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	NRM2005744201
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Ray Westall Operating, Inc	OGRID: 119305
Contact Name: Donnie Matthews	Contact Telephone: 575-677-2370
Contact email: hope_rene@yahoo.com	Incident # *(assigned by OCD)*
Contact mailing address PO Box 4. Loco Hills, NM 88255-0004	

Location of Release Source

Latitude 32.6890212 Longitude -104.1818357
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Curry Comb Booster	Site Type: Produced Water Transfer Line
Date Release Discovered: April 2019 1st	API#

Unit Letter	Section	Township	Range	County
K	04	19S	28E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: Concho/COG*_____)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 16	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:
Failure of produced water transfer line.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2005744201
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? Release considered greater than 25 barrels until release is characterized and delineated.
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

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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: Ray Westall Title: President

Signature: Date: 1/6/20

email: Telephone: 575-677-2370

OCD Only

Received by: Ramona Marcus Date: 02/26/2020

NRM2005744201

Spill Dimensions to Volume of Release			
Input	**volume of affected soil**	**[feet^3]**	3000
Input	Porosity: typically is .35 to .40 for most soils	[-]	0.30
Input	Proportion of porosity filled with release fluid [0,1]	[-]	0.10
Output	volume of fluid	[feet^3]	**90.0**
		[gal]	**673.2**
		Barrels	16.0

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM2005744201
District RP	
Facility ID	
Application ID	

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?	250 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ 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 ½-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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM2005744201
District RP	
Facility ID	
Application ID	

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: Kay Westall Title: President

Signature: Date: 1/6/20

email: Telephone: 575-677-2370

OCD Only

Received by: Ramona Marcus Date: 02/26/2020

LOWRY environmental

NRM2005744201

April 11, 2019

Ryan Mann
Hobbs Field Office
New Mexico State Land Office
2827 North Dal Paso Street, Suite 117
Hobbs, NM 88240

Re: **Site Assessment Report and Proposed Remediation Plan**
Site Name: Currycomb Booster
GPS: Latitude: 32.690556 Longitude: -104.183977
Legals: UL "F", Sec. 4, T18S, R28E
EddyCounty, New Mexico

Lowry Environmental & Associates, LLC (LEA), on behalf of Ray Westall Operating, INC, has prepared this Site Assessment Report and Proposed Remediation Plan for the Release Site known as the Currycomb Booster.

Site Assessment/Characterization	
What is the shallowest depth to groundwater beneath the area affected by the release?	>100 Ft.
Did this release impact groundwater or surface water?	No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	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)?	No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	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?	No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	No
Are the lateral extents of the release within 300 feet of a wetland?	No
Are the lateral extents of the release overlying a subsurface mine?	No
Are the lateral extents of the release overlying an unstable area such as karst geology?	No
Are the lateral extents of the release within a 100-year floodplain?	No
Did the release impact areas **not** on an exploration, development, production or storage site?	Yes

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey was conducted in an effort to determine the average depth to groundwater within a 1 Mile radius of the Site and identify any registered water wells within a 1/2 Mile radius of the Site. A search of the NMOSE database suggested the presence of 1 water well (CP 00478) approximately 3,800 Ft. from the site. A search of the USGS database identified did not identify any water wells within a 1-Mile radius of the Site.

Based on the volume and nature of the release, inferred depth to groundwater and NMOCD Siting Criteria, the NMOCD Closure Criteria for the Site is as follows:

Closure Criteria for Soil Impacted by a Release	
Benzene	**10 mg/kg**
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)	**50 mg/kg**
Total Petroleum Hydrocarbons	**2500 mg/kg**
Combined GRO and DRO	**1000 mg/kg**
Chloride	**20000 mg/kg**

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1 & 2. Depth to groundwater information is provided as Attachment #4.

INITIAL SITE ASSESSMENT

On **April 1, 2019,** an initial site assessment was conducted. During the initial site assessment, six (6) test trenches (TT 1 through TT 6) were advanced within the release margins in an effort to determine the vertical extent of impacted soil affected above the NMOCD Closure Criteria. Soil samples were collected at approximate 1 Ft. intervals field screened, and submitted to an NMOCD-approved laboratory for analysis of BTEX, TPH and/or chloride. Laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples.

Laboratory analytical results indicated chloride concentrations exceeded the NMOCD Reclamation Standard for soil not on an active production pad in soil samples TT 1 @ 2' (2,800 mg/kg), TT 2 @ 3' (6,480 mg/kg), TT 3 @ 3' (4,880 mg/kg), TT 4 @ 3' (2,960 mg/kg), TT 6 @ 3' (3,680 mg/kg), NH 4 @ Surf. (2,080 mg/kg), SH 4 @ 12-18" (3,200 mg/kg), NH 6 @ Surf. and NH 6 @ 12-18" (1,800 mg/kg).

A table summarizing laboratory analytical results from soil samples collected during the initial site assessment is provided on the following page:

Concentrations of BTEX, TPH and/or Chloride in Soil											
Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500Cl
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{36} (mg/kg)	TPH C_6-C_{36} (mg/kg)	Chloride (mg/kg)
TT 1 @ 2'	4/1/19	2'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,800**
TT 1 @ 3'	4/1/19	3'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
TT 2 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**6,480**
TT 2 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	13.2	13.2	<10.0	13.2	**1,330**
TT 3 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**4,880**
TT-3 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**2,080**
TT 4 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,960**
TT 4 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	624
TT 5 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**3,200**
TT 6 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**3,680**
TT 6 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	10.3	10.3	<10.0	10.3	160
NH 2 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	144
NH 2 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	10.7	10.7	<10.0	10.7	144
SH 2 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	11.8	11.8	10.0	21.8	32.0
SH-2 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
NH 4 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,080**
NH 4 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SH 4 @ Surf.	4/1/19	Surf.	In-Situ			<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SH 4 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	11.2	11.2	<10.0	11.2	**3,200**
NH 6 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	11.4	11.4	<10.0	21.6	624
NH 6 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	10.7	10.7	<10.0	10.7	**1,800**
SH 6 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	27.0	27.0	<10.0	27.0	80.0
SH 6 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	16.7	16.7	<10.0	16.7	48.0
NMOCD Reclamation Standard				**10**	**50**	**-**	**-**	**-**	**-**	**100**	**600**

A "Site & Sample Location Map" is provided as Attachment #3. Field Data, if applicable, is provided as Attachment #7. Soil profile observations are provided on Attachment #5. Laboratory analytical reports are provided as Attachment #6.

