

**NM1 - 30**

**APPROVALS**

**YEAR(S):**

**2014 - 2017**

State of New Mexico  
Energy, Minerals and Natural Resources Department

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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, 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 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;
3. 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 [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

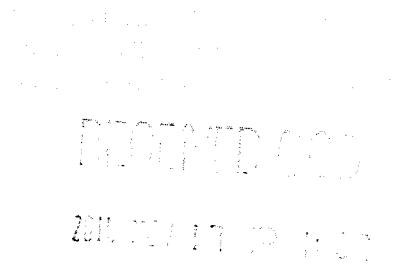
Sincerely,

A handwritten signature in black ink, appearing to read "J. Griswold", with a stylized flourish at the end.

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,



A handwritten signature in black ink, appearing to read "Steph G". The signature is fluid and cursive, written in a professional style.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

## Figures



Figure 1



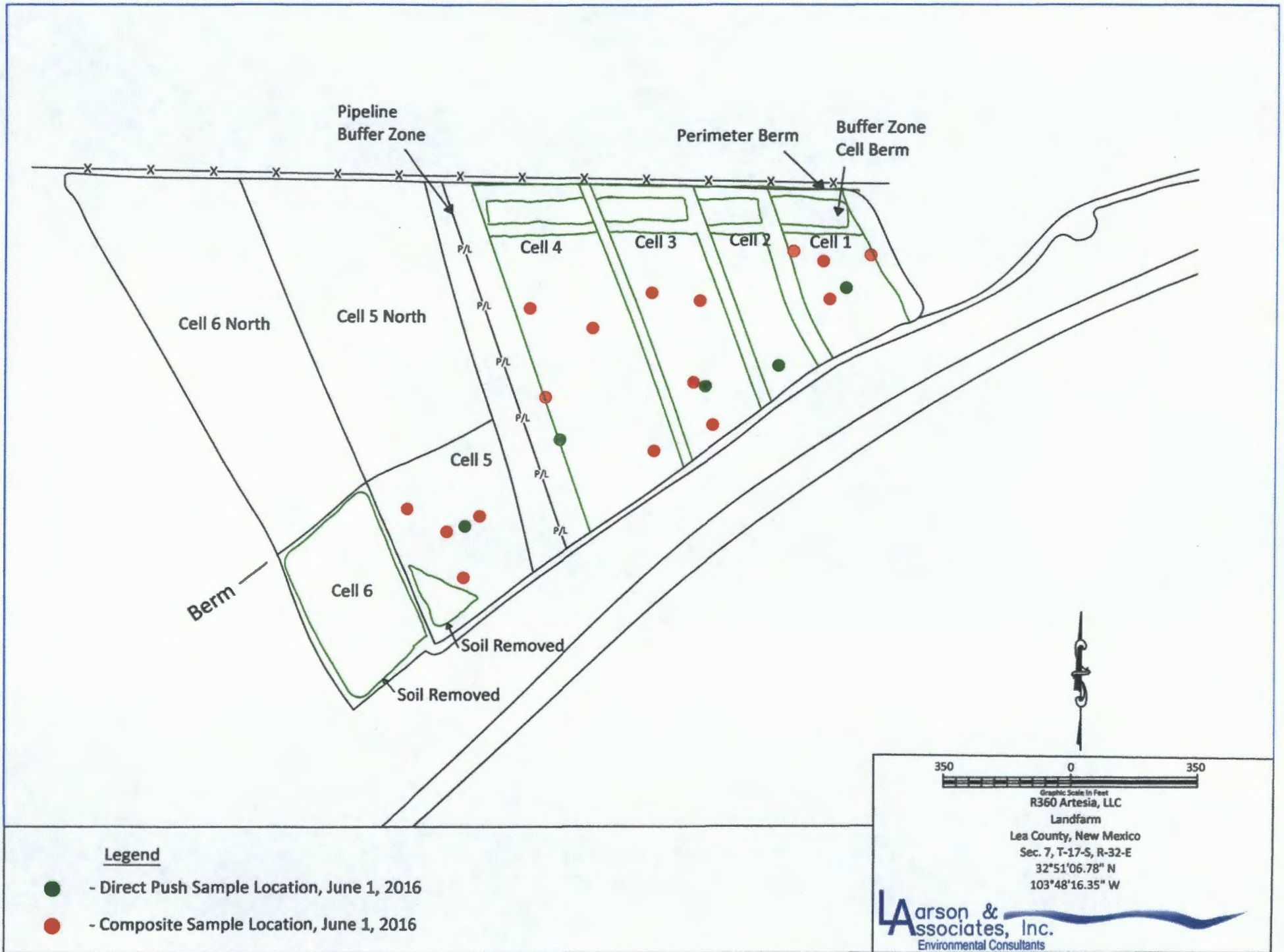


Figure 4 - Site Map Showing Direct Push and Composite Sample Locations, June 1, 2016



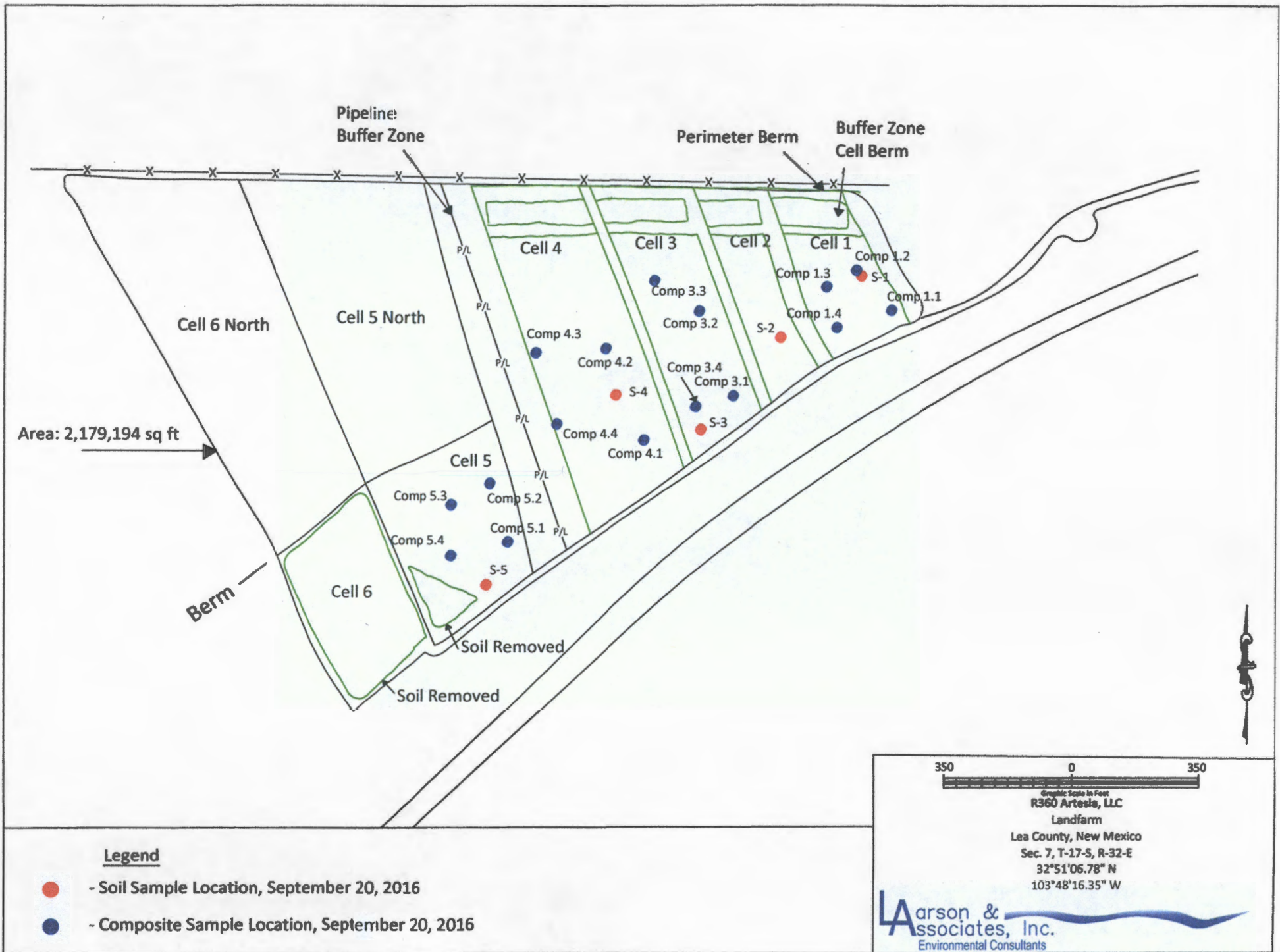


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

## **Tables**

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

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			<b>0.2</b>	<b>50</b>				<b>500</b>	<b>2,500</b>	<b>1,000</b>
1	03/16/2016	0 - 1	<0.00472	<0.0472	<0.190	366	263	629	836	356
	06/01/2016	0 - 1	<0.00496	<0.0496	<0.180	224	265	489	252	397
2	03/16/2016	0 - 1	*	*	*	*	*	*	*	*
	06/01/2016	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
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
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
6	03/16/2016	0 - 1	**	**	**	**	**	**	**	**
	06/01/2016	0 - 1	**	**	**	**	**	**	**	**

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

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

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

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

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

2. Depth in feet within treated soil layer

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

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

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

**Appendix A**  
**Laboratory Report**  
**(June 1, 2016)**





June 15, 2016

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

Order No.: 1606029

Dear Mark Larson:

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

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

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

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

Sincerely,

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

John DuPont  
General Manager

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



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



№ 70828  
**CHAIN-OF-CUSTODY**

CLIENT: Carson & Associates  
 ADDRESS: 507 N. Marlenfeld  
 PHONE: (432) 687-0901 FAX/E-MAIL:  
 DATA REPORTED TO: Mark Larson  
 ADDITIONAL REPORT COPIES TO: Carson Hughes

DATE: 06/02/2016 PAGE 1 OF 1  
 NO # \_\_\_\_\_ DHL WORK ORDER #: 110010029  
 PROJECT LOCATION OR NAME: R360 Artesia Landfarm  
 CLENT PROJECT #: 15-011-01 COLLECTOR: Travis Williams/Carson Hughes

Authorize 5% surcharge for TRRP Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID	PRESERVATION <input type="checkbox"/> HCl <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> ICE <input type="checkbox"/> UNPRESERVED		ANALYSES BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> (METHY 8021) TPH 1065 <input type="checkbox"/> TPH 1096 <input type="checkbox"/> HCL <input type="checkbox"/> 1065 <input type="checkbox"/> GRO (METHY 8015) <input type="checkbox"/> DRO (METHY 8105) <input type="checkbox"/> VOC 8280 <input type="checkbox"/> VOC 824 <input type="checkbox"/> VOC 8 260/50.5 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> HAP 8170 <input type="checkbox"/> HFD/PAH <input type="checkbox"/> SVOC 825 <input type="checkbox"/> 8270 PEST <input type="checkbox"/> 825 PEST <input type="checkbox"/> PCB 808 PCB <input type="checkbox"/> 821 HAP <input type="checkbox"/> 7 PHOS <input type="checkbox"/> AMMONIA <input type="checkbox"/> METALS 8970 <input type="checkbox"/> METALS 209 <input type="checkbox"/> DBS-METALS <input type="checkbox"/> RCRA <input type="checkbox"/> TTX <input type="checkbox"/> CHLORIDE <input type="checkbox"/> MEQ CARBON <input type="checkbox"/> ALKALINITY <input type="checkbox"/> COD <input type="checkbox"/> TSP <input type="checkbox"/> ANIONS <input type="checkbox"/> TEL-METALS <input type="checkbox"/> VOCC <input type="checkbox"/> PEST <input type="checkbox"/> HERB <input type="checkbox"/> RCI <input type="checkbox"/> PLASPOINT <input type="checkbox"/> RRA <input type="checkbox"/> TR-11 <input type="checkbox"/> TSS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> P&C <b>TRPH by 416.1</b>	FIELD NOTES
--	---	--	--	---	-------------

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	UNPRESERVED	ANALYSES													FIELD NOTES											
Comp 1	01	06/01/16	11:45	Soil	Glass	1					X	X	X																							Chloride by method 300	
Comp 2	02		12:00																																		
Comp 3	03		12:30																																		
Comp 4	04		12:45																																		
DP 5 (2-4)	05		13:00																																		
DP 4 (2-4)	06		13:30																																		
DP 3 (2-4)	07		13:45																																		
DP 2 (2-4)	08		14:10																																		
DP 1 (2-4)	09		14:30																																		

RELINQUISHED BY: (Signature) <u>Carson Hughes</u> DATE/TIME <u>06/02/16 1:30</u>	RECEIVED BY: (Signature) <u>[Signature]</u> DATE/TIME <u>6/3/16 5:15</u>	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP: <u>4.2</u> THERM #: <u>78</u> CUSTODY SEALS: <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> INTACT <input type="checkbox"/> NOT USED CARRIER: <input checked="" type="checkbox"/> ONE STAR <input type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
<input type="checkbox"/> DHL DISPOSAL @ \$5.00 each <input type="checkbox"/> Return		3	





WWW.LSO.COM  
 Questions? Call 800-800-8984  
 Airbill No. 49614865



49614865

©1991-2012 LSO Star Overnight

<b>1. To:</b> <small>Print Name (Person)</small> <b>T. Barker</b> <small>Phone (Important)</small>		<b>2. From:</b> <small>Print Name (Person)</small> <b>492-687-0901</b> <small>Phone (Important)</small>	
<small>Company Name</small> <b>DHL Analytical</b>		<small>Company Name</small> <b>LARSON &amp; ASSOCIATES</b>	
<small>Street Address (No P.O. Box or P.O. Box Zip Code/District)</small> <b>2300 Double Creek Drive</b>		<small>Street Address</small> <b>507 NORTH WASHINGTON</b>	
<small>Suite / Floor</small> 		<small>Suite / Floor</small> <b>215</b>	
<small>City</small> <b>Round Rock</b>	<small>State</small> <b>TX</b>	<small>City</small> <b>NEEDHAM</b>	<small>State</small> <b>MA</b>
<small>Zip</small> <b>78664</b>		<small>Zip</small> <b>01970</b>	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>4. Package:</b> <small>Weight:</small> <b>50</b>	<b>FOR DRIVER USE ONLY</b> <small>Driver Number</small> <b>11057</b> <input type="checkbox"/> <small>Check here if LSO Supplies are used with LSO Ground Service.</small> <small>Pick-up Location</small> <b>Del Rio</b> <small>Date</small> <b>Jan 21/10</b> <small>Time:</small> <small>City Code:</small> <b>PAUS</b>
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. to most cities</small>		<small>Your Company's Billing Reference Information</small> 	
<input type="checkbox"/> <b>LSO Ground</b>		<small>Ship Date: (m/d/yyyy)</small> / /	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>		<b>5. Payment:</b>	
<input type="checkbox"/> <b>LSO Saturday*</b>			
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>			
<input type="checkbox"/> <b>LSO 2nd Day*</b>			
<input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>			
<small>Release Signature</small> 			
<small>L x W x H</small> 			

LIMIT OF LIABILITY: We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value for your shipment. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages without obtaining a delivery signature. Visit www.lso.com for more information.

