

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

DENIED

Responsible Party: LOGOS Operating LLC	OGRID: 289408
Contact Name: Larissa Farrell	Contact Telephone: (505) 787-2027
Contact email: lfarrell@logosresourcesllc.com	Incident # (assigned by OCD): nCS1929540748
Contact mailing address: 2010 Afton Pl Farmington, NM 87401	

Location of Release Source

Latitude 36.8814392 _____ Longitude -107.2900925 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Rosa Unit 354A	Site Type: Wellsite
Date Release Discovered: 9/6/19	API# (if applicable) 30-039-27832

Unit Letter	Section	Township	Range	County
I	19	T31N	R04W	Rio Arriba

Closure Report Doesn't meet requirements of 19.15.29.12 NMAC Executive summary, doesnt match here sample results/dates, no sampling notice attached/provided for 2 sampling events

Surface Owner: State Federal Tribal Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) Unknown (> 5bbls)	Volume Recovered (bbls) 1bbl
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Production Stuffing box leak was identified. Cellar filled up with produced water and ran off location towards storm water catchment with culvert. NMOCD located the release and contacted LOGOS to report release.

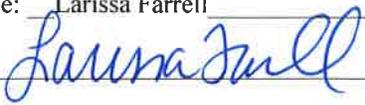
State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: <u>Larissa Farrell</u> Title: <u>ENV/REG Technician</u> Signature: <u></u> Date: <u>10/2/19</u> email: <u>lfarrell@logosresourcesllc.com</u> Telephone: <u>(505) 787-2027</u>
<u>OCD Only</u> Received by: _____ Date: _____

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Facility ID	
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Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ 93 _____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: Each of the following items must be included in the report.

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Larissa Farrell Title: Env/Reg Technician

Signature:  Date: 1/30/2020

email: lfarrell@logosresourcesllc.com Telephone: (505)787-2027

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

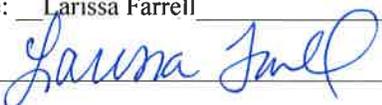
Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Larissa Farrell Title: Env/Regulatory Technician
 Signature:  Date: 1/30/2020
 email: lfarrell@logosresourcesllc.com Telephone: (505)787-2027

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: **DENIED** Date: _____
 Printed Name: _____ Title: _____



2010 Afton Place
Farmington, NM 87401
Phone: (505) 278-8720
Fax: (505) 326-6112

January 30, 2020

Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: nCS1929540748

Rosa Unit 354A Remediation Activity
30-039-27832
SEC. 19, T31N AND R04W
Rio Arriba County, NM

Dear Mr. Smith.

LOGOS Operating, LLC discovered an unknown release at the Rosa Unit 354A from a stuffing box leak that overflowed the cellar and entered into stormwater drainage, followed the entrance road off location into the catchment area with a culvert. LOGOS pulled all remaining standing water and applied gypsum to the affected area. LOGOS scheduled the confirmation sampling on 10/7/2019 with the NMOCD. Two 5-point composite samples were collected from the affected area and delivered on ice to Envirotech Laboratories. The closest depth to ground water is located approximately 835' away in Section 19, T31N, R04W at the Rosa Unit #043 with record depth to groundwater at 80' bgs. With the difference in elevation, the depth to groundwater at Rosa Unit 354A is estimated at 93' bgs. The results from the sampling confirmed the NMAC 19.15.29.12 (E) Table I closure criteria has been met. 19.15.29.13(D)(1) NMAC states that the reclamation must contain a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, or other test methods approved by the division. The results showed chloride concentrations were above 600 mg/kg so the affected area (SSD1) was delineated down to 4' bgs and analyzed by EPA Method 300.0. The concentrations showed less than the thresholds in 19.15.29 NMAC. No deferral is required.