PROPOSED REMEDIATION PLAN

Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment, Ray Westall Operating, INC proposes the following remediation activities designed to advance the Site toward an approved closure:

•Utilizing mechanical equipment, excavate impacted soil affected above the NMOCD Reclamation Standard in the areas characterized by samples points TT 1, TT 2, TT 3, TT 4 TT 5, TT 6 NH 4 and SH-4.

-The area characterized by sample point TT 1 will be excavated to a depth of 3 Ft. bgs.
-The area characterized by sample point TT 2 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 3 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 4 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 5 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 6 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point NH 4 will be excavated to a depth of 12 In. bgs.
-The area characterized by sample point SH 4 will be excavated to a depth beyond 18 In. bgs.

•Excavation sidewalls will be advance horizontally until laboratory analytical results indicate chloride concentrations are below the NMOCD Reclamation Standard (600 mg/kg).
• Excavated soil will be temporarily stockpiled on-site, pending transportation under manifest to an NMOCD-approved disposal facility.
• Upon receiving favorable laboratory analytical results from confirmation soil samples (below the NMOCD Reclamation Standards) excavated areas will be backfilled with locally sourced, non-impacted "like" material. Excavation backfill will be placed at or near original relative positions. The affected area will be contoured and/or compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable.
• Upon reclaiming the facility, the Site will be reseeded in accordance with the landowner and/or applicable surface agency during the first favorable growing season.
• Areas affected by restoration and reclamation activities will be monitored until a life-form ratio of plus or minimum fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds.

SAMPLING PLAN

Upon completion of excavation activities, representative five-point composite excavation confirmation soil samples will be collected from the excavation sidewalls in each cardinal direction, representing no more than **100 linear ft**. A minimum of **one (1**) representative five-point composite excavation confirmation soil sample will be collected from the base of the excavated area representing every **1000 square feet**. Additional, "discrete" confirmation soil samples will be collected from wet or visibly stained areas inferred to have been affected by the release, as necessary.

TIMELINE AND ESTIMATED VOLUME OF SOIL TO BE REMEDIATED

Remediation activities are expected to be completed **within 90 days** of receiving necessary approval(s) of this Site Assessment Summary and Proposed Remediation Plan. Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment it is estimated that approximately **3,000 cubic yards** of soil has been affected above the NMOCD Closure Criteria.

If you have any questions, or need any additional information, please feel free to contact Donnie Mathews or the undersigned by phone or email.

Respectfully,

Joel W. Lowry
Environmental Professional
Lowry Environmental & Associates, LLC

Attachments:

Attachment #1- Figure 1 - Topographic Map
Attachment #2- Figure 2 - Aerial Map
Attachment #3- Figure 3 - Site & Sample Location Map
Attachment #4- Depth to Groundwater Information
Attachment #5- Soil Profile
Attachment #6- Laboratory Analytical Reports
Attachment #7- Field Data

