

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-144
Revised April 3, 2017

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or
Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☐ Below grade tank registration
☐ Permit of a pit or proposed alternative method
☒ Closure of a pit, below-grade tank, or proposed alternative method
☐ Modification to an existing permit/or registration
☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

DENIED

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

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

1.
Operator: LOGOS Resources II, LLC OGRID # 289408
Address: 2010 Afton Pl Farmington, NM 87410
Facility or well name: Rosa Unit #043
API Number: 30-039-07954 OCD Permit Number: _____
U/L or Qtr/Qtr J Section 19 Township 31N Range 04W County: Rio Arriba
Center of Proposed Design: Latitude 36.8820075 Longitude -107.293039 NAD83
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no
☐ Lined ☐ Unlined Liner type: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____ bbl Dimensions: L _____ x W _____ x D _____

*No Operator Signature, No Notification, Did not provide if operator
Comply with requirements of closure, No picture of BGT closure

3.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: 120 bbl Type of fluid: _____
Tank Construction material: Fiberglass Tank w/ Banded 20 mil HDPE Secondary Liner
☒ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☐ Other _____

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)
☐ Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify _____

6.

Netting: Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other _____
- ☐ Monthly inspections (If netting or screening is not physically feasible)

7.

Signs: Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☐ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

- ☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC**Instructions:** The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.**General siting****Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

- ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells

☐ Yes ☐ No
☐ NA

Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.

NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

☐ Yes ☐ No
☐ NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. (**Does not apply to below grade tanks**)

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☐ No

Within the area overlying a subsurface mine. (**Does not apply to below grade tanks**)

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☐ No

Within an unstable area. (**Does not apply to below grade tanks**)

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

☐ Yes ☐ No

Within a 100-year floodplain. (**Does not apply to below grade tanks**)

- FEMA map

☐ Yes ☐ No

Below Grade Tanks

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Temporary Pit Non-low chloride drilling fluid

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

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, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Permanent Pit or Multi-Well Fluid Management Pit

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 500 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

10.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.

Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ A List of wells with approved application for permit to drill associated with the pit.
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

- ☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Climatological Factors Assessment
☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Quality Control/Quality Assurance Construction and Installation Plan
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Nuisance or Hazardous Odors, including H₂S, Prevention Plan
☐ Emergency Response Plan
☐ Oil Field Waste Stream Characterization
☐ Monitoring and Inspection Plan
☐ Erosion Control Plan
☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit
☐ Alternative
- Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method

14.

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

- | | |
|---|--|
| Ground water is less than 25 feet below the bottom of the buried waste.
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> NA |
| Ground water is between 25-50 feet below the bottom of the buried waste
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> NA |
| Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).
- Topographic map; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application.
- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Written confirmation or verification from the municipality; Written approval obtained from the municipality | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within 300 feet of a wetland.
US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance | |

adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☒ No

Within the area overlying a subsurface mine.

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☒ No

Within an unstable area.

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

☐ Yes ☒ No

Within a 100-year floodplain.

- FEMA map

☐ Yes ☒ No

16.

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.

Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

18.

OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: _____ **Approval Date:** _____

Title: _____ **OCD Permit Number:** _____

19.

Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☒ Closure Completion Date: 12/17/19

20.

Closure Method:

- ☐ Waste Excavation and Removal ☒ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
- ☐ If different from approved plan, please explain.