**CUSTODY SEAL**  
 DATE **6-02-2010**  
 SIGNATURE *[Signature]*

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

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 6/3/2016

Work Order Number 1606029

Received by JB

Checklist completed by: [Signature] 6/3/2016  
Signature Date

Reviewed by SS 6/3/2016  
Initials Date

Carrier name LoneStar

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

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

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

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

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

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

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

**CASE NARRATIVE**

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

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

**LOG IN**

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

**DRO/ORO ANALYSIS**

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

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

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

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

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

**Work Order Sample Summary**

---

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

**DHL Analytical, Inc.**

Date: 15-Jun-16

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

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

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

Qualifiers: \* Value exceeds TCLP Maximum Concentration Level  
 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

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

TEL: (432) 687-0901

FAX (432) 687-0456

Order No.: 1609206

RE: R360 Artesia Aeration Landfarm NM

Dear Mark Larson:

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

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

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

Sincerely,

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

John DuPont  
General Manager

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



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



No 70834  
 CHAIN-OF-CUSTODY

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

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

Authorize 5% surcharge for TRRP Report?  
 Yes  No

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

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

ANALYSES DRG 8015  
 BITER BY MTE □ (METHOD 8021) □  
 TPH 1008 □ HOLD 1008 □  
 VOC 8260 □ VOC 824 □ VOC (EPA) 8015 □  
 8270 PEST □ 8270 PEST □ HOLD 8270 □  
 8270 PEST □ 8270 PEST □ 8082 PCB □ 8270 PCB □  
 821 HCB □ 821 HCB □ 8082 PCB □ 8270 PCB □  
 METALS 8000 □ METALS 8000 □ DISS. METALS □  
 PH □ HEX CHROM □ ALKALINITY □  
 CHLORIDE □ ANIONS □  
 TELP-METALS □ VOCC □ PEST □  
 REL FLASHPOINT □ RCRA 800 TX-110 □  
 TDS □ TSS □ % MOISTURE □  
 TPH 418.1

FIELD NOTES

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

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

DHL DISPOSAL @ \$5.00 each     Return    3



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

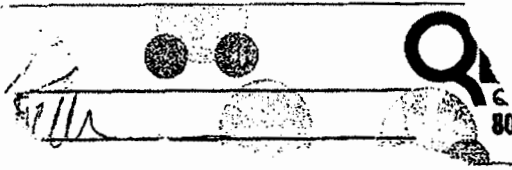
Airbill No. 49614848



49614848

<b>1. To:</b> <small>Print Name (Person)</small> <b>J. Barker</b> <small>Phone (Important)</small> <b>(512) 325-8222</b>		<b>2. From:</b> <small>Print Name (Person)</small> <b>TRISOMI &amp; ASSOCIATES</b> <small>Phone (Important)</small> <b>332-607-0991</b>	
<small>Company Name</small> <b>DAL Analytical</b>		<small>Company Name</small> <b>TRISOMI &amp; ASSOCIATES</b>	
<small>Street Address (No P.O. Box or P.O. Box Zip Code*Deliveries)</small> <b>2300 Double Creek Drive</b>		<small>Street Address</small> <b>801 NORTH WAREHOUSES</b>	
<small>Suite / Floor</small> 		<small>Suite / Floor</small> 	
<small>City</small> <b>Round Rock</b>	<small>State</small> <b>TX</b>	<small>City</small> <b>MEMPHIS</b>	<small>State</small> <b>TN</b>
<small>Zip</small> <b>78664</b>		<small>Zip</small> <b>38101</b>	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>4. Package:</b> <small>Weight:</small>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. to most cities</small>		<input type="checkbox"/> <b>LSO Ground</b>	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>		<input type="checkbox"/> <b>LSO Saturday*</b>	
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>		<input type="checkbox"/> <b>Other</b> _____	
<input type="checkbox"/> <b>LSO 2nd Day*</b>		<small>*Check commitment times and availability at www.lso.com</small>	
<input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>		<small>Assumed LSO Priority Overnight service unless otherwise noted.</small>	
<small>Release Signature</small>  		<small>Your Company's Billing Reference Information</small>  	
<small>L</small> _____ <small>x W</small> _____ <small>x H</small> _____		<small>Ship Date: (mm/dd/yyyy)</small> <b>09 / 21 / 06</b>	
		<b>5. Payment:</b>	
		<b>FOR DRIVER USE ONLY</b>	
		<small>Driver Number</small> 	
		<input type="checkbox"/> <b>Check here if LSO Supplier</b> <small>Inv. used with LSO Ground Service</small>	
		<small>Pick-up Location</small> 	
		<small>Date:</small> 	
		<small>Time:</small> 	
		<small>City Code:</small> 	

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



DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 9/22/2016

Work Order Number 1609206

Received by JT

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

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

Carrier name LoneStar

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

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

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

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

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

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

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

**CASE NARRATIVE**

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

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

**LOG IN**

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

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

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

**DRO ANALYSIS**

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

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

**TRPH ANALYSIS**

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



---

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

**CASE NARRATIVE**

---

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

**DHL Analytical, Inc.**

Date: 30-Sep-16

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

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

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

**Qualifiers:**

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



NOV 17 2016  
10:17 AM  
R360 ARTESIA, LLC  
1220 S. ST. FRANCIS DRIVE  
SANTA FE, NM 87505

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,



A handwritten signature in black ink, appearing to read "Steph Garza". The signature is written in a cursive, flowing style.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

## Figures



Figure 1



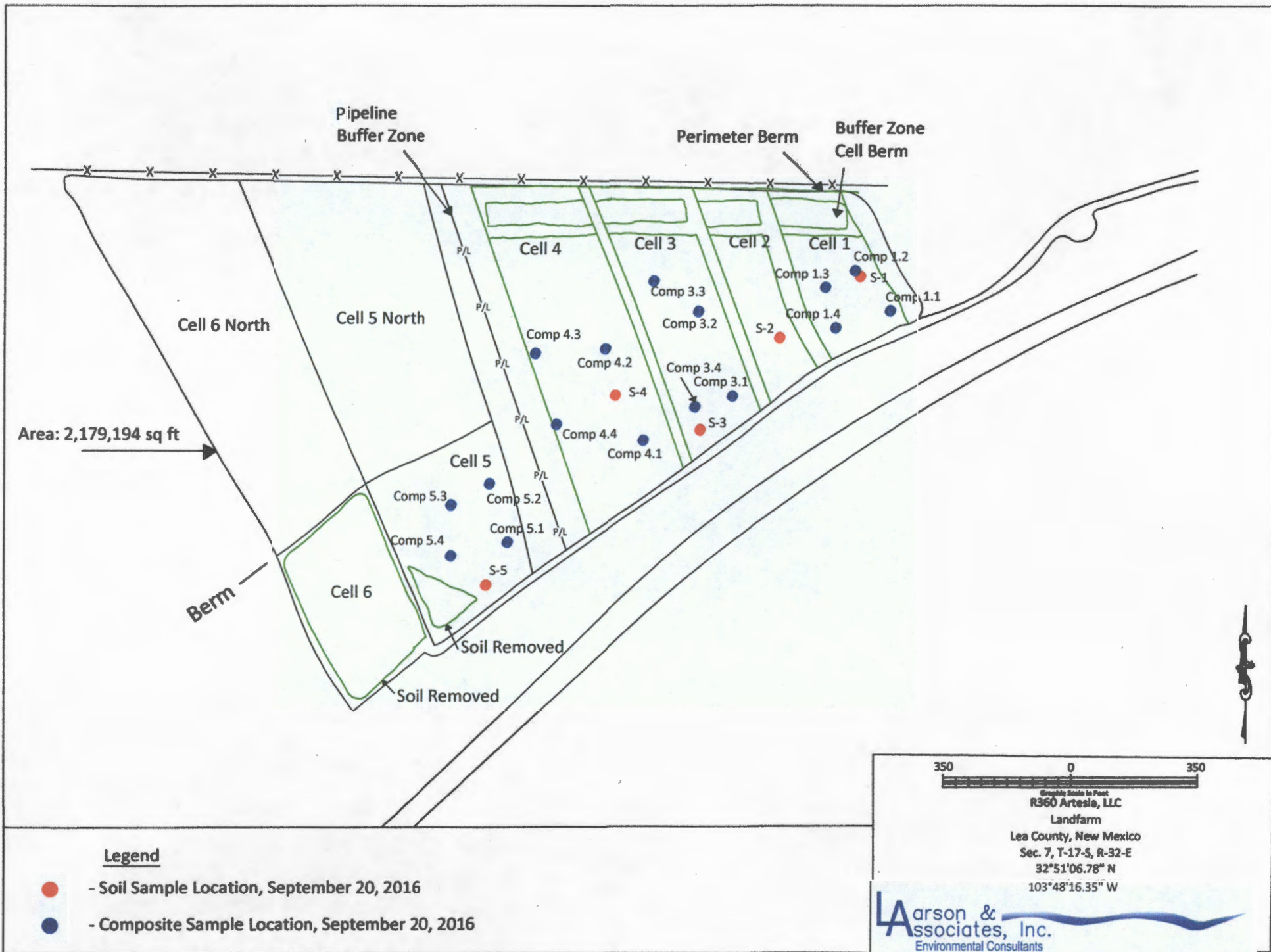


Figure 3 - Site Map Showing Sample Locations, September 20, 2016



## **Tables**

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

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			0.2	50				500	2,500	1,000
<b>1</b>	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
<b>2</b>	03/16/2016	0 - 1	*	*	*	*	*	*	*	*
	06/01/2016	0 - 1	*	*	*	*	*	*	*	*
	09/20/2016	0 - 1	*	*	*	*	*	*	*	*
<b>3</b>	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
<b>4</b>	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
<b>5</b>	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
<b>6</b>	03/16/2016	0 - 1	**	**	**	**	**	**	**	**
	06/01/2016	0 - 1	**	**	**	**	**	**	**	**
	09/20/2016	0 - 1	**	**	**	**	**	**	**	**

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

**Appendix A**  
**Laboratory Report**  
**(September 20, 2016)**



September 30, 2016

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

TEL: (432) 687-0901

FAX (432) 687-0456

Order No.: 1609206

RE: R360 Artesia Aeration Landfarm NM

Dear Mark Larson:

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

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

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

Sincerely,

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

John DuPont  
General Manager

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



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<b>Analytical Report 1609206 .....</b>	<b>13</b>
<b>AnalyticalQCSummaryReport 1609206 .....</b>	<b>22</b>



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: Larsen & Associates  
 ADDRESS: 507 N. Marion Field St. Ste 205, Midland TX  
 PHONE: 432 687 0901 FAX/E-MAIL: marks@LAenvironmental.com  
 DATA REPORTED TO: marks@LAenvironmental.com  
 ADDITIONAL REPORT COPIES TO: \_\_\_\_\_

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

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

ANALYSES: ORG 8015  
 BTEX BY: MIBK □ (METHOD 8021)  
 TPH (MIBK) □ (METHOD 8021)  
 GFO (METHOD 8021) □ (HOLD 1006)  
 VOC 8280 □ (MIBK) □ (METHOD 8021)  
 SVOC 8270 (PAH) 8270 (HCHL) □ (METHOD 8105)  
 8270 PEST □ 625 PEST/PCB □ 608 PCB □  
 8270 D-P PEST □ 8082 PCB □ 8270 PCB □  
 8271 HEBB □ 1 PHOS. AMMONIA □  
 METALS 8020 (METALS 200B) □ (PASS: METALS)  
 REBA □ TX11 □  
 PPO □ HEX CHROM □ ALKALINITY □ COB □  
 CALORIDE □ ANIONS □ (20A)  
 TCLP-SVOC □ VOC □ PEST □ HEBB □  
 RC10 METALS □ RC9A □ TX-11 □ PBO  
 TOS □ 150 □ \* MOISTURE □ CYANIDE □  
 TPH 4125.1

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

DHL DISPOSAL @ \$5.00 each     Return    3



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

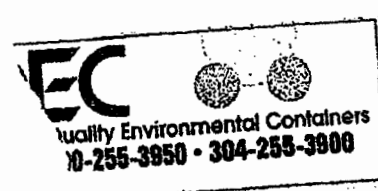
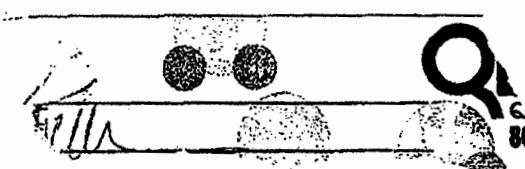
Airbill No. 49614848



49614848

<b>1. To:</b> <small>Print Name (Person)</small> <b>Jo Barker</b> <small>Phone (Important)</small> <b>(512) 323-8222</b>		<b>2. From:</b> <small>Print Name (Person)</small> <b>TRUCK &amp; ASSOCIATES</b> <small>Phone (Important)</small> <b>832-507-0001</b>	
<small>Company Name</small> <b>DEL Analytical</b>		<small>Company Name</small> <b>TRUCK &amp; ASSOCIATES</b>	
<small>Street Address (No P.O. Box or P.O. Box Zip Code*Deliveries)</small> <b>2300 Double Creek Drive</b>		<small>Street Address</small> <b>507 NORTH WASHINGTON</b>	
<small>Suite / Floor</small>		<small>Suite / Floor</small>	
<small>City</small> <b>Round Rock</b> <small>State</small> <b>Tx</b> <small>Zip</small> <b>78664</b>	<small>City</small> <b>WINDERSO</b> <small>State</small> <b>TX</b> <small>Zip</small> <b>78701</b>	<b>4. Package:</b> <small>Weight:</small>	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>FOR DRIVER USE ONLY</b>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:50 a.m. to most cities</small>	<input type="checkbox"/> <b>LSO Ground</b>	<small>Your Company's Billing Reference Information</small>	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>	<input type="checkbox"/> <b>LSO Saturday*</b>	<small>Ship Date: (mm/dd/yy)</small> <b>09/21/16</b>	
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>	<input type="checkbox"/> <b>Other</b> _____	<small>Driver Number</small> <b>1207</b>	
<input type="checkbox"/> <b>LSO 2nd Day*</b>	<small>*Check commitment times and availability at www.lso.com</small>	<input type="checkbox"/> <small>Check here if LSO Supplies are used with LSO Ground Service.</small>	
<input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>	<small>Assumed LSO Priority Overnight service unless otherwise noted.</small>	<small>Pick-up Location</small> <b>2110</b>	
<small>Release Signature</small>		<small>Date:</small>	
<small>L _____ x W _____ x H _____</small>		<small>Time:</small>	
		<small>City Code:</small>	
		<b>5. Payment:</b>	

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



DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 9/22/2016

Work Order Number 1609206

Received by JT

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

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

Carrier name LoneStar

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

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

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

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

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

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



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

**CASE NARRATIVE**

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

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

**LOG IN**

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

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

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

**DRO ANALYSIS**

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

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

**TRPH ANALYSIS**

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

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

**CASE NARRATIVE**

---

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

**DHL Analytical, Inc.**

Date: 30-Sep-16

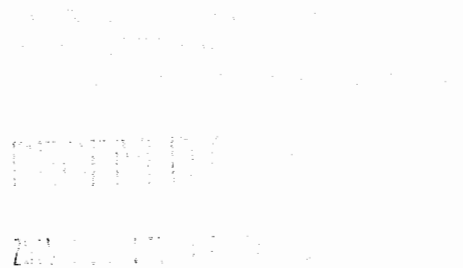
**CLIENT:** Larson & Associates  
**Project:** R360 Artesia Aeration Landfarm NM  
**Project No:** 15-0121-01  
**Lab Order:** 1609206

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

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

**Qualifiers:**

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



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.



Sincerely,

A handwritten signature in black ink, appearing to read "Steph Garza". The signature is written in a cursive, flowing style.