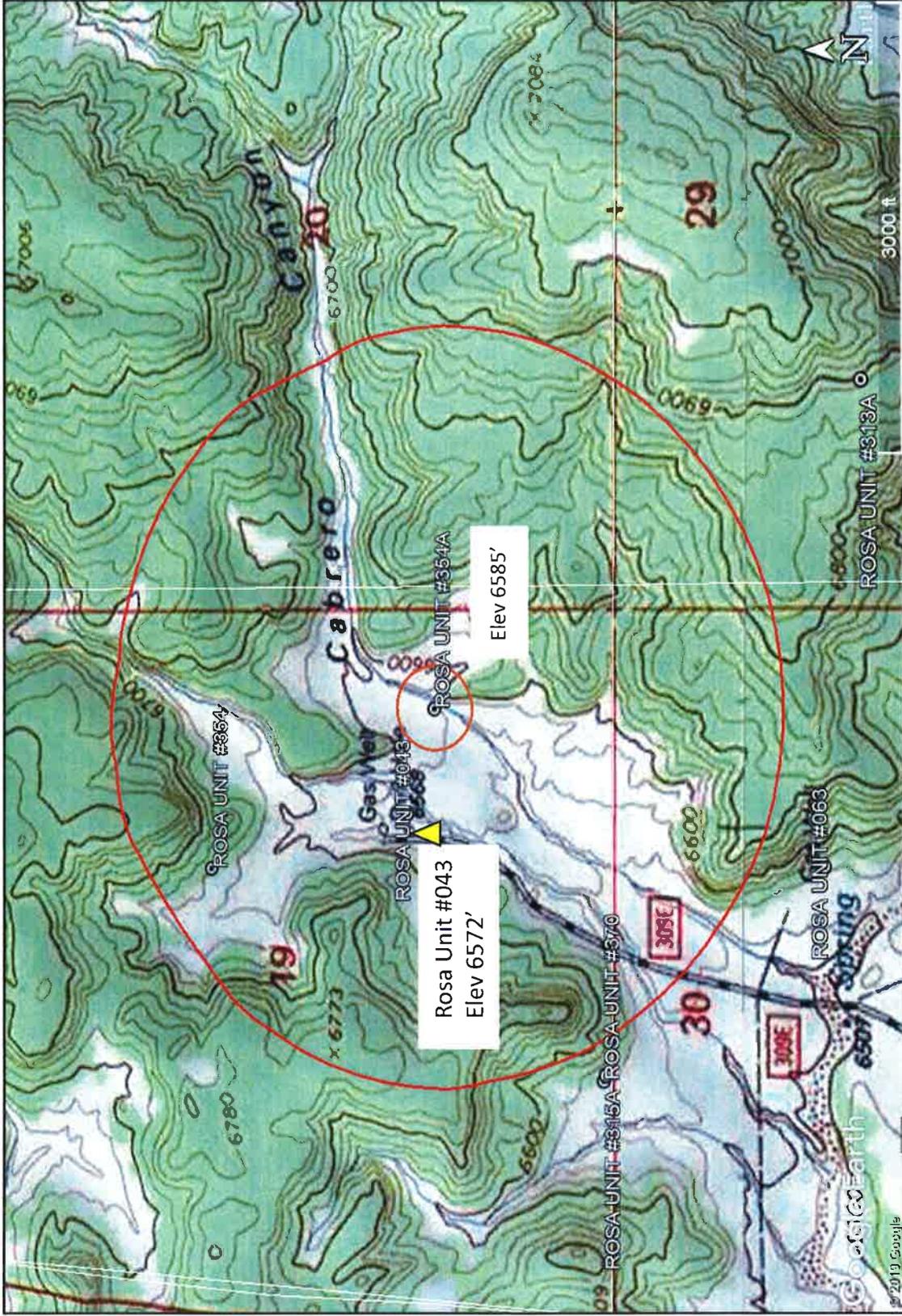
Sincerely,

Larissa Farrell
Environmental/Regulatory Technician



Rosa Unit 354A – 30-039-27832
 Sampling Map
 Unit I, Section 19, T31N, R4W
 Rio Arriba County, NIM

- Legend
- Impacted Area
 - Composite Sample Point
 - ✕ Delineation



	<p>Rosa Unit 354A – 30-039-27832 Hydrology Map Unit I, Section 19, T31N, R4W Rio Arriba County, NM</p>
<p>Legend</p> <ul style="list-style-type: none"> 1/2 mile radius 300' radius Rosa Unit 061 – Cathodic Well 	

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS IN
NORTHWEST NEW MEXICO

OPERATOR: Williams Production Company LOCATION: J 19 31 4 LEASE NUMBER: SF-078889

NAME OF WELL/WELLS OR PIPELINE SERVICED: ROSA UNIT #043 DK *30-039-01954*
DUALWELL N/A

ELEVATION: 6572' GR COMPLETION DATE: 10/20/87 TOTAL DEPTH: 500 ft. LAND TYPE: FED

CASING: 7-5/8" 26.4# K-55 Set @ N/A ft. Casing is not cemented.