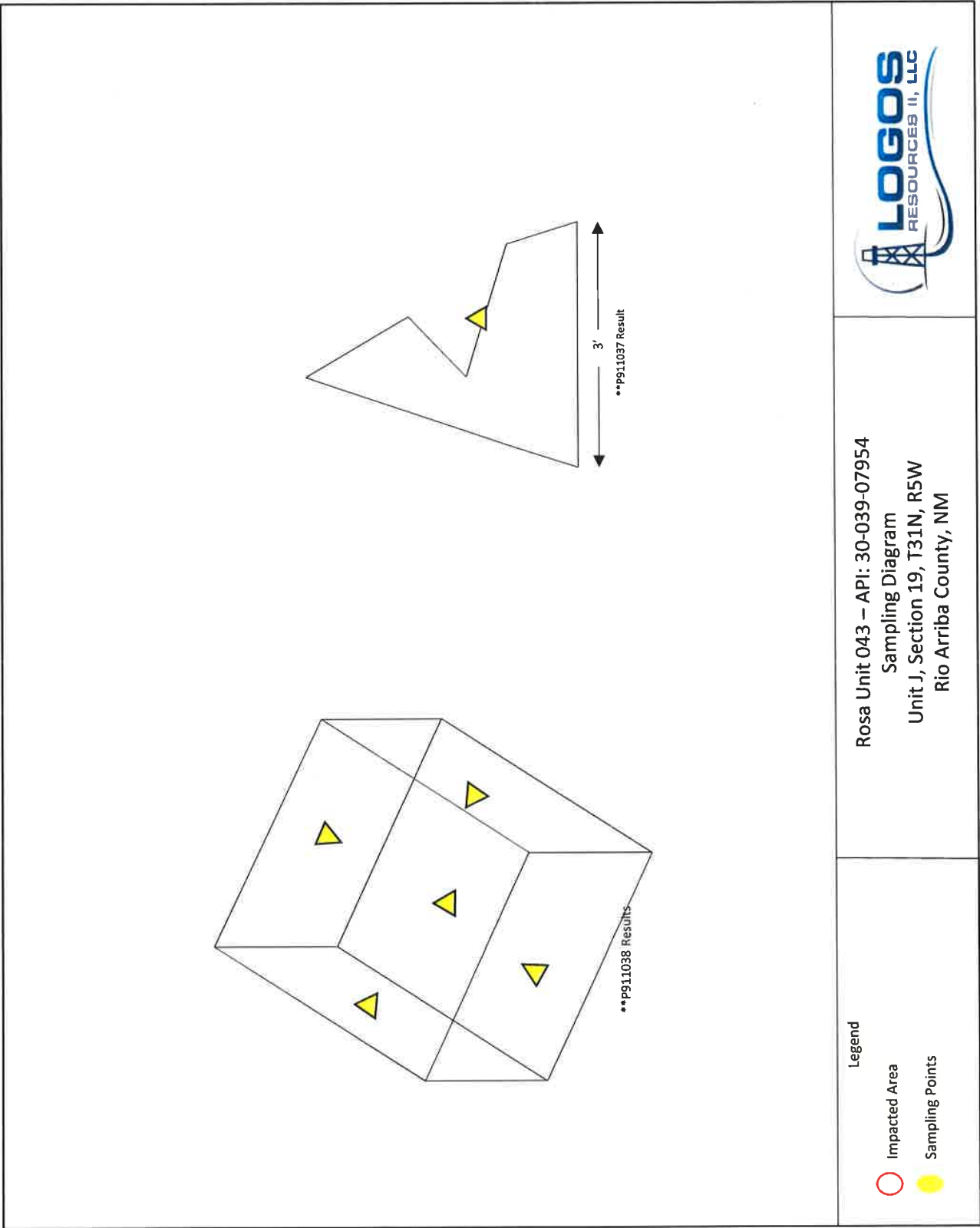
21.