Stephanie Garza  
**R360 Environmental Solutions, LLC**

Attachments

## Figures



Figure 1



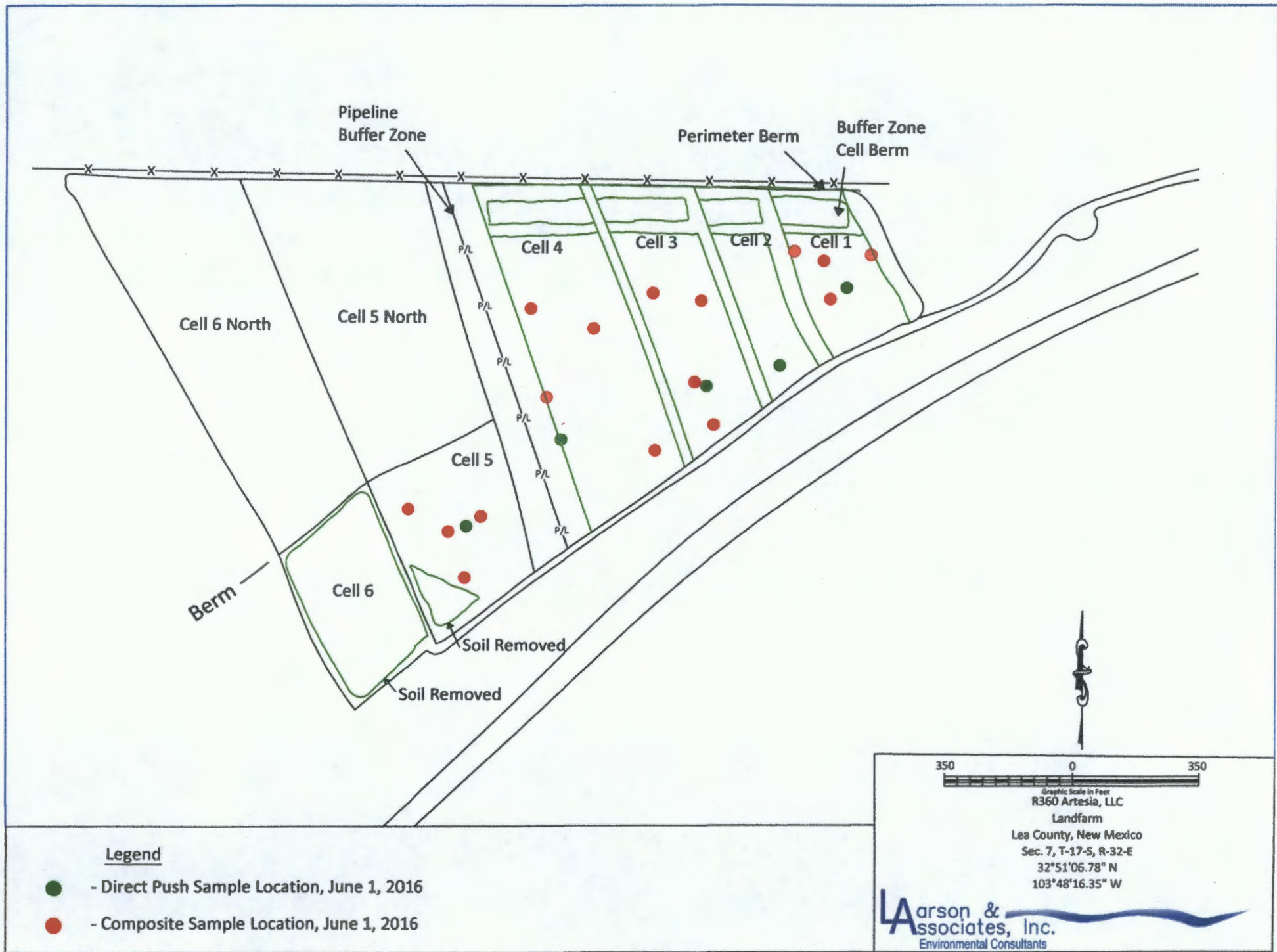


Figure 4 - Site Map Showing Direct Push and Composite Sample Locations, June 1, 2016



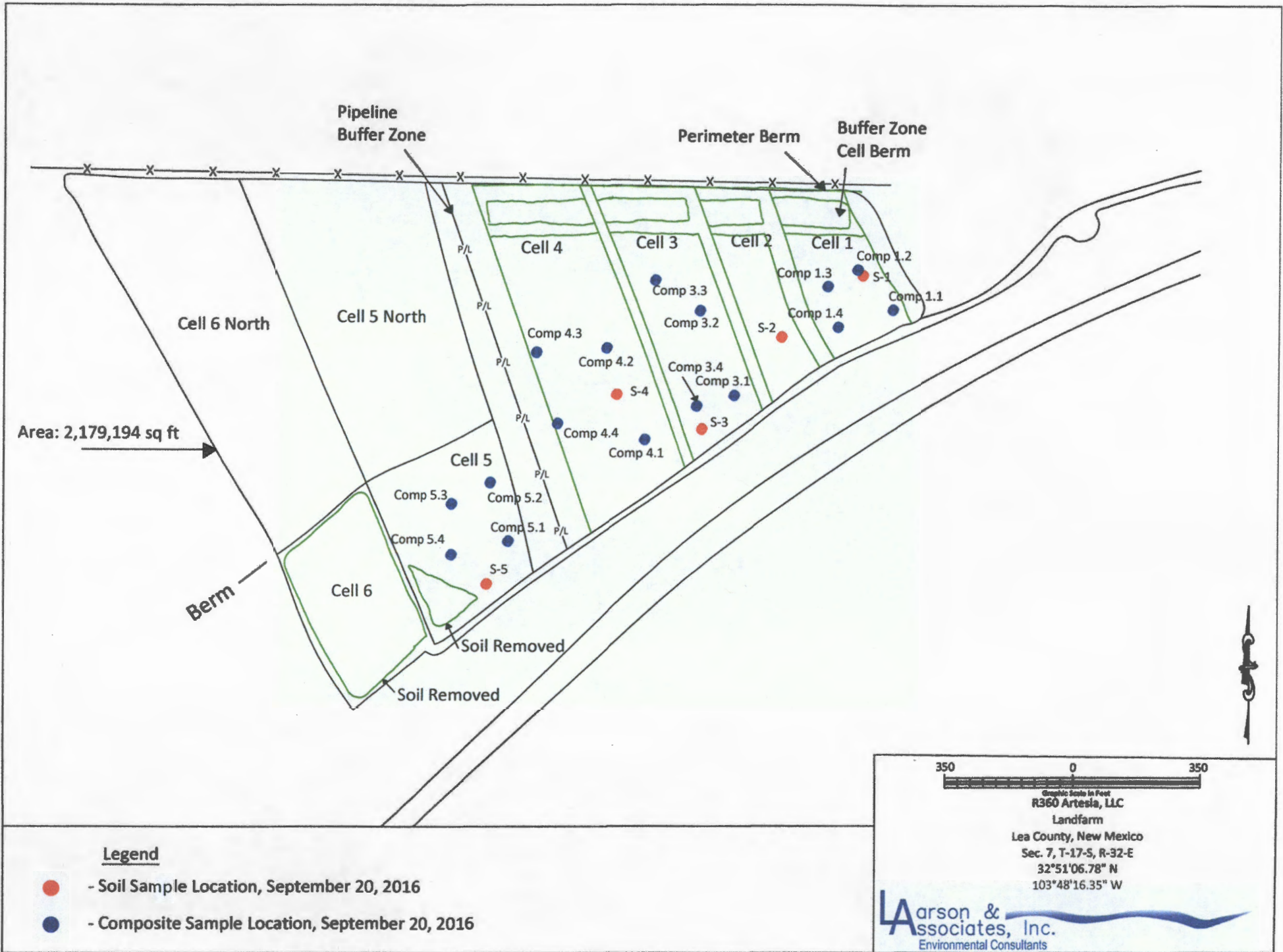


Figure 3 - Site Map Showing Sample Locations, September 20, 2016

## **Tables**

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

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

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

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

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

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

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

2. Depth in feet within treated soil layer

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

Cell	Date	Depth (feet)	Benzene (mg/Kg)	BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	ORO (mg/Kg)	TPH (mg/Kg)	TRPH (mg/Kg)	Chloride (mg/Kg)
<b>Permitted Level:</b>			<b>0.2</b>	<b>50</b>				<b>500</b>	<b>2,500</b>	<b>1,000</b>
<b>1</b>	03/16/2016	0 - 1	<0.00472	<0.0472	<0.190	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
<b>2</b>	03/16/2016	0 - 1	*	*	*	*	*	*	*	*
	06/01/2016	0 - 1	*	*	*	*	*	*	*	*
	09/20/2016	0 - 1	*	*	*	*	*	*	*	*
<b>3</b>	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
<b>4</b>	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
<b>5</b>	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
<b>6</b>	03/16/2016	0 - 1	**	**	**	**	**	**	**	**
	06/01/2016	0 - 1	**	**	**	**	**	**	**	**
	09/20/2016	0 - 1	**	**	**	**	**	**	**	**

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

**Appendix A**  
**Laboratory Report**  
**(June 1, 2016)**



June 15, 2016

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

Order No.: 1606029

Dear Mark Larson:

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

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

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

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

Sincerely,

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

John DuPont  
General Manager

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





# Table of Contents

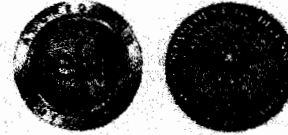
<b>Miscellaneous Documents .....</b>	<b>3</b>
<b>CaseNarrative 1606029 .....</b>	<b>7</b>
<b>WorkOrderSampleSummary 1606029 .....</b>	<b>8</b>
<b>PrepDatesReport 1606029 .....</b>	<b>9</b>
<b>AnalyticalDatesReport 1606029 .....</b>	<b>12</b>
<b>Analytical Report 1606029 .....</b>	<b>15</b>
<b>AnalyticalQCSummaryReport 1606029 .....</b>	<b>24</b>







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



No 70820  
**CHAIN-OF-CUSTODY**

CLIENT: Carroll & Associates  
 ADDRESS: 507 N. Main St  
 PHONE: (412) 777-7777 FAX/E-MAIL: \_\_\_\_\_  
 DATA REPORTED TO: MAIL ROOM  
 ADDITIONAL REPORT COPIES TO: Carroll House

DATE: 06/02/2016 PAGE 1 OF 1  
 PO #: \_\_\_\_\_ DHL WORK ORDER #: \_\_\_\_\_  
 PROJECT LOCATION OR NAME: R360 Artesia Landfill  
 CLIENT PROJECT #: 15-0111-01 COLLECTOR: Travis Williams/Carroll House

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION					ANALYSES	FIELD NOTES						
							HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> □ NaOH □	ICE	UNPRESERVED								
Comp 1		6/2/16	11:45	Soil	plastic	1				X	X	X						Chloride by method 800	
Comp 2																			
Comp 3																			
Comp 4																			
Comp 5																			
DPE (2- <sup>3</sup> CH)																			
DPE (2- <sup>3</sup> CH)																			
DPE (2- <sup>3</sup> CH)																			
DPE (2- <sup>3</sup> CH)																			
DPE (2- <sup>3</sup> CH)																			
DPE (2- <sup>3</sup> CH)																			

RELINQUISHED BY: (Signature) <u>Carroll House</u>	DATE/TIME: <u>06/02/16 9:30</u>	RECEIVED BY: (Signature)	<b>TURN AROUND TIME</b> RUSH <input type="checkbox"/> CALL FIRST 1 DAY <input type="checkbox"/> CALL FIRST 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> _____	<b>LABORATORY USE ONLY:</b> RECEIVING TEMP: _____ THERM #: _____ CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED CARRIER: <input type="checkbox"/> LONE STAR <input type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> OTHER <input type="checkbox"/> COURIER DELIVERY <input type="checkbox"/> HAND DELIVERED
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)		

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 Airbill No. 49614865



49614865

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<b>1. To:</b> <small>Print Name (Person)</small> <b>T. Barker</b> <small>Phone (Important)</small> <small>Company Name</small> <b>DHL Analytical</b> <small>Street Address (No P.O. Box or P.O. Box Zip Code) Delivery</small> <b>2200 Double Creek Drive</b> <small>Suite / Floor</small> <b>Round Rock, TX 78664</b>		<b>2. From:</b> <small>Print Name (Person)</small> <b>LARSON &amp; ASSOCIATES</b> <small>Phone (Important)</small> <b>492-687-0901</b> <small>Company Name</small> <b>LARSON &amp; ASSOCIATES</b> <small>Street Address</small> <b>507 WEST WATKINSHALL</b> <small>Suite / Floor</small> <b>INDIANAPOLIS, IN 46201</b>	
<b>3. Service:</b> <small>Visit <a href="http://www.lso.com">www.lso.com</a> for availability of services to your destination and enjoy added features by creating your shipping label online.</small> <input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. next day</small> <input type="checkbox"/> <b>LSO Ground</b> <input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small> <input type="checkbox"/> <b>LSO Saturday*</b> <input type="checkbox"/> <b>Other</b> _____ <small>*Check commitment times and availability at <a href="http://www.lso.com">www.lso.com</a></small> <input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small> <input type="checkbox"/> <b>LSO 2nd Day*</b> <small>Assumed LSO Priority Overnight service unless otherwise noted.</small> <input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>  <small>Release Signature</small>  <small>L x W x H</small>		<b>4. Package:</b> <small>Weight:</small> <b>7.0</b> <small>Your Company's Billing Reference Information</small>  <small>Ship Date: (m/d/yyyy)</small> / / <b>5. Payment:</b>  <small>FOR DRIVER USE ONLY</small> <small>Driver Number:</small> <b>107</b> <input type="checkbox"/> <small>Check here if LSO Supplies are used with LSO Ground Service.</small> <small>Pick-up Location:</small> <b>101 2116</b> <small>Date:</small> <b>10/21/16</b> <small>Time:</small> <small>City Code:</small> <b>IND</b>	

LIMIT OF LIABILITY: We are not responsible for claims in excess of \$100 for any reason unless you: 1) declare a greater value for your shipment. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages without obtaining a delivery signature. Visit [www.lso.com](http://www.lso.com) for more information.