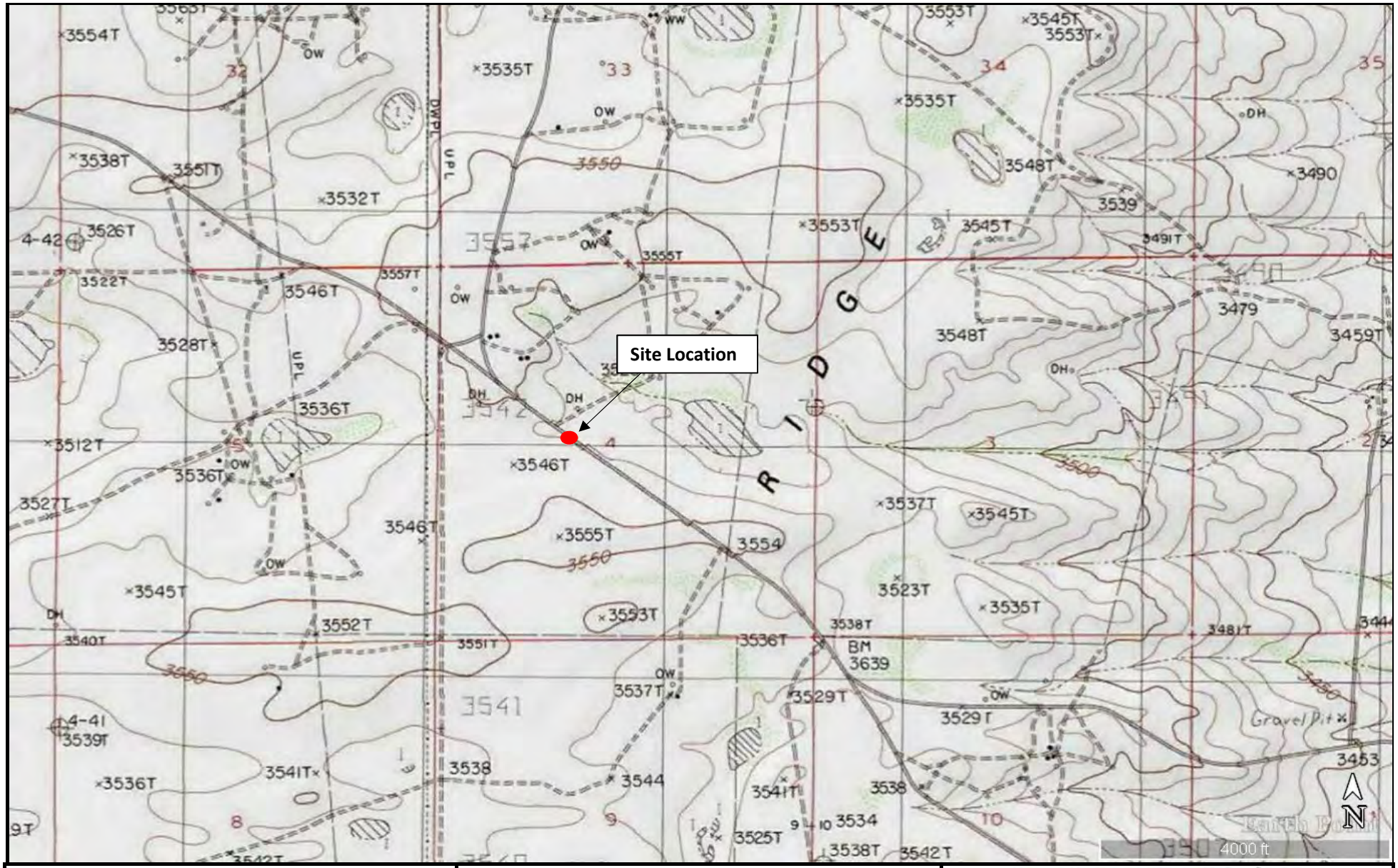
LIMITATIONS

This document has been prepared on behalf of Ray Westall Operating, INC. Use of information contained in this report, including exhibits and attachments, by any other party without the consent of LEA and/or Ray Westall Operating, INC is prohibited.

This document has been prepared in a professional manner, using the degree of skill and care exercised by similar environmental professionals. LEA notes that the facts and conditions referenced in this document may change over time and that the conclusions and recommendations are only applicable to the facts and conditions as described at the time this document was prepared.

LEA has prepared this report to the best of its ability. No other warranty, expressed or implied, is made or intended.

Attachment #1
Figure 1 - Topographic Map



LEGEND:

- Site Location

Figure 1
Topographic Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

Attachment #2
Figure 2 - Aerial Map

LEGEND:

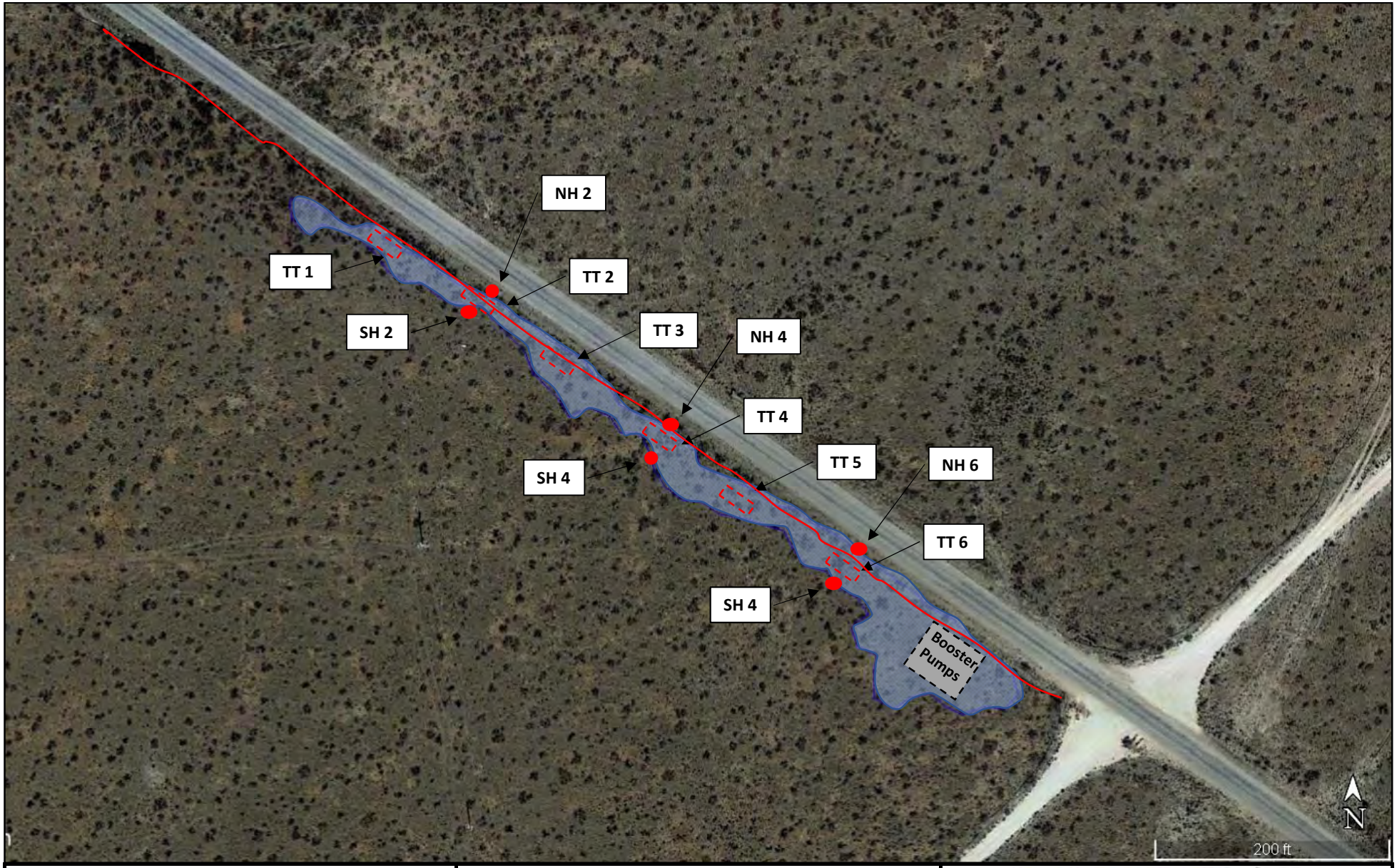
- Site Location
- Fresh Water Well
- 100-Year Floodplain
- High/Critical Karst
- Non-Inustrial Building
- Subsurface Mine
- 1/2 Mile Radius