CEMENT PLUG--Top:N/A' Bottom: N/A' Used 0 sk. Class "B" (1.18 cu.ft./sk).

WATER DEPTH: 80 ' Water zone thickness not available. WATER DESCRIPTION: Fresh

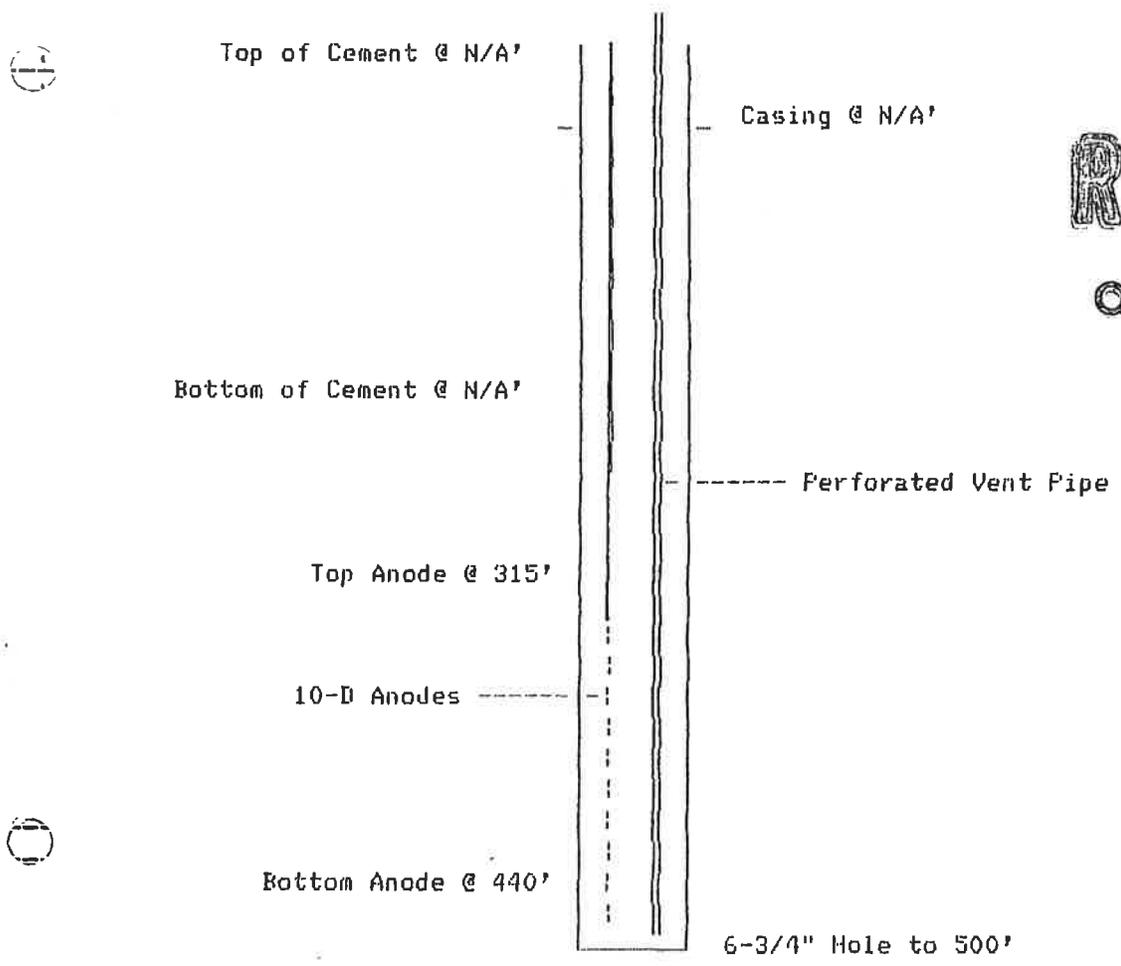
DEPTH OF GAS: N/A '

COKE: 6345 lbs. of Metallurgical coke breeze used.