**GUSTODY SEAL**  
 DATE **10-02-2016**  
 SIGNATURE *[Signature]*



DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 8/3/2016

Work Order Number 1606029

Received by JB

Checklist completed by:

*[Handwritten Signature]*

Signature

6/3/2016

Date

Reviewed by

*[Handwritten Initials]*

Initials

6/3/2016

Date

Carrier name LoneStar

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

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

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

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

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

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

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

**CASE NARRATIVE**

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

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

**LOG IN**

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

**DRO/ORO ANALYSIS**

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

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

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

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

**DHL Analytical, Inc.**

**Date: 15-Jun-16**

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

**Work Order Sample Summary**

---

<b>Lab Smp ID</b>	<b>Client Sample ID</b>	<b>Tag Number</b>	<b>Date Collected</b>	<b>Date Recved</b>
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

**DHL Analytical, Inc.**

Date: 15-Jun-16

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

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

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

**Qualifiers:**

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

**Appendix B**  
**Laboratory Report**  
**(September 20,2016)**





September 30, 2016

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

TEL: (432) 687-0901

FAX (432) 687-0456

Order No.: 1609206

RE: R360 Artesia Aeration Landfarm NM

Dear Mark Larson:

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

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

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

Sincerely,

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

John DuPont  
General Manager

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



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**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: Larsen & Associates  
 ADDRESS: 507 N. Marionfield St. Ste 205, Midland Tx  
 PHONE: 432 687 0901 FAX/E-MAIL: marks@LAnvironmental.com  
 DATA REPORTED TO: marks@LAnvironmental.com  
 ADDITIONAL REPORT COPIES TO:

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

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

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

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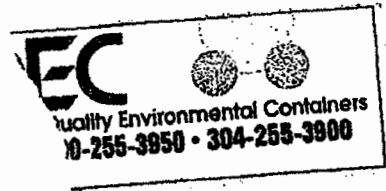
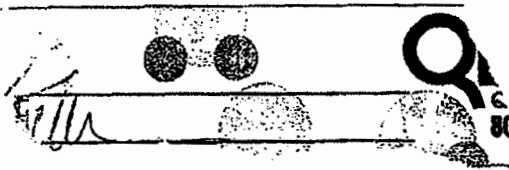
Airbill No. 49614848



49614848

<b>1. To:</b> <small>Print Name (Person)</small> <b>Jo Barker</b> <small>Phone (Important)</small> <b>(512) 325-8222</b>		<b>2. From:</b> <small>Print Name (Person)</small> <b>IPSON &amp; ASSOCIATES</b> <small>Phone (Important)</small> <b>332-607-0901</b>	
<small>Company Name</small> <b>DAL Analytical</b>		<small>Company Name</small> <b>IPSON &amp; ASSOCIATES</b>	
<small>Street Address (No P.O. Box or P.O. Box Zip Code Deliveries)</small> <b>2300 Double Creek Drive</b>		<small>Street Address</small> <b>801 NORTH WAREFIELD</b>	
<small>Suite / Floor</small> 		<small>Suite / Floor</small> 	
<small>City</small> <b>Round Rock</b>	<small>State</small> <b>Tx</b>	<small>City</small> <b>MEMPHIS</b>	<small>State</small> <b>TN</b>
<small>Zip</small> <b>78664</b>		<small>Zip</small> <b>38101</b>	
<b>3. Service:</b> <small>Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.</small>		<b>4. Package:</b> <small>Weight:</small>	
<input checked="" type="checkbox"/> <b>LSO Priority Overnight*</b> <small>By 10:30 a.m. to most cities</small>		<input type="checkbox"/> <b>LSO Ground</b>	
<input type="checkbox"/> <b>LSO Early Overnight*</b> <small>By 8:30 a.m. select cities</small>		<input type="checkbox"/> <b>LSO Saturday*</b>	
<input type="checkbox"/> <b>LSO Economy Next Day*</b> <small>By 3 p.m. to most cities</small>		<input type="checkbox"/> <b>Other</b> _____	
<input type="checkbox"/> <b>LSO 2nd Day*</b>		<small>*Check commitment times and availability of www.lso.com</small>	
<input type="checkbox"/> <b>Deliver Without Delivery Signature (See Limits of Liability below)</b>		<small>Assumed LSO Priority Overnight service unless otherwise noted.</small>	
<small>Release Signature</small>  		<b>FOR DRIVER USE ONLY</b>	
		<small>Your Company's Billing Reference Information</small> 	
		<small>Ship Date: (mm/dd/yyyy)</small> <b>07/31/76</b>	
		<small>Driver Number</small> _____	
		<input type="checkbox"/> <b>Check here if LSO Supplies are used with LSO Ground Service.</b>	
		<small>Pick-up Location</small> _____	
		<small>Date:</small> _____	
		<small>Time:</small> _____	
		<small>City Code:</small> _____	
		<b>5. Payment:</b>	

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



DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 9/22/2016

Work Order Number 1809208

Received by JT

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

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

Carrier name LoneStar

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

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

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

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

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

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

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

**CASE NARRATIVE**

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

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

**LOG IN**

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

**VOLATILE ORGANICS BY GC AND GRO ANALYSIS**

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

**DRO ANALYSIS**

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

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

**TRPH ANALYSIS**

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

---

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

**CASE NARRATIVE**

---

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

**DHL Analytical, Inc.**

Date: 30-Sep-16

<b>CLIENT:</b> Larson & Associates	<b>Client Sample ID:</b> Cell 1 Comp
<b>Project:</b> R360 Artesia Aeration Landfarm NM	<b>Lab ID:</b> 1609206-04
<b>Project No:</b> 15-0121-01	<b>Collection Date:</b> 09/20/16 11:15 AM
<b>Lab Order:</b> 1609206	<b>Matrix:</b> SOIL

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

**Qualifiers:**

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



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(s) of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): **Cell 2**.

Based on the information and data provided in the request, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s) with the following understandings and conditions:

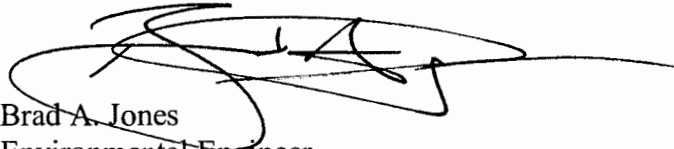
1. R360 Artesia, LLC must initiate tilling, treatment zone monitoring, and resume vadose zone monitoring with the addition of successive lifts. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.
2. R360 Artesia, LLC shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), all conditions specified in this approval, and shall operate in accordance with the November 19, 2014 Plan 1 submittal;
3. R360 Artesia, LLC shall compare vadose zone monitoring results to the background results or PQL (whichever is higher) in order to determine if a release had occurred and if additional follow-up actions of 19.15.36.15.E.(5) NMAC are required to be completed; and
4. R360 Artesia, LLC shall obtain written approval from OCD prior to implementing any changes to the November 19, 2014 Plan 1 submittal.

R360 Artesia, LLC  
Permit NM1-030  
March 23, 2015  
Page 2 of 2

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read 'Brad A. Jones', written over a circular scribble.

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX  
79701

**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).

March 20, 2015  
R360 Artesia, LLC  
Cell #2 Lift Request  
Page 2

Sincerely,  
**Larson & Associates, Inc.**

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

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	--
Xylene	0.003	<0.003	--
BTEX	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	
TPH (C6-C35)	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

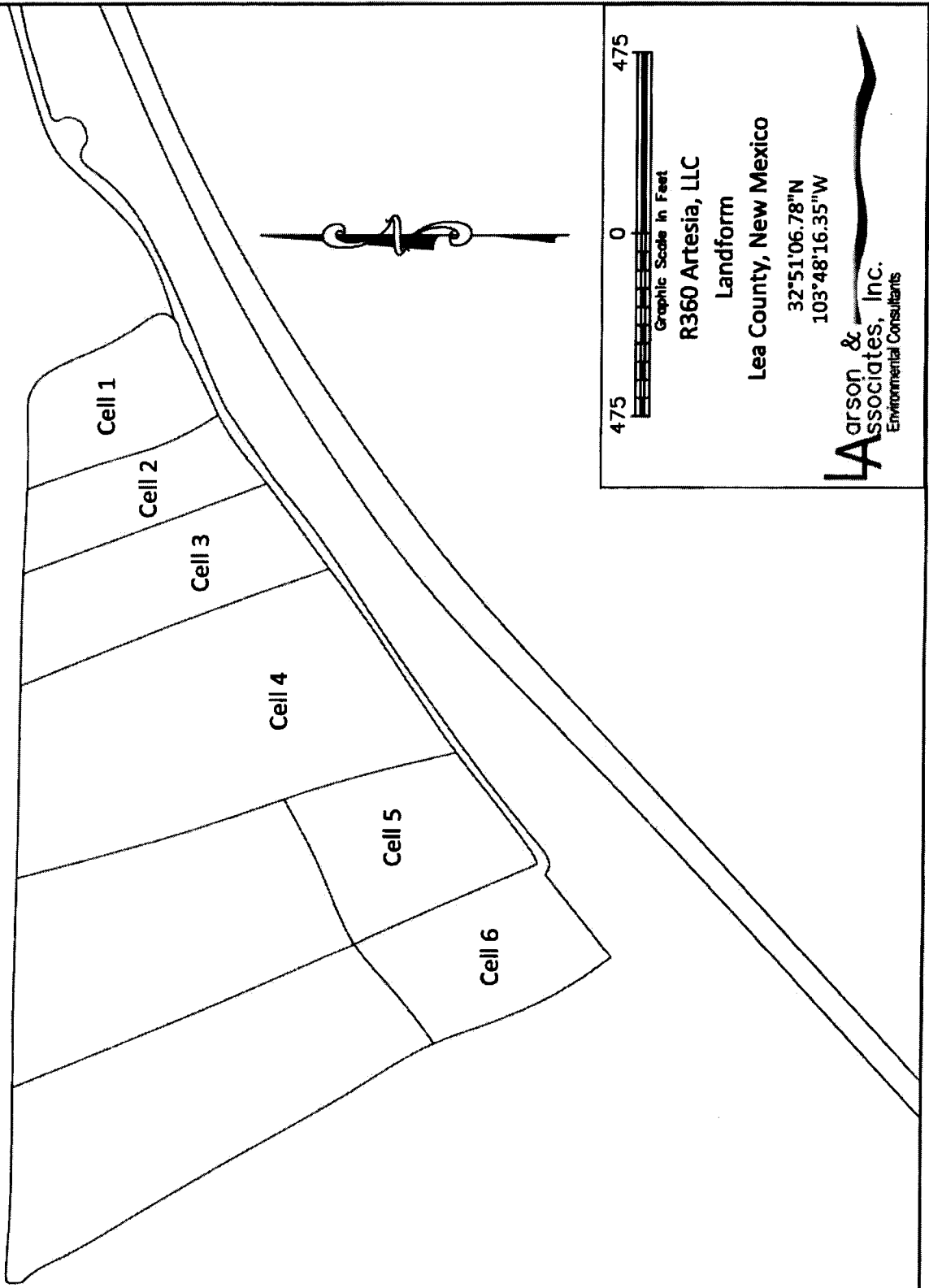
Chloride analysis performed by EPA method 300.1

1. <: Less than reporting limit

2. Depth in feet below top of treated soil layer

**FIGURES**





475 0 475  
Graphic Scale in Feet

R360 Artesia, LLC

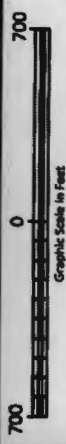
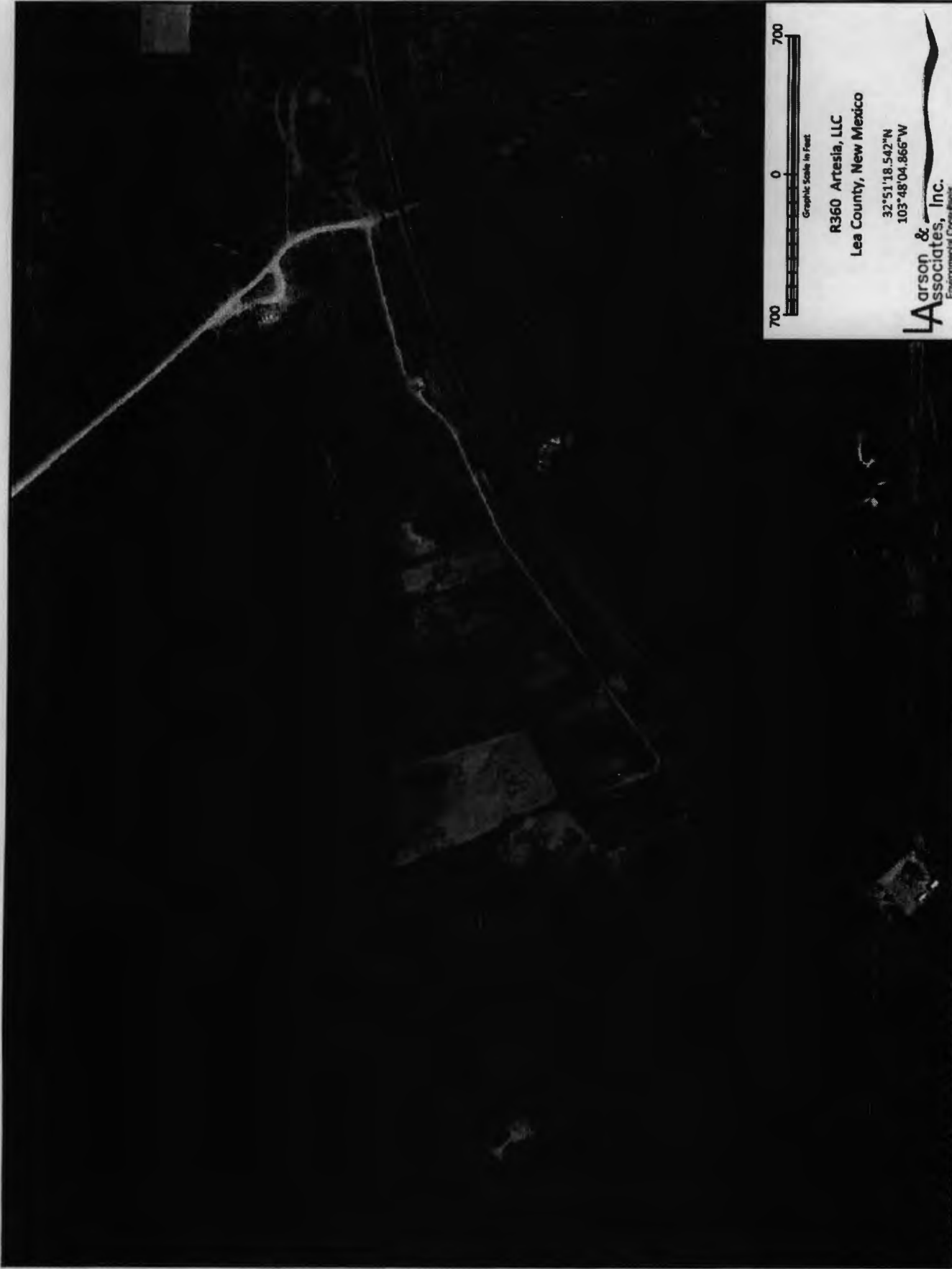
Landform

Lea County, New Mexico

32°51'06.78"N  
103°48'16.35"W

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

Figure 1 - Site Drawing



R360 Artesia, LLC  
Lea County, New Mexico

32°51'18.542"N  
103°48'04.866"W

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

Figure 2- Aerial Map and Sample Location

**APPENDIX A**

**Laboratory Report  
(March 6, 2015)**

**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: 15-0121-01  
Location: New Mexico  
Lab Order Number: 5C09001



**NELAP/TCEQ # T104704156-13-3**

**Report Date: 03/20/15**

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

Project: R 360 Landfarm  
Project Number: 15-0121-01  
Project Manager: Coty Woolf

Fax: (432) 687-0456

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	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.