Figure 2
Aerial Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

Attachment #3
Figure 3 - Site & Sample Location Map



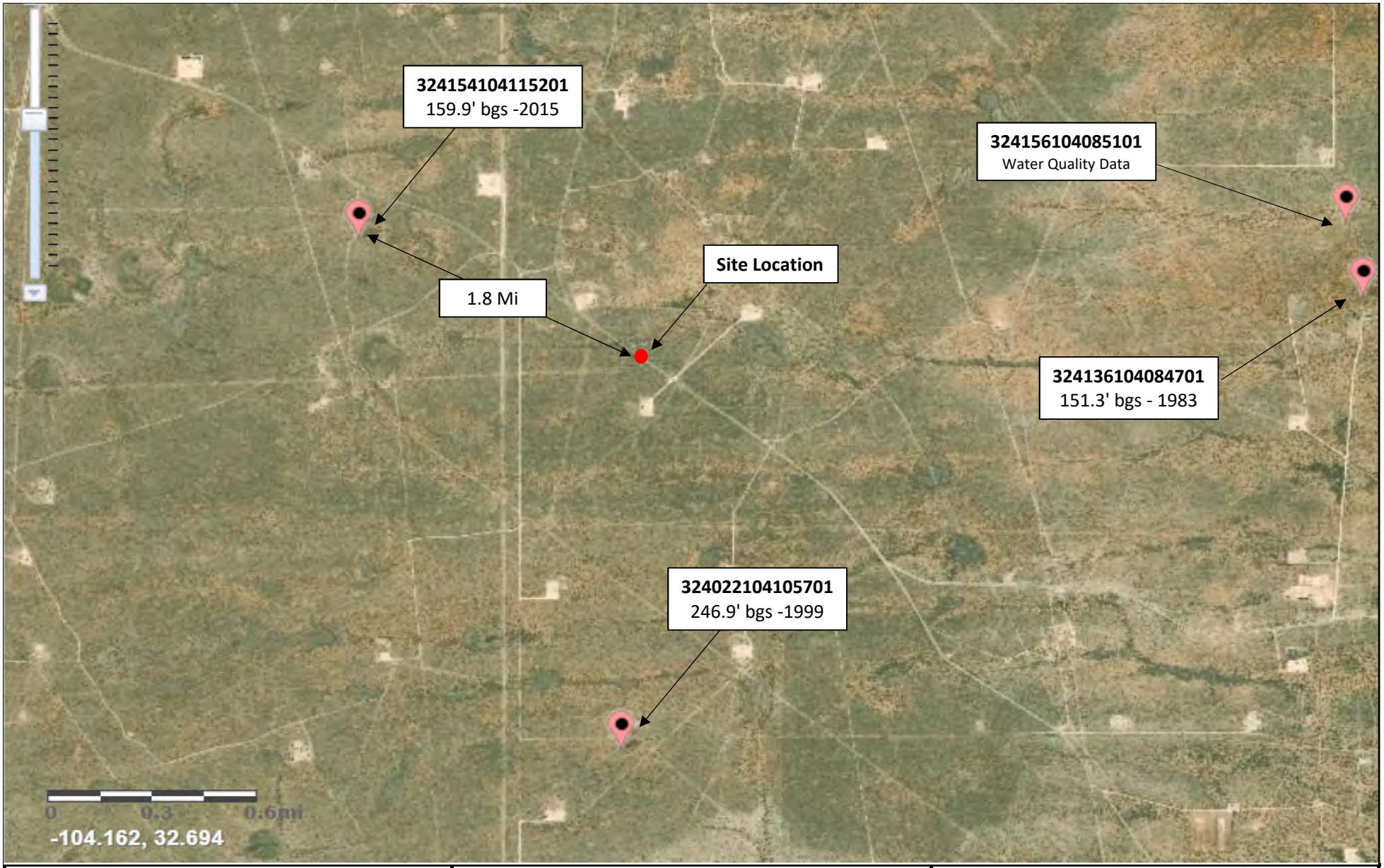
LEGEND:
- Sample Location
- Affected Area
- Test Trench
- Poly Pipeline

Figure 3
Site & Sample Location Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

Attachment #4
Depth to Groundwater Information



LEGEND:

- Site Location

Figure 5
USGS Well Proximity Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00478 POD1		CP	ED	1	1	4	05	19S	28E	575300	3617036*	1266	312	145	167

Average Depth to Water: **145 feet**

Minimum Depth: **145 feet**

Maximum Depth: **145 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 576552.7 **Northing (Y):** 3617222.8 **Radius:** 1610

***UTM location was derived from PLSS - see Help**

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324154104115201

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 324154104115201 19S.28E.05.21114

Eddy County, New Mexico
Latitude 32°41'45.8", Longitude 104°11'48.7" NAD83
Land-surface elevation 3,543 feet above NAVD88
The depth of the well is 160 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1965-11-03		D	153.76			2		U		
1968-04-01		D	151.71			2	R	U		
1971-01-28		D	150.62			2		U		
1976-12-09		D	149.77			2		U		
1983-01-11		D	148.71			2		U		
1986-06-03		D	148.86			2		S		
1990-09-20		D	149.17			2		S		
1994-03-09		D	150.18			2		S		
1999-02-19		D	150.70			2		S	USGS	
2015-12-16	12:40 MST	m	159.93			2	R	S	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level date-time accuracy	m	Date is accurate to the Minute
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Status	R	Site had been pumped recently.
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.

