooler in good condition? Yes 🗹 No 🗀 Not Present Custody seals intact on shippping container/cooler? Yes 🗌 No 🗌 Not Present X Custody seals intact on sample bottles? Yes 🗹 No 🗆 Chain of custody present? Yes V No 🛄 Chain of custody signed when relinquished and raceived? No 🗌 Chain of custody agrees with sample labels? Yes 🗸 Yes 🐼 No [ Samples in proper container/bottle? No 🗆 Yes 🗹 Sample containers intact? Yes 🗹 No 🗀 Sufficient sample volume for Indicated test? No 🗔 All samples received within holding time? Yes 🗹 4.2 °C Yes 🗹 No 🗌 Container/Temp Blank temperature in compliance? Yes [] No 🗔 No VOA viais submitted 🗹 Water - VOA vials have zero headspace? Yes [] No 🗆 NA Z Water - pH<2 acceptable upon receipt? LOT# Checked by Adjusted? NA Z Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt? Yes 🔲 No 🗌 LOT# Checked by Adjusted? Any No response must be detailed in the comments section below. Person contacted Client contacted Date contacted: Contacted by: Regarding: Comments: Corrective Action

Page 1 of 1

Date: 15-Jun-16

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.

1606029-08 DP2 (2-3)

1606029-09 DP1 (2-3)

Date: 15-Jun-16

06/01/16 02:10 PM

06/01/16 02:30 PM

6/3/2016

6/3/2016

CLIENT: Project: Lab Order:	Larson & Associates R360 Artesia Landfarm 1606029		Work Order Sample Summary								
Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved							
1606029-01	Compl		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							

CLIENT:

Larson & Associates

Project:

R360 Artesia Landfarm

Project No: Lab Order: 15-0121-01 1606029 Client Sample ID: Compl

ampie ib. Compi

Lab ID: 1606029-01

Collection Date: 06/01/16 11:45 AM

Date: 15-Jun-16

Matrix: SOIL

Analyses Resul		MDL	RL	Qual	Units	DF	Date Analyzed							
TPH EXTRACTABLE BY GC - SOIL		M80	15D				Analyst: AV							
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	0 25-162 S		%REC	1	06/09/16 12:02 PM							
TPH PURGEABLE BY GC - SC	DIL	M80	15V				Analyst: AV							
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							
VOLATILE ORGANICS BY GO	•	SW80	21B				Analyst: BJT							
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							
ТЯРН		E41	8.1				Analyst: DEW							
Petroleum Hydrocarbons, TR	252	4.89	9.79	N	mg/Kg-dry	1	06/14/16 10:34 AM							
ANIONS BY IC METHOD - SO	IL	E36	00				Analyst: AV							
Chloride	397	46.9	46.9		mg/Kg-dry	10	06/08/16 11:45 AM							
PERCENT MOISTURE		D22	16				Analyst: WB							
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

Appendix B Laboratory Report (September 20,2016)



September 30, 2016

Order No.: 1609206

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901 FAX (432) 687-0456

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



# Table of Contents

Miscellaneous Documents	3
CaseNarrative 1609206	6
WorkOrderSampleSummary 1609206	8
PrepDatesReport 1609206	9
AnalyticalDatesReport 1609206	11
Analytical Report 1609206	13
AnalyticalOCSummaryReport 1609206	22



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





## № 70834 **CHAIN-OF-CUSTODY**

CLIENT: Larson 3 Associates ADDRESS: 607 N. Marion Reld St. Ste 205, Midland TX													DATE: 9/21/16  PAGE 1 OF 1  PO #: DHL WORK ORDER #: 1609206																						
PHONE: 432 687 0901 FAX/E-MAIL: mark @ Lineny) rennestal.com  DATA REPORTED TO: Mark @ Lineny) rennestal.com  ADDITIONAL REPORT COPIES TO:										PROJECT LOCATION OR NAME: \$360 Artesia Agration Londform NM CLENT PROJECT #: 15-0121-01 COLLECTOR: Travis Williams																									
Authorize 5% surcharge for TRRP Report?	S=SOPE P=PAINT W=WATER SL=SLUDGE A=AIR O=OTHER L=LIQUID SO=SOLID SE=SEDIMENT										/\$\\\$\\\$\\\$\\\$\\\$\\\$\\\$\\\$\\\\\\\\\\\\											7													
Field Sample I.D.	DHL Lab#	Date	Time	Matrix	Container Type	# of Containers	Ŧ	HNO,	H,SO,E	35	UNPRESERVED	P.																		<b>3</b> /	/	FIEL	D NO	TES	
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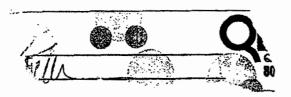
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#### Sample Receipt Checklist

Client Name Larson & Associates			Date Receiv	ved:	9/22/2016	
Work Order Number 1809208			Received by	JT		
Checklist completed by: Signature	9/22/201 Date	· · · · ·	Reviewed by	y . Inilials	9/22/2016 Onte	
	Carrier name	LoneStar				
Shipping container/cooler in good condition?		Yes 🗹	No i	Not Pres	sent []	
Custody seals Intact on shippping container/cool	er?	Yes 🗹	No 🗀	Not Pres	sent 🗀	
Custody seals intact on sample bottles?		Yes	No 🗀	Not Pres	sent 🗹	
Chain of custody present?		Yes 🔽	No 🗆			
Chain of custody signed when relinquished and r	received?	Yes 🗹	No 🗀			
Chain of custody agrees with sample labels?		Yes 🔃	Noij			
Samples in proper container/bottle?		Yes K	No 🗔			
Sample containers intact?	•	´Yes ₩Z	No 🗀			
Sufficient sample volume for indicated test?		Yes 🗹	No 🗐			
All samples received within holding time?	-	Yes 🗹	No 🗔			
Container/Temp Blank temperature in compliance	<b>:e</b> ?	Yes 🗹	No 🗔	1.1 °C	•	
Water - VOA vials have zero headspace?		Yes	No	No VOA v	rials submitted 🗹	
Water - pH<2 acceptable upon receipt?		Yes 🗀	No 🛄	NA n	LOT#	
		Adjusted?	. Parantago de Armando de	Ched	ked by	
Water - ph>9 (S) or ph>12 (CN) acceptable upon	n receipt?	Yes 🗌	No 🗀	NA 🗹	LOT#	
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Corrective Action						
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Page 1 of 1

DHL Analytical, Inc.

CLIENT: Larson & Associates

Project: R360 Artesia Aeration Landfarm NM

Lab Order: 1609206

CASE NARRATIVE

Date: 30-Sep-16

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.

CLIENT: Larson & Associates

Project: R360 Artesia Aeration Landfarm NM

Project No: 15-0121-01

Lab Order: 1609206

Date: 30-Sep-16

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
TPH EXTRACTABLE BY GC -	SOIL	M80	15D				Analyst: DB
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
TPH PURGEABLE BY GC - Se	OIL	M80	15V				Anaiyst: AV
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
VOLATILE ORGANICS BY GO	:	SW80	21B				Analyst: AV
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
TRPH		E41	8.1				Analyst: <b>DEW</b>
Petroleum Hydrocarbons, TR	15.1	5.73	11.5	N	mg/Kg-dry	1	09/28/16 04:15 PM
ANIONS BY IC METHOD - SO	IL.	E36	00				Analyst: AV
Chloride	302	50.9	50.9		mg/Kg-dry	10	09/27/16 03:58 PM
PERCENT MOISTURE		D22	216				Analyst: SP
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

# 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.

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

# Jones, Brad A., EMNRD

From:

Mark Larson < Mark@laenvironmental.com>

Sent:

Friday, March 20, 2015 3:40 PM

To:

Jones, Brad A., EMNRD

Cc:

Wayne Crawley

Subject:

Re: R360 Artesia LLC Landfarm (NM-1-030) Cell 2 Lift request, March 20, 2015

**Attachments:** 

Cell 2 Lift Request, March 20, 2015.pdf

## Dear Brad,

On behalf of R360 Artesia LLC please find the attached lift request for Cell 2. Please contact Wayne Crawley with R360 at (979) 777-0670 or me if you have questions. Sincerely,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 200 Midland, Texas 79701 (432) 687-0901 ( O ) (432) 556-8656 ( C )





March 20, 2015

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

Re:

R360 Artesia, LLC (NM1-30-0)

Cell 2 Lift Request

Mr. Jones:

This is a request to add another lift of contaminated soil to Cell 2. The most recent laboratory analysis of a treated soil demonstrates that Cell 2 has met the treatment criteria outlined in Permit condition "Landfarm Operation No. 6". Specifically, this condition states:

"Successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

The analysis of the sample collected on March 6, 2015, for the 0 to 1 foot surface layer in Cell 2 is presented on the attached analytical data summary. Figure 1 presents a site map for the facility. Figure 2 presents the sample locations for Cell 2 on March 6, 2015. Appendix A presents the laboratory report.

Based on the laboratory analysis of the sample collected on March 6, 2015, R360 requests permission to apply an additional lift to Cell 2. The volume of Cell 2 was revised as part of the Plan 1 (Berm and Buffer Pan) effort and is approximately 2.25 acres. The permit allows for a six inch lift, thus based on the revised Cell 2 area, one lift will contain approximately 1,818 cubic yards of contaminated soil. The source of the contaminated soils will be the soil removed from the buffer zone and permanent cell berm located north of Cell 2 and soil from Cell 5 and Cell 6.

Should you have any questions or comments regarding this matter, please contact Wayne Crawley (281.873.3205) or me (432.687.0901).

Sincerely, Larson & Associates, Inc.

Mark Larson mark@laenvironmental.com

cc: Wayne Crawley Midland Office

# **TABLES**

# Cell 2 Treatment Soil Analytical Data Summary R360 Artesia LLC Landfarm (NM-1-030) Lea County, New Mexico

Sample Date: March 6, 2015

Constituent	Reporting Limit (mg/Kg)	Concentration (mg/Kg)	Regulatory Limit (mg/Kg)
Benzene	0.001	<0.001	10
Toluene	0.002	<0.002	
Ethylbenzene	0.001	<0.001	<u>-</u> -
Xylene	0.003	<0.003	
ВТЕХ	0.001	<0.001	50
TPH (C6-C12)	25.0	<25.0	
TPH (>C12-C28)	25.0	36.2	
TPH (>C28-C35)	25.0	<25.0	
ТРН (С6-С35)	25.0	36.2	100
TRPH	10.0	373	2500
Chloride	1	4.95	1,000

Notes: Analysis performed by Permian Basin Environmental Lab, Midland, Texas

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

BTEX analysis performed by SW-846 method 8021B

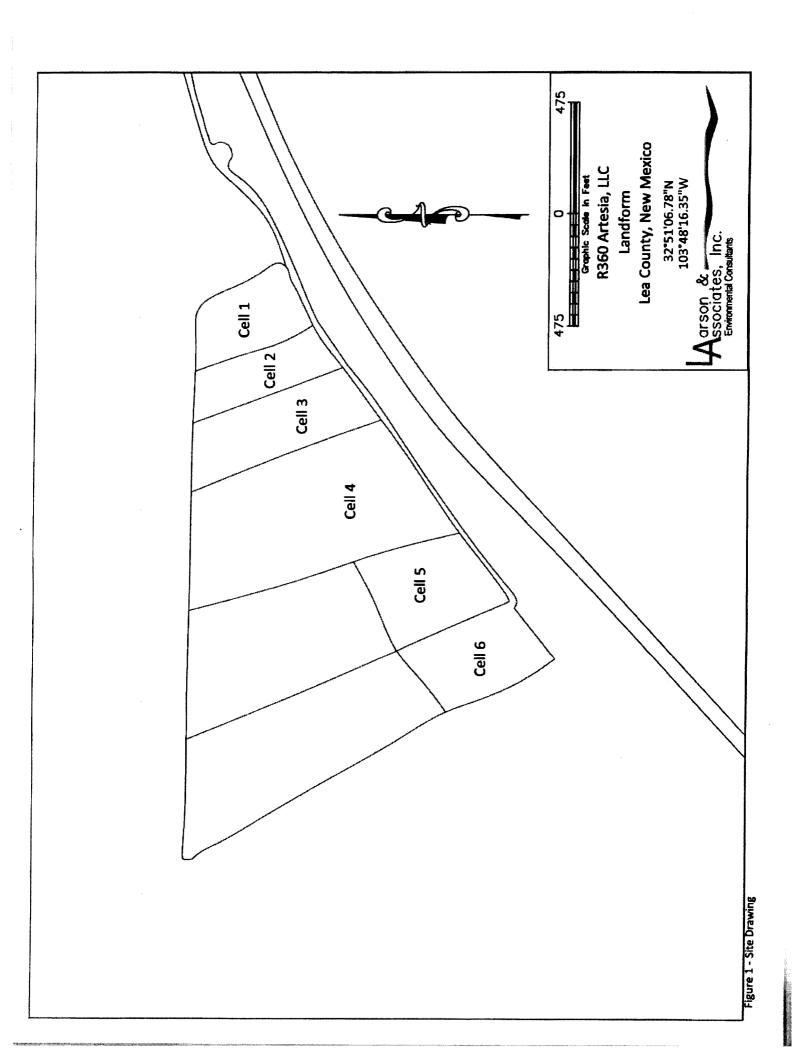
TPH analysis performed by SW-846 method 8015

TRPH analysis performed by SW-846 method 418.1

Chloride analysis performed by EPA method 300.1

- 1. <: Less than reporting limit
- 2. Depth in feet below top of treated soil layer

# **FIGURES**



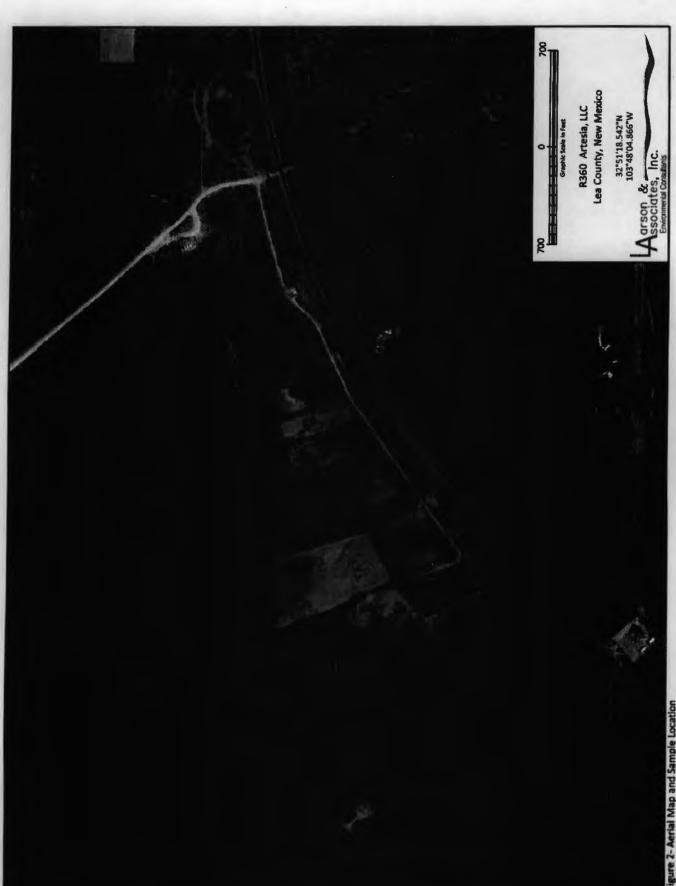


Figure 2- Aeriai Map and Sample Location

# **APPENDIX A**

Laboratory Report (March 6, 2015)

# PERMIAN BASIN ENVIRONMENTAL LAB, LP 10014 SCR 1213 Midland, TX 79706

# **PBELAB**

# **Analytical Report**

# Prepared for:

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

Project: R 360 Landfarm
Project Number: 15-0121-01
Location: New Mexico

Lab Order Number: 5C09001



NELAP/TCEQ # T104704156-13-3

Report Date: 03/20/15

Project: R 360 Landfarm

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project Number: 15-0121-01 Project Manager: Coty Woolf

## **ANALYTICAL REPORT FOR SAMPLES**

Sample LD	Laberatory (D	Matrix	Date Sampled	Date Received
Cell 2	5C09001-01	Soil	03/06/15 14:00	03-09-2015 11:32

TPH 418.1 analysis was subcontracted to Cardinal Laboratories. Their report is attached to the back of this report.