**Cell 2**  
**5C09001-01 (Soil)**

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

**Organics by GC**

Benzene	ND	0.00100	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	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
Xylene (p/m)	ND	0.00200	mg/kg dry	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
Xylene (o)	ND	0.00100	mg/kg dry	1	P5C1110	03/10/15	03/10/15	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.5 %	75-125		P5C1110	03/10/15	03/10/15	EPA 8021B	

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

Chloride	4.95	1.00	mg/kg dry	1	P5C1104	03/10/15	03/10/15	EPA 300.0	
% Moisture	ND	0.1	%	1	P5C1012	03/10/15	03/11/15	% calculation	
TPH 418.1	373	10.0	mg/kg dry	10	P5C1201	03/12/15	03/12/15	EPA 418.1	

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

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	ND	25.0	mg/kg dry	1	P5C1107	03/10/15	03/10/15	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		93.0 %	70-130		P5C1107	03/10/15	03/10/15	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		101 %	70-130		P5C1107	03/10/15	03/10/15	TPH 8015M	
<b>Total Petroleum Hydrocarbons C6-C35</b>	<b>36.2</b>	<b>25.0</b>	<b>mg/kg dry</b>	<b>1</b>	<b>[CALC]</b>	<b>03/10/15</b>	<b>03/10/15</b>	<b>calc</b>	

Larson & Associates, Inc.  
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.**

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

**Batch P5C1110 - General Preparation (GC)**

**Blank (P5C1110-BLK1)**

Prepared & Analyzed: 03/10/15

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 4-Bromofluorobenzene	52.2		ug/kg	50.0		104	75-125			

**LCS (P5C1110-BS1)**

Prepared & Analyzed: 03/10/15

Benzene	0.0865	0.00100	mg/kg wet	0.0700		124	70-130			
Toluene	0.0815	0.00200	"	0.0700		116	70-130			
Ethylbenzene	0.0836	0.00100	"	0.0700		119	70-130			
Xylene (p/m)	0.143	0.00200	"	0.140		102	70-130			
Xylene (o)	0.0680	0.00100	"	0.0700		97.2	70-130			
Surrogate: 4-Bromofluorobenzene	55.9		ug/kg	50.0		112	75-125			

**LCS Dup (P5C1110-BSD1)**

Prepared & Analyzed: 03/10/15

Benzene	0.0885	0.00100	mg/kg wet	0.0700		126	70-130	2.26	20	
Toluene	0.0836	0.00200	"	0.0700		119	70-130	2.47	20	
Ethylbenzene	0.0861	0.00100	"	0.0700		123	70-130	2.91	20	
Xylene (p/m)	0.147	0.00200	"	0.140		105	70-130	2.84	20	
Xylene (o)	0.0721	0.00100	"	0.0700		103	70-130	5.81	20	
Surrogate: 4-Bromofluorobenzene	52.0		ug/kg	50.0		104	75-125			

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

Larson & Associates, Inc.  
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.**

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

**Batch P5C1012 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P5C1012-BLK1)</b>		Prepared & Analyzed: 03/10/15								
% Moisture	ND	0.1	%							
<b>Duplicate (P5C1012-DUP1)</b>		Source: 5C09006-01 Prepared: 03/10/15 Analyzed: 03/11/15								
% Moisture	4.0	0.1	%		3.0			28.6	20	
<b>Duplicate (P5C1012-DUP2)</b>		Source: 5C09014-01 Prepared: 03/10/15 Analyzed: 03/11/15								
% Moisture	6.0	0.1	%		6.0			0.00	20	
<b>Duplicate (P5C1012-DUP3)</b>		Source: 5C10003-07 Prepared: 03/10/15 Analyzed: 03/11/15								
% Moisture	3.0	0.1	%		4.0			28.6	20	

**Batch P5C1104 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P5C1104-BLK1)</b>		Prepared & Analyzed: 03/10/15								
Chloride	ND	1.00	mg/kg wet							
<b>LCS (P5C1104-B81)</b>		Prepared & Analyzed: 03/10/15								
Chloride	104	1.00	mg/kg wet	125		83.0	80-120			
<b>LCS Dup (P5C1104-B8D1)</b>		Prepared & Analyzed: 03/10/15								
Chloride	103	1.00	mg/kg wet	125		82.0	80-120	1.24	20	
<b>Duplicate (P5C1104-DUP1)</b>		Source: 5C09001-01 Prepared & Analyzed: 03/10/15								
Chloride	5.59	1.00	mg/kg dry		4.95			12.1	20	
<b>Duplicate (P5C1104-DUP2)</b>		Source: 5C09004-04 Prepared & Analyzed: 03/10/15								
Chloride	3020	11.5	mg/kg dry		3080			1.73	20	

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

10014 SCR 1213 Midland, TX 79706 432-686-7235



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

Project: R 360 Landfarm  
Project Number: 15-0121-01  
Project Manager: Coty Woolf

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>Batch P5C1107 - TX 1005</b>										
<b>Blank (P5C1107-BLK1)</b>										
Prepared & Analyzed: 03/10/15										
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	78.8		"	100		78.8	70-130			
Surrogate: o-Terphenyl	43.5		"	50.0		87.1	70-130			
<b>LCS (P5C1107-BS1)</b>										
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		"	100		99.5	70-130			
Surrogate: o-Terphenyl	43.0		"	50.0		86.0	70-130			
<b>LCS Dup (P5C1107-BSD1)</b>										
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: 1-Chlorooctane	98.0		"	100		98.0	70-130			
Surrogate: o-Terphenyl	44.1		"	50.0		88.3	70-130			
<b>Duplicate (P5C1107-DUP1)</b>										
Source: 5C09012-02 Prepared & Analyzed: 03/10/15										
C6-C12	ND	29.8	mg/kg dry		ND				20	
>C12-C28	ND	29.8	"		33.5				20	
Surrogate: 1-Chlorooctane	131		"	119		110	70-130			
Surrogate: o-Terphenyl	74.6		"	59.5		125	70-130			

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

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

Project: R 360 Landfarm  
Project Number: 15-0121-01  
Project Manager: Coty Woolf

Fax: (432) 687-0456

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

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.

Data Reported to:

DATE: 3/9/15 PAGE 1 OF 14  
PO #: \_\_\_\_\_ LAB WORK ORDER #: R360  
PROJECT LOCATION OR NAME: \_\_\_\_\_ COLLECTOR: Langford  
LA PROJECT #: 15-0121-01

CHAIN-OF-CUSTODY

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	TIME ZONE: Time zone/State: <u>NM</u>	Field Sample I.D. <u>Cell 2</u>	Lab # <u>01</u>	Date <u>3/6/15</u>	Time <u>2:00 PM</u>	Matrix <u>S</u>	# of Containers <u>2</u>	PRESERVATION HCl HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> ICE UNPRESERVED	ANALYSES BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> TPH #18.1 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> TPH 1006 <input type="checkbox"/> GASOLINE MOD 8015 <input type="checkbox"/> DIESEL - MOD 8015 <input type="checkbox"/> VOC - MOD 8015 <input type="checkbox"/> SVOC 8270 <input type="checkbox"/> 8081 PESTICIDES <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/> 8082 PCBs <input type="checkbox"/> TCLP - METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/> TOTAL METALS (RCRA) <input type="checkbox"/> OTHER LIST <input type="checkbox"/> LEAD - TOTAL <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> TCLP <input type="checkbox"/> RCl <input type="checkbox"/> TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/> TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/> PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/> EXPLOSIVES <input type="checkbox"/> PERCHLORATE <input type="checkbox"/> CHLORIDE <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>3/9/15 11:30</u>	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>3/9/15 11:30</u>	RECEIVED BY: (Signature)	TURN AROUND TIME NORMAL <input type="checkbox"/> 1 DAY <input checked="" type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>	LABORATORY USE ONLY: RECEIVING TEMP. <u>3.12</u> THERM #: _____ CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL # _____ <input type="checkbox"/> HAND DELIVERED				



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

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 [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

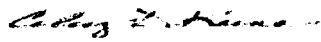
Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 12-Mar-15 11:50
--	---	------------------------------

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5C09001-01	H500638-01	Soil	06-Mar-15 14:00	09-Mar-15 13:30

Cardinal Laboratories

\* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's recourse remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether the claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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
--	---	------------------------------

**5C09001-01**  
**H500638-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

**Cardinal Laboratories**

**Organic Compounds**

TPH 418.1	373		100	mg/kg	10	5031201	CK	12-Mar-15	418.1	
-----------	-----	--	-----	-------	----	---------	----	-----------	-------	--

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Permian Basin Environmental Lab, LP 10014 SCR 1213 Midland TX, 79706	Project: SOIL SAMPLES Project Number: NONE GIVEN Project Manager: Brent Barron Fax To: Not Given	Reported: 12-Mar-15 11:50
--	---	------------------------------

**Organic Compounds - Quality Control**

**Cardinal Laboratories**

Analytic	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%RBC Limits	RPD	RPD Limit	Notes
<b>Batch 5031201 - Solvent Extraction</b>										
<b>Blank (5031201-B1.K1)</b>				Prepared & Analyzed: 12-Mar-15						
TPH 418.1	ND	100	mg/kg							
<b>LCS (5031201-BB1)</b>				Prepared & Analyzed: 12-Mar-15						
TPH 418.1	6220	100	mg/kg	3000		124	70-130			
<b>LCS Dup (5031201-BSD1)</b>				Prepared & Analyzed: 12-Mar-15						
TPH 418.1	6250	100	mg/kg	3000		125	70-130	0.449	20	
<b>Matrix Spike (5031201-MB1)</b>				Source: H500638-01		Prepared & Analyzed: 12-Mar-15				
TPH 418.1	6770	100	mg/kg	3000	373	128	70-130			
<b>Matrix Spike Dup (5031201-MSD1)</b>				Source: H500638-01		Prepared & Analyzed: 12-Mar-15				
TPH 418.1	6780	100	mg/kg	3000	373	128	70-130	0.0443	20	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**


ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\* = Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager





CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Permian Basin Environmental Lab, LP  
10014 S. County Road 1213  
Midland, Texas 79706

Phone: 432-661-4184

Project Manager: Brent Barron  
Company Name: PBEI  
Company Address: 10014 SCR 1213  
City/State/Zip: Midland Texas  
Telephone No: 432-661-4184

Project Name: SUBCONTRACT  
Project #: [Blank]  
Project Loc: [Blank]  
Fax No: [Blank]  
e-mail: brentbarron@pbeilab.com

Report Format: Standard  TRRP  NPDES

ORDER #: H5001638

LAB # (lab use only)	FIELD CODE		Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers <input checked="" type="checkbox"/> Ice <input type="checkbox"/> HNO <sub>3</sub> 2% 1L only 1 500ML Poly <input type="checkbox"/> HCl <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> <input type="checkbox"/> None <input type="checkbox"/> Other (Specify)	Matrix DW=Drinking Water SL=Sludge GW = Groundwater S= Soil/Solid NP=Not Potable Specify Other	Analyze For:	
	1	5C09001-01			03/08/15	1400		1				
Special Instructions:												
Reinquished by:	Brent Barron	Date	5-9-15	Time	1200	Received by:	Wari Hendon	Date	3/9/15	Time	1:30	Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace? Labels on container(s) Custody seals on container(s) Sample Hand Delivered by Courier? UPS Temperature Upon Receipt: 2.6 °C Adjusted: °C Factor
Reinquished by:		Date		Time		Received by:		Date		Time		

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

Jami Bailey, Division Director  
Oil Conservation Division



October 21, 2014

Wayne Crawley  
R360 Environmental Solutions, LLC  
3 Waterway Square Place, Suite 110  
The Woodlands, Texas 77380

**RE: Request for Approval to Apply a Successive Lift  
Permit NM1 – 030: Commercial Surface Waste Management Facility  
R360 Artesia, LLC – R360 Artesia, LLC Landfarm  
Facility Location: Unit A of Section 7, Township 17 South, Range 32 East NMPM  
Lea County, New Mexico**

Dear Mr. Crawley:

The Oil Conservation Division (OCD) has received and reviewed Larson & Associates, Inc.'s email request, dated October 20, 2014 and submitted on the behalf of R360 Artesia, LLC to grant approval to apply an additional six-inch lift to the following cell(s): **Cell 1**.

Based upon the analytical results provided, OCD hereby grants R360 Artesia, LLC approval to apply an additional six-inch lift of contaminated soils to the above referenced landfarm cell(s). Also, please note that with the addition of successive lifts R360 Artesia, LLC must initiate tilling and treatment zone monitoring and resume vadose zone monitoring. The vadose zone monitoring depth must be adjusted to reach the 2-3 foot zone below the original native ground surface.

Please be advised that approval of this request does not relieve R360 Artesia, LLC of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve R360 Artesia, LLC of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Brad A. Jones", is written over a large, stylized scribble.

Brad A. Jones  
Environmental Engineer

BAJ/baj

Cc: OCD District I Office, Hobbs  
Mark Larson, Larson & Associates, Inc., 507 North Marienfeld, Suite 200, Midland, TX 79701

**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 )





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-inch lift, 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).

October 20, 2014  
R360 Artesia, LLC  
Cell 1 Lift Request  
Page 2

Sincerely,  
Larson & Associates, Inc.

A handwritten signature in black ink, appearing to be 'Mark Larson', written over a faint circular stamp or watermark.

Mark Larson  
mark@laenvironmental.com

cc: Wayne Crawley  
Midland Office

**TABLES**

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

Cell	Sample ID	Date	Depth	RL	Benzene	RL	Ethylbenzene	RL	Toluene	RL	Xylenes	RL	BTEX	RL	DRO	RL	GRO	TPH	RL	TRPH	RL	Chloride	
	1	09/29/2014	0 - 1	0.00487	<0.00487	0.0146	<0.0146	0.0146	<0.0146	0.0146	<0.0146	0.0146	<0.00487	10.3	36.0	0.192	<0.0958	36.0	10.2	48.6	46.3	<46.3	
					10								50					100				1,000	

Notes: Analysis performed by DHL Analytical, Inc., Round Rock, Texas  
 Background analysis was performed by SW846 method 8260B  
 RL: Reporting limit (equivalent to practical quantification limit (PQL))  
 BTEX analysis performed by SW-846 method 8021B  
 TPH analysis performed by SW-846 method 8015M  
 FPH analysis performed by SW-846 method 418.1  
 1: c: Less than reporting limit  
 2: Depth in feet below top of treated soil layer  
 3: -: No data available

## FIGURES



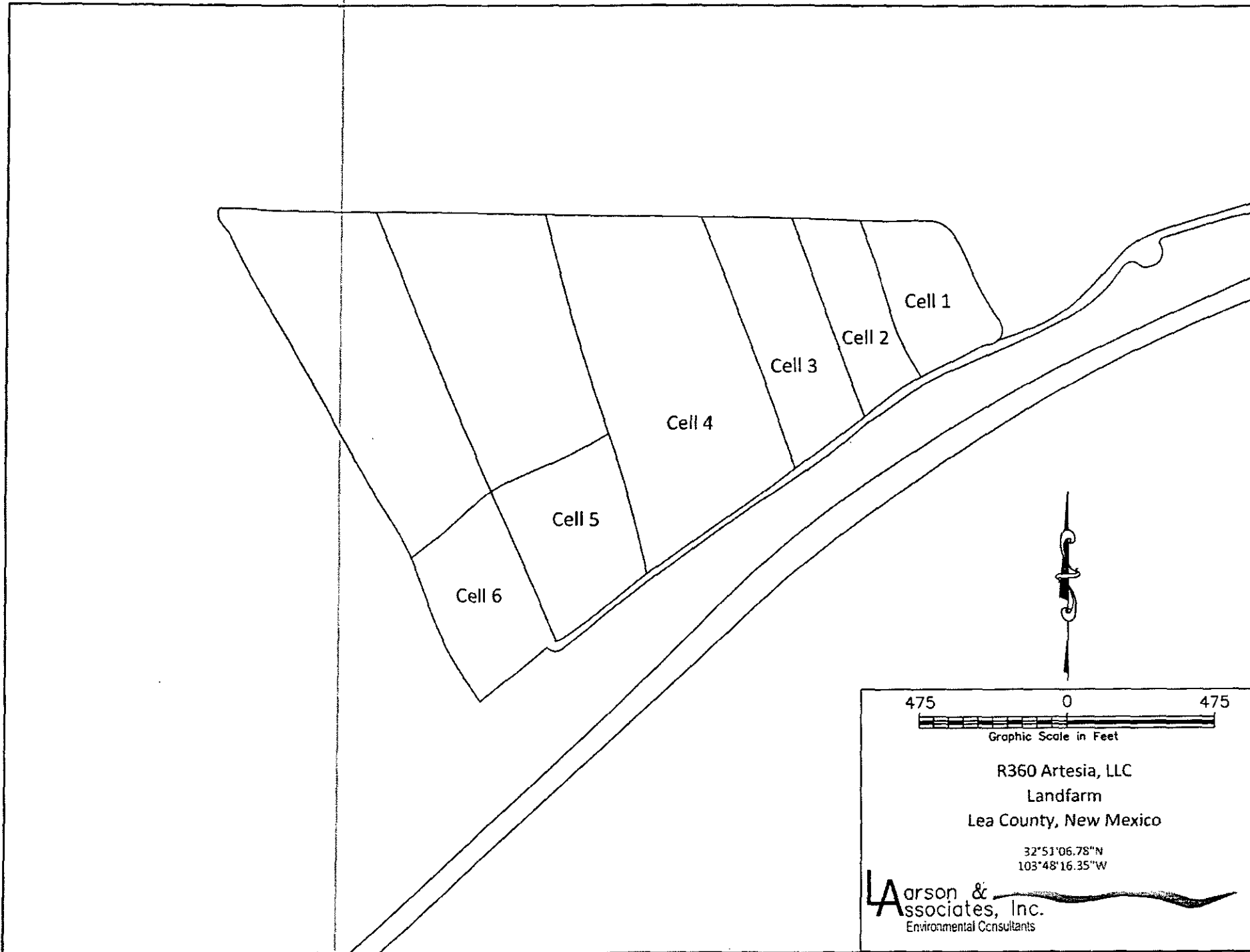


Figure 1 - Site Drawing



Figure 2- Aerial Map and Sample Location

**APPENDIX A**

**Laboratory Report  
(September 29, 2014)**



October 16, 2014

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

Order No.: 1410030

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,

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

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification  
Number: T104704211-14-12