NUMBER & TYPE OF ANODES: 10-D TOP ANODE @ 315 ft. BOTTOM ANODE @ 440 ft.

VENT PIPE: 1" PVC Set @ 500 ft. Vent pipe perforated from 295 ft. to 500 ft.

REMARKS: _____



RECEIVED
DEC 11 1991
OIL CON. DIV.
DIST. 3





Logos Operating, LLC	Project Name:	Rosa 354A	
PO Box 18	Project Number:	12035-0114	Reported:
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	10/15/19 14:32

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Rosa 354A SS1	P910036-01A	Soil	10/08/19	10/08/19	Glass Jar, 4 oz.
	P910036-01B	Soil	10/08/19	10/08/19	Glass Jar, 4 oz.
Rosa 354A SS2	P910036-02A	Soil	10/08/19	10/08/19	Glass Jar, 4 oz.
	P910036-02B	Soil	10/08/19	10/08/19	Glass Jar, 4 oz.

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Logos Operating, LLC
PO Box 18
Flora Vista NM, 87415

Project Name: Rosa 354A
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
10/15/19 14:32

**Rosa 354A SS1
P910036-01 (Solid)**

Reporting

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by 8260									
Benzene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Toluene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Ethylbenzene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
p,m-Xylene	ND	0.0500	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
o-Xylene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Total Xylenes	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		102 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		103 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		98.3 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
Nonhalogenated Organics by 8015 - DRO/ORO									
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1941037	10/10/19	10/10/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1941037	10/10/19	10/10/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		116 %		50-200	1941037	10/10/19	10/10/19	EPA 8015D	
Nonhalogenated Organics by 8015 - GRO									
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		102 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		103 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		98.3 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
Anions by 300.0/9056A									
Chloride	612	20.0	mg/kg	1	1941045	10/10/19	10/10/19	EPA 300.0/9056A	

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Logos Operating, LLC
PO Box 18
Flora Vista NM, 87415

Project Name: Rosa 354A
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
10/15/19 14:32

**Rosa 354A SS2
P910036-02 (Solid)**

Reporting

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by 8260									
Benzene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Toluene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Ethylbenzene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
p,m-Xylene	ND	0.0500	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
o-Xylene	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Total Xylenes	ND	0.0250	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		104 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
Surrogate: Toluene-d8		102 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
Surrogate: Bromofluorobenzene		100 %		70-130	1941031	10/09/19	10/10/19	EPA 8260B	
Nonhalogenated Organics by 8015 - DRO/ORO									
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1941037	10/10/19	10/10/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1941037	10/10/19	10/10/19	EPA 8015D	
Surrogate: n-Nonane		119 %		50-200	1941037	10/10/19	10/10/19	EPA 8015D	
Nonhalogenated Organics by 8015 - GRO									
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1941031	10/09/19	10/10/19	EPA 8015D	
Surrogate: 1,2-Dichloroethane-d4		104 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
Surrogate: Toluene-d8		102 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
Surrogate: Bromofluorobenzene		100 %		70-130	1941031	10/09/19	10/10/19	EPA 8015D	
Anions by 300.0/9056A									
Chloride	206	20.0	mg/kg	1	1941045	10/10/19	10/10/19	EPA 300.0/9056A	

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 10/15/19 14:32
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Volatile Organic Compounds by 8260 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1941031 - Purge and Trap EPA 5030A

Blank (1941031-BLK1) Prepared: 10/09/19 | Analyzed: 10/10/19 | 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 1,2-Dichloroethane-d4	0.519		"	0.500		104	70-130			
Surrogate: Toluene-d8	0.510		"	0.500		102	70-130			
Surrogate: Bromofluorobenzene	0.488		"	0.500		97.6	70-130			

LCS (1941031-BS1) Prepared: 10/09/19 | Analyzed: 10/10/19 | 1

Benzene	2.25	0.0250	mg/kg	2.50		90.1	70-130			
Toluene	2.33	0.0250	"	2.50		93.1	70-130			
Ethylbenzene	2.39	0.0250	"	2.50		95.6	70-130			
p,m-Xylene	4.68	0.0500	"	5.00		93.7	70-130			
o-Xylene	2.33	0.0250	"	2.50		93.4	70-130			
Total Xylenes	7.02	0.0250	"	7.50		93.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.529		"	0.500		106	70-130			
Surrogate: Toluene-d8	0.519		"	0.500		104	70-130			
Surrogate: Bromofluorobenzene	0.508		"	0.500		102	70-130			