P.O. Box 50685 Midland TX, 79710 Project: R 360 Landfarm

Project Number: 15-0121-01 Project Manager: Coty Woolf Fax: (432) 687-0456

Cell 2 5C09001-01 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	No
	Pern	ulan Basin I	Environme	atal Lab, l	L.P.				
Organies by GC									
Benzene	ND	0.00100	mg/kg dry	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
Toluene	ND	0.00200	mg/kg dry	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
Ethylbenzene	ND	0.00100	mg/kg dry	ı	P5C1110	03/10/15	03/10/15	EPA 8021B	
Xylone (p/m)	ND	0.00200	mg/kg dry	1	P5C1110	03/10/15	03/10/15	RPA 80218	
Xylene (o)	ND	0.00100	mg/kg dry	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		97.5 %	75-1	25	PSC1110	03/10/15	03/10/15	RPA 8021B	
General Chemistry Parameters by EP	A / Standard Method	ds							
Chloride	4.95	1.00	mg/kg dry	1	P5C1104	03/10/15	03/10/15	EPA 300.0	
% Moisture	ND	0.1	%	i	P5C1012	03/10/15	03/11/15	% calculation	
ТРН 418.1	373	10.0	mg/kg dry	10	P5C1201	03/12/15	03/12/15	RPA 418.1	
Total Petroleum Hydrocarbons C6-C3	5 by EPA Method 80	015M							
C6-C12	ND	25.0	mg/kg dry	1	P5C1107	03/10/15	03/10/15	TPH 8015M	
C12-C28	36.2	25.0	mg/kg dry	1	P5C1107	03/10/15	03/10/15	TPH 8015M	
C28-C35	an	25.0	mg/kg dry	1	P5C1107	03/10/15	03/10/15	TPH 8015M	
Surrogate: 1-Chloroctane		93.0 %	70-1.	30	P\$C1107	03/10/15	03/10/15	TPH 8015M	
Surrogate: o-Terphenyl		101 %	70-1.	30	P\$C1107	03/10/15	03/10/15	TPH 8013M	
Fotal Petroleum Hydrocarban C4-C35	26.2	25.0	mg/kg dry	1	(CALC)	03/10/15	03/10/15	enie	

P.O. Box 50685 Midland TX, 79710 Project: R 360 Landfarm

Project Number: 15-0121-01 Project Manager: Coty Woolf Fax: (432) 687-0456

# Organics by GC - Quality Control

## Permian Basin Environmental Lab, L.P.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P5C1110 - General Preparation (G	<u>C)</u>									
Blank (PSC1110-BLK1)				Prepared &	Analyzed:	03/10/15	***************************************		p. ach	
Benzene	ND	0.00100	mg/kg wet							
l'oluene	ND	0,00200	•							
Ethylbonaene	ND	0.00100	-							
Kylene (p/m)	ND	0.00200	•							
(ylene (o)	ND	0.00100	•							
Surrogate: 4-Bromoftworobenzene	52,2	**************************************	• <b>6</b> ⁄48	50.0		104	75-125			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
.CS (P5C1110-BS1)				Prepared &	Analyzed:	03/10/15			***************************************	***************************************
Sonzene	0.0865	0.00100	mg/kg wet	0.0700		124	70-130			
Tolluene	0,0815	0.00200	*	0.0700		116	70-130			
thylbenzene	0.0836	0.00100	*	0.0700		119	70-130			
(ylene (p/m)	0.143	0.00200	•	0.140		102	70-130			
(ylene (o)	0.0680	0.00100	*	0.0700		97.2	70-130			
urrogute: 4-Bromoftvorobenzene	\$5.9	······································	ку∕к	30.0		112	75-125	······································		
.CS Dup ( <b>P5</b> C111 <b>0-B</b> SD1)				Prepared &	Analyzed:	03/10/15				
lenzene .	0,0885	0.00100	π <b>ıg/kg wo</b> t	0.0700		126	70-130	2,26	20	
oluene	0.0836	0.00200	•	0.0700		119	70-130	2.47	20	
Ethy Roenzone	0.0861	0.00100	•	0.0700		123	70-130	2.91	20	
(ylene (p/m)	0.147	0.00200	•	0.140		105	70-130	2.84	20	
(y <del>lene</del> (o)	0.0721	0.00100	•	0.0700		103	70-130	5.81	20	
iurvogate: 1-Bromoftworobenzene	52,0		wg/kg	50.0		104	75-125			

P.O. Box 50685 Midland TX, 79710 Project: R 360 Landfarm

Project Number: 15-0121-01 Project Manager: Coty Woolf Fax: (432) 687-0456

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

	Donale	Reporting	F I also	Spiko	Source	%REC	%REC Limits	RPD	RPD Limit	Mass-
Analyte	Result	Limit	Units	Level	Result	76KEC	Time	RPD	LENI	Notes
Batch PSC1012 - *** DEFAULT PREP ***								***************************************		
Blank (PSC1012-BLK1)			-4	Propercd &	Analyzod:	03/10/15				
% Moisture	ND	0.1	%							
Duplicate (PSC1012-DUP1)	Sou	ree: 5C09006-	01	Prepared: 0	3/10/15 A	alyzed: 03	/11/15			
/ Moleture	4,0	0,1	%	and the second s	3.0			28.6	20	
Duplicate (PSC1012-DUP2)	Sour	ree: 5C09014-	01	Prepared: 0	3/10/15 As	alyzed: 03	/11/15			
% Moleture	6.0	0.1	%	The second secon	6.0		***************************************	0.00	20	tata y mayor di salamana assa balan
Duplicate (PSC 1012-DUP3)	Sour	ree: 5C10003-4	<b>1</b> 7	Prepared: 0	3/10/15 Ar	alvzed: 03	/11/13			
Moisture	3.0	0,1	%		4,0			28.6	20	
Batch PSC1104 - *** DEFAULT PREP *** Blank (PSC1104-BLK1)				Prepared &	Analyzed:	03/10/15			10 COCCOSCO	
Chloride	ND	1.00 1	ng/kg wet							
.CS (P5C1104-B81)				Prepared &	Analyzed:	03/10/15				
'hloride	104	1,00	ng/kg wet	125		83.0	80-120			
				Prepared &	Analyzed:	03/10/15				
.C8 Dup (P\$C1104-B8D1)										
.CS Dup (PSC1184-BSD1) Thioride	103	1.00	ng/kg wet	125		R2.0	80-120	1.24	20	***************************************
		],00 j	• •	125 Prepared &	na ma de la cominima		<b>6</b> 0-120	1,24	20	
Thiorida		ree: 5C09001-0	• •		na ma de la cominima		80-120	1,24	20	
Pupilente (PSC (104-DUP1)	<b>Sour</b> 5.59	ree: 5C09001-0	ng/kg dry		Analyzed:	03/10/15	<b>\$0</b> -120			

Project: R 360 Landfarm

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710

Project Number: 15-0121-01 Project Manager: Coty Woolf

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

Amshee	P	Reporting	Units	Spike Levol	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Analyte	Result	Limit	Unini	Level	Result	76RBC	Limits	KPD	Limit	Notes
Batch P5C1107 - TX 1005										
Blank (PSC1167-BLK1)				Prepared &	: Analyzed:	03/10/15			www.www.nac-1111nnaca.t110e11 1-1-1-	
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	•							
>C28-C35	ND	25.0	**							
Surrogate: 1-Chlorooctane	78.8	VVV	*	100	man managation of the contract	78.8	70-130		***************************************	
Surrogute: o-Terphenyl	43.5		•	50.0		87.1	70-130			
LC9 (PSC1107-BS1)				Prepared &	Analyzed:	03/10/15	~~~			
C6-C12	859	25.0	mg/kg wet	1000		85.9	75-125			
>C12-C28	827	25.0	*	1000		82.7	75-125			
Surrogate: 1-Chlorooctane	99.5	***************************************	<b>d</b>	100	***************************************	99.5	70-130			***************************************
Surrogate: o-Terphenyl	43.0		*	50,0		86.0	70-130			
LCS Dup (P5C1107-BSD1)				Prepared &	Analyzed:	03/10/15				
C6-C12	839	25.0	mg/kg wet	1000		83,9	75-125	2.34	20	
>C12-C28	836	25.0	,	1000		83.6	75-125	1.01	20	
Surrogate: I-Chlorooctane	98.0			100		98,0	70-130			
Surrogate: o-Terphenyl	44.1		*	50.0		88.3	70-130			
Duplicate (PSC1107-DUP1)	Seur	rce: 5C <b>090</b> 12	-02	Prepared &	Analyzed:	03/10/15	·a -2/33/2000	771111111111111111111111111111111111111		
C6-C12	ND	29.8	mg/kg dry		ND				20	
>C12-C28	ND	29.8	*		33.5				20	
Surrogate: I-Chlorooctane	131	*******************		119		110	70-130			
Surrogate: o-Terphenyl	74.6		~	59.5		125	70-130			

Larson & Associates, Inc. P.O. Box 50685

Duplicate

Midland TX, 79710

Project: R 360 Landfarm

Project Number: 15-0121-01 Project Manager: Coty Woolf Fax: (432) 687-0456

#### Notes and Definitions

DET	Analyse 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	Mairix Spike

Report Approved By:	Date:	3/20/2015
---------------------	-------	-----------

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.

RELINQUISHED BY:(Signature)  DATE/TIME  RECEIVED BY:		e.						(ell + 0) 3/6/15 2 my 5 A	# of the HNC	Time zone/State: SC0900   Containers	A=AIR OT=OTHER	al	OITSON & Midland, TX 79701 SSOCIOTES, INC. Environmental Consultants Data Reported to:
(Signature) (1.3) OTHER C									E SP	RESERVE		1000	DATE: 3/9// PO #: PROJECT LOCATION OF LAI PROJECT #: 15
12 **	RECEIVING TEMP: 3.11 THERM#								II XX				WORK ORDER #



March 12, 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 03/09/15 13:30.

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 <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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

Method EPA 552.2

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.

Celey D. Keine

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



PHONE (575) 393-2326 \* 101 E. MARLAND \* HORBS, NM 88240

# 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:

12-Mar-15 11:50

Sample ID Laboratory ID Matrix Date Sampled Date Received

5C09001-01

H500638-01

Soll

06-Mar-15 14:00

09-Mar-15 13:30

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Lability and Damages. Cardinal's holdery and clearly exclused remark for any clear arising, whether bessel in contract or last, shall be limited to the amount paid by clear for analysis. All dama, tribulant price for negligence or any after cases exhibitence what he damage value or unusual arising and reserved by Cardinal willow being (20) days after cases exhibitence. In no award shall be indeed to hadder for moderal or cases price insured by Cardinal, including a children or accessors arising and or or instead to the particularity and cases for moderal or moderal arising and or or instead and cases or construction and cases. The expectational shall not be particularity of the before the contract representative or construction. Shall allow the cases of price or cases or construction or construction or construction or construction.

Colory D. Hima

Celey D. Keene, Lab Director/Quality Manager

Page 10 of 14



PHONE (575) 393-2326 \* 101 E. MARLAND \* HOBBS, NM 86240

# 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:

12-Mar-15 11:50

5C09001-01 H500638-01 (Soll)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
			Cardina	l Laborat	tories					
Organic Compounds										
TPH 418.1	373		100	mg/kg	10	5031201	CK	12-Mar-15	418.1	

**Cardinal Laboratories** 

\*=Accredited Analyte

RESCE NOTE: Unifility and Commany. Conforth lability and clark's exclusive requirement for any claim acting, whether based in context or tort, deat to behind to the encount paid by clark for anylysis. All claims, including those for negligence all any other cause wholeseement shall be desired various serious and in a desired various serious and context of the applicable service. In or event aftel Cardinal to behind for encountered by Cardinal within thirty, (30) days after completely service and context of the performance of the services hereunder by Cardinal, regardless of successors adding out of or related to the performance of the services hereunder by Cardinal, regardless of whether a claim is based upon only of the above dated resons or otherwise. Beauty on the services described above. This report will not be performed unough in full with retton approved of confeel Extendedness.

Calley Z. France -

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: 12-Mar-15 11:50

# **Organic Compounds - Quality Control**

## Cardinal Laboratories

Analyte	Result	Reporting Limit	Unite	Spike Leval	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5031201 - Solvent Extraction										
Blank (5031201-81.K1)				Prepared &	k Anslyzed	12-Mar-15				
TPH 418.1	ND	100	ing/kg							
I.CR (5031201- <b>B</b> 81)				Prepared A	k Analyzed:	12-Mar-15				
TPH 418,1	6220	100	ing/kg	\$000		124	70-130			
LCS Dup (5031201-BSD1)				Prepared &	Analyzed:	12-Mar-15				
ГРН 418.1	6250	100	mg/kg	5000		125	70-130	0,449	20	
Matrix Spike (5031201-M81)	Sou	rce: H500638	-01	Prepared &	Analyzed:	12-Mar-15				
ГРН 418.1	6770	100	mg/kg	5000	373	128	70-130			
Matrix Spike Dup (5031201-MSD1)	Soul	rce: H500638	-01	Prepared &	Analyzed:	12-Mar-15				
ГРН 418.1	6780	100	mg/kg	5000	373	128	70-130	0.0443	20	~~~~~ <del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>

Cardinal Laboratories

\*=Accredited Analyte

PLEME NOTE: Liability and Damages. Conflowly labelity and clearly exclusive remays for any other strand, whater lasted in contract or tork, that he feetbad to the amount part of professional contract or tork, that he feetbad to the amount part of professional contract or tork applicable narrice. In no event shall contract to feetbad in the feetbad to the participation of the applicable narrice. In no event shall contract to feetbad to the participation, bearing interruptions, toos of use, or toos of yorks incurred by clears, the acceleration, addition or autosucros and out, or related to the participations, toos of use, or toos of yorks incurred by clears, the acceleration or autosucros and out, or related to the participations, toos of use, or toos of yorks incurred by clears, the acceleration of use and to the participations. All and the contractions are not to the participations. All and the contractions are not related to the participations.

ally Z. Kins.