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<b>PrepDatesReport 1410030 .....</b>	<b>9</b>
<b>AnalyticalDatesReport 1410030 .....</b>	<b>12</b>
<b>Analytical Report 1410030 .....</b>	<b>15</b>
<b>AnalyticalQCSummaryReport 1410030 .....</b>	<b>27</b>



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 52397  
 CHAIN-OF-CUSTODY

CLIENT: LAI  
 ADDRESS: \_\_\_\_\_  
 PHONE: \_\_\_\_\_ FAX/E-MAIL: \_\_\_\_\_  
 DATA REPORTED TO: COTG WOLF  
 ADDITIONAL REPORT COPIES TO: MARK LAWSON

DATE: 10-2-14 PAGE 1 OF 1  
 PO #: \_\_\_\_\_ DHL WORK ORDER #: 1410030  
 PROJECT LOCATION OR NAME: R360  
 CLIENT PROJECT #: 11-0109-07 COLLECTOR: BW

Authorize 5% surcharge for TRRP Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL P=PAINT W=WATER SL=SLUDGE A=AIR O=OTHER L=LIQUID SO=SOLID		PRESERVATION HCl HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> NaOH ICE UNPRESERVED										ANALYSES BTEX ■ MTBE ■ (METHOD 8021) ■ TPH 1005 ■ TPH 1006 ■ HOLD 1006 ■ GRO (METHOD 8015) ■ GRO (METHOD 8105) ■ VOC 8240 ■ VOC 8241 ■ VOC 8242 ■ HOLD 8242 ■ SVOC 8250 ■ 8081 TEST ■ 6088 TEST ■ PCP ■ 8270 PEST ■ 8270 COP PEST ■ 8082 PCB ■ 8270 PCB ■ METALS 8020 ■ METALS 2008 ■ PERCHLORATE ■ PH ■ HCL CHROM ■ ALKALINITY ■ TCLP-SVOC ■ ANIONS ■ TCLP-METALS ■ VOC ■ PEST ■ HERB ■ RCIO TOXA ■ FLASHPOINT ■ TDS ■ ISS ■ * MOISTURE ■ CYANIDE ■ TPH (AP, P2, 49.1)									
	Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers											FIELD NOTES				
DP-6	01	9-28-14	1:25 PM	S	40Z Jar	2			✓	✓											✓	
DP-5	02		1:50																			
DP-4	03		2:45 PM																			
DP-3	04		3:10 PM																			
DP-2	05		3:40																			
DP-1	04		4:10																			
comp-6	07		1:30 PM																			
comp-5	08		2:00 PM																			
comp-4	05		2:30 PM																			
comp-3	10		3:18 PM																			
comp-2	11		3:55 PM																			
comp-1	12		4:15 PM																			
TOTAL																						

RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME: 10-2-14 5:00 am  
 RECEIVED BY: (Signature) Aronista  
 RELINQUISHED BY: (Signature) Aronista DATE/TIME: 10/3/14  
 RECEIVED BY: (Signature) 833  
 RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME: \_\_\_\_\_  
 RECEIVED BY: (Signature) \_\_\_\_\_

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

LABORATORY USE ONLY:  
 RECEIVING TEMP: 4.3 THERM #: 57  
 CUSTODY SEALS:  BROKEN  INTACT  NOT USED  
 GARRIER BILL #: Lawson  
 APC DELIVERY  
 HAND DELIVERED

DHL DISPOSAL @ \$5.00 each  Return 3

10/2/2014

<https://www.iso.com/weblabels/?labels=0&combinedlabel=1&sessionkey=%7BC71106E1-B8D0-4478-8A00-1A01C11C859%7D>



Airbill No. Z1356029

Lone Star Overnight  
1-800-800-8984  
www.iso.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  
MIDLAND, TX 79701  
4326870901

**E AUS**

**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 Received: 10/3/2014

Work Order Number 1410030

Received by JB

Checklist completed by: Bauer 10/3/2014

Reviewed by: JD 10/3/2014

Carrier name LoneStar

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Container/Temp Blank temperature in compliance? Yes  No  4.3 °C

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #

Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #

Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

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

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

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

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

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



**CLIENT:** Larson & Associates  
**Project:** R360  
**Lab Order:** 1410030

**CASE NARRATIVE**

In this report, the RL is equal to the PQL 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 re-analysis. 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:** 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.

**DHL Analytical, Inc.**

Date: 16-Oct-14

**CLIENT:** Larson & Associates  
**Project:** R360  
**Lab Order:** 1410030

**Work Order Sample Summary**

---

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
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	Soil	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
1410030-01B	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
1410030-02A	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
1410030-02B	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	SW3550C	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
1410030-03A	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
1410030-03B	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	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-4	09/29/14 02:45 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-04A	DP-3	09/29/14 03:10 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-3	09/29/14 03:10 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-04B	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	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-3	09/29/14 03:10 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-05A	DP-2	09/29/14 03:40 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	DP-2	09/29/14 03:40 PM	Soil	SW5030A	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	SW3550C	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
1410030-06A	DP-1	09/29/14 04:10 PM	Soil	SW5030A	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

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
1410030-06B	DP-1	09/29/14 04:10 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	DP-1	09/29/14 04:10 PM	Soil	SW3550B	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
	COMP-6	09/29/14 01:30 PM	Soil	SW5030A	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
	COMP-6	09/29/14 01:30 PM	Soil	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-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	SW5030A	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
1410030-09A	COMP-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
1410030-09B	COMP-4	09/29/14 02:55 PM	Soil	D2216	Moisture Preparation	10/04/14 03:34 PM	65948
	COMP-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
1410030-10A	COMP-3	09/29/14 03:15 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016
	COMP-3	09/29/14 03:15 PM	Soil	SW5030A	Purge and Trap Soils GC- Gas	10/10/14 10:40 AM	66058
1410030-10B	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	SW3550C	Soil Prep Sonication: DRO	10/06/14 12:50 PM	65965
	COMP-3	09/29/14 03:15 PM	Soil	SW3550B	Soil Prep Sonication: TRPH	10/13/14 09:08 AM	66082
1410030-11A	COMP-2	09/29/14 03:55 PM	Soil	SW5030A	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
1410030-11B	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 Sonication: 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
1410030-12A	COMP-1	09/29/14 04:15 PM	Soil	SW5030A	Purge and Trap Soils GC	10/08/14 03:27 PM	66016

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
1410030-12A	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	66038	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	1	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	66038	1	10/10/14 01:43 PM	GC4_141010A
	DP-5	Soil	SW8021B	Volatile Organics by GC	66016	1	10/08/14 06:06 PM	GC4_141008C
1410030-02B	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	66038	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
1410030-03B	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	1	10/13/14 10:18 AM	IR207_141013A
1410030-04A	DP-3	Soil	M8015V	TPH Purgeable by GC - Soil	66038	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	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:11 PM	GC15_141013A
	DP-3	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
1410030-05A	DP-2	Soil	M8015V	TPH Purgeable by GC - Soil	66038	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	66038	1	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

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
1410030-06B	DP-1	Soil	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:29 PM	GC15_141013A
	DP-1	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
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 Organics 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	M8015D	TPH Extractable by GC - Soil	65965	1	10/13/14 02:56 PM	GC15_141013A
	COMP-6	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 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	1	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	1	10/13/14 03:14 PM	GC15_141013A
	COMP-5	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A
1410030-09A	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	1	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_141006A
	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
1410030-10A	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	1	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	1	10/13/14 02:47 PM	GC15_141013A
	COMP-2	Soil	E418.1	TRPH	66082	1	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	COMP-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	65965	1	10/13/14 03:05 PM	GC15_141013A
	COMP-1	Soil	E418.1	TRPH	66082	1	10/13/14 10:18 AM	IR207_141013A

**DHL Analytical, Inc.**

Date: 20-Oct-14

**CLIENT:** Larson & Associates  
**Project:** R360  
**Project No:** 11-0109-07  
**Lab Order:** 1410030

**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
<b>TPH EXTRACTABLE BY GC - SOIL</b>		<b>M8015D</b>		<b>Analyst: AS</b>			
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
<b>TPH PURGEABLE BY GC - SOIL</b>		<b>M8015V</b>		<b>Analyst: AV</b>			
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
<b>VOLATILE ORGANICS BY GC</b>		<b>SW8021B</b>		<b>Analyst: AV</b>			
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
<b>TRPH</b>		<b>E418.1</b>		<b>Analyst: AS</b>			
Petroleum Hydrocarbons, TR	48.6	5.12	10.2	N	mg/Kg-dry	1	10/13/14 10:18 AM
<b>ANIONS BY IC METHOD - SOIL</b>		<b>SW9056A</b>		<b>Analyst: AV</b>			
Chloride	<46.3	46.3	46.3		mg/Kg-dry	10	10/20/14 11:53 AM
<b>PERCENT MOISTURE</b>		<b>D2216</b>		<b>Analyst: JL</b>			
Percent Moisture	4.08	0	0		WT%	1	10/07/14 12:12 PM

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

CLIENT: Larson & Associates  
 Work Order: 1410030  
 Project: R360

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_141013A

Sample ID	ICV-141013	Batch ID:	R75788	TestNo:	M8015D	Units:	mg/Kg			
SampType:	ICV	Run ID:	GC15_141013A	Analysis Date:	10/13/2014 12:31:57 P	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	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:	M8015D	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC15_141013A	Analysis Date:	10/13/2014 3:32:39 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	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:	M8015D	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC15_141013A	Analysis Date:	10/13/2014 5:21:58 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	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>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 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, 1410030-06A, 1410030-07A, 1410030-08A, 1410030-09A, 1410030-10A, 1410030-11A, 1410030-12A

Sample ID	LCS-66016	Batch ID:	66016	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 4:02:29 PM	Prep Date:	10/8/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	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:	SW8021B	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 4:50:55 PM	Prep Date:	10/8/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.00500	0.00500								
Toluene	<0.0150	0.0150								
Ethylbenzene	<0.0150	0.0150								
Xylenes, Total	<0.0150	0.0150								
Surr: Tetrachloroethene	0.191		0.2000		95.7	79	135			

Sample ID	1410030-01AMS	Batch ID:	66016	TestNo:	SW8021B	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 9:46:53 PM	Prep Date:	10/8/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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:	SW8021B	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 10:10:59 PM	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	0	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	DF Dilution Factor	
	J Analyte detected between MDL and RL	MDL Method Detection Limit	
	ND Not Detected at the Method Detection Limit	R RPD outside accepted control limits	
	RL Reporting Limit	S Spike Recovery outside control limits	
	J Analyte detected between SDI and RL	N Parameter not NEI/AC certified	

CLIENT: Larson & Associates  
 Work Order: 1410030  
 Project: R360

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_141008C

Sample ID	ICV-141008	Batch ID:	R75796	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	ICV	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 9:40:34 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: Tetrachloroethene	0.175		0.2000		87.6	79	135			

Sample ID	CCV1-141008	Batch ID:	R75796	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 2:20:09 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: Tetrachloroethene	0.171		0.2000		85.5	79	135			

Sample ID	CCV2-141008	Batch ID:	R75796	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_141008C	Analysis Date:	10/8/2014 11:00:49 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: Tetrachloroethene	0.180		0.2000		89.8	79	135			

Sample ID	CCV3-141008	Batch ID:	R75796	TestNo:	SW8021B	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_141008C	Analysis Date:	10/9/2014 1:27:44 AM	Prep Date:				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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			
Surr: Tetrachloroethene	0.174		0.2000		87.1	79	135			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDI and RI.	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1410030  
 Project: R360

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_141010A

The QC data in batch 66058 applies to the following samples: 1410030-01A, 1410030-02A, 1410030-03A, 1410030-04A, 1410030-05A, 1410030-06A, 1410030-07A, 1410030-08A, 1410030-09A, 1410030-10A, 1410030-11A, 1410030-12A

Sample ID	LCS-66058	Batch ID:	66058	TestNo:	M8015V	Units:	mg/Kg
SampType:	LCS	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 11:39:47 A	Prep Date:	10/10/2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit 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:	M8015V	Units:	mg/Kg
SampType:	MBLK	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 12:51:44 P	Prep Date:	10/10/2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit 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:	M8015V	Units:	mg/Kg-dry
SampType:	MS	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 7:25:41 PM	Prep Date:	10/10/2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics		5.66	0.228	5.711	0	99.1	68 126
Surr: Tetrachlorethene		0.396		0.4569		86.6	70 134

Sample ID	1410030-01AMSD	Batch ID:	66058	TestNo:	M8015V	Units:	mg/Kg-dry
SampType:	MSD	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 7:49:48 PM	Prep Date:	10/10/2014
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual
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:	B Analyte detected in the associated Method Blank	DF Dilution Factor	
	J Analyte detected between MDL and RL	MDL Method Detection Limit	
	ND Not Detected at the Method Detection Limit	R RPD outside accepted control limits	
	RI Reporting Limit	S Spike Recovery outside control limits	
	J Analyte detected between SDI and RL	N Parameter not NELAC certified	

CLIENT: Larson & Associates  
 Work Order: 1410030  
 Project: R360

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_141010A

Sample ID	ICV-141010	Batch ID:	R75799	TestNo:	M8015V	Units:	mg/Kg			
SampType:	ICV	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 11:11:26 A	Prep Date:				
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			
Surr: Tetrachlorethene	0.325		0.4000		81.4	70	134			

Sample ID	CCV1-141010	Batch ID:	R75799	TestNo:	M8015V	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 5:48:56 PM	Prep Date:				
Analyte	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:	R75799	TestNo:	M8015V	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC4_141010A	Analysis Date:	10/10/2014 8:38:31 PM	Prep Date:				
Analyte	Result	RL	SPK value	Ref 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			

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDI and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1410030  
 Project: R360

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_141013A

The QC data in batch 66082 applies to the following samples: 1410030-01B, 1410030-02B, 1410030-03B, 1410030-04B, 1410030-05B, 1410030-06B, 1410030-07B, 1410030-08B, 1410030-09B, 1410030-10B, 1410030-11B, 1410030-12B

Sample ID	Batch ID	TestNo	Units							
SampType	Run ID	Analysis Date	Prep Date							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	240	10.0	250.0	0	96.0	90	110			N
Sample ID MB-66082	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg							
SampType: MBLK	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date: 10/13/2014							
Petroleum Hydrocarbons, TR	<10.0	10.0								N
Sample ID LCS-66082	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg							
SampType: LCS	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date: 10/13/2014							
Petroleum Hydrocarbons, TR	99.4	10.0	100.0	0	99.4	80	120			N
Sample ID CCV1-141013	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg							
SampType: CCV	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date:							
Petroleum Hydrocarbons, TR	243	10.0	250.0	0	97.2	85	115			N
Sample ID 1410030-12BMS	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg-dry							
SampType: MS	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date: 10/13/2014							
Petroleum Hydrocarbons, TR	156	10.0	100.3	48.64	107	80	120			N
Sample ID 1410030-12BMSD	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg-dry							
SampType: MSD	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date: 10/13/2014							
Petroleum Hydrocarbons, TR	155	10.3	102.8	48.64	104	80	120	0.013	20	N
Sample ID CCV2-141013	Batch ID: 66082	TestNo: E418.1	Units: mg/Kg							
SampType: CCV	Run ID: IR207_141013A	Analysis Date: 10/13/2014 10:18:00 A	Prep Date:							
Petroleum Hydrocarbons, TR	246	10.0	250.0	0	98.5	85	115			N

**Qualifiers:**

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



**CLIENT:** Larson & Associates  
**Work Order:** 1410030  
**Project:** 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, 1410030-06B, 1410030-07B, 1410030-08B, 1410030-09B, 1410030-10B, 1410030-11B, 1410030-12B

Sample ID	1410052-01B-DUP	Batch ID:	65948	TestNo:	D2216	Units:	WT%			
SampType:	DUP	Run ID:	PMOIST_141006A	Analysis Date:	10/7/2014 12:12:00 PM	Prep Date:	10/4/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	9.27	0	0	5.589				49.9	30	R

<b>Qualifiers:</b>	<b>B</b> Analyte detected in the associated Method Blank <b>J</b> Analyte detected between MDL and RL <b>ND</b> Not Detected at the Method Detection Limit <b>RL</b> Reporting Limit <b>J</b> Analyte detected between SDL and RL	<b>DF</b> Dilution Factor <b>MDL</b> Method Detection Limit <b>R</b> RPD outside accepted control limits <b>S</b> Spike Recovery outside control limits <b>N</b> Parameter not NELAC certified
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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 [brad.a.jones@state.nm.us](mailto:brad.a.jones@state.nm.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Brad A. Jones", written over a horizontal line.

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:** 'Mark Larson'  
**Cc:** 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](mailto: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: [brad.a.jones@state.nm.us](mailto: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](mailto:victoria@laenvironmental.com)>  
**To:** "Mark Larson" <[Mark@laenvironmental.com](mailto: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

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This message has been scanned for viruses and dangerous content by **MailScanner**, 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  
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R360 Artesia, LLC - R360 Artesia, LLC Landfarm  
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Sincerely,

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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**

---

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**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](mailto:brad.a.jones@state.nm.us)*  
*Office: (505) 476-3487*  
*Fax: (505) 476-3462*

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**Subject:** Re: R360 Artesia, LLC Landfarm

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Sent from my iPhone

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**To:** "Mark Larson" <[Mark@laenvironmental.com](mailto:Mark@laenvironmental.com)>

Mark,

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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

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This message has been scanned for viruses and dangerous content by **MailScanner**, 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.

A handwritten signature in black ink, appearing to read 'Mark Larson', with a stylized flourish extending to the right.

Mark Larson  
mark@laenvironmental.com

cc: Wayne Crawley  
Midland Office

## TABLES

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

Cell	Date	Depth	Benzene	Ethylbenzene	Toluene	Xylenes	BTEX	DRO	GRO	TPH	Chloride
<b>Permitted Level:</b>			<b>10</b>				<b>50</b>			<b>100</b>	<b>1,000</b>
01/04/00	05/22/14	0 - 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

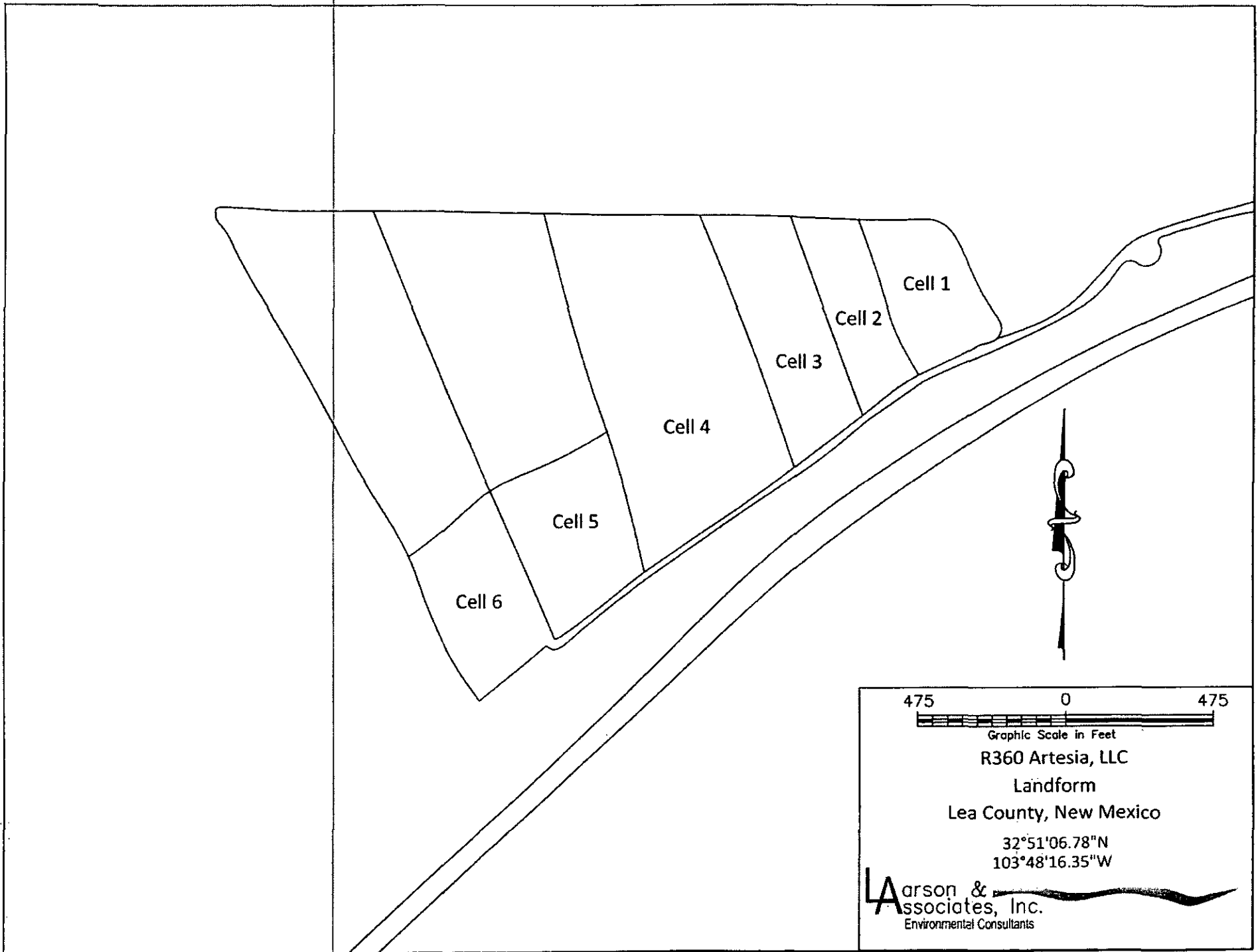


Figure 1 - Site Drawing



700 0 700  
Graphic Scale in Feet  
R360 Artesia, LLC  
Landfarm  
Lea County, New Mexico  
32°51'18.542"N  
103°48'04.866"W  
Larson & Associates, Inc.  
Environmental Consultants

Figure 2 - Aerial Map and Sample Location

**APPENDIX A**  
**Laboratory Reports**

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June 06, 2014

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

Order No.: 1405294

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,

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

John DuPont  
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification  
Number: T104704211-14-12





CHAIN-OF-CUSTODY

**Arson & Associates, Inc.**  
Environmental Consultants

507 N. Marienfeld, Ste. 200  
Midland, TX 79701  
432-687-0901

DATE: 5/23/14 PAGE 1 OF 1  
PO #: \_\_\_\_\_ LAB WORK ORDER #: 1405294  
PROJECT LOCATION OR NAME: R3600 Land farm  
LAI PROJECT #: 11-0109-06 COLLECTOR: \_\_\_\_\_

Data Reported to: City

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		# of Containers	PRESERVATION					ANALYSES																				FIELD NOTES								
	TIME ZONE: Time zone/State: <u>MM</u>	Lab #	Date	Time		Matrix	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub> □ NaOH □	ICE	UNPRESERVED	6TEX □	MIB □	TPH 418-100 □	GASOLINE MOD 8015 □	DIESEL - MOD 8015 □	VOC - MOD 8015 □	SVOC 8270 □	8081 PESTICIDES □	PAH 8270 □	8082 POPS □	TCLP - METALS □	TCPP □	TCPP-PEST □	HERB □	TCPP-VOC □	TCPP-HERB □	TCPP-OTHER □	D.W. 200-8 □	FLASHPOINT □		% MOISTURE □	HEXAVALENT CHROMIUM □	PECHLORATE □	ANIONS □	ALKALINITY □			
Cell-1 (0-1)	01	5-20-14	1000	S	1						X	X	X																										
(2-3)	02	↑	1030																																				
Cell-2 (0-1)	03		1100																																				
(2-3)	04		1130																																				
Cell-3 (0-1)	05		1200																																				
(2-3)	06		1230																																				
Cell-4 (0-1)	07		100																																				
(2-3)	08		130																																				
Cell-5 (0-1)	09		200																																				
(2-3)	10		230																																				
Cell-6 (0-1)	11		300																																				
(2-3)	12		330																																				
TOTAL																																							
RELINQUISHED BY: (Signature) _____ DATE/TIME <u>5/23/14 5:00 PM</u> RECEIVED BY: (Signature) _____					TURN AROUND TIME NORMAL <input checked="" type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> OTHER <input type="checkbox"/>					LABORATORY USE ONLY: RECEIVING TEMP: <u>0°C</u> THERM #: <u>59</u> CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED <input checked="" type="checkbox"/> CARRIER BILL # <u>R3600</u> <input type="checkbox"/> HAND DELIVERED																													
RELINQUISHED BY: (Signature) _____ DATE/TIME <u>5/24/14 8:30 AM</u> RECEIVED BY: (Signature) _____																																							
RELINQUISHED BY: (Signature) _____ DATE/TIME _____ RECEIVED BY: (Signature) _____																																							

Sample Receipt Checklist

Client Name Larson & Associates

Date Received: 5/24/2014

Work Order Number 1405294

Received by JB

Checklist completed by: [Signature] 5/27/2014  
Signature Date

Reviewed by: [Initials] 5/27/2014  
Initials Date

Carrier name LoneStar

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Container/Temp Blank temperature in compliance? Yes  No  0.6 °C
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH<2 acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_
- Water - pH>9 (S) or pH>12 (CN) acceptable upon receipt? Yes  No  NA  LOT #  
Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

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

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

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

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

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

CLIENT: Larson & Associates  
Project: R360 Landfarm  
Lab Order: 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.

CLIENT: Larson & Associates  
Project: R360 Landfarm  
Lab Order: 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	Cell-6 (2-3)		05/22/14 03:30 PM	5/27/2014

**DHL Analytical, Inc.**

Date: 06-Jun-14

**CLIENT:** Larson & Associates  
**Project:** R360 Landfarm  
**Project No:** 11-0109-06  
**Lab Order:** 1405294

**Client Sample ID:** Cell-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
<b>TPH EXTRACTABLE BY GC - SOIL</b>							
		<b>M8015D</b>					<b>Analyst: AS</b>
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
<b>TPH PURGEABLE BY GC - SOIL</b>							
		<b>M8015V</b>					<b>Analyst: AV</b>
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
<b>TRPH</b>							
		<b>E418.1</b>					<b>Analyst: DEW</b>
Petroleum Hydrocarbons, TR	140	4.89	9.79	N	mg/Kg-dry	1	05/30/14 03:55 PM
<b>ANIONS BY IC METHOD - SOIL</b>							
		<b>E300</b>					<b>Analyst: AV</b>
Chloride	258	46.8	46.8		mg/Kg-dry	10	05/28/14 07:47 PM
<b>PERCENT MOISTURE</b>							
		<b>D2216</b>					<b>Analyst: JL</b>
Percent Moisture	3.23	0	0		WT%	1	05/30/14 01:42 PM

**Qualifiers:**

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

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

**ANALYTICAL QC SUMMARY REPORT**

RunID: GC15\_140602A

The QC data in batch 63880 applies to the following samples: 1405294-01A

Sample ID	MB-63880	Batch ID:	63880	TestNo:	M8015D	Units:	mg/Kg
SampType:	MBLK	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 10:56:18 AM	Prep Date:	5/30/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	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:	M8015D	Units:	mg/Kg
SampType:	LCS	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 11:32:14 AM	Prep Date:	5/30/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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:	M8015D	Units:	mg/Kg-dry
SampType:	MS	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 11:50:11 AM	Prep Date:	5/30/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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:	M8015D	Units:	mg/Kg-dry
SampType:	MSD	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 11:59:09 AM	Prep Date:	5/30/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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:
- B Analyte detected in the associated Method Blank
  - J Analyte detected between MDL and RL
  - ND Not Detected at the Method Detection Limit
  - RL Reporting Limit
  - J Analyte detected between SDL and RL
  - DF Dilution Factor
  - MDL Method Detection Limit
  - R RPD outside accepted control limits
  - S Spike Recovery outside control limits
  - N Parameter not NELAC certified

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_140602A

The QC data in batch 63899 applies to the following samples: 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A, 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A

Sample ID	MB-63899	Batch ID:	63899	TestNo:	M8015D	Units:	mg/Kg		
SampType:	MBLK	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 11:05:17 AM	Prep Date:	5/30/2014		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit 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:	M8015D	Units:	mg/Kg		
SampType:	LCS	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 11:41:12 AM	Prep Date:	5/30/2014		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
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		85.9	25	162	

Sample ID	1405294-06AMS	Batch ID:	63899	TestNo:	M8015D	Units:	mg/Kg-dry		
SampType:	MS	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 12:08:07 PM	Prep Date:	5/30/2014		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
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	1405294-06AMSD	Batch ID:	63899	TestNo:	M8015D	Units:	mg/Kg-dry		
SampType:	MSD	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 12:17:05 PM	Prep Date:	5/30/2014		
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD RPDLimit Qual
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

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

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC15\_140602A

Sample ID	ICV-140602	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	ICV	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 10:36:31 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	514	10.0	500.0	0	103	80	120			
Surr: Isopropylbenzene	29.8		25.00		119	80	120			
Surr: Octacosane	27.2		25.00		109	80	120			

Sample ID	CCV1-140602	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 2:04:46 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	241	10.0	250.0	0	96.4	80	120			
Surr: Isopropylbenzene	13.2		12.50		106	80	120			
Surr: Octacosane	11.6		12.50		92.9	80	120			

Sample ID	CCV2-140602	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_140602A	Analysis Date:	6/2/2014 4:48:01 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	221	10.0	250.0	0	88.3	80	120			
Surr: Isopropylbenzene	12.6		12.50		101	80	120			
Surr: Octacosane	10.3		12.50		82.1	80	120			