Section	Code	Description
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2019-04-11 10:18:10 EDT
0.51 0.47 nadww01

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324022104105701

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 324022104105701 19S.28E.09.32322

Eddy County, New Mexico
Latitude 32°40'23.4", Longitude 104°11'01.7" NAD83
Land-surface elevation 3,544 feet above NAVD88
The depth of the well is 365.00 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1986-06-04		D	246.97			2	Z	S		
1994-03-09		D	246.70			2	R	S		
1999-02-19		D	246.38			2		S	USGS	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Status	R	Site had been pumped recently.
Status	Z	Other conditions existed that would affect the measured water level (explain in remarks).
Method of measurement	S	Steel-tape measurement.
Measuring agency		Not determined
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

National Water Information System: Web Interface

USGS Water Resources

Data Category: Water Quality | Geographic Area: United States | GO

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- Full News

Water Quality Samples for the Nation

To view additional data-quality attributes, output the results using these options: one result per row, expanded attributes. Additional precautions are here.

USGS 324156104085101 19S.28E.02.122 H A LINDLEY

Available data for this site: Water-Quality: Field/Lab samples | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°41'48", Longitude 104°08'50" NAD27
Land-surface elevation 3,450 feet above NGVD29
The depth of the well is 160 feet below land surface.

Output formats

Parameter Group Period of Record table
Inventory of available water-quality data for printing
Inventory of water-quality data with retrieval
Tab-separated data, one result per row
Tab-separated data one sample per row with remark codes combined with values
Tab-separated data one sample per row with tab-delimiter for remark codes
Reselect output format

Sample Datetime	Time datum	Time datum reliability code	Sample Medium Code	Agency Collecting Sample, Code	Agency analyzing sample, code (00028)	Specific conductance, wat unf uS/cm @ 25 degC (00095)	Bicarbonate, wat unf fixed end pt, field, mg/L (00440)	Carbonate, wat unf fixed end pt, field, mg/L (00445)	Nitrate water, fltrd, mg/L as N (00618)	Hardness, water, mg/L as CaCO3 (00900)
1948-12-13	MST	T	WG	USGS-WRD	1028	7280	142	0.0	2.48	1800

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 324136104084701

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 324136104084701 19S.28E.02.23312

Eddy County, New Mexico
Latitude 32°41'36", Longitude 104°08'47" NAD27
Land-surface elevation 3,452 feet above NAVD88
The depth of the well is 160 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurem
1948-12-13		D	128.27			2	P	U		
1968-04-02		D	153.84			2		U		
1976-12-09		D	154.14			2		U		
1983-01-11		D	151.35			2		U		

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Status	P	Site was being pumped.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help

Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2019-04-11 10:28:12 EDT
0.67 0.43 nadww02

Attachment #5
Soil Profile

SOIL PROFILE

Site Name: Curry comb

Date: 4-1-19

Description		Depth (ft. bgs)
Brown Top Soil		1
		2
Fractured Rock		3
		4
	TD	5
		6
		7
		8
		9
		0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		0

Attachment #6
Laboratory Analytical Reports

CARDINAL Laboratories

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

April 10, 2019

JOEL LOWRY

LOWRY ENVIROMENTAL & ASSOCIATES

PO BOX 296

LOVINGTON, NM 88260

RE: CURRYCOMB BOOSTER

Enclosed are the results of analyses for samples received by the laboratory on 04/03/19 14:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 1 @ 2' (H901243-01)

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2800**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	<10.0	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane	*81.7 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*78.5 %*	*37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 1 @ 3' (H901243-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/05/2019	ND	2.07	103	2.00	2.73	
Toluene*	<0.050	0.050	04/05/2019	ND	1.93	96.4	2.00	2.94	
Ethylbenzene*	<0.050	0.050	04/05/2019	ND	2.01	101	2.00	0.957	
Total Xylenes*	<0.150	0.150	04/05/2019	ND	6.21	103	6.00	1.29	
Total BTEX	<0.300	0.300	04/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *92.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	<10.0	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane *78.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *75.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 2 @ 3' (H901243-03)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6480**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	<10.0	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane	*83.0 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*79.3 %*	*37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 2 @ FLOOR (H901243-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/05/2019	ND	2.07	103	2.00	2.73	
Toluene*	<0.050	0.050	04/05/2019	ND	1.93	96.4	2.00	2.94	
Ethylbenzene*	<0.050	0.050	04/05/2019	ND	2.01	101	2.00	0.957	
Total Xylenes*	<0.150	0.150	04/05/2019	ND	6.21	103	6.00	1.29	
Total BTEX	<0.300	0.300	04/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *92.6 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1330**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	**13.2**	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane *82.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *79.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 3 @ 3' (H901243-05)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4880**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	<10.0	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane	*85.9 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*81.3 %*	*37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 3 @ FLOOR (H901243-06)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/05/2019	ND	2.07	103	2.00	2.73	
Toluene*	<0.050	0.050	04/05/2019	ND	1.93	96.4	2.00	2.94	
Ethylbenzene*	<0.050	0.050	04/05/2019	ND	2.01	101	2.00	0.957	
Total Xylenes*	<0.150	0.150	04/05/2019	ND	6.21	103	6.00	1.29	
Total BTEX	<0.300	0.300	04/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *94.0 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2080**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/04/2019	ND	179	89.6	200	11.4	
DRO >C10-C28*	<10.0	10.0	04/04/2019	ND	181	90.4	200	11.4	
EXT DRO >C28-C36	<10.0	10.0	04/04/2019	ND					