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 SM4500CI-6 does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

**Cardinal Laboratories** 

\*=Accredited Analyte

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# 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.

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

# Jones, Brad A., EMNRD

From:

Mark Larson < Mark@laenvironmental.com>

Sent:

Monday, October 20, 2014 4:45 PM

To:

Jones, Brad A., EMNRD

Subject:

Re: R360 EArtesia LLC Landfarm , NM1-30-0, Cell 1 Additiona Lift Request

**Attachments:** 

Cell 1 Lift Request, October 20, 2014.pdf

Brad,

The attached letter is a request to add another lift of contaminated soil to Cell 1 at the R360 Artesia LLC Landfarm. The most recent laboratory analysis of a treated soil (September 29, 2014) demonstrates that Cell 1 has met the treatment criteria outlined in Permit condition "Landfarm Operation No. 6". Please contact Wayne Crawley with R360 at (281) 873-3205 or me at (432) 687-0901, if you have questions.

Sincerely,

Mark J. Larson, P.G. President/Sr. Project Manager 507 N. Marienfeld St., Suite 200 Midland, Texas 79701 (432) 687-0901 (O) (432) 556-8656 (C)

A arson & sociates, Inc.



October 20 2014

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

Re:

R360 Artesia, LLC (NM1-30-0)

Cell 1 Lift Request

Mr. Jones:

This is a request to add another lift of contaminated soil to Cell 1. The most recent laboratory analysis of a treated soil demonstrates that Cell 1 has met the treatment criteria outlined in Permit condition "Landfarm Operation No. 6". Specifically, this condition states:

"Successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

A summary of the sample analyses for the 0 to 1 foot surface layer in Cell 1 is provided in Table 1. The laboratory report for the third quarter (September 29, 2014) is provided in Appendix A. Figure 1 provides a site map of the R360 Artesia LLC facility. Figure 2 provides the sample locations for Cell 1 on September 29, 2014.

Based on the laboratory analysis of samples collected on September 29, 2014, R360 requests permission to apply an additional lift to Cell 1. The volume of Cell 1 was revised as part of the Plan 1 (Berm and Buffer Pan) effort and is approximately 2:12 acres. The permit allows for a six inchilift, thus based on the revised Cell 1 area, one lift will contain approximately 1,708 cubic yards of contaminated soil. The source of the contaminated soils will be the soil removed from the buffer zone and permanent cell berm located north of Cell 1 and soil delineated in Plan 3.

Should you have any questions or comments regarding this matter, please contact Wayne Crawley (281.873.3205) or me (432.687.0901).

Sincerely, Larson & Associates, Inc.

Mark Larson mark@laenvironmental.com

cc: Wayne Crawley Midland Office

# **TABLES**

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

	-	Permitted Level:	Ç.	
	COMP-1	evel:	Sample (D	
	COMP-1 09/29/2014		Date	
	1-0		Depth	
	0.00487		22	
	<0.0048	16	Benzene	
	0.0146		22	
	0.00487		Ethylbenzene	
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	0.192		22	
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	36.0	100	TPH	
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	48.6		ТЯРН	
	46.3		22	
	<46.3	1,000	Chiloride	

Rotes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas
Background analysis was performed by SW846 method 8260B
RL: Reporting limit (Requivalent to practical quantification limit (PQLI))
BTEX analysis performed by SW-846 method 8015M
TRP1 analysis performed by SW-846 method 8015M
TRP1 analysis performed by SW-846 method 418.1
1. <a href="Current-Learning-Limit">Current-Limit Learning-Limit
Leas than reporting limit
Depth in feet below top of treated soil layer
3. <a href="Current-Limits">Current-Limits</a>
No data available

# FIGURES

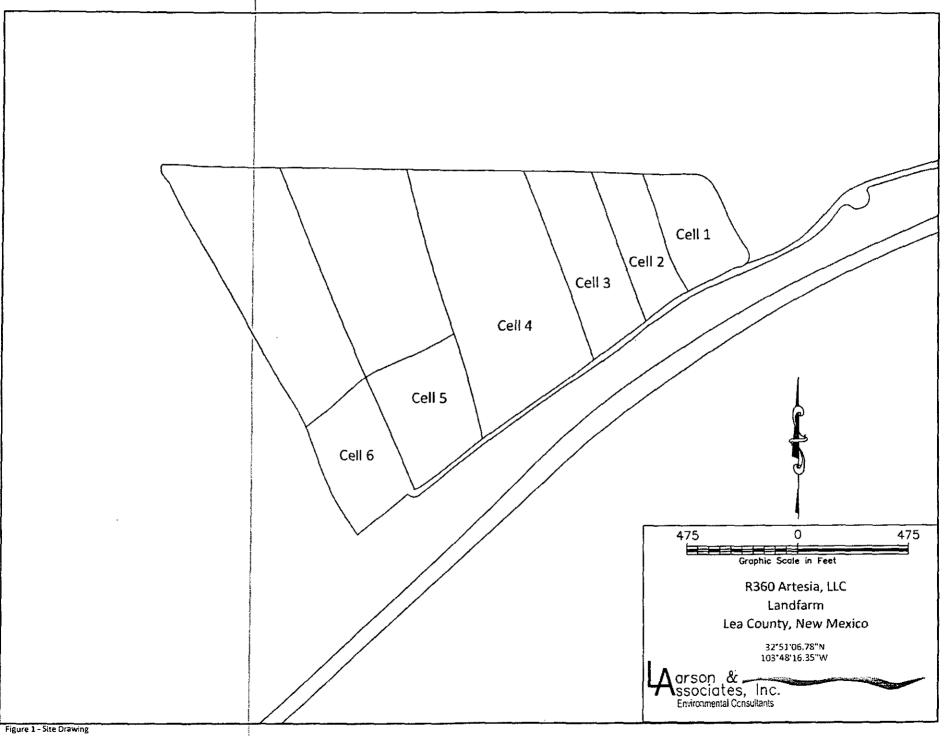




Figure 2- Aerial Map and Sample Location

### APPENDIX A

Laboratory Report (September 29, 2014)



October 16, 2014

Order No.: 1410030

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX 79701

TEL: (432) 687-0901

FAX (432) 687-0456

RE: R360

Dear Mark Larson:

DHL Analytical, Inc. received 12 sample(s) on 10/3/2014 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: T104704211-14-12



# Table of Contents

Miscellaneous Documents	
CaseNarrative 141.0030	6
WorkOrderSampleSummary 1410030	8
PrepDatesReport 1410030	9
AnalyticalDatesReport 1410030	12
Analytical Report 1410030	15
AnalyticalQCSummaryReport 1410030	27



2300 Double Creek Dr. ■ Round Rock, TX 78664

Phone (512) 388-8222 FAX (512) 388-8229

Web: www.dhlanalytical.com

E-Mail: login@dhlanalytical.com





# № 52397 CHAIN-OF-CUSTODY

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Airbill No. Z1356029

Lone Star Overnight 1-800-800-8984 www.lso.com

SHIP TO: DHL ANALYTICAL DHL ANALYTICAL 2300 DOUBLE CREEK DR, ROUND ROCK, TX 78664 5123888222 From: RICHARD WATT
LARSON AND ASSOCIATES
507 N MARIENFELD
SUITE 205
MDLAND, TX 79701
4326870901



**LSO EARLY OVERNIGHT** 

8:30 IN SELECT CITIES

PRINT DATE: 10/2/2014

QUICKCODE:

WEIGHT: 27.00LBS

REF 1: 11-0109-07 1D00V.0000

### Sample Receipt Checklist

(	Client Name Larson & Associates			Date Recei	ived;	10/3/2014
1	Work Order Number 1410030		•	Received by	y JB	
	Checklist completed by:	aug 10/3/20	14	Reviewed b	y J	10/3/2014 Date
	•	Carrier name	<u>LoneStar</u>			
	Shipping container/cooler in good conditi	ion?	Yes 🗹	No 🗆	Not Prese	ent []
	Custody seals intact on shippping contain	ner/cooler?	Yes 📋	No 🗀	Not Prese	ent 🗹
	Gustody seals intact on sample boltles?		Yes	No_□	Not Prese	ent 🗹
	Chain of custody present?		Yes 🔽	No 🗌		
	Chain of custody signed when relinquish	ed and received?	Yes 🗹	No 🗆		
	Chain of custody agrees with sample lab	els?	Yes 🗹	No 🗀		
	Samples in proper container/bottle?		Yes 🗹	No □		
	Sample containers intact?	•	Yes 🗹	No □		
	Sufficient sample volume for indicated to	est?	Yes 🗹	No 🔲		
	All samples received within holding time	?	Yes 🗹	No 🗆		
	Container/Temp Blank temperature in co	ompliance?	Yes 🗹	No 🗆	4.3 °C	
	Water - VOA vials have zero headspace	?	Yes 🛄	No 🗀	No VOA via	als submitted 🗹
	Water - pH<2 acceptable upon receipt?		Yes 🗌	No 🗀	NA 🗹	LOT#
			Adjusted?		Check	ed by
	Water - ph>9 (S) or ph>12 (CN) accepts	ible upon receipt?	Yes 🗌	No 🗆	NA 🗹	LOT#
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Page 1 of 1

Date: 16-Oct-14

CLIENT:

Larson & Associates

Project:

R360

Lab Order:

1410030

**CASE NARRATIVE** 

In this report, the RL is equal to the POL and non-detect analytes are reported as <PQL.

Samples were 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 E418.1 - TRPH Analysis

Method D2216 - Percent Moisture Analysis

#### LOG IN

The samples were received and log-in performed on 10/3/14. A total of 12 samples were received. In this report, the RL is equal to the PQL and non-detect analytes are reported as <PQL. The samples arrived in good condition and were properly packaged.

#### DRO ANALYSIS

For DRO analysis performed on 10/13/14 DRO was detected below the reporting limit in the C10-C28 range of the method blank (MB-65965). This was due to a laboratory artifact and confirmed by reanalysis. All associated samples may be biased high. No further corrective actions were taken.

For DRO analysis performed on 10/13/14 the surrogate recoveries for three samples were above control limits for Octacosane. These are flagged accordingly. The remaining surrogate was within control limits. No further corrective actions were taken.

#### **VOLATILE ORGANICS BY GC 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 required 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.

For Volatile Organics by GC analysis performed on 10/8/14 the surrogate recovery for the matrix spike was slightly below control limits. This is flagged accordingly in the QC summary report. This was due to matrix effect. No further corrective actions were taken.

#### PERCENT MOISTURE ANALYSIS

CLIENT: I

Larson & Associates

Project:

R360

Lab Order:

1410030

**CASE NARRATIVE** 

For Percent Moisture analysis performed on 10/6/14 the sample and sample duplicate had the RPD above control limits. This is flagged accordingly in the QC summary report. This was due to the sample and sample duplicate matrix (rocky). No further corrective actions were taken.

Date: 16-Oct-14

CLIENT: Project: Lab Order:	Larson & Associates R360 1410030		Work Order Sample	Summary
Lab Smp ID C	lient Sample ID	Tag Number	Date Collected	Date Recved
1410030-01 D	P-6		09/29/14 01:25 PM	10/3/2014
1410030-02 D	P-5		09/29/14 01:50 PM	10/3/2014
1410030-03 D	)P-4		09/29/14 02:45 PM	10/3/2014

-		•		
1410030-01	DP-6		09/29/14 01:25 PM	10/3/2014
1410030-02	DP-5		09/29/14 01:50 PM	10/3/2014
1410030-03	DP-4		09/29/14 02:45 PM	10/3/2014
1410030-04	DP-3		09/29/14 03:10 PM	10/3/2014
1410030-05	DP-2		09/29/14 03:40 PM	10/3/2014
1410030-06	DP-1		09/29/14 04:10 PM	10/3/2014
1410030-07	COMP-6		09/29/14 01:30 PM	10/3/2014
1410030-08	COMP-5		09/29/14 02:00 PM	10/3/2014
1410030-09	COMP-4		09/29/14 02:55 PM	10/3/2014
1410030-10	COMP-3		09/29/14 03:15 PM	10/3/2014
1410030-11	COMP-2		09/29/14 03:55 PM	10/3/2014
1410030-12	COMP-1		09/29/14 04:15 PM	10/3/2014

Lab Order:

1410030

Client:

Larson & Associates

Project:

R360

### PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1410030-01A	DP-6	09/29/14 01:25 PM	Sail	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-6	09/29/14 01:25 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-01B	DP-6	09/29/14 01:25 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	· DP-6	09/29/14 01:25 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-6	09/29/14 01:25 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-02A	DP-5	09/29/14 01:50 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-5	09/29/14 01:50 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-02B	DP-5	09/29/14 01:50 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	DP-5	09/29/14 01:50 PM	Soil	\$w3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-5	09/29/14 01:50 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-03A	DP-4	09/29/14 02:45 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-4	09/29/14 02:45 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-03B	DP-4	09/29/14 02:45 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	DP-4	09/29/14 02:45 PM	Soil	\$W3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-4	09/29/14 02:45 PM	Soil	\$W3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-04A	DP-3	09/29/14 03:10 PM	Soil	\$W5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-3	09/29/14 03:10 PM	Soil	\$W5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-04B	DP-3	09/29/14 03:10 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	DP-3	09/29/14 03:10 PM	Soil	\$W3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-3	09/29/14 03:10 PM	Soil	\$W3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-05A	DP-2	09/29/14 03:40 PM	Soil	\$W5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-2	09/29/14 03:40 PM	Soil	\$W5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-05B	DP-2	09/29/14 03:40 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	DP-2	09/29/14 03:40 PM	Soil	\$W3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-2	09/29/14 03:40 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-06A	DP-1	09/29/14 04:10 PM	Soil	\$W5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-1	09/29/14 04:10 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-06B	DP-1	09/29/14 04:10 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948

Page 1 of 3

Lab Order:

1410030

Client:

Larson & Associates

Project:

R360

# PREP DATES REPORT

Sample ID	Client Sample 1D	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch 1D
1410030-06B	DP-1	09/29/14 04:10 PM	Soil	\$W3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-1	09/29/14 04:10 PM	Soil	\$W3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-07A	COMP-6	09/29/14 01:30 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	СОМР-6	09/29/14 01:30 PM	Soil	\$W5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-07B	COMP-6	09/29/14 01:30 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	СОМР-6	09/29/14 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	СОМР-6	09/29/14 01:30 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-08A	COMP-5	09/29/14 02:00 PM	Soil	\$W5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	COMP-5	09/29/14 02:00 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-08B	COMP-5	09/29/14 02:00 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	COMP-5	09/29/14 02:00 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-5	09/29/14 02:00 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-09A	СОМР-4	09/29/14 02:55 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	COMP-4	09/29/14 02:55 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-09B	СОМР-4	09/29/14 02:55 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	СОМР-4	09/29/14 02:55 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-4	09/29/14 02:55 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-10A	COMP-3	09/29/14 03:15 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	СОМР-3	09/29/14 03:15 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-10B	COMP-3	09/29/14 03:15 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	COMP-3	09/29/14 03:15 PM	Soil	\$W3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-3	09/29/14 03:15 PM	Şoil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-11A	COMP-2	09/29/14 03:55 PM	Soil	\$W5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	COMP-2	09/29/14 03:55 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
410030-11B	COMP-2	09/29/14 03:55 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	COMP-2	09/29/14 03:55 PM	Soil	SW3550C	Soil Prep Sunication: DRO	10/06/14 12:50 PM	65965
	COMP-2	09/29/14 03:55 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
410030-12A	COMP-J	09/29/14 04:15 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016