Matrix Spike (1941031-MS1) Source: P910036-01 | Prepared: 10/09/19 | Analyzed: 10/10/19 | 1

Benzene	2.22	0.0250	mg/kg	2.50	ND	88.9	48-131			
Toluene	2.32	0.0250	"	2.50	ND	92.6	48-130			
Ethylbenzene	2.41	0.0250	"	2.50	ND	96.4	45-135			
p,m-Xylene	4.73	0.0500	"	5.00	ND	94.5	43-135			
o-Xylene	2.38	0.0250	"	2.50	ND	95.1	43-135			
Total Xylenes	7.10	0.0250	"	7.50	ND	94.7	43-135			
Surrogate: 1,2-Dichloroethane-d4	0.510		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.518		"	0.500		104	70-130			
Surrogate: Bromofluorobenzene	0.499		"	0.500		99.8	70-130			

Matrix Spike Dup (1941031-MSD1) Source: P910036-01 | Prepared: 10/09/19 | Analyzed: 10/10/19 | 1

Benzene	2.29	0.0250	mg/kg	2.50	ND	91.4	48-131	2.82	23	
Toluene	2.40	0.0250	"	2.50	ND	96.1	48-130	3.71	24	
Ethylbenzene	2.49	0.0250	"	2.50	ND	99.5	45-135	3.14	27	
p,m-Xylene	4.88	0.0500	"	5.00	ND	97.7	43-135	3.25	27	
o-Xylene	2.44	0.0250	"	2.50	ND	97.7	43-135	2.70	27	
Total Xylenes	7.33	0.0250	"	7.50	ND	97.7	43-135	3.06	27	
Surrogate: 1,2-Dichloroethane-d4	0.512		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.521		"	0.500		104	70-130			
Surrogate: Bromofluorobenzene	0.503		"	0.500		101	70-130			

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Logos Operating, LLC	Project Name:	Rosa 354A	
PO Box 18	Project Number:	12035-0114	Reported:
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	10/15/19 14:32

Nonhalogenated Organics by 8015 - DRO/ORO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1941037 - DRO Extraction EPA 3570

Blank (1941037-BLK1)		Prepared: 10/10/19 0 Analyzed: 10/10/19 1								
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: n-Nonane	60.0		"	50.0		120	50-200			
LCS (1941037-BS1)		Prepared: 10/10/19 0 Analyzed: 10/10/19 1								
Diesel Range Organics (C10-C28)	510	25.0	mg/kg	500		102	38-132			
Surrogate: n-Nonane	57.8		"	50.0		116	50-200			
Matrix Spike (1941037-MS1)		Source: P910036-01		Prepared: 10/10/19 0 Analyzed: 10/10/19 1						
Diesel Range Organics (C10-C28)	522	25.0	mg/kg	500	ND	104	38-132			
Surrogate: n-Nonane	58.4		"	50.0		117	50-200			
Matrix Spike Dup (1941037-MSD1)		Source: P910036-01		Prepared: 10/10/19 0 Analyzed: 10/10/19 1						
Diesel Range Organics (C10-C28)	537	25.0	mg/kg	500	ND	107	38-132	2.74	20	
Surrogate: n-Nonane	60.5		"	50.0		121	50-200			

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 10/15/19 14:32
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Nonhalogenated Organics by 8015 - GRO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1941031 - Purge and Trap EPA 5030A

Blank (1941031-BLK1) Prepared: 10/09/19 1 Analyzed: 10/10/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.519		"	0.500		104	70-130			
Surrogate: Toluene-d8	0.510		"	0.500		102	70-130			
Surrogate: Bromofluorobenzene	0.488		"	0.500		97.6	70-130			

LCS (1941031-BS2) Prepared: 10/09/19 1 Analyzed: 10/10/19 1

Gasoline Range Organics (C6-C10)	49.1	20.0	mg/kg	50.0		98.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.510		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.528		"	0.500		106	70-130			
Surrogate: Bromofluorobenzene	0.494		"	0.500		98.8	70-130			