Surrogate: 1-Chlorooctane *83.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *79.3 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 4 @ 3' (H901243-07)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2960**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*104 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*98.1 %*	*37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 4 @ FLOOR (H901243-08)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/05/2019	ND	2.07	103	2.00	2.73	
Toluene*	<0.050	0.050	04/05/2019	ND	1.93	96.4	2.00	2.94	
Ethylbenzene*	<0.050	0.050	04/05/2019	ND	2.01	101	2.00	0.957	
Total Xylenes*	<0.150	0.150	04/05/2019	ND	6.21	103	6.00	1.29	
Total BTEX	<0.300	0.300	04/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *93.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *106 %* *41-142*

Surrogate: 1-Chlorooctadecane *102 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 5 @ FLOOR (H901243-09)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/05/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/05/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/05/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/05/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.9 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3200**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *95.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *90.8 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 6 @ 3' (H901243-10)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3680**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*106 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*101 %*	*37.6-147*

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CARDINAL Laboratories

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: TT 6 @ FLOOR (H901243-11)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.5 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**10.3**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *98.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *95.1 %* *37.6-147*

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 2 @ SURFACE (H901243-12)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*93.1 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*88.5 %*	*37.6-147*

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 2 @ 12-18" (H901243-13)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *92.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**10.7**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *99.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *97.1 %* *37.6-147*

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CARDINAL Laboratories

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 2 @ SURFACE (H901243-14)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**11.8**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	**10.0**	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*91.5 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*89.3 %*	*37.6-147*

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 2 @ 12-18" (H901243-15)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.8 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *105 %* *41-142*

Surrogate: 1-Chlorooctadecane *102 %* *37.6-147*

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 4 @ SURFACE (H901243-16)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2080**	16.0	04/05/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*101 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*95.6 %*	*37.6-147*

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CARDINAL Laboratories

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 4 @ 12-18" (H901243-17)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *87.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *90.5 %* *37.6-147*

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 4 @ SURFACE (H901243-18)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	<10.0	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*102 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*97.2 %*	*37.6-147*

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CARDINAL Laboratories

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 4 @ 12-18" (H901243-19)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3200**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**11.2**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *102 %* *41-142*

Surrogate: 1-Chlorooctadecane *96.9 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 6 @ SURFACE (H901243-20)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**11.4**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	**10.2**	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*99.6 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*95.4 %*	*37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: NH 6 @ 12-18" (H901243-21)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *92.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1800**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	202	101	200	0.218	
DRO >C10-C28*	**10.7**	10.0	04/05/2019	ND	205	103	200	1.12	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *96.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *94.1 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 6 @ SURFACE (H901243-22)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	213	107	200	0.887	
DRO >C10-C28*	**27.0**	10.0	04/05/2019	ND	196	98.0	200	10.4	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane	*75.5 %*	*41-142*
Surrogate: 1-Chlorooctadecane	*74.2 %*	*37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

LOWRY ENVIROMENTAL & ASSOCIATES
JOEL LOWRY
PO BOX 296
LOVINGTON NM, 88260
Fax To:

Received:	04/03/2019	Sampling Date:	04/01/2019
Reported:	04/10/2019	Sampling Type:	Soil
Project Name:	CURRYCOMB BOOSTER	Sampling Condition:	Cool & Intact
Project Number:	RAY WESTALL OPERATING, INC	Sample Received By:	Tamara Oldaker
Project Location:	EDDY CO., NM		

Sample ID: SH 6 @ 12-18" (H901243-23)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/06/2019	ND	2.16	108	2.00	2.74	
Toluene*	<0.050	0.050	04/06/2019	ND	2.01	101	2.00	3.59	
Ethylbenzene*	<0.050	0.050	04/06/2019	ND	2.13	106	2.00	3.63	
Total Xylenes*	<0.150	0.150	04/06/2019	ND	6.43	107	6.00	3.46	
Total BTEX	<0.300	0.300	04/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *93.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	04/05/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/05/2019	ND	213	107	200	0.887	
DRO >C10-C28*	**16.7**	10.0	04/05/2019	ND	196	98.0	200	10.4	
EXT DRO >C28-C36	<10.0	10.0	04/05/2019	ND					

Surrogate: 1-Chlorooctane *71.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *70.7 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

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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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Lowry Environmental	**BILL TO**	**ANALYSIS REQUEST**
Project Manager:	Joel Lowry	**P.O. #:**	
Address:	PO 896, Lovington, NM 88260	**Company:**	
		Same	
Phone #:	**Fax #:**		
Project Owner:	Ray Westall Operating, Inc.		
Project Name:	Currycomb Booster		
Project Location:	Eddy Co, NM	**Attn:**	
Sampler Name:	Jordyne Taylor	Joel Lowry	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		TPH 8015 M. Ext (New Mexico)	Chloride 4500 Cl-B	BTEX 8021	TPH TX 1005								RUSH	
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME													
H901243																											
1	TT1 @ 2'	G	1			x					x		4/1/19	13:10	x	x										
2	TT1 @ 3'	G	1			x					x		"	13:15	x	x	x									
3	TT2 @ 3'	G	1			x					x		"	13:20	x	x										
4	TT2 @ FLOOR	G	1			x					x		"	13:25	x	x	x									
5	TT3 @ 3'	G	1			x					x		"	13:30	x	x										
6	~~TT2 @ FLOOR~~ TT3 @ Floor	G	1			x					x		"	13:35	x	x	x									
7	TT4 @ 3'	G	1			x					x		"	13:40	x	x										
8	TT4 @ FLOOR	G	1			X					X		"	13:45	x	x	x									
9	TT5 @ FLOOR	G	1			X					X		"	13:50	x	x	x									
10	TT6 @ 3'	G	1			X					X		"	13:55	x	x										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, 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 services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	**Date:** 4/3/19	**Received By:**	**Phone Result:** ☐ Yes ☐ No **Add'l Phone #:**
	Time: 1445		**Fax Result:** ☐ Yes ☐ No **Add'l Fax #:**
Relinquished By:	**Date:**	**Received By:**	**REMARKS:**
	Time:		joel@lowryenviromental.com