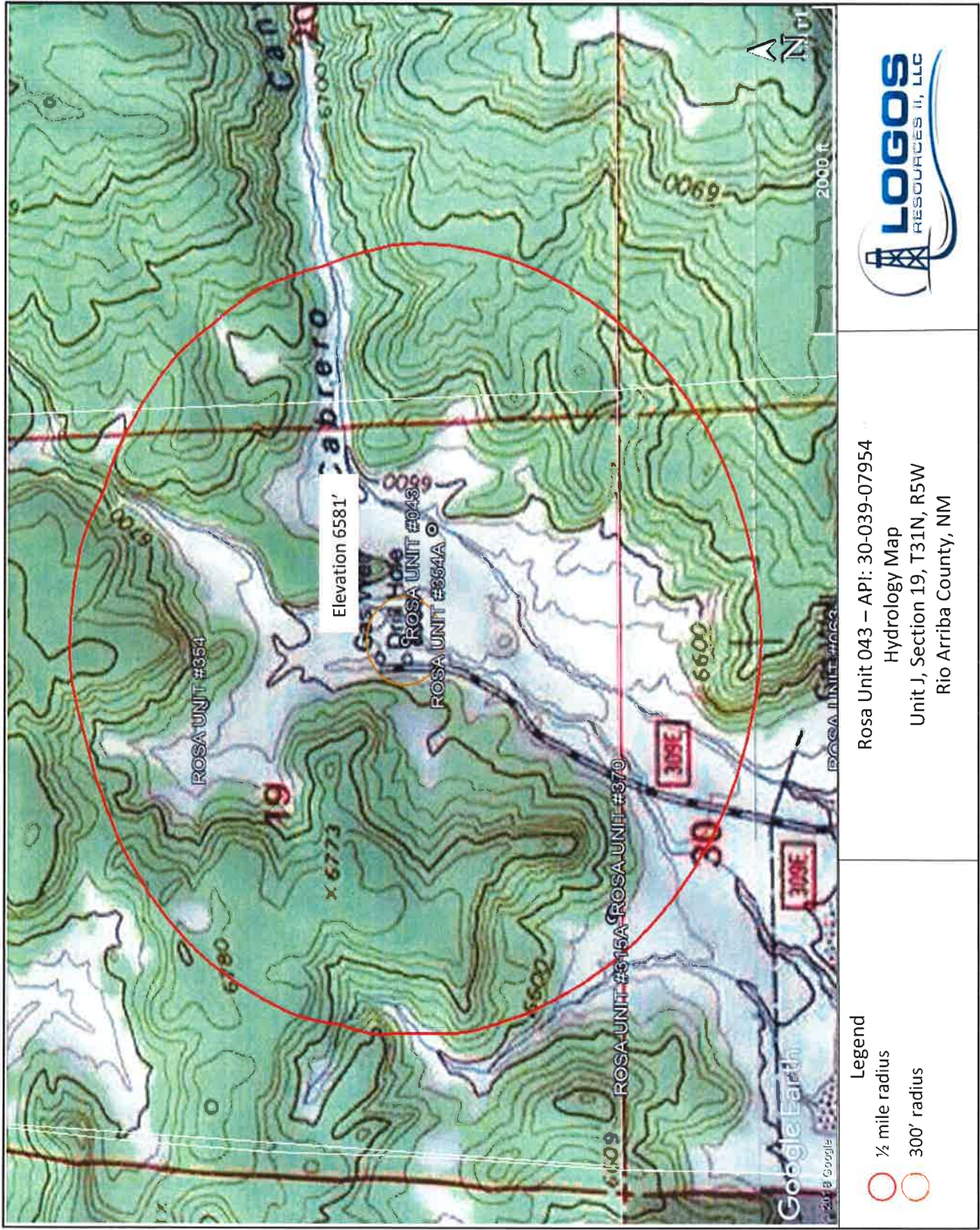
Closure Report Attachment Checklist: *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- ☒ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only)
- ☐ Plot Plan (for on-site closures and temporary pits)
- ☒ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☒ Soil Backfilling and Cover Installation
- ☐ Re-vegetation Application Rates and Seeding Technique
- ☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983









Analytical Report

Report Summary

Client: Logos Operating, LLC

Samples Received: 11/8/2019

Job Number: 12035-0114

Work Order: P911038

Project Name/Location: Rosa 43

Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Walter Hinchman', is written over a horizontal line.

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.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.
Envirotech, Inc, holds the Utah TNI certification NM009792018-1 for the data reported.
Envirotech, Inc, holds the Texas TNI certification T104704567-19-2 for the data reported.