Matrix Spike (1941031-MS2) Prepared: 10/09/19 1 Analyzed: 10/10/19 1
Source: P910036-01

Gasoline Range Organics (C6-C10)	49.6	20.0	mg/kg	50.0	ND	99.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.494		"	0.500		98.7	70-130			
Surrogate: Toluene-d8	0.519		"	0.500		104	70-130			
Surrogate: Bromofluorobenzene	0.499		"	0.500		99.8	70-130			

Matrix Spike Dup (1941031-MSD2) Prepared: 10/09/19 1 Analyzed: 10/10/19 1
Source: P910036-01

Gasoline Range Organics (C6-C10)	41.9	20.0	mg/kg	50.0	ND	83.7	70-130	17.0	20	
Surrogate: 1,2-Dichloroethane-d4	0.530		"	0.500		106	70-130			
Surrogate: Toluene-d8	0.519		"	0.500		104	70-130			
Surrogate: Bromofluorobenzene	0.501		"	0.500		100	70-130			

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 10/15/19 14:32
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Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1941045 - Anion Extraction EPA 300.0/9056A

Blank (1941045-BLK1)				Prepared & Analyzed: 10/10/19 1						
Chloride	ND	20.0	mg/kg							
LCS (1941045-BS1)				Prepared & Analyzed: 10/10/19 1						
Chloride	256	20.0	mg/kg	250		102	90-110			
Matrix Spike (1941045-MS1)				Source: P910036-01 Prepared & Analyzed: 10/10/19 1						
Chloride	869	20.0	mg/kg	250	612	103	80-120			
Matrix Spike Dup (1941045-MSD1)				Source: P910036-01 Prepared & Analyzed: 10/10/19 1						
Chloride	882	20.0	mg/kg	250	612	108	80-120	1.52	20	

QC Summary Report

Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

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Logos Operating, LLC	Project Name:	Rosa 354A	
PO Box 18	Project Number:	12035-0114	Reported:
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	10/15/19 14:32

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

Soil data is reported on an "as received" weight basis, unless reported otherwise.

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Project Information

Chain of Custody

Client: <u>LOGANS</u>		Report Attention		Lab Use Only		TAT		EPA Program											
Project: <u>ROSA 354A</u>		Report due by:		Lab WO# <u>P910036</u>		Job Number <u>12035-0114</u>		1D		3D		RCRA		CWA		SDWA			
Project Manager: <u>AMSS: Parcel</u>		Attention:		Analysis and Method		State		TX		OK		NM		CO		UT		AZ	
Address:		Address:		DRO/DRO by 8015		GRO/DRO by 8015		BTEX by 8021		VOC by 8260		Metals 6010		Chloride 300.0					
City, State, Zip		City, State, Zip																	
Phone: <u>505.787.2027</u>		Phone:																	
Email: <u>lfenerv@logansresources.com</u>		Email:																	

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	Remarks
1:22	10/8/19	S	2	Rosa 354A SS1	1	✓	✓	✓		✓		
1:22	10/8/19	S	2	Rosa 354A SS2	2	✓	✓	✓		✓		
1:22	10/8/19	S										
1:22	10/8/19	S										

Additional Instructions: STAT

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentional mishandling the sample collection, date or time of collection is considered fraud and may be grounds for legal action. Sampled by: J. J. [Signature]

Samples requiring thermal preservation must be retained on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6°C on subsequent days. visire in cooler

Relinquished by: (Signature) <u>[Signature]</u>	Date <u>10/8/19</u>	Time <u>3:53</u>	Received by: (Signature) <u>Raina Lopez</u>	Date <u>10/8/19</u>	Time <u>15:53</u>	Lab Use Only
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Received on ice: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	T1 _____ T2 _____ T3 _____
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other						AVG Temp °C <u>4</u>
Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA						

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.



5795 US Highway 64, Farmington, NM 87401
24 Hour Emergency Response Phone (800) 362-1879

Ph (505) 632-1881 Fax (505) 632-1881

envirotech-inc.com
labadmin@envirotech-inc.com



Analytical Report

Report Summary

Client: Logos Operating, LLC

Samples Received: 11/8/2019

Job Number: 12035-0114

Work Order: P911036

Project Name/Location: Rosa 354A Del.