Page 2 of 3

16-Oct-14

Lab Order:

1410030

Client:

Larson & Associates

Project:

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# PREP DATES REPORT

						****	
Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1410030-12A	COMP-1	09/29/14 04:15 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-12B	COMP-1	09/29/14 04:15 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	COMP-1	09/29/14 04:15 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-1	09/29/14 04:15 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082

Lab Order:

1410030

Client:

Larson & Associates

Project:

R360

# ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1410030-01A	DP-6	. Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 01:19 PM	GC4_141010A
	DP-6	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 05:42 PM	GC4_141008C
1410030-01B	DP-6	Soil	D2216	Percent Moisture	65948	E	10/07/14 12:12 PM	PMOIST_141006A
	DP-6	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 01:53 PM	GC15_141013A
	DP-6	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
1410030-02A	DP-5	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 01:43 PM	GC4_141010A
	DP-5	Soil	SW8021B	Volatile Organics by GC	66016	ı	10/08/14 06:06 PM	GC4_141008C
1410030-0213	DP-5	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	DP-5	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:38 PM	GC15_141013A
•	DP-5	Soil	E418.1	TRPH	66082	. 1	10/13/14 10:18 AM	IR207_141013A
1410030-03A	DP-4	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 02:11 PM	GC4_141010A
	DP-4	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 06:30 PM	GC4_141008C
1410030-0313	DP-4	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	DP-4	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:02 PM	GC15_141013A
	DP-4	Soil	E418.1	TRPH	66082	I	10/13/14 10:18 AM	IR207_141013A
1410030-04A	DP-3	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 02;35 PM	GC4_141010A
	DP-3	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 06:55 PM	GC4_141008C
1410030-04B	DP-3	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	DP-3	Soil	M801SD	TPH Extractable by GC - Soil	65965	ı	10/13/14 02:11 PM	GC15_141013A
	DP-3	Soil	E418.1	TRPH	66082	I	10/13/14 10:18 AM	IR207_141013A
1410030-05A	DP-2	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 02:59 PM	GC4_141010A
	DP-2	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 07:20 PM	GC4_141008C
1410030-05B	DP-2	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	DP-2	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:20 PM	GC15_141013A
	DP-2	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
1410030-06A	DP-1	Soil	M8015V	TPH Purgeable by GC - Soil	66058	ı	10/10/14 03:23 PM	GC4_141010A
	DP-1	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 07:44 PM	GC4_141008C
1410030-06B	DP-1	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A

Page 1 of 3

Lab Order:

1410030

Client:

Larson & Associates

Project:

R360

# ANALYTICAL DATES REPORT

Sample 11)	Client Sample 1D	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1410030-06B	1)P-1	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:29 PM	GC15_141013A
	DP-1	Soil	E418.i	TRPH	66082	1	10/13/14 10:18 AM	IR207_I41013A
1410030-07A	COMP-6	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 03:47 PM	GC4_141010A
	COMP-6	Soil	SW8021B	Volatile Organies by GC	66016	1	10/08/14 08:08 PM	GC4_141008C
1410030-07B	COMP-6	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	COMP-6	Soil	M8015ID	TPH Extractable by GC - Soil	65965	ŧ	10/13/14 02:56 PM	GC15_141013A
	COMP-6	Soil	E418.1	TRPH	66082	1	10/13/14 I0:18 AM	IR207_141013A
1410030-08A	COMP-5	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 04:12 PM	GC4_141010A
	COMP-5	Soil	SW8021B	Volatile Organics by GC	66016	ı	10/08/14 08:32 PM	GC4_141008C
1410030-08B	COMP-5	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	COMP-5	Soil	M8015D	TPH Extractable by GC - Soil	65965	ĺ	10/13/14 03:14 PM	GC15_141013A
	COMP-5	Soil	E418.1	TRPH	66082	1	E0/13/14 10:18 AM	IR207_141013A
1410030 <del>-</del> 09A	COMP-4	· Soil	M8015V	TPH Purgeable by GC - Soil	66058	. 1	10/10/14 04:36 PM	GC4_141010A
	COMP-4	Soil	SW8021B	Volatile Organics by GC	66016	ł	10/08/14 08:56 PM	GC4_141008C
1410030-09B	COMP-4	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_I41006A
	COMP-4	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 04:18 PM	GC15_141013A
	COMP-4	Soil	E418.1	TRPH	66082	1	10/13/14 10-18 AM	IR207_141013A
1410030-I0A	COMP-3	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 05:00 PM	GC4_141010A
	COMP-3	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 09:21 PM	GC4_141008C
1410030-10B	COMP-3	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	COMP-3	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 04:27 PM	GC15_141013A
	COMP-3	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
1410030-11A	COMP-2	Soil	M8015V	TPH Purgeable by GC - Soil	66058	I	10/10/14 06:37 PM	GC4_141010A
	COMP-2	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 11:49 PM	GC4_141008C
1410030-11B	COMP-2	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	COMP-2	Soil	M8015D	TPH Extractable by GC - Soil	65965	ŧ	10/13/14 02:47 PM	GC15_141013A
	COMP-2	Soil	E418.1	TRPH	66082	ĵ	10/13/14 10:18 AM	IR207_141013A
1410030-12A	COMP-1	Soil	M8015V	TPH Purgeable by GC - Soil	66058	1	10/10/14 07:01 PM	GC4_141010A

Lab Order:

1410030

Client:

Larson & Associates

Project:

R360

# ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1410030-12A	СОМР-1	Soil	SW8021B	Volatile Organics by GC	66016	1	10/09/14 12:13 AM	GC4_141008C
1410030-12B	COMP-1	Soil	D2216	Percent Moisture	65948	1	10/07/14 12:12 PM	PMOIST_141006A
	COMP-1	Soil	M8015D	TPH Extractable by GC - Soil	659 <b>65</b>	1	10/13/14 03:05 PM	GC15_141013A
	COMP-1	Soil	E418.1	Тярн	66082	1	10/13/14 10:18 AM	IR207 141013A

CLIENT: Larson & Associates

Project: R360

Project No: 11-0109-07

Lab Order: 1410030

Date: 20-Oct-14

Client Sample ID: COMP-1

Lab ID: 1410030-12

Collection Date: 09/29/14 04:15 PM

Matrix: SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC -	SOIL	M80 <sup>-</sup>	15D				Analyst: AS
TPH-DRO C10-C28	36.0	3.09	10.3		mg/Kg-dry	1	10/13/14 03:05 PM
Surr: isopropylbenzene	63.3	0	47-142		%REC	1	10/13/14 03:05 PM
Surr: Octacosane	90.0	0	25-162		%REC	1	10/13/14 03:05 PM
TPH PURGEABLE BY GC - SC	DIL	M80 <sup>-</sup>	15V				Analyst: AV
Gasoline Range Organics	< 0.192	0.0958	0.192		mg/Kg-dry	1	10/10/14 07:01 PM
Surr: Tetrachlorethene	90.7	0	70-134		%REC	1	10/10/14 07:01 PM
VOLATILE ORGANICS BY GC	}	SW80	21B				Analyst: AV
Benzene	< 0.00487	0.00292	0.00487		mg/Kg-dry	1	10/09/14 12:13 AM
Ethylbenzene	< 0.0146	0.00487	0.0146		mg/Kg-dry	1	10/09/14 12:13 AM
Toluene	<0.0146	0.00487	0.0146		mg/Kg-dry	1	10/09/14 12:13 AM
Xylenes, Total	< 0.0146	0.00487	0.0146		mg/Kg-dry	1	10/09/14 12:13 AM
Surr: Tetrachloroethene	97.1	0	79-135		%REC	1	10/09/14 12:13 AM
TRPH		E41	8.1				Analyst: AS
Petroleum Hydrocarbons, TR	48.6	5.12	10.2	N	mg/Kg-dry	1	10/13/14 10:18 AM
ANIONS BY IC METHOD - SOI	IL.	SW9	56A				Analyst: AV
Chloride	<46.3	46.3	46.3		mg/Kg-dry	10	10/20/14 11:53 AM
PERCENT MOISTURE		D22	:16				Analyst: JL
Percent Moisture	4.08	0	0		WT%	1	10/07/14 12:12 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

Larson & Associates

Work Order: Project: 1410030

R360

ANALYTICAL QC SUMMARY REPORT

RunID:

GC15\_141013A

110ject. R500						7501177			
Sample ID ICV-141013	Batch ID:	R75788		TestNo:	M80	15D		Units:	mg/Kg
SampType: ICV	Run ID:	GC15_1	41013A	Analysis	Date: 10/1	3/2014 12:3	31:57 P	Prep Date	<b>:</b> :
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD RPDLimit Qual
TPH-DRO C10-C28		494	10.0	500.0	0	98.8	80	120	
Surr: Isopropylbenzene		25.9		25.00		104	80	120	
Surr: Octacosane		27.3		25.00		109	80	120	
Sample ID CCV1-141013	Batch ID:	R75788		TestNo:	M80	15D		Units:	mg/Kg
SampType: CCV	Run ID:	GC15_1	41013A	Analysis	Date: 10/1	3/2014 3:3:	2:39 PM	Prep Date	a:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD RPDLimit Qual
TPH-DRO C10-C28		234	10.0	250.0	0	93.5	80	120	
Surr: Isopropylbenzene		14.7		12.50		118	80	120	
Surr: Octacosane		12.9		12.50		103	80	120	
Sample ID CCV2-141013	Batch ID:	R75788		TestNo	MBC	015D		Units:	mg/Kg
SampType: CCV	Run (D:	GC15_1	41013A	Analysi	5 Date: 10/1	3/2014 5:2	1:58 PM	Prep Date	<b>9</b> ;
Analyte		Result	RL	SPK value	Rel Val	%REC	LowLim	it HighLimit	%RPD RPDLimit Qual
TPH-DRO C10-C28		245	10.0	250.0	0	98.1	80	120	
Surr: Isopropylbenzene		15.0		12.50		120	80	120	
Surr: Octacosane		13.5		12.50		108	80	120	

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

Page 2 of 8

R RPD outside accepted control limits

S Spike Recovery outside control limits

Larson & Associates

Work Order: 1410030 Project: R360

### ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_141008C

The QC data in batch 66016 applies to the following samples: 1410030-01A, 1410030-02A, 1410030-03A, 1410030-04A, 1410030-05A, 1410030-0

Sample ID LCS-66016	Batch ID:	66016		TestNo:	SW8	021B		Units:	mg/Kg	
SampType: LCS	Run ID;	GC4_14	1008C	Analysis	Date: 10/8	2014 4:02:	29 PM	Prep Date:	10/8/2014	
Analyle	,	Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit %	SRPD RPDLimit (	Qual
Benzene		0.0843	0.00500	0.1000	0	84.3	65	113		
Toluene		0.0830	0.0150	0.1000	0	83.0	73	115		
Ethylbenzene		0.0828	0.0150	0.1000	0	82.8	74	118		
Xylenes, Total		0.256	0.0150	0.3000	0	85.4	73	119		
Surr: Tetrachloroethene		0.175		0.2000		87.5	79	135		
Sample ID MB-66016	Batch ID:	66016		TestNo:	SW8	3021B	- "	Units:	mg/Kg	
ampType: MBLK Run ID: GC4_14100				Analysis	Date: 10/8	55 PM	Prep Date:	10/8/2014		
Analyte	••	Result	RL	SPK value	Ref Val	%REC	LowLimi		6RPD RPDLimit (	Qua
Benzene	,	<0.00500	0.00500							
Toluene		<0.0150	0.0150							
Ethylbenzene		<0.0150	0.0150							
Xylenes, Tolal		<0.0150	0.0150							
Surr: Tetrachloroethene		0.191		0.2000		95.7	79	135		
Sample ID 1410030-01AMS	Batch (D)	66016		TestNo:	SWI	3021B		Units:	mg/Kg-dry	
SampType: MS	Run ID:	GC4_14	1008C	Analysis	Date: 10/8	/2014 9:46	53 PM	Prep Date:	10/8/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit ?	%RPD RPDLimit	Qua
Benzene		0.106	0.00559	0.1117	0	95.0	65	113		
Toluene		0.105	0.0168	0.1117	0	94.2	73	115		
Ethylbenzene		0.105	0.0168	0.1117	0	93.6	74	118		
Xylenes, Total		0.316	0.0168	0.3351	0	94.3	73	119		
Surr: Tetrachloroethene		0.167		0.2234		74.6	79	135		S
Sample ID 1410030-01AMSD	Batch ID	: 66016		TestNo	sw	8021B		Units:	mg/Kg-dry	

Sample ID 1410030-01AMSD	Batch ID:	66016		TestNo	: SW	8021B		Units:	mg/l	Kg-dry
SampType: MSD	Run ID:	GC4_141008C		Analys	Prep Date: 10/8		/2014			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit Qual
Benzene		0.111	0.00566	0.1132	0	98.0	65	113	4.41	30
Toluene		0.110	0.0170	0.1132	0	97.1	73	115	4.37	30
Ethylbenzene		0.111	0.0170	0.1132	O	97.8	74	118	5.71	30
Xylenes, Total		0.336	0.0170	0.3395	0	98.9	73	119	6.07	30
Surr: Tetrachloroethene		0.179		0.2263		79.2	79	135	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

Page 3 of 8

R RPD outside accepted control limits

S Spike Recovery outside control limits

Larson & Associates

Work Order: Project: 1410030

R360

ANALYTICAL QC SUMMARY REPORT

RunID:

ID: GC4\_141008C

Project: R	.360					Kunit	); (		JUSC
Sample ID ICV-14100	18 Batch ID:	R75796		TestNo	SW8	8021B		Units:	mg/Kg
SampType: <b>ICV</b>	Run ID:	GC4_14	1008C	Analys	is Date: 10/8	/2014 9:40:	34 AM	Prep Date	;
Analyte	<u></u>	Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLimit Qua
Benzene		0.167	0.00500	0.2000	0	83.7	80	120	
Toluene		0.165	0.0150	0.2000	0	82.5	80	120	
Ethylbenzene		0.169	0.0150	0.2000	0	84.5	80	120	
Xylenes, Total		0.549	0.0150	0.6000	0	91.4	80	120	
Surr: Tetrachloroeth	ene	0.175		0.2000		87.6	79	135	
Sample ID CCV1-141	008 Batch ID:	R75796		TestNo	o: SW	8021B ·		Units:	mg/Kg
SampType: CCV	flun ID:	GC4_14	1008C	Analys	is Date: 10/8	3/2014 2:20:	09 PM	Prep Date	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLimit Qua
Benzene		0.0945	0.00500	0.1000	0	94.5	80	120	
Toluene		0.0939	0,0150	0.1000	0	93.9	80	120	
Ethylbenzene		0.0940	0.0150	0.1000	0	94.0	80	120	
Xylenes, Total		0.293	0.0150	0.3000	0	97.7	80	120	
Surr: Tetrachloroeth	enė	0.171		0.2000		85.5	79	135	
Sample ID CCV2-141	008 Batch ID:	R75796	**************************************	TestNo	o: SW	8021B		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_14	1008C	Analys	is Date: 10/8	3/2014 11:00	):49 PM	Prep Date	e:
Analyte		Result	RL	SPK value	Ret Val	%REC	LowLim	it HighLimit	%RPD RPDLimit Qua
Benzene		0.0921	0.00500	0.1000	0	92.1	80	120	
Toluene		0.0927	0.0150	0.1000	0	92.7	80	120	
Ethylbenzene		0.0937	0.0150	0.1000	0	93.7	80	120	
Xylenes, Total		0.281	0.0150	0.3000	0	93.5	80	120	
Surr: Tetrachloroeth	ene	0.180		0.2000		89.8	79	135	
Sample ID CCV3-14	1008 Batch ID	R75796		TestNo	o: SW	B021B		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_14	1008C	Analys	sis Date: 10/9	9/2014 1:27:	44 AM	Prep Date	e:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD RPDLimit Qua
Benzene		0.0907	0.00500	0.1000	0	90.7	80	120	
Toluene		0.0912	0.0150	0.1000	0	91.2	80	120	
Ethylbenzene		0.0902	0.0150	0.1000	0	90.2	80	120	
Xylenes, Total		0.272	0.0150	0.3000	0	90.7	80	120	

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

Page 4 of 8

R RPD outside accepted control limits

S Spike Recovery outside control limits

Larson & Associates

Work Order:

1410030

ANALYTICAL QC SUMMARY REPORT

Project: R360						RunII	); (	C4_1410	10A	
The QC data in batch 66058 a 06A, 1410030-07A, 1410030-	applies to the 1 08A, 1410030	ollowing s -09A, 141	amples: 1410 0030-10A, 14	030-01A, 1410 10030-11A, 14	030-02A, 14 10030-12A	10030-03A,	1410030	04A, 141003	10-05A, 1	410030-
Sample ID LCS-66058	Batch ID:	66058		TestNo	: M80	15V		Units:	mg/Kg	)
SampType: LCS	Run ID:	GC41	41010A	Analysi	s Date: 10/1	0/2014 11:3	39:47 A	Prep Date:	10/10/	2014
Analyte		Result	AL	SPK value	Rof Val	%REC	LowLim	t HighLimit <sup>9</sup>	%RPD R	PDLimit Qual
Gasoline Range Organics		5.00	0.200	5.000	0	99.9	68	126		
Surr: Tetrachlorethene	_	0.380		0.4000		95.0	70	134		
Sample ID MB-66058	Batch ID:	66058		TestNo	: M80	)15V		Units:	mg/K	3
SampType: MBLK	Run ID:	Run ID: GC4_141010A			is Date: 10/1	10/2014 12:	51:44 P	Prep Date: 10/10/2014		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit '	%RPD A	PDLimit Qual
Gasoline Range Organics	_	<0.200	0.200							
Surr: Tetrachlorethene	·	0.408		0.4000		102	70	134		
Sample ID 1410030-01AMS	Batch ID:	66058	·····	TestNo	: M80	)15V		Units:	mg/Kg	g-dry
SampType: <b>MS</b>	Run ID:	GC4_1	41 <b>010A</b>	Analys	is Date: 10/1	10/2014 7:2	5:41 PM	Prep Date:	10/10/	2014
Analyte	a Maria y y y a sama a Maria y a maria mana a maria mana a ma	Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit '	%RPD F	PDLimit Qual
Gasoline Range Organics	•	5.66	0.228	5.711	0	99.1	68	126		
Surr: Tetrachiorethene		0.396		0.4569		86.6	70	134		
Sample ID 1410030-01AMS	D Batch ID	66058	***************************************	TestNo	o: M80	015V		Units:	mg/K	g-dry
SampType: MSD	Run ID:	GC4_1	141010A	Analys	is Date: 10/1	10/2014 7:4	9:48 PM	Prep Date:	10/10	/2014
Analyte	Carlos Charles in 1999 of the Carlos	Result	RL.	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD F	RPDLimit Qua
Gasoline Range Organics		5.63	0.222	5.555	0	101	68	126	0.549	30
Surr: Tetrachlorethene		0.396		0.4444		89.1	70	134	0	0

Qualifiers:

Analyte detected in the associated Method Blank

Analyte detected between MDL and RL J

ND Not Detected at the Method Detection Limit

Reporting Limit

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 5 of 8

RPD outside accepted control limits

Spike Recovery outside control limits

Larson & Associates

Work Order: Project: 1410030

R360

RunID: GC4 141010A

ANALYTICAL QC SUMMARY REPORT

Project: R500						Kunn	<i>7.</i> G	C4_1410	JIVA
Sample ID ICV-141010	Batch ID:	R75799		TestNo:	MBO	15V		Units:	mg/Kg
SampType: ICV	Run ID:	GC4_14	1010A	Analysis	Date: 10/1	0/2014 11:1	11:26 A	Prep Date	e:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		9.82	0.200	10.00	0	98.2	80	120	<u>-</u>
Surr: Tetrachlorethene		0.325		0.4000		81.4	70	134	
Sample ID CCV1-141010	Batch ID:	R75799		TestNo:	M80	)15V		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_14	1010A	Analysis	Date: 10/1	0/2014 5:48	3:56 PM	Prep Date	<b>e</b> :
Analyte	ta udu u deternistrativa y y colony symphetic	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		4.98	0.200	5.000	0	99.5	80	120	
Surr: Tetrachlorethene		0.344		0.4000		85.9	70	134	
Sample ID CCV2-141010	Batch ID:	A75799	<del> </del>	· TestNo:	M80	)15 <b>V</b>		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_14	1010A	Analysis	Dale: 10/1	0/2014 8:3	8:31 PM	Prep Date	ə:
Analyte		Result	RL	SPK value	Rei Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		5.26	0.200	5.000	0	105	80	120	
Surr: Tetrachlorethene		0.366		0.4000		91.6	70	134	

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

Page 6 of 8

R RPD outside accepted control limits

S Spike Recovery outside control limits

Larson & Associates

Work Orders

1410030

R360

### ANALYTICAL QC SUMMARY REPORT

RunID: IR207 141013A

Project: R360						RunII	): I	R207_1410	013A	
The QC data in batch 66082 app 06B, 1410030-07B, 1410030-08B	lies to the fo 3, 1410030-	llowing s 098, 141	amples: 1410 0030-108, 14	030-01B, 1410 10030-11B, 14	030-02B, 14 10030-12B	10030-03B,	1410030-	04B, 141003	0-05B, 1410036	j.
Sample ID ICV-141013	Batch ID:	66082		TestNo	: E41	8.1		Units:	mg/Kg	
SampType: ICV	Run ID:	IR207_	141013A	Analysi	s Date: 10/1	3/2014 10:1	8:00 A	Prep Date:		
Analyte	4	Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit %	APD RPDLim	il Qual
Petroleum Hydrocarbons, TR		240	10.0	250.0	0	96.0	90	110		N
Sample ID MB-66082	Batch ID:	66082		TestNo	: E41	8.1		Units:	mg/Kg	
SampType: M&LK	Run ID:	IR207_	141013A	Analysi	is Date: 10/1	3/2014 10:1	8:00 A	Prep Date:	10/13/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit %	6RPD RPDLim	it Qual
Petroleum Hydrocarbons, TR		<10.0	10.0							N
Sample ID LCS-66082	Batch ID:	66082		TestNo	: E41	8.1		Units:	mg/Kg	
SampType: LCS	Run ID:	IR207_	141013A	Analys	is Date: 10/1	3/2014 10:1	18:00 A	Prep Date:	10/13/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit ?	6RPD RPDLim	it Qual
Petroleum Hydrocarbons, TR		99.4	10.0	100.0	0	99.4	80	120		N
Sample ID CCV1-141013	Batch ID:	66082		TestNo	: E41	8.1		Units:	mg/Kg	
SampType: CCV	Run ID:	IR207_	141013A	Analys	is Date: 10/1	13/2014 10:	18:00 A	Prep Date:		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit 9	%APD APDLim	rit Qual
Petroleum Hydrocarbons, TR		243	10.0	250.0	0	97.2	85	115	·	N
Sample ID 1410030-12BMS	Batch ID:	66082		TestNo	): E41	8.1	<u> </u>	Units:	mg/Kg-dry	
SampType: MS	Run ID:	IR207_	141013A	Analys	is Date: 10/1	3/2014 10:	18:00 A	Prep Date:	10/13/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit S	%RPD RPDLim	iii Qual
Petroleum Hydrocarbons, TR		156	10.0	100.3	48.64	107	80	120		N
Sample ID 1410030-12BMSD	Batch ID:	66082		TestNo	): E41	8.1		Units:	mg/Kg-dry	
SampType: MSD	Run ID:	IR207_	141013A	Analys	is Date: 10/1	13/2014 10:	18:00 A	Prep Date:	10/13/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD RPDLin	nit Qual
Petroleum Hydrocarbons, TR		155	10.3	102.8	48.64	104	80	120	0.013 20	N
Sample ID CCV2-141013	Batch ID:	56082		TestNo	o: <b>E41</b>	18.1		Units:	mg/Kg	
SampType: CCV	Run ID:	IR207	141013A	Analys	is Date: <b>10</b> /*	13/2014 10:	18:00 A	Prep Date:	:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLin	it HighLimit	%RPD RPDLir	nit Qual
Petroleum Hydrocarbons, TR		246	10.0	250.0	0	98.5	85	115		N

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

Page 7 of 8

R PD outside accepted control limits
 S pike Recovery outside control limits

CLIENT: Work Order: Larson & Associates

Project:

1410030 R360

ANALYTICAL QC SUMMARY REPORT

RunID:

PMOIST\_141006A

The QC data in batch 65948 applies to the following samples: 1410030-01B, 1410030-02B, 1410030-03B, 1410030-04B, 1410030-05B, 1410030-05B, 06B, 1410030-07B, 1410030-08B, 1410030-09B, 1410030-10B, 1410030-11B, 1410030-12B

Sample ID 1410052-01B-DUP Batch ID: TestNo: D2216 Units: WT% Prep Date: 10/4/2014 SampType: DUP Run ID: PMOIST\_141006A Analysis Date: 10/7/2014 12:12:00 PM SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Analyte Result RL Percent Moisture 9.27 0 0 5.569 49.9

Qualifiers:

Analyte detected in the associated Method Blank

Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

Reporting Limit RL

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 8 of 8

R RPD outside accepted control limits

S Spike Recovery outside control limits

# 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



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 <a href="mailto:brad.a.jones@state.nm.us">brad.a.jones@state.nm.us</a>.

Sincerely,

Brad A. Jones\_\_\_\_

Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs

Wayne Crawley, R360 Environmental Solutions, LLC, The Woodlands, TX 77380

#### Jones, Brad A., EMNRD

From:

Jones, Brad A., EMNRD

Sent:

Tuesday, September 02, 2014 9:08 AM

To: Cc: 'Mark Larson'

Culula ata

Wayne Crawley

Subject:

RE: R360 Artesia, LLC Landfarm, Revised Plan 2, August 28, 2014

Attachments:

2014 0902 Additional lift approval Cell 4.pdf

Mark and Wayne,

Please see the attached approval letter. A hardcopy has been placed in the mail. If you have any questions regarding this matter, please do not hesitate to contact me.

Brad

### Brad A. Jones

Environmental Engineer
Environmental Bureau
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us

Office: (505) 476-3487 Fax: (505) 476-3462

From: Mark Larson [mailto:Mark@laenvironmental.com]

**Sent:** Friday, August 29, 2014 4:51 PM

To: Jones, Brad A., EMNRD

Cc: Wayne Crawley

Subject: RE: R360 Artesia, LLC Landfarm, Revised Plan 2, August 28, 2014

Dear Brad,

Please find the revised Plan 2 attached. Please contact Wayne Crawley or me if you have questions.

Mark

From: Jones, Brad A., EMNRD [mailto:brad.a.jones@state.nm.us]

Sent: Tuesday, August 12, 2014 10:14 AM

To: Mark Larson

Subject: RE: R360 Artesia, LLC Landfarm

Brad A. Jones

Environmental Engineer
Environmental Bureau
NM Oil Conservation Division

1220 S. St. Francis Drive Santa Fe, New Mexico 87505 E-mail: <u>brad.a.jones@state.nm.us</u>

Office: (505) 476-3487 Fax: (505) 476-3462

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 08, 2014 4:57 PM

To: Jones, Brad A., EMNRD

Subject: Re: R360 Artesia, LLC Landfarm

#### Brad.

Per the call with Wayne Crawley please find attached plans for the R360 Artesia, LLC Landfarm including berm and buffer plan (Plan 1) and lift request for cell 4 (Plan 2). I will follow up on Monday. Mark

Sent from my iPhone

Begin forwarded message:

From: "Victoria Warren" < victoria@laenvironmental.com > To: "Mark Larson" < Mark@laenvironmental.com >

Mark.

Please find attached the Plan 1 and 2 if you need anything else let me know.

Thanks,

Victoria Warren Administrative Assistant Larson and Associates, Inc. 507 N. Marienfeld St., Ste. 200 Midland, TX 79701 (432) 687-0901 (432) 687-0456 fax

This message has been scanned for viruses and dangerous content by <u>MailScanner</u>, and is believed to be clean.

# 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



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 he sitate to contact me at (505) 476-3487 or brad a jones@state.nm.us.

Sincerely.

Environmental Engineer-

BAJ/baj

Cc: OCD District I Office, Hobbs

Wayne Crawley, R360 Environmental Solutions, LLC, The Woodlands, TX 77380

1220 South St. Francis Drive - Santa Fe, New Mexico 87505 Phone (505) 476-3460 - Fax (505) 476-3482 - www.emnrd.state.nm.us/ocd

#### Jones, Brad A., EMNRD

From:

Mark Larson < Mark@laenvironmental.com>

Sent:

Friday, August 29, 2014 4:51 PM

To:

Jones, Brad A., EMNRD

Cc:

Wayne Crawley

Subject:

RE: R360 Artesia, LLC Landfarm, Revised Plan 2, August 28, 2014

**Attachments:** 

Revised Plan 2 (Complete), August 28, 2014.pdf

Dear Brad,

Please find the revised Plan 2 attached. Please contact Wayne Crawley or me if you have questions.