Delivered By: (Circle One) Sampler - UPS - Bus - Other: -1.3c #97

Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No

CHECKED BY: (Initials) TO

FORM-006 R 2.0

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(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Lowry Environmental	**BILL TO**	**ANALYSIS REQUEST**
Project Manager:	Joel Lowry	**P.O. #:**	
Address:	PO 896, Lovington, NM 88260	**Company:**	
Phone #:	**Fax #:**	**Same**	
Project Owner:	Ray Westall Operating, Inc.		
Project Name:	Currycomb Booster		
Project Location:	Eddy Co, NM	**Attn:**	
Sampler Name:	Jordyne Taylor	Joel Lowry	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	TPH 8015 M. Ext (New Mexico)	Chloride 4500 Cl-B	BTEX 8021	TPH TX 1005								RUSH	
H901243																										
11	TT6 @ FLOOR	G	1			x					x		4/1/19	14:00	x	x	X										
12	NH2 @ SURF	G	1			x					x		4/1/19	14:05	x	x											
13	NH2 @ 12-18"	G	1			x					x		4/1/19	14:10	x	x	X										
14	SH2 @ SURF	G	1			x					x		4/1/19	14:15	x	x											
15	SH2 @ 12-18"	G	1			x					x		4/1/19	14:20	x	x	X										
16	NH4 @ SURF	G	1			x					x		4/1/19	14:25	x	x											
17	NH4 @ 12-18"	G	1			x					x		4/1/19	14:30	x	x	X										
18	SH4 @ SURF	G	1			X					X		4/1/19	14:35	x	x											
19	SH4 @ 12-18"	G	1			X					X		4/1/19	14:40	x	x	X										
20	NH6 @ SURF	G	1			X					X		4/1/19	14:45	x	x											

Relinquished By: Jordyne Taylor	**Date:** 4/3/19	**Received By:** Tamara Oldaker	**Phone Result:** ☐ Yes ☐ No **Add'l Phone #:**
	Time: 1445		**Fax Result:** ☐ Yes ☐ No **Add'l Fax #:**
Relinquished By:	**Date:**	**Received By:**	**REMARKS:** joel@lowryenviromental.com
	Time:		

Delivered By: (Circle One) Sampler - UPS - Bus - Other: -1.3c #97

Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No

CHECKED BY: (Initials) TO

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Lowry Environmental
Project Manager:	Joel Lowry
Address:	PO 896, Lovington, NM 88260
Phone #:	**Fax #:**
Project Owner:	Ray Westall Operating, Inc.
Project Name:	Currycomb Booster
Project Location:	Eddy Co, NM
Sampler Name:	Jordyne Taylor

BILL TO

P.O. #:	
Company:	
	Same
Attn:	Joel Lowry

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	TPH 8015 M. Ext (New Mexico)	Chloride 4500 Cl-B	BTEX 8021	TPH TX 1005	RUSH
T.O. H&901243																			
21	NH6 @ 12-18"	G	1			x					x		4/1/19	14:50	x	x	X		
22	SH6 @ SURF	G	1			x					x		4/1/19	14:55	x	x			
23	SH5 @ 12-18"	G	1			x					x		4/1/19	15:00	x	x	X		

Relinquished By:	Date: 4/3/19	**Received By:**	
	Time: 1445		
Relinquished By:	Date:	**Received By:**	
	Time:		

Delivered By: (Circle One) Sampler - UPS - Bus - Other: -1.3° #97

Sample Condition		CHECKED BY: (Initials)
Cool	Intact	
☑ Yes ☐ No	☑ Yes ☐ No	T.O.

Phone Result:	☐ Yes	☐ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☐ No	**Add'l Fax #:**
REMARKS:			

joel@lowryenviromental.com

FORM-006 R 2.0

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Attachment #7
Field Data

ite Name: Currycombo

SAMPLE LOG

Date: 4-1-19

Sample ID	Latitude	Longitude	Chloride	Odor
Ditch 1@1'	32.69013	-104.18349		
Ditch 1@2	"	"		
Ditch 1@3	"	"		
Ditch 1@floor	"	"		
Ditch 2@1	32.68998	104.18325		
Ditch 2@2	"	"		
Ditch 2@3	"	"		
Ditch 2@floor	"	"		
Ditch 3@1	32.68986	104.18306		
Ditch 3@2	"	"		
Ditch 3@3	"	"		
Ditch 3@floor	"	"		
Ditch 4@1	32.68967	104.18278		
Ditch 4@2	"	"		
Ditch 4@3	"	"		
Ditch 4@floor	"	"		
Ditch 5@1	32.68950	104.18255		
Ditch 5@2	"	"		
Ditch 5@3	"	"		
Ditch 5@floor	"	"		
Ditch 6@1	32.68933	104.18230		
Ditch 6@2	"	"		
Ditch 6@3	"	"		
Ditch 6@floor	"	"		