Report Reviewed By:

Date: 11/15/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNi unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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Envirotech, Inc, holds the Utah TNi certification NM009792018-1 for the data reported.
Envirotech, Inc, holds the Texas TNi certification T104704557-19-2 for the data reported.



Logos Operating, LLC	Project Name:	Rosa 354A Del.	Reported: 11/15/19 17:07
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Rosa 354A Del 1	P911036-01A	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
	P911036-01B	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
Rosa 354A Del 2	P911036-02A	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
	P911036-02B	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Del. Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 11/15/19 17:07
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**Rosa 354A Del I
P911036-01 (Solid)**

Analyte	Reporting								
	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organics by EPA 8021									
Benzene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		99.1 %		50-150	1946002	11/11/19	11/12/19	EPA 8021B	
Nonhalogenated Organics by 8015 - DRO/ORO									
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1946013	11/12/19	11/15/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1946013	11/12/19	11/15/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		105 %		50-200	1946013	11/12/19	11/15/19	EPA 8015D	
Nonhalogenated Organics by 8015 - GRO									
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		84.3 %		50-150	1946002	11/11/19	11/12/19	EPA 8015D	
Anions by 300.0/9056A									
Chloride	ND	20.0	mg/kg	1	1946012	11/12/19	11/12/19	EPA 300.0/9056A	

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Del. Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 11/15/19 17:07
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**Rosa 354A Del 2
P911036-02 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		98.7 %		50-150	1946002	11/11/19	11/12/19	EPA 8021B	

Nonhalogenated Organics by 8015 - DRO/ORO

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1946013	11/12/19	11/15/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1946013	11/12/19	11/15/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		116 %		50-200	1946013	11/12/19	11/15/19	EPA 8015D	

Nonhalogenated Organics by 8015 - GRO

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1946002	11/11/19	11/12/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		85.0 %		50-150	1946002	11/11/19	11/12/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	114	20.0	mg/kg	1	1946012	11/12/19	11/12/19	EPA 300.0/9056A	
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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Del. Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 11/15/19 17:07
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Volatile Organics by EPA 8021 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1946002 - Purge and Trap EPA 5030A

Blank (1946002-BLK1)

Prepared: 11/11/19 0 Analyzed: 11/11/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 4-Bromochlorobenzene-PID	8.04		"	8.00		100	50-150			

LCS (1946002-BS1)

Prepared: 11/11/19 0 Analyzed: 11/11/19 1

Benzene	4.94	0.0250	mg/kg	5.00	ND	98.7	70-130			
Toluene	5.05	0.0250	"	5.00	ND	101	70-130			
Ethylbenzene	4.97	0.0250	"	5.00	ND	99.4	70-130			
p,m-Xylene	9.89	0.0500	"	10.0	ND	98.9	70-130			
o-Xylene	4.93	0.0250	"	5.00	ND	98.5	70-130			
Total Xylenes	14.8	0.0250	"	15.0	ND	98.8	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.17		"	8.00		102	50-150			

Matrix Spike (1946002-MS1)

Source: P911034-01

Prepared: 11/11/19 0 Analyzed: 11/11/19 1

Benzene	5.13	0.0250	mg/kg	5.00	ND	103	54.3-133			
Toluene	5.26	0.0250	"	5.00	ND	105	61.4-130			
Ethylbenzene	5.18	0.0250	"	5.00	ND	104	61.4-133			
p,m-Xylene	10.3	0.0500	"	10.0	ND	103	63.3-131			
o-Xylene	5.12	0.0250	"	5.00	ND	102	63.3-131			
Total Xylenes	15.4	0.0250	"	15.0	ND	103	63.3-131			
Surrogate: 4-Bromochlorobenzene-PID	7.90		"	8.00		98.7	50-150			

Matrix Spike Dup (1946002-MSD1)

Source: P911034-01

Prepared: 11/11/19 0 Analyzed: 11/11/19 1

Benzene	5.08	0.0250	mg/kg	5.00	ND	102	54.3-133	1.01	20	
Toluene	5.19	0.0250	"	5.00	ND	104	61.4-130	1.33	20	
Ethylbenzene	5.12	0.0250	"	5.00	ND	102	61.4-133	1.25	20	
p,m-Xylene	10.2	0.0500	"	10.0	ND	102	63.3-131	1.08	20	
o-Xylene	5.05	0.0250	"	5.00	ND	101	63.3-131	1.36	20	
Total Xylenes	15.2	0.0250	"	15.0	ND	102	63.3-131	1.18	20	
Surrogate: 4-Bromochlorobenzene-PID	7.88		"	8.00		98.5	50-150			