Mark

From: Jones, Brad A., EMNRD [mailto:brad.a.jones@state.nm.us]

Sent: Tuesday, August 12, 2014 10:14 AM

To: Mark Larson

Subject: RE: R360 Artesia, LLC Landfarm

### Brad A. Jones

Environmental Engineer
Environmental Bureau
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us

Office: (505) 476-3487 Fax: (505) 476-3462

From: Mark Larson [mailto:Mark@laenvironmental.com]

Sent: Friday, August 08, 2014 4:57 PM

To: Jones, Brad A., EMNRD

Subject: Re: R360 Artesia, LLC Landfarm

#### Brad,

Per the call with Wayne Crawley please find attached plans for the R360 Artesia, LLC Landfarm including berm and buffer plan (Plan 1) and lift request for cell 4 (Plan 2). I will follow up on Monday. Mark

Sent from my iPhone

Begin forwarded message:

From: "Victoria Warren" <victoria@laenvironmental.com>

To: "Mark Larson" < Mark@laenvironmental.com>

Mark,

Please find attached the Plan 1 and 2 if you need anything else let me know.

Thanks,

Victoria Warren Administrative Assistant Larson and Associates, Inc. 507 N. Marienfeld St., Ste. 200 Midland, TX 79701 (432) 687-0901 (432) 687-0456 fax

This message has been scanned for viruses and dangerous content by <u>MailScanner</u>, and is believed to be clean.



August 28, 2014

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

Re:

R360 Artesia, LLC (NM1-30-0) Plan 2 – Cell 4 Lift Request

Mr. Jones:

This correspondence follows a phone conversation that Wayne Crawley and I had with you on July 15 of this year. In summary, we discussed the submittal of five (5) plans for the Artesia Aeration land farm. The objective of these plans is to finalize treatment of the soils within the landfarm and move the facility toward closure. This plan follows Plan 1, which addressed the perimeter boundaries and levees. This plan addresses Cell 4 surface soil data and requests permission to apply a new lift to Cell 4.

Cell 4 has met the treatment criteria outlined in Permit condition "Landfarm Operation No. 6". Specifically, this condition states:

"Successive lifts of contaminated soils may not be spread until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 parts per million (ppm), the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations must be maintained at the facility. Authorization from the OCD must be obtained prior to application of successive lifts and/or removal of remediated soils."

On May 22, 2014 and July 10, 2014, composite samples were collected from the treatment (tilled) zone in Cell 4 and were analyzed-for BTEX-and TPH.—A-review-of-this-data-demonstrates that the treated soils-meet the criteria listed in Condition 6 above. Table 1 presents a summary of the sample analyses for the 0 to 1 foot surface layer in Cell 4. The laboratory reports for samples collected from Cell 4 on May 22, 2014 and July 10, 2014, are provided in Attachment A. Figure 1 provides a site map of the landfarm. Figure 2 provides a location map for sample collected from Cell 4, on May 22 and July 10, 2014.

Based on the May 22, 2014 and July 10, 2014 laboratory results, R360 requests permission to apply an additional lift to Cell 4. The space available in Cell 4 was re-calculated as part of the Plan 1 effort. The revised area for Cell 4 is approximately 385,330 square feet or about 8.85 acres. Assuming a six (6) inch lift the

August 8, 2014 R360 Artesia, LLC Cell 4 Lift Request Page 2

available capacity in Cell 4 is approximately 7,139 cubic yards. The source of the contaminated soils will be delineated in Plan 3, which will be submitted next. Should you have any questions or comments regarding this matter, please contact Wayne Crawley (281.873.3205) or me (432.687.0901).

Sincerely,

Larson & Associates, Inc.



Mark Larson mark@laenvironmental.com

cc: Wayne Crawley Midland Office

### **TABLES**

Table 1
Cell 4 Treatment Soil Analytical Data Sumary
R360 Artesia LLC Landfarm (NM-1-030)
Lea County, New Mexico

Çell 🖫	Date	Depth	Benzene	Ethylbenzene	Toluene	Xylenes	BTEX.	DRO.	GRO ,	TPH	Chloride
Permitted Lev	el:	7., 3	10		4		" <b>.</b> .50	ur i i i i i i i i i i i i i i i i i i i	1	100	1,000
01/04/00	05/22/14	0-1	-	1			-	81.9	<0.0948	81.9	258
	07/10/14	0-1	<0.00103	<0.00103	<0.00206	<0.00206	<0.00206				

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, TX

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

BTEX analysis was performed by SW846 method 8021B

TPH analysis was performed by SW846 method 8015M

- 1. <: Less than method detection limit
- 2. Depth in feet below top of treated soil layer
- 3. -: Do data available

### **FIGURES**

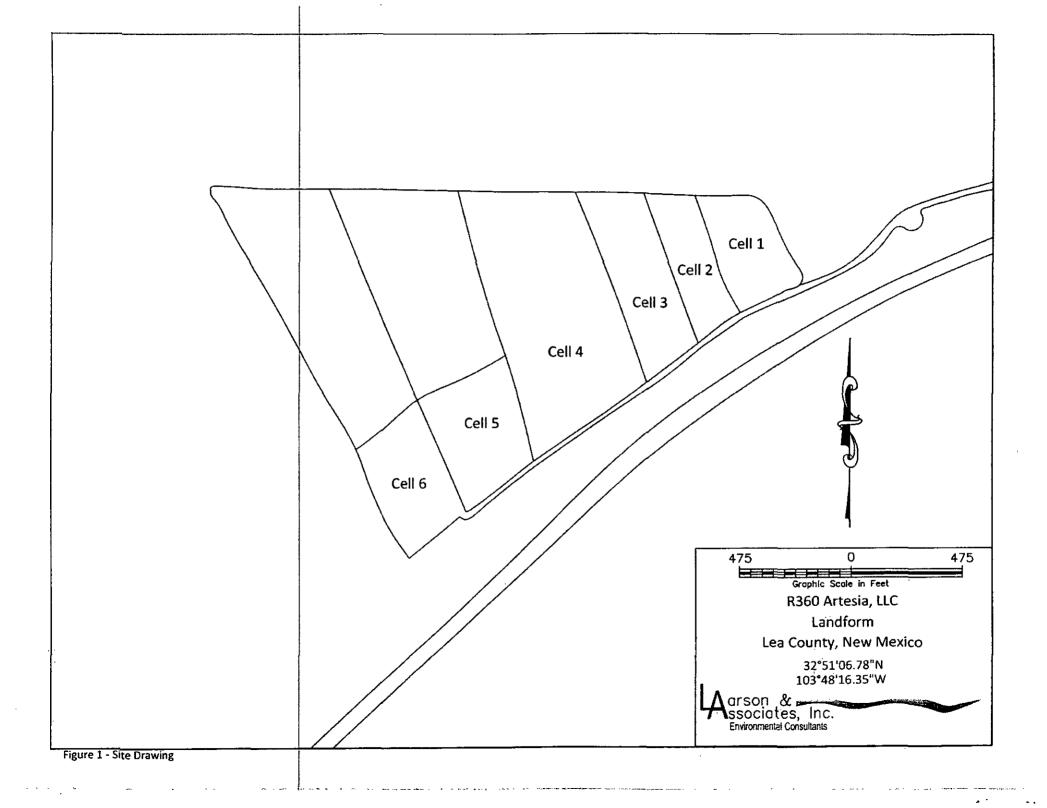




Figure 2 - Aerial Map and Sample Location

# APPPENDIX A Laboratory Reports



June 06, 2014

Order No.: 1405294

Mark Larson Larson & Associates 507 N. Marienfeld #200 Midland, TX-79701

TEL: (432) 687-0901 FAX (432) 687-0456

RE: R360 Landfarm

Dear Mark Larson:

DHL Analytical, Inc. received 12 sample(s) on 5/24/2014 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: T104704211-14-12



CHAIN-OF-CUSTODY

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TRRP report?  Yes No  TIME ZONE: Time zone/State:	S≈SOIL W=WATE A≈AIR		AINT SLUDGE OTHER	7	alners	PR		RVA C HOSN		3		eti,		(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)			1												FIELD		
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#### Sample Receipt Checklist 5/24/2014 Client Name Larson & Associates Date Received: Work Order Number 1405294 Received by JB 5/27/2014 Checklist completed by Reviewed by Carrier name **LoneStar** Not Present No 🗆 Shipping container/cooler in good condition? Yes 🗹 Not Present 🗹 Yes 🔲 No 🗀 Custody seals intact on shippping container/cooler? Not Present 🗹 No 🗀 Custody seals intact on sample bottles? Yes 🔽 No 🗀 Chain of custody present? Yes 🔽 No 🗆 Chain of custody signed when relinquished and received? Yes 🗹 No 🔲 Chain of custody agrees with sample labels? No 🔲 Yes 🗹 Samples in proper container/bottle? No 🖵 Yes 🔽 Sample containers intact? No 🗆 Yes 🗹 Sufficient sample volume for Indicated test? No 🗆 All samples received within holding time? Yes 🗹 Yes 🗹 No 🗆 0.6 Container/Temp Blank temperature in compliance? No 🗆 No VOA vials submitted Yes 🔲 Water - VOA vials have zero headspace? Yes 🗀 No 🗆 NA 🔽 LOT# Water - pH<2 acceptable upon receipt? Adjusted? Checked by No 🗆 NA 🗹 Yes 🔲 LOT# Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt? Checked by Adjusted? Any No response must be detailed in the comments section below. Client contacted Person contacted Date contacted: Contacted by: Regarding Comments: Corrective Action

Page 1 of 1

Date: 06-Jun-14

CLIENT:

Larson & Associates

Project:

R360 Landfarm

Lab Order:

1405294

**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 Petroleum Hydrocarbons Analysis (Parameter not NELAC Certified)

Method E300 - Anions Analysis

Method D2216 - Percent Moisture Analysis

#### LOG IN

The samples were received and log-in performed on 5/24/2014. A total of 12 samples were received and analyzed. The samples arrived in good condition and were properly packaged. The samples were collected in Mountain Standard Time.

#### 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.

#### DRO ANALYSIS

For DRO Analysis, the recovery of surrogate Octacosane for four samples was above the method control limits. These were 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 Analysis, hydrocarbons were detected below the reporting limit for Method Blank-63899 and confirmed by reanalysis. Total Hydrocarbons may be biased high in the associated samples. No further corrective action was taken.

Date: 06-Jun-14

CLIENT: Project: Lab Order:	Larson & Associates R360 Landfarm 1405294		Work Order Sample	Summary
Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1405294-01	Cell-1 (0-1)		05/22/14 10:00 AM	5/27/2014
1405294-02	Cell-1 (2-3)		05/22/14 10:30 AM	5/27/2014
1405294-03	Cell-2 (0-1)		05/22/14 11:00 AM	5/27/2014
1405294-04	Cell-2 (2-3)		05/22/14 11:30 AM	5/27/2014
1405294-05	Cell-3 (0-1)		05/22/14 12:00 PM	5/27/2014
1405294-06	Cell-3 (2-3)		05/22/14 12:30 PM	5/27/2014
1405294-07	Cell-4 (0-1)		05/22/14 01:00 PM	5/27/2014
1405294-08	Cell-4 (2-3)		05/22/14 01:30 PM	5/27/2014
1405294-09	Cell-5 (0-1)		05/22/14 02:00 PM	5/27/2014
1405294-10	Cell-5 (2-3)		05/22/14 02:30 PM	5/27/2014
1405294-11	Cell-6 (0-1)		05/22/14 03:00 PM	5/27/2014
1405294-12	Ceil-6 (2-3)		05/22/14 03:30 PM	5/27/2014

Larson & Associates

Project:

R360 Landfarm

Project No: Lab Order:

CLIENT:

11-0109-06 1405294

Date: 06-Jun-14

Client Sample ID: Coll-4 (0-1)

Lab ID: 1405294-07

Collection Date: 05/22/14 01:00 PM

Matrix: SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
TPH EXTRACTABLE BY GC - SOIL		M801	5D				Analyst: AS
TPH-DRO C10-C28	81.9	3.05	10.2		mg/Kg-dry	1	06/03/14 01:42 PM
Surr: Isopropylbenzene	71.4	0	47-142		%REC	1	06/03/14 01:42 PM
Surr: Octacosane	110	0	25-162		%REC	1	06/03/14 01:42 PM
TPH PURGEABLE BY GC - SOIL		M801	5V				Analyst: AV
Gasoline Range Organics	ND	0.0948	0.190		mg/Kg-dry	1	05/28/14 01:50 AM
Surr: Tetrachlorethene	99.4	0	70-134		%REC	1	05/28/14 01:50 AM
TRPH		E418	3.1				Analyst: DEW
Petroleum Hydrocarbons, TR	140	4.89	9.79	N	mg/Kg-dry	1	05/30/14 03:55 PM
ANIONS BY IC METHOD - SOIL		E30	00				Analyst: AV
Chloride	258	46.8	46.8		mg/Kg-dry	10	05/28/14 07:47 PM
PERCENT MOISTURE		D22	16				Analyst: JL
Percent Moisture	3.23	0	0		WT%	1	05/30/14 01:42 PM

#### Qualifiers:

- Value exceeds TCLP Maximum Concentration Level
- C Sample Result or QC discussed in the Case Narrative
- TPH pattern not Gas or Diesel Range Pattern
- MDL Method Detection Limit
- RL Reporting Limit
- Parameter not NELAC certified

- Analyte detected in the associated Method Blank
- DF Dilution Factor
- Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- Spike Recovery outside control limits

Date: 06-Jun-14 ......