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

Project Name: Rosa 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:29

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Rosa 43 P1	P911038-01A	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
	P911038-01B	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
Rosa 43 P2	P911038-02A	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
	P911038-02B	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 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:29

Rosa 43 P1
P911038-01 (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	
Surrogate: 4-Bromochlorobenzene-PID		98.9 %		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	11/14/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1946013	11/12/19	11/14/19	EPA 8015D	
Surrogate: n-Nonane		125 %		50-200	1946013	11/12/19	11/14/19	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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		85.2 %		50-150	1946002	11/11/19	11/12/19	EPA 8015D	
Anions by 300.0/9056A									
Chloride	21.4	20.0	mg/kg	1	1946012	11/12/19	11/13/19	EPA 300.0/9056A	

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Logos Operating, LLC	Project Name: Rosa 43	Reported:
PO Box 18	Project Number: 12035-0114	11/15/19 16:29
Flora Vista NM, 87415	Project Manager: Larissa Farrell	

Rosa 43 P2
P911038-02 (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	
Surrogate: 4-Bromochlorobenzene-PID		98.6 %		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	11/14/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1946013	11/12/19	11/14/19	EPA 8015D	
Surrogate: n-Nonane		135 %		50-200	1946013	11/12/19	11/14/19	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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		84.6 %		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	11/13/19	EPA 300.0/9056A	

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

Project Name: Rosa 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:29

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		98.7	70-130			
Toluene	5.05	0.0250	"	5.00		101	70-130			
Ethylbenzene	4.97	0.0250	"	5.00		99.4	70-130			
p,m-Xylene	9.89	0.0500	"	10.0		98.9	70-130			
o-Xylene	4.93	0.0250	"	5.00		98.5	70-130			
Total Xylenes	14.8	0.0250	"	15.0		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 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:29

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 1946013 - DRO Extraction EPA 3570

Blank (1946013-BLK1)

Prepared: 11/12/19 1 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 1 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 1 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 1 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	Project Name:	Rosa 43	Reported: 11/15/19 16:29
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

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		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 43	Reported: 11/15/19 16:29
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						
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						
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 43	
PO Box 18	Project Number:	12035-0114	Reported:
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	11/15/19 16:29

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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Chain of Custody

Page 1 of 1

Page 10 of 10

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24 Hour Emergency Response Phone (800) 362-1879

Pln (505) 632-1881 Fx (505) 632-1865

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: P911037

Project Name/Location: Rosa 43

Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Walter Hinchman', is written over a horizontal line.

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 T104704657-19-2 for the data reported.



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

Project Name: Rosa 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:28

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Pit	P911037-01A	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.
	P911037-01B	Soil	11/08/19	11/08/19	Glass Jar, 4 oz.

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Logos Operating, LLC	Project Name:	Rosa 43	Reported: 11/15/19 16:28
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

Pit
P911037-01 (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	
Surrogate: 4-Bromochlorobenzene-PID		98.6 %		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	11/14/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1946013	11/12/19	11/14/19	EPA 8015D	
Surrogate: n-Nonane		137 %		50-200	1946013	11/12/19	11/14/19	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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		85.3 %		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	Project Name: Rosa 43	
PO Box 18	Project Number: 12035-0114	Reported:
Flora Vista NM, 87415	Project Manager: Larissa Farrell	11/15/19 16:28

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		98.7	70-130			
Toluene	5.05	0.0250	"	5.00		101	70-130			
Ethylbenzene	4.97	0.0250	"	5.00		99.4	70-130			
p,m-Xylene	9.89	0.0500	"	10.0		98.9	70-130			
o-Xylene	4.93	0.0250	"	5.00		98.5	70-130			
Total Xylenes	14.8	0.0250	"	15.0		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 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:28

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 1946013 - DRO Extraction EPA 3570

Blank (1946013-BLK1)

Prepared: 11/12/19 1 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 1 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 1 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 1 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	Project Name:	Rosa 43	Reported: 11/15/19 16:28
PO Box 18	Project Number:	12035-0114	
Flora Vista NM, 87415	Project Manager:	Larissa Farrell	

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		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 43	
PO Box 18	Project Number: 12035-0114	Reported:
Flora Vista NM, 87415	Project Manager: Larissa Farrell	11/15/19 16:28

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						
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						
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
PO Box 18
Flora Vista NM, 87415

Project Name: Rosa 43
Project Number: 12035-0114
Project Manager: Larissa Farrell

Reported:
11/15/19 16:28

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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