SAMPLE LOG

Site Name: Curry Comb Booster Date: 4-1-19

Sample ID	Latitude	Longitude	Chloride	Odor
TT1@1'	32.69013	-104.18349	—	
TT1@2'	"	"	1,664	TPH on upper
TT1@3'	"	"	<112	TPH + BTEX Lowers
TT1@floor	"	"	256	Cl on all
TT2@1'	32.68998	-104.18325	—	
TT2@2'	"	"	>2,564	
TT2@3'	"	"	2,564	
TT2@floor	"	"	356	
TT3@1'	32.68986	-104.18306	—	
TT3@2'	"	"	>2,564	
TT3@3'	"	"	2,564	
TT3@floor	"	"	996	
TT4@1'	32.68967	-104.18278		
TT4@2'	"	"	>2,564	
TT4@3'	"	"	2,228	
TT4@floor	"	"	176	
TT5@1'	32.68950	-104.18255		
TT5@2'	"	"	>2,564	
TT5@3'	"	"	2,228	
TT5@floor	"	"	2,160	
TT6@1'	32.68933	-104.18230		
TT6@2'	"	"	>2,564	
TT6@3'	"	"	>2,564	
TT6@floor	"	"	<128	
NH1@Surf	32.69017	-104.18350		
NH1@12-18"	"	"	164	
SH 1@Surf	32.69007	-104.18356		
SH 1@12-18"	"	"	<112	
NH2@Surf	32.69000	-104.18323		
NH2@12-18"	"	"	<112	
SH 2@Surf	32.68991	-104.18328		
SH 2@12-18"	"	"	<112	
NH3@Surf	32.68986	-104.18300		
NH3@12-18"	"	"	<112	
SH3@Surf	32.68982	-104.18308		
SH3@12-18"	"	"	<112	
NH4@Surf	32.68971	-104.18278		
NH4@12-18"	"	"	<112	
SH4@Surf	32.68963	-104.18288		
SH4@12-18"	"	"	2,200	
NH5@Surf	32.68954	-104.18255		
NH5@12-18"	"	"	1,032	
SH5@Surf.	32.68942	-104.18261		
SH5@12-18"	"	"	<112	
NH6@Surf	32.68940	-104.18229		
NH6@12-18"	"	"	1,780	
SH6@Surf.	32.68929	-104.18240		
SH6@12-18"	"	"	<112	

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	NRM2005744201
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Ray Westall Title: President

Signature: Date: 1/6/20

email: Telephone: 575-677-2370

OCD Only

Received by: Ramona Marcus Date: 02/26/2020

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date:

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745
✖ Durango, CO ✖ Carlsbad, NM ✖ Midland, TX✖

December 27, 2019

NMOCD - District 2
Mr. Mike Bratcher
811 S. First St.
Artesia, NM 88210

RE: Curry Comb Booster Release
UL "F" & "K", Sec. 4; T19S. R28E.
32.6890225, -104.181389 (NAD83)

Mr. Bratcher:

One the behalf of Ray Westall Operating, R.T. Hicks Consultants submits this workplan proposing in-situ remediation of a produced water release as characterized by Lowry Environmental on April 11, 2019. The constituent of concern is chloride. The northern half of the release is on State surface, the southern half of the release is on private surface (Plate 1) owned by Concho/COG.

This proposed workplan will replace the proposed remediation workplan as described in Lowry Environmental's report. Portions of the Lowery report is reproduced in Appendix A.

In preparation of this workplan, extensive research was conducted into the efficacy of in-situ remediation of produced water brine releases, including consulting with Dr. Kerry Sublette[1], an expert in the field of remediation of brine releases.

Per 19.15.29 NMAC, closure criteria for chloride where depth to water is greater than 100-feet is 20,000 mg/kg; 600 mg/kg in the upper 4-feet.

[1] Professor Emeritus. Chemical Engineering and Geosciences.. University of Tulsa.

Contents

1 Characterization

As presented in the Lowry report, 6 sample points and 6 trench locations were sampled for TPH, Benzene, and Chloride. TPH and Benzene are below closure criteria. Chloride is present above the closure criteria in the upper 4-feet with a maximums concentration of 6,480 mg/kg at TT 2 @ 3'. No samples extended beyond 4-feet below ground surface (bgs). The sample location with the highest chloride concentration at 4-feet was TT 5 @ Floor.

The Lowry report estimated 3,000 cu. yrds. of soil has been impacted by the releases.

2 Proposed Remediation

This proposed remediation plan replaces the remediation plan proposed in the Lowry report.

This proposed remedy shall restore the surface according the Table I of 19.15.29.12 NMAC and 19.15.29.13 NMAC.

Plate 2 shows the proposed remediation extent. The remediation extent is approximately 2,867 sq. yrds. with a volume of approximately 3,823 cu. yrds (assuming a 4-foot depth).

2.1 Proposed Remedy

The proposed remedy is to employ in-situ remediation technologies, including, but not limited to:

- Commercially available soil amendments
- Organic matrix of manure and straw
- Applications of fresh water, and
- Natural precipitation

2.2 Pre-Remedy Soil Assessment

The proposed remedy was developed from proven technologies discussed in professional publications[2] and consultation with experts in the field with respect to in-situ brine remediation.

The depth to water (>100 ft) and lithology (interbedded silty sands and caliche) of the location provides an acceptable environment for in-situ remediation. With a depth to water of approximately 250-feet below ground surface (Plate 3), chloride impact to groundwater is highly unlikely. Furthermore, the calcium carbonate in the caliche provides calcium that is needed for the replacement and release the chloride anions – allowing the chloride to migrate down through the soil column and beyond the plant root zone.

[2] See Reference section.

Successful in-situ brine remediation involves 1) an understanding of the impacted soil chemistry and 2) the application of soil amendments, blending-in a matrix of manure and straw, and water.

1. Conduct an electromagnetic induction (EMI) survey to obtain pre-remedy apparent electrical conductivity (EC_a). The EMI Survey will measure the effectiveness of the remedial process over time without the need for intrusive sampling. The EMI Survey will be conducted using a Genoics EM38-MK2, which measures EC_a to a depth of 5-feet (1.5-meters). EC_a