CLIENT:

Larson & Associates

Work Order:

1405294

ANALYTICAL QC SUMMARY REPORT

Project: R360 Lan	dfarm					RunII	); (	C15_140	602A	
The QC data in batch 63880 app	lies to the fo	ollowing sa	mples: 1405	294-01A						
Sample ID MB-63880	Batch ID:	63880		TestNo	M80	115D		Units:	mg/Kg	l
SampType: MBLK	Run ID:	GC15_1	40602A	Analysi	s Date: 6/2/	2014 10:56:	18 AM	Prep Date:	5/30/2	014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit '	%RPD R	PDLimit Qual
TPH-DRO C10-C28		ND	10.0	•						
Surr: Isopropylbenzene		5.95		7.500		79.3	47	142		
Surr: Octacosane		6.50		7.500		86.7	25	162		
Sample ID LCS-63880	Batch ID:	63880		TestNo	. M80	15D		Units:	mg/Kg	1
SampType: LCS	flun ID:	GC15_1	40602A	Analysi	s Date: 6/2/	2014 11:32:	14 AM	Prep Date:	5/30/2	014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD R	PDLimit Qua
TPH-DRO C10-C28	•	110	10.0	125.0	0	87.7	50	114		
Surr: Isopropylbenzene		5.30		7.500		70.6	47	142		
Surr: Octacosane		6.49		7.500		86.6	25	162		
Sample ID 1405240-06AMS	Batch ID:	63880		TestNo:	: M80	015D		Units:	mg/K	g-dry
SampType: MS	Run ID:	GC15_1	40602A	Analysi	s Date: <b>6/2</b> /	2014 11:50:	11 AM	Prep Date:	5/30/2	014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	il HighLimit	%RPD F	PDLimit Qua
TPH-DRO C10-C28		99.6	9.47	118.3	8.976	76.6	50	114		
Surr: Isopropylbenzene		5.32		7.099		75.0	47	142		
Surr: Octacosane		6.70		7.099		94.4	25	162		
Sample ID 1405240-06AMSD	Batch ID:	63880		TestNo	: M80	D15D		Units:	mg/K	g-dry
SampType: MSD	Run ID:	GC15_1	40602A	Analysi	s Date: 6/2/	2014 11:59:	MA e0:	Prep Date	: 5/30/2	2014
Analyte	- philosophy mysonic representative wh	Result	AL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD F	RPDLimit Qua
TPH-DRO C10-C28		105	9.39	117.3	8.976	81.7	50	114	5.08	30
Surr. Isopropylbenzene		5.51		7.040		78.3	47	142	0	0
Surr: Octacosane		6.67		7.040		94.8	25	162	0	0

Qualifiers:

Analyte detected in the associated Method Blank

Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

Analyte detected between SDL and RL

Dilution Factor

MDL Method Detection Limit

Page 1 of 12

R RPD outside accepted control limits Spike Recovery outside control limits

Parameter not NELAC certified

Larson & Associates

Work Order:

1405294

ANALYTICAL QC SUMMARY REPORT

Project: R360 L	andfarm					RunII	); (	GC15_1406	502A	
The QC data in batch 63899 a 07A, 1405294-08A, 1405294-					94-03A, 14	05294-04A,	1405294	05A, 140529	4-06A,	405294-
Sample ID MB-63899	Baich ID:	63899		TestNo	MBC	15D		Units:	mg/K	9
SampType: MBLK	Run ID:	GC15_14		Analysi	Date: 6/2/	2014 11:05:	17 AM	Prep Date:	5/30/2	014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit 9	6RPD F	PDLimit Qual
TPH-DRO C10-C28		3.79	10.0							
Surr. Isopropylbenzene		4.08		7.500		54.4	47	142		
Surr: Octacosane		6.41		7.500		85.4	25	162		
Sample ID LCS-63899	Batch ID:	63899		TestNo	M80	)15D		Units:	mg/K	9
SampType: LCS	Run ID:	GC15_1	40602A	Analysi	Date: 6/2/	2014 11:41:	12 AM	Prep Date:	5/30/	2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit ?	%RPD F	RPDLimit Qua
TPH-DRO C10-C28		106	10.0	125.0	0	85.0	50	114		
Surr: Isopropylbenzene		5.33		7.500		71.1	47	142		
Surr: Octacosane		6.44		7,500	- 40	85.9	25	162		
Sample ID 1405294-06AMS	Batch ID:	63899		TestNo	M80	)15D		Units:	mg/K	g-dry
SampType: MS	Run ID:	GC15_1	40602A	Analysi	S Date: 6/2/	2014 12:08:	07 PM	Prep Date:	5/30/	2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit 9	%RPD F	RPDLimit Qua
TPH-DRO C10-C28		124	11.8	147.7	7.457	78.8	50	114		
Surr: Isopropylbenzene		6.59		8.863		74.4	47	142		
Surr: Octacosane		7.52		8.863		84.8	25	162		
Sample ID 1405294-06AMS	D Batch ID:	63899		TestNo	M80	)15D		Units:	mg/K	g-dry
SampType: MSD	Run ID:	GC15_1	40602A	Analysi	s Date: 6/2/	2014 12:17	:05 PM	Prep Date:	5/30/	2014
Analyte	parameter of ease of ease of the ease of	Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit <sup>4</sup>	%RPD	RPDLimit Qua
TPH-DRO C10-C28		130	11.7	146.9	7.457	83.2	50	114	4.49	30
Surr: Isopropylbenzene		7.03		8.811		79.8	47	142	0	0
Surr: Octacosane		7.71		8.811		87.5	25	162	0	0

Qualisiers:

Analyte detected in the associated Method Blank

Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

Analyte detected between SDL and RL

Dilution Factor

MDL Method Detection Limit

R RPD outside accepted control limits

Spike Recovery outside control limits

Parameter not NELAC certified

Page 2 of 12

Larson & Associates

### ANALYTICAL OC SUMMARY REPORT

Work Order:	1405294	nssociates			AN	ALYTI	CAL (	QC SU	MMAI	KY R	EPORT
	R360 Land	ifarm					RunID	):G	C15_140	602A	
Sample ID ICV-1406	02	Batch ID:	R73460		TestNo:	M801	15D		Units:	mg/K	9
SampType: ICV		Run ID:	GC15_140	602A	Analysis	Date: 6/2/2	014 10:36:3	31 AM	Prep Date:		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD F	RPDLimit Qual
TPH-DRO C10-C28			514	10.0	500.0	0	103	80	120	****	"-
Surr: Isopropylbenz	ene		29.8		25.00		119	80	120		
Surr: Octacosane			27.2		25.00		109	80	120		
Sample ID CCV1-14	0602	Batch ID:	R73460		TestNo:	M801	15D		Units:	mg/K	g
SатрТуре: <b>ССV</b>		Run ID:	GC15_140	602A	Analysis	s Date: 6/2/2	014 2:04:4	6 PM	Prep Date:		
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD F	RPDLimit Qual
TPH-DRO C10-C28			241	10.0	250.0	0	96.4	80	120		
Surr: Isopropylbenz	zene		13.2		12.50		106	80	120		
Surr: Octacosane			11.6		12.50		92.9	80	120		
Sample ID CCV2-14	0602	Batch ID:	R73460		TestNo:	M80	15D		Units:	mg/K	g
SampType: CCV		Run ID:	GC15_140	602 A	Analysis	s Date: 6/2/2	014 4:48:0	1 PM	Prep Date	:	
Analyte	**************************************		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD I	RPDLImit Qua
TPH-DRO C10-C28			221	10.0	250.0	0	88.3	80	120		
Surr: Isopropylbenz	ene		12.6		12.50		101	80	120		
Surr: Octacosane			10.3		12.50		82.1	80	120		
Sample ID ICV-1406	503	Batch ID:	R73460		TestNo:	M80	15D		Units:	mg/K	(g
SampType: ICV		Run ID:	GC15_140	602A	Analysis	s Date: 6/3/2	2014 10:53:	19 AM	Prep Date	:	
Analyte	,		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD	RPDLimit Qua
TPH-DRO C10-C28			475	10.0	500.0	0	95.1	80	120		
Surr: Isopropylbena	zene		29.3		25.00		117	80	120		
Surr. Octacosane		· · · · · · · · · · · · · · · · · · ·	21.4		25.00		85.8	80	120		
Sample ID CCV1-14	10603	Batch ID:	R73460		TestNo	: M80	15D		Units:	mg/k	(g
SampType: CCV		Run ID:	GC15_140	602A	Analysi	s Date: 6/3/2	2014 1:33:2	4 PM	Prep Date	<b>3</b> :	
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD	RPDLimit Qua
TPH-DRO C10-C28			- 234	10.0	250.0	0	93.5	80	120		
Surr: Isopropylbena	zene		13.9		12.50		111	80	120		
Surr: Octacosane	····		10.2		12.50		81.4	80	120		
Sample ID CCV2-14	0803	Batch ID:	R73460		TestNo	: M80	15D		Units:	mg/l	Kg
SampType: CCV		Run ID:	GC15_140	602A	Analysi	s Date: 6/3/2	2014 2:36:1	16 PM	Prep Date	8:	
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLim	it HighLimit	%RPD	RPDLimit Que
TPH-DRO C10-C28			227	10.0	250.0	0	90.7	80	120		

Qualifiers:

- 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
- Analyte detected between SDL and RL
- DF Dilution Factor
- MDL Method Detection Limit

- Page 3 of 12
- RPD outside accepted control limits
- Spike Recovery outside control limits
- Parameter not NELAC certified

Larson & Associates

Work Order: Project: 1405294

R360 Landfarm

ANALYTICAL QC SUMMARY REPORT

RunID:

GC15\_140602A

Sample ID CCV2-140603	Batch ID:	R73460		TestNo	: MBC	)15D		Units:	mg/Kg
SampType: CCV	Run ID:	GC15_14	10602A	Analys	is Date: <b>6/3/</b>	2014 2:36:1	6 PM	Prep Date	e:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
Surr: Isopropylbenzene		13.5		12.50	-	108	80	120	
Surr: Octacosane		10.2		12.50		81.7	80	120	

Qualifiers:

B Analyte detected in the associated Method Blank

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

Page 4 of 12

Larson & Associates

Work Order:

1405294

ANALYTICAL QC SUMMARY REPORT

02A, 1405294-03A, 04-12A M8015V ate: 5/27/2014 4:25:4 ef Val %REC 0 97.6 99.6	42 PM	Units: Prep Date: HighLimit %	mg/Kg 5/27/2014 
ef Val %REC 0 97.6	42 PM LowLimit I	Prep Date: HighLimit %	5/27/2014
ef Val %REC 0 97.6	LowLimit I	HighLimit %	
0 97.6			RPD RPDLimit Qual
	68		
99.6		126	
	70	134	
M8015V		Units:	mg/Kg
ate: 5/27/2014 5:39:1	10 PM	Prep Date:	5/27/2014
ef Val %REC	LowLimit	HighLimit %	RPD RPDLimit Qual
98.6	70	134	
M8015V		Units:	mg/Kg-dry
ale: 5/27/2014 10:09	:55 PM	Prep Date:	5/27/2014
el Vai %REC	LowLimit	HighLimit %	6RPD RPDLimit Qual
0 88.4	68	126	
85.7	70	134	
M8015V		Units:	mg/Kg-dry
ate: 5/27/2014 10:34	:12 PM	Prep Date:	5/27/2014
ef Val %REC	LowLimit	HighLimit %	6RPD RPDLimit Qua
0 88.7	68	126	1.00 30
94.9	70	134	0 0
	M8015V ate: 5/27/2014 5:39: ef Val %REC  98.6  M8015V ate: 5/27/2014 10:09 ef Val %REC  0 88.4 85.7  M8015V ate: 5/27/2014 10:34 ef Val %REC  0 88.7	M8015V ate: 5/27/2014 5:39:10 PM ef Val %REC LowLimit  98.6 70  M8015V ate: 5/27/2014 10:09:55 PM ef Vai %REC LowLimit 0 88.4 68 85.7 70  M8015V ate: 5/27/2014 10:34:12 PM ef Val %REC LowLimit 0 88.7 68	M8015V         Units:           ate: 5/27/2014 5:39:10 PM         Prep Date:           ef Val         %REC         LowLimit HighLimit %           98.6         70         134           M8015V         Units:         Prep Date:           ef Val         %REC         LowLimit HighLimit %           0         88.4         68         126           85.7         70         134           M8015V         Units:           ate: 5/27/2014 10:34:12 PM         Prep Date:           ef Val         %REC         LowLimit HighLimit %           0         88.7         68         126

Qualifiers:

Analyte detected in the associated Method Blank

i Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 5 of 12

R RPD outside accepted control limits

S Spike Recovery outside control limits

Parameter not NELAC certified

Larson & Associates

Project:

1405294

Work Order:

R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

GC4\_140527A RunID:

Sample ID ICV-140527	Batch ID:	R73365	1	TestNo:	M80	15V		Units:	mg/Kg
SampType: ICV	Run ID:	GC4_1	40527A	Analysis	Date: 5/27	//2014 4:01:	03 PM	Prep Date	e:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		9.76	0.200	10.00	0	97.6	80	120	
Surr: Tetrachlorethene		0.355		0.4000		88.6	70	134	
Sample ID CCV1-140527	Batch ID:	R73365		TestNo:	MBC	)15V		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_1	40527A	Analysis	Date: 5/27	7/2014 10:58	3:45 PM	Prep Date	<b>9</b> 1
Analyle		Result	RL	SPK value	Ret Val	%REC	LowLimi	t HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		4.73	0.200	5.000	0	94.6	80	120	
Surr: Tetrachlorethene		0.426		0.4000		106	70	134	
Sample ID CCV2-150527	Batch ID:	R73365	i	TestNo:	M80	)15V		Units:	mg/Kg
SampType: CCV	Run ID:	GC4_1	40527A	Analysis	Date: 5/28	3/2014 4:17:	37 AM	Prep Date	e:
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLimit Qual
Gasoline Range Organics		4.97	0.200	5.000	0	99.4	80	120	
Surr: Tetrachlorethene		0.430		0.4000		108	70	134	

Qualifiers:

Analyte detected in the associated Method Blank

j Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

Reporting Limit

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 6 of 12

RPD outside accepted control limits

Spike Recovery outside control limits

Parameter not NELAC certified

Larson & Associates

Work Order: 1405294

### ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_140528B Project: R360 Landfarm The QC data in batch 63843 applies to the following samples: 1405294-01A, 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A, 1405294-0 06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A mg/Kg Sample ID MB-63843 Batch ID: 63843 Units: SampType: MBLK Prep Date: 5/28/2014 Run ID: IC2\_140528B Analysis Date: 5/28/2014 4:39:35 PM LowLimit HighLimit %RPD RPDLimit Qual Analyte SPK value %REC Result RL Ref Val Chloride ND 5.00 Sample ID LCS-63843 Batch ID: 63843 TestNo: Units: mg/Kg E300 5/28/2014 SampType: LCS Run ID: IC2\_140528B Analysis Date: 5/28/2014 4:54:09 PM Prep Date: LowLimit HighLimit %RPD RPDLimit Qual Analyte Result SPK value Ref Val %REC RL 0 Chloride 50.4 5.00 50.00 101 120 Sample ID LCSD-63843 Units: mg/Kg Batch ID: 63843 TestNo: E300 Prep Date: 5/28/2014 SampType: LCSD Analysis Date: 5/28/2014 5:08:44 PM Run ID: IC2\_140528B LowLimit HighLimit %RPD RPDLimit Qual Analyte SPK value Ref Val %REC Result RL Chloride 50.7 5.00 50.00 0 101 ลก 120 0.727Sample ID 1405294-11AMS Batch ID: 63843 TestNo: Units: mg/Kg-dry SampType: MS Run ID: IC2\_140528B Analysis Date: 5/28/2014 9:14:38 PM Prep Date: 5/28/2014 Analyte SPK value Rei Val %REC LowLimit HighLimit %RPD RPDLimit Qual Result RL Chloride 206 57.2 114.3 81.19 110 80 120 Sample ID 1405294-11AMSD Batch ID: 63843 TestNo: Units: mg/Kg-dry Analysis Date: 5/28/2014 9:29:12 PM 5/28/2014 SampType: MSD Prep Date: Bun ID: IC2\_140528B LowLimit HighLimit %RPD RPDLImit Qual Analyte Ref Val %REC Result RL SPK value Chloride 81.19 106 80 120 0.693 20 208 59.7 119.4 Sample ID 1405294-12AMS Batch ID: 63843 TestNo: E300 Units: mg/Kg-dry SampType: MS Analysis Date: 5/28/2014 9:58:21 PM Prep Date: 5/28/2014 Run ID: IC2\_140528B LowLimit HighLimit %RPD RPDLimit Qual Analyte Basult RL SPK value Ref Val %REC Chloride 199 52.1 104.3 87.29 107 80 120 Sample ID 1405294-12AMSD Batch ID: 63843 TestNo: E300 Units: mg/Kg-dry SampType: MSD Run ID: IC2\_140528B Analysis Date: 5/28/2014 10:12:56 PM Prep Date: 5/28/2014 LowLimit HighLimit %RPD RPDLimit Qual Analyte Result RL SPK value Ref Val %REC