Sample ID	ICV-140603	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	ICV	Run ID:	GC15_140602A	Analysis Date:	6/3/2014 10:53:19 AM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	475	10.0	500.0	0	95.1	80	120			
Surr: Isopropylbenzene	29.3		25.00		117	80	120			
Surr: Octacosane	21.4		25.00		85.8	80	120			

Sample ID	CCV1-140603	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_140602A	Analysis Date:	6/3/2014 1:33:24 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	234	10.0	250.0	0	93.5	80	120			
Surr: Isopropylbenzene	13.9		12.50		111	80	120			
Surr: Octacosane	10.2		12.50		81.4	80	120			

Sample ID	CCV2-140603	Batch ID:	R73460	TestNo:	M8015D	Units:	mg/Kg
SampType:	CCV	Run ID:	GC15_140602A	Analysis Date:	6/3/2014 2:36:16 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TPH-DRO C10-C28	227	10.0	250.0	0	90.7	80	120			

**Qualifiers:**

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



**CLIENT:** Larson & Associates  
**Work Order:** 1405294  
**Project:** R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID:** GC15\_140602A

Sample ID	CCV2-140803	Batch ID:	R73480	TestNo:	M8015D	Units:	mg/Kg			
SampType:	CCV	Run ID:	GC15_140602A	Analysis Date:	6/3/2014 2:36:16 PM	Prep Date:				
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			

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

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_140527A

The QC data in batch 63802 applies to the following samples: 1405294-01A, 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A, 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A

Sample ID	LCS-63802	Batch ID:	63802	TestNo:	M8015V	Units:	mg/Kg			
SampType:	LCS	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 4:25:42 PM	Prep Date:	5/27/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.88	0.200	5.000	0	97.6	68	126			
Surr: Tetrachlorethene	0.398		0.4000		99.6	70	134			

Sample ID	MB-63802	Batch ID:	63802	TestNo:	M8015V	Units:	mg/Kg			
SampType:	MBLK	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 5:39:10 PM	Prep Date:	5/27/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	ND	0.200								
Surr: Tetrachlorethene	0.394		0.4000		98.6	70	134			

Sample ID	1405294-12AMS	Batch ID:	63802	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 10:09:55 PM	Prep Date:	5/27/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.75	0.215	5.375	0	88.4	68	126			
Surr: Tetrachlorethene	0.369		0.4300		85.7	70	134			

Sample ID	1405294-12AMSD	Batch ID:	63802	TestNo:	M8015V	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 10:34:12 PM	Prep Date:	5/27/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics	4.71	0.212	5.304	0	88.7	68	126	1.00	30	
Surr: Tetrachlorethene	0.402		0.4243		94.9	70	134	0	0	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

RunID: GC4\_140527A

Sample ID	ICV-140527	Batch ID:	R73365	TestNo:	M8015V	Units:	mg/Kg
SampType:	ICV	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 4:01:03 PM	Prep Date:	
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:	M8015V	Units:	mg/Kg
SampType:	CCV	Run ID:	GC4_140527A	Analysis Date:	5/27/2014 10:58:45 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit 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	TestNo:	M8015V	Units:	mg/Kg
SampType:	CCV	Run ID:	GC4_140527A	Analysis Date:	5/28/2014 4:17:37 AM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit 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

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_140528B

The QC data in batch 63843 applies to the following samples: 1405294-01A, 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A, 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A

Sample ID	MB-63843	Batch ID:	63843	TestNo:	E300	Units:	mg/Kg			
SampType:	MBLK	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 4:39:35 PM	Prep Date:	5/28/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride ND 5.00

Sample ID	LCS-63843	Batch ID:	63843	TestNo:	E300	Units:	mg/Kg			
SampType:	LCS	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 4:54:09 PM	Prep Date:	5/28/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride 50.4 5.00 50.00 0 101 80 120

Sample ID	LCSD-63843	Batch ID:	63843	TestNo:	E300	Units:	mg/Kg			
SampType:	LCSD	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 5:08:44 PM	Prep Date:	5/28/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride 50.7 5.00 50.00 0 101 80 120 0.727 20

Sample ID	1405294-11AMS	Batch ID:	63843	TestNo:	E300	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	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride 206 57.2 114.3 81.19 110 80 120

Sample ID	1405294-11AMSD	Batch ID:	63843	TestNo:	E300	Units:	mg/Kg-dry			
SampType:	MSD	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 9:29:12 PM	Prep Date:	5/28/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride 208 59.7 119.4 81.19 106 80 120 0.693 20

Sample ID	1405294-12AMS	Batch ID:	63843	TestNo:	E300	Units:	mg/Kg-dry			
SampType:	MS	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 9:58:21 PM	Prep Date:	5/28/2014			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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			
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Chloride 208 52.0 104.1 87.29 116 80 120 4.80 20

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

### ANALYTICAL QC SUMMARY REPORT

RunID: IC2\_140528B

Sample ID	ICV-140528	Batch ID:	R73451	TestNo:	E300	Units:	mg/Kg
SampType:	ICV	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 12:04:44 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	26.1	5.00	25.00	0	104	90	110
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Sample ID	CCV1-140528	Batch ID:	R73451	TestNo:	E300	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 3:23:56 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	9.47	5.00	10.00	0	94.7	90	110
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Sample ID	CCV2-140528	Batch ID:	R73451	TestNo:	E300	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 8:45:29 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

Chloride	10.5	5.00	10.00	0	105	90	110
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Sample ID	CCV3140528	Batch ID:	R73451	TestNo:	E300	Units:	mg/Kg
SampType:	CCV	Run ID:	IC2_140528B	Analysis Date:	5/28/2014 10:27:30 PM	Prep Date:	
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit HighLimit %RPD RPDLimit Qual

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

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_140530B

The QC data in batch 63895 applies to the following samples: 1405294-01A, 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A, 1405294-06A, 1405294-07A, 1405294-08A, 1405294-09A, 1405294-10A, 1405294-11A, 1405294-12A

Sample ID: MB-63895	Batch ID: 63895	TestNo: E418.1	Units: mg/Kg
SampType: MBLK	Run ID: IR207_140530B	Analysis Date: 5/30/2014 3:55:00 PM	Prep Date: 5/30/2014
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	ND	10.0	N

Sample ID: LCS-63895	Batch ID: 63895	TestNo: E418.1	Units: mg/Kg
SampType: LCS	Run ID: IR207_140530B	Analysis Date: 5/30/2014 3:55:00 PM	Prep Date: 5/30/2014
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	91.9	10.0	100.0 0 91.9 80 120 N

Sample ID: 1405294-12AMS	Batch ID: 63895	TestNo: E418.1	Units: mg/Kg-dry
SampType: MS	Run ID: IR207_140530B	Analysis Date: 5/30/2014 3:55:00 PM	Prep Date: 5/30/2014
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	345	10.6	106.3 229.6 109 80 120 N

Sample ID: 1405294-12AMSD	Batch ID: 63895	TestNo: E418.1	Units: mg/Kg-dry
SampType: MSD	Run ID: IR207_140530B	Analysis Date: 5/30/2014 3:55:00 PM	Prep Date: 5/30/2014
Analyte	Result	RL	SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	339	10.9	109.0 229.6 101 80 120 1.81 20 N

**Qualifiers:**

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

CLIENT: Larson & Associates  
 Work Order: 1405294  
 Project: R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

RunID: IR207\_140530B

Sample ID	ICV-140530	Batch ID:	R73526	TestNo:	E418.1	Units:	mg/Kg				
SampType:	ICV	Run ID:	IR207_140530B	Analysis Date:	5/30/2014 3:55:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		241	10.0	250.0	0	96.5	90	110			N

Sample ID	CCV1-140530	Batch ID:	R73526	TestNo:	E418.1	Units:	mg/Kg				
SampType:	CCV	Run ID:	IR207_140530B	Analysis Date:	5/30/2014 3:55:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		240	10.0	250.0	0	96.0	85	115			N

Sample ID	CCV2-140530	Batch ID:	R73526	TestNo:	E418.1	Units:	mg/Kg				
SampType:	CCV	Run ID:	IR207_140530B	Analysis Date:	5/30/2014 3:55:00 PM	Prep Date:					
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR		241	10.0	250.0	0	96.2	85	115			N

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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CLIENT: Larson & Associates  
 Work Order: 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	Run ID: PMOIST_140529C	Analysis Date: 5/30/2014 1:42:00 PM	Prep Date: 5/29/2014							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	13.4	0	0	14.29				6.08	30	

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 J Analyte detected between MDL and RL  
 ND Not Detected at the Method Detection Limit  
 RL Reporting Limit  
 J Analyte detected between SDL and RL

DF Dilution Factor  
 MDL Method Detection Limit  
 R RPD outside accepted control limits  
 S Spike Recovery outside control limits  
 N Parameter not NELAC certified



CLIENT: Larson & Associates  
 Work Order: 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	Run ID: PMOIST_140529C	Analysis Date: 5/30/2014 1:42:00 PM	Prep Date: 5/29/2014							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	13.4	0	0	14.29				6.08	30	

<b>Qualifiers:</b> B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**CLIENT:** Larson & Associates  
**Work Order:** 1405294  
**Project:** R360 Landfarm

## ANALYTICAL QC SUMMARY REPORT

**RunID: PMOIST\_140529D**

The QC data in batch 63870 applies to the following samples: 1405294-01A, 1405294-02A, 1405294-03A, 1405294-04A, 1405294-05A

Sample ID	1405294-05A-DUP	Batch ID:	63870	TestNo:	D2216	Units:	WT%			
SampType:	DUP	Run ID:	PMOIST_140529D	Analysis Date:	5/30/2014 2:00:00 PM	Prep Date:	5/29/2014			
Analyte	Result	RL	SPK value	Ret Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	2.42	0	0	2.498				3.26	30	

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank J Analyte detected between MDL and RL ND Not Detected at the Method Detection Limit RL Reporting Limit J Analyte detected between SDL and RL	DF Dilution Factor MDL Method Detection Limit R RPD outside accepted control limits S Spike Recovery outside control limits N Parameter not NELAC certified
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**PERMIAN BASIN  
ENVIRONMENTAL LAB, LP  
10014 SCR 1213  
Midland, TX 79706**



## Analytical Report

**Prepared for:**

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

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

Project: R 360 Landfarm  
Project Number: 11-0109-06  
Project Manager: Coty Woolf

Fax: (432) 687-0456

**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
Cell-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

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: R 360 Landfarm Project Number: 11-0109-06 Project Manager: Coty Woolf	Fax: (432) 687-0456
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**Cell-4**  
**4G11002-04 (Soil)**

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

**Organics by GC**

Benzene	ND	0.00103	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B	
Toluene	ND	0.00206	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P4G1404	07/11/14	07/11/14	EPA 8021B	
Surrrogate: 1-Bromofluorobenzene		117 %	75-125		P4G1404	07 11 14	07 11 14	EPA 8021B	
Surrrogate: 1,4-Difluorobenzene		81.1 %	75-125		P4G1404	07 11 14	07 11 14	EPA 8021B	

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

% Moisture	3.0	0.1	%	1	P4G1107	07/11/14	07/14/14	% calculation	
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Larson & Associates, Inc.  
 P.O. Box 50685  
 Midland TX, 79710

Project: R 360 Landfarm  
 Project Number: 11-0109-06  
 Project Manager: Coty Woolf

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch P4G1404 - General Preparation (GC)**

Blank (P4G1404-BL.K1)										
Prepared & Analyzed: 07/11/14										
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00200	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	47.5		ug/kg	60.0		79.2	75-125			
Surrogate: 4-Bromofluorobenzene	65.4		"	60.0		109	75-125			

LCS (P4G1404-BS1)										
Prepared & 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	"				70-130			
Xylene (p/m)	0.217	0.00200	"				70-130			
Xylene (o)	0.102	0.00100	"				70-130			
Surrogate: 4-Bromofluorobenzene	76.2		ug/kg	60.0		117	75-125			
Surrogate: 1,4-Difluorobenzene	56.5		"	60.0		94.2	75-125			

LCS Dup (P4G1404-BSD1)										
Prepared & Analyzed: 07/11/14										
Benzene	0.119	0.00100	mg/kg wet				70-130		20	
Toluene	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	
Xylene (o)	0.103	0.00100	"				70-130		20	
Surrogate: 1,4-Difluorobenzene	53.3		ug/kg	60.0		88.8	75-125			
Surrogate: 4-Bromofluorobenzene	71.4		"	60.0		119	75-125			

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

Project: R 360 Landfarm  
Project Number: 11-0109-06  
Project Manager: Coty Woolf

Fax: (432) 687-0456

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P4G1107 - *** DEFAULT PREP ***</b>										
<b>Blank (P4G1107-BLK1)</b>										
					Prepared: 07/11/14 Analyzed: 07/14/14					
% Moisture	ND	0.1	%							
<b>Duplicate (P4G1107-DUP1)</b>										
					Source: 4G11001-06 Prepared: 07/11/14 Analyzed: 07/14/14					
% Moisture	13.0	0.1	%		13.0			0.00	20	
<b>Duplicate (P4G1107-DUP2)</b>										
					Source: 4G11004-01 Prepared: 07/11/14 Analyzed: 07/14/14					
% Moisture	3.0	0.1	%		4.0			28.6	20	

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

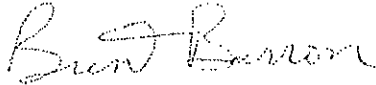
Project: R 360 Landfarm  
Project Number 11-0109-06  
Project Manager: Coty Woolf

Fax: (432) 687-0456

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

7/14/2014

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.

Permian Basin Environmental Lab, L.P.

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.*

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**Larson & Associates, Inc.**  
Environmental Consultants

507 N. Marienfeld, Ste. 200  
Midland, TX 79701  
432-687-0901

DATE: 7/10/14 PAGE 1 OF 1  
PO #: \_\_\_\_\_ LAB WORK ORDER #: 464602  
PROJECT LOCATION OR NAME: R360 Landfarm  
LAI PROJECT #: 11-0109-06 COLLECTOR: RW

Data Reported to: CAZ

TRRP report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	PRESERVATION					# of Containers	ANALYSES														FIELD NOTES																
			HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE		UNPRESERVED	BTEX & MTBE	TPH 418.1	TPH 1005	DIESEL - MOD 8015	VOC 8260	SVOC 8270	PAH 8270	8081 PESTICIDES	8082 PCBs	TCLP - METALS (RCRA)	TCLP - PEST	TOTAL METALS (RCRA)	LEAD TOTAL		ROD TOX	TDS	pH	EXPLOSIVES	CHLORIDE	ALKALINITY										
TIME ZONE: Time zone/State: <u>MM</u>	<u>4611002</u>			Matrix																																			
Field Sample I.D.	Lab #	Date	Time	Matrix																																			
Cell-1	-01	7/10/14	902	S																																			
Cell-2	-02		915																																				
Cell-3	-03		920																																				
Cell-4	-04		940																																				
Cell-5	-05		950																																				
Cell-6	-06		955																																				

TOTAL																																						
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	TURN AROUND TIME		LABORATORY USE ONLY:																																	
<u>[Signature]</u>	<u>7/10/14 6:00</u>	<u>[Signature]</u>	NORMAL <input type="checkbox"/>	RECEIVING TEMP: <u>2.2</u>	THERM #: <u>LAI</u>																																	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	1 DAY <input type="checkbox"/>	CUSTODY SEALS - <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED																																		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	2 DAY <input checked="" type="checkbox"/>	<input type="checkbox"/> CARRIER BILL # _____																																		
			OTHER <input type="checkbox"/>	<input type="checkbox"/> HAND DELIVERED																																		