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Del. Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 11/15/19 17:07
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Nonhalogenated Organics by 8015 - DRO/ORO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1946013 - DRO Extraction EPA 3570

Blank (1946013-BLK1)		Prepared: 11/12/19 Analyzed: 11/14/19 1								
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: n-Nonane	48.9		"	50.0		97.7	50-200			
LCS (1946013-BS1)		Prepared: 11/12/19 Analyzed: 11/14/19 1								
Diesel Range Organics (C10-C28)	499	25.0	mg/kg	500		99.9	38-132			
Surrogate: n-Nonane	50.0		"	50.0		100	50-200			
Matrix Spike (1946013-MS1)		Source: P911034-01		Prepared: 11/12/19 Analyzed: 11/14/19 1						
Diesel Range Organics (C10-C28)	1530	25.0	mg/kg	500	562	194	38-132			M2
Surrogate: n-Nonane	66.1		"	50.0		132	50-200			
Matrix Spike Dup (1946013-MSD1)		Source: P911034-01		Prepared: 11/12/19 Analyzed: 11/14/19 1						
Diesel Range Organics (C10-C28)	1480	25.0	mg/kg	500	562	184	38-132	3.51	20	M2
Surrogate: n-Nonane	62.9		"	50.0		126	50-200			

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Logos Operating, LLC PO Box 18 Flora Vista NM, 87415	Project Name: Rosa 354A Del. Project Number: 12035-0114 Project Manager: Larissa Farrell	Reported: 11/15/19 17:07
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Nonhalogenated Organics by 8015 - GRO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1946002 - Purge and Trap EPA 5030A

Blank (1946002-BLK1)		Prepared: 11/11/19 0 Analyzed: 11/11/19 1								
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.84		"	8.00		85.5	50-150			
LCS (1946002-BS2)		Prepared: 11/11/19 0 Analyzed: 11/11/19 1								
Gasoline Range Organics (C6-C10)	43.8	20.0	mg/kg	50.0	ND	87.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.83		"	8.00		85.3	50-150			
Matrix Spike (1946002-MS2)		Source: P911034-01		Prepared: 11/11/19 0 Analyzed: 11/11/19 1						
Gasoline Range Organics (C6-C10)	46.9	20.0	mg/kg	50.0	ND	93.7	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.89		"	8.00		86.1	50-150			
Matrix Spike Dup (1946002-MSD2)		Source: P911034-01		Prepared: 11/11/19 0 Analyzed: 11/11/19 2						
Gasoline Range Organics (C6-C10)	46.2	20.0	mg/kg	50.0	ND	92.4	70-130	1.41	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.82		"	8.00		85.2	50-150			

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Logos Operating, LLC	Project Name:	Rosa 354A Del.	Reported: 11/15/19 17:07
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1946012 - Anion Extraction EPA 300.0/9056A

Blank (1946012-BLK1)				Prepared: 11/12/19 0 Analyzed: 11/12/19 1						
Chloride	ND	20.0	mg/kg							
LCS (1946012-BS1)				Prepared: 11/12/19 0 Analyzed: 11/12/19 1						
Chloride	251	20.0	mg/kg	250		100	90-110			
Matrix Spike (1946012-MS1)				Prepared: 11/12/19 0 Analyzed: 11/12/19 1						
		Source: P911036-01								
Chloride	264	20.0	mg/kg	250	ND	106	80-120			
Matrix Spike Dup (1946012-MSD1)				Prepared: 11/12/19 0 Analyzed: 11/12/19 1						
		Source: P911036-01								
Chloride	262	20.0	mg/kg	250	ND	105	80-120	0.805	20	

QC Summary Report

Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

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Logos Operating, LLC	Project Name:	Rosa 354A Del.	Reported: 11/15/19 17:07
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

Notes and Definitions

- M2 Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- ** Methods marked with ** are non-accredited methods.

Soil data is reported on an "as received" weight basis, unless reported otherwise.

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