Qualifiers:

Chloride

B Analyte detected in the associated Method Blank

208

52.0

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

87.29

Page 7 of 12

20

4.80

R RPD outside accepted control limits
S Spike Recovery outside control limits

116

N Parameter not NELAC certified

104.1

Larson & Associates

Work Order:

1405294

Project:

R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

IC2\_140528B RunID:

								<del></del>		
Sample ID	ICV-140528	Batch ID:	R73451	***************************************	TestNo:	E30	3		Units:	mg/Kg
SampType:	ICA	Run ID:	IC2_140	528B	Analysis	Date: 5/28	/2014 12:04	:44 PM	Prep Date	:
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qua
Chloride			26.1	5.00	25.00	0	104	90	110	
Sample ID	CCV1-140528	Batch ID:	R73451		TestNo	E30	0		Unite:	mg/Kg
SampType:	CCV	Run (D:	IC2_140	528B	Analysis	s Oate: 5/28	/2014 3:23:	56 PM	Prep Date	<b>:</b>
Analyte			Result	RL.	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qua
Chloride			9.47	5.00	10.00	0	94.7	90	110	
Sample ID	CCV2-140528	Batch ID:	R73451		TestNo	E30	0		Units:	mg/Kg
SampType:	CCV	Run IO:	IC2_140	528B	Analysi	s Date: <b>5/2</b> 8	/2014 8:45:	29 PM	Prep Date	e:
Analyle		<del></del>	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qua
Chloride			10.5	5.00	10.00	0	105	90	110	
Sample ID	CCV3140528	Batch ID:	R73451	···	TestNo	E30	0		Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_140	528B	Analysi	s Date: 5/28	/2014 10:27	:30 PM	Prep Date	<b>:</b> :
Analyte			Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLimit Qua
Chloride			10.5	5.00	10.00	0	105	90	110	

Qualifiers:

Analyte detected in the associated Method Blank

Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

Reporting Limit RL

Analyte detected between SDL and RL

Dilution Factor

MDL Method Detection Limit

RPD outside accepted control limits Spike Recovery outside control limits S

Parameter not NELAC certified

Page 8 of 12

Larson & Associates

Work Order: Project:

1405294

R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

RunID: IR207 140530B

Project: K300 Lan	diarm					Kunn	); <u>1</u> ]	K&U/_140	3300	
The QC data in batch 63895 app 06A, 1405294-07A, 1405294-08						05294-03A,	1405294-	04A, 140529	94-05A, 140529	4-
Sample ID MB-63895	Batch ID:	63895		TestNo:	£41	8.1		Units:	mg/Kg	
SampType: MBLK	Run 1D:	IR207_	140530B	Analysis	Date: 5/30	)/2014 3:55:	00 PM	Prep Date:	5/30/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLim	it Qual
Petroleum Hydrocarbons, TR		ND	10.0							N
Sample ID LCS-63895	Batch ID:	63895		TestNo:	E41	8.1		Units:	mg/Kg	
SampType: <b>LCS</b>	Run ID:	IR207	140530B	Analysis	Date: 5/30	)/2014 <b>3:</b> 55:	00 PM	Prep Date:	5/30/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	t HighLimit	%RPD RPDLim	iit Qual
Petroleum Hydrocarbons, TR		91.9	10.0	100.0	0	91.9	80	120		N
Sample ID 1405294-12AMS	Batch ID:	63895		TestNo:	E41	8.1		Units:	mg/Kg-dry	
SampType: MS	Run ID:	IR207_	_140530B	Analysis	5 Date: 5/3	0/2014 3:55:	00 PM	Prep Date	5/30/2014	
Analyte	the both the control of the control	Result	RL	SPK value	Rei Vai	%REC	LowLimi	it HighLimit	%RPD RPDLin	nit Qua
Petroleum Hydrocarbons, TR		345	10.6	106.3	229.6	109	80	120		N
Sample ID 1405294-12AMSD	Batch ID:	63895		TestNo:	<b>E</b> 41	8.1		Units:	mg/Kg-dry	
SampType: MSD	Run ID:	IR207_	140530B	Analysis	Date: 5/30	0/2014 3:55:	00 PM	Prep Date	5/30/2014	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimi	it HighLimil	%RPD RPDLin	nit Qua
Petroleum Hydrocarbons, TR		339	10.9	109.0	229.6	101	80	120	1.81 20	N

Qualifiers:

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

Page 9 of 12

R RPD outside accepted control limits

S Spike Recovery outside control limits

Parameter not NELAC certified

Larson & Associates

Work Order: Project:

1405294

R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_140530B

Sample ID ICV-140530	Batch ID:	R73526		TestNo:	E41	B.1		Units:	mg/Kg	
SampType: ICV	Run ID:	IR207_14	10530B	Analysis	s Date: 5/30	/2014 3:55:	00 PM	Prep Date	e:	
Analyte	way anning promise promised shift Phildhel	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimi	t Qual
Petroleum Hydrocarbons, TR		241	10.0	250.0	0	96.5	90	110		N
Sample ID CCV1-140530	Batch ID:	R73526		TestNo:	E41	B.1		Units:	mg/Kg	
SampType: CCV	Run ID:	IR207_14	10530B	Analysis	s Date: 5/30	/2014 3:55:	00 PM	Prep Date	<b>9</b> :	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimi	l Qual
Petroleum Hydrocarbons, TR		240	10.0	250.0	0	96.0	85	115		N
Sample ID CCV2-140530	Batch ID:	R73526	-	TestNo	E41	8.1		Units:	mg/Kg	•
SampType: CCV	Run ID:	IR207_14	40530B	Analysi	s Date: 5/30	/2014 3:55:	00 PM	Prep Date	e:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimi	t Qual
Petroleum Hydrocarbons, TR		241	10.0	250.0	0	96.2	85	115		N

Qualifiers:

B Analyte detected in the associated Method Blank

Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

RL Reporting Limit

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 10 of 12

R RPD outside accepted control limits

S Spike Recovery outside control limits

N Parameter not NELAC certified

Larson & Associates

Work Order:

1405294

Project:

R360 Landfarm

ANALYTICAL QC SUMMARY REPORT

RunID:

PMOIST\_140529C

The QC data in batch 63872 applies to the following samples: 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-

11A, 1405294-12A

Sample ID 1405310-01A-DUP Batch ID: 63872 TestNo: D2216 Units: WT% SampType: DUP Prep Date: 5/29/2014 Run ID: PMOIST\_140529C Analysis Date: 5/30/2014 1:42:00 PM LowLimit HighLimit %RPD RPDLimit Qual Analyte RL SPK value Ref Val Result

Percent Moisture

0

%REC

13.4

0

14.29

6.08

Qualifiers:

Analyte detected in the associated Method Blank

J Analyte detected between MDL and RL

ND Not Detected at the Method Detection Limit

Reporting Limit

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

RPD outside accepted control limits

Spike Recovery outside control limits

Parameter not NELAC certified

Page 11 of 12

Larson & Associates

Work Order: Project: 1405294

R360 Landfarm

ANALYTICAL QC SUMMARY REPORT

RunID:

PMOIST\_140529C

The QC data in batch 63872 applies to the following samples: 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A

11A, 1400294-12A											
Sample ID 1405310-01A-DUP	Batch ID:	63872		TestNo	: D221	6		Units:	WT%	6	
SampType: DUP	Run (D:	PMOIST	_140529C	Analys	s Date: 5/30/	2014 1:42:	00 PM	Prep Date	: <b>5/29</b> /	/2014	
Analyte		Result	RL.	SPK value	Ref Val		LowLimit	HighLimit	%RPD		it Qual
Percent Moisture		13.4	0	0	14.29				6.08	30	

Qualifiers

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

RPD outside accepted control limits

Spike Recovery outside control limits

N Parameter not NELAC certified

Page 11 of 12

Larson & Associates

Work Order:

1405294

Project:

R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

RunID:

PMOIST\_140529D

Sample ID 1405294-0	SA-DUP	Batch ID:	63870		TestNo	: [	2216		Units:	WT9	6
SampType: DUP		Run ID:	PMOIST_	140529D	Analys	s Date: 5	5/30/2014 2:00	):00 PM	Prep Date	5/29	/2014
Analyte	Marit Karlindowski od o obod o		Result	RL	SPK value	Ret Va				%RPD	RPDLimit Qu
Percent Moisture			2.42	0	0	2.498	· · · · · · · · · · · · · · · · · · ·			3.26	30

Qualifiers:

В 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

Analyte detected between SDL and RL

DF Dilution Factor

MDL Method Detection Limit

Page 12 of 12

RPD outside accepted control limits R

Spike Recovery outside control limits

Parameter not NELAC certified

### PERMIAN BASIN ENVIRONMENTAL LAB, LP 10014 SCR 1213 Midland, TX 79706



## Analytical Report

#### Prepared for:

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

Project: R 360 Landfarm
Project Number: 11-0109-06

Location: NM

Lab Order Number: 4G11002



NELAP/TCEQ # T104704156-13-3

Report Date: 07/14/14

Project: R 360 Landfarm

Fax: (432) 687-0456

P O Box 50685 Midland TX, 79710 Project Number 11-0109-06

Project Manager: Coty Woolf

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID		Laboratory ID	Matrix	Date Sampled	Date Received
Cell-1		4G11002-01	Soil	07/10/14 09:02	07-11-2014 07:38
Cel1-2		4G11002-02	Soil	07/10/14 09:15	07-11-2014 07:38
Cell-3	•	4G11002-03	Soil	07/10/14 09:20	07-11-2014 07:38
Cell-4		4G11002-04	Soil	07/10/14 09:40	07-11-2014 07:38
Cell-5		4G11002-05	Soil	07/10/14 09:50	07-11-2014 07:38
Cell-6		4G11002-06	Soil	07/10/14 09:55	07-11-2014 07:38

P.O. Box 50685 Midland TX, 79710 Project: R 360 Landfarm

Project Number: 11-0109-06 Project Manager. Coty Woolf

Cell-4

#### 4G11002-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method Notes
	Pern	nian Basin E	Invironme	ıtal Lab, l	L.,P.			
Organics by GC								
Benzene	ND	0.00103	mg/kg dry	ı	P4G1404	07/11/14	07/11/14	EPA 8021B
Toluenc	ND	0 00206	mg∕kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B
Ethylbenzene	ND	0.00103	mg/kg dry	l	P4G1404	07/11/14	07/11/14	EPA 8021B
Xylene (p/m)	ND	0.00206	mg/kg dry	}	P4G1404	07/11/14	07/11/14	EPA 8021B
Xylenc (o)	ND	0.00103	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B
Surrogate: 4-Bromofluorobenzene		117%	75-1	25	P4G1404	07 11 14	07 11 14	EPA 8021/II
Surrogate: 1,4-Difluorobenzene		81.1%	75-1	25	P4G1404	07/1/14	07 11 14	EPA 8021B
General Chemistry Parameters by El	PA / Standard Metho	ds						
% Moisture	3.0	01	95	1	P4G1107	07/11/14	07/14/14	% calculation

Fax: (432) 687-0456

Project: R 360 Landfarm

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project Number: 11-0109-06 Project Manager: Coty Woolf

### 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
Batch P4G1404 - General Preparation (GC)										
Blank (P4G1404-BLK1)				Prepared &	Analyzed:	07/11/14	, ,gs.siqq*a** 4		.,	ا بنينسيس
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0,00200	U							
Ethylbenzene	ND	0.00100	п							
Xylene (p/m)	ND	0.00200	•							
Xylenc (o)	ND	0.00100	*							
Surragette: 1,4-Diffnorobenzene	<b>√</b> 7.5		ug kg	60.0		79.2	75-125			
Surrogate, 4-Bromofluorobenzene	65.4		-	60.0		109	75-725			
LCS (P4G1404-BS1)				Prepared &	k Analyzed	07/11/14				
Benzene	0.119	0.00100	mg/kg wet				70-130			
Toluene	0.111	0.00200	-				70-130			
Ethylbenzene	0.102	0.00100	н				70-130			
Xylene (p/m)	0.217	0.00200					70-130			
Xylene (0)	0 102	0.00100	•				70-130			
Surrogate: 4-Bramofluorobenzene	~0.2		ug kg	60.0	····· .	117	75-125			
Surrogate: 1.4-Difluorobenzene	56.5		*	69.0		94.2	75-125			
LCS Dup (P4G1404-BSD1)				Prepared &	& Analyzed	07/11/14				
Benzene	0.119	0.00100	mg/kg wet				70-130		20	
Toluen <del>e</del>	0.110	0.00200	**				70-130		20	
Ethylbenzene	0 102	0.00100					70-130		20	
Xylene (p/m)	0.216	0.00200					70-130		20	
Nylene (o)	0.103	0.00100	*1				70-130		20	
Surregate: 1,4-Diftnorobenzene	53.3		иц ку	60.0		88.8	75-125			
Surrogate: 4-Bronofharmbenzene	71.4			60,0		119	75-125			

Project: R 360 Landfarm

Fax: (432) 687-0456

P.O. Box 50685 Midland TX, 79710 Project Number: 11-0109-06 Project Manager: Coty Woolf

# 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
Batch P4G1107 - *** DEFAULT PR	(EP ***									
Blank (P4G1107-BLK1)	.,			Prepared: (	07/11/14 A	nalyzed: 07	/14/14			
26 Maisture	ND	0.1	%							
Duplicate (P4G1107-DUP1)	Son	rce: 4G11001-	-06	Prepared. (	0 <b>7</b> /11/14 A	nalyzed: 07	/14/14			
% Moisture	13.0	0,1	%		13.0			0.00	20	
Duplicate (P4G1107-DUP2)	Sou	rce: 4G11004	-01	Prepared: (	07/11/14 A	nalyzed: 07	/14/14			
% Moisture	3.0	1,0	%		4.0			28.6	20	

P O. Box 50685

Project: R 360 Landfarm

Fax: (432) 687-0456

Midland TX, 79710

Project Number 11-0109-06 Project Manager: Coty Woolf

#### Notes and Definitions

DET Analyte DETECTED ND Analyte NOT DETECTED at or above the reporting binit 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

	But Burron		
Report Approved By:		Date:	7/14/2014

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.

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 sentire approval of Perimon Basin Environmental Lab.

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		5/16/	CHAIN-OF-CUSTOUS
	507 N. Marienfeld, Ste. 20	DATE: 7/16/1	
∆ arson &	Midland, TX 79701	1 PO#:	LAB WORK ORDER #: 46161607
Associates, Inc. Environmental Consultants	432-687-0901	PROJECT LOCATION OR	NAME: R360 Carolform
Data Reported to:	79E 00/ 1/01	LAI PROJECT #: 1/-C	1109-06 COLLECTOR: RUN L
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THE TOP OF STREET	PRESERVATION		\\$\\$\\\\$\\\\$\\\\\\\\\\\\\\\\\\\\\\\\\\
Yes No WEWATER SESSUDGE A=AIR OT=OTHER			```\&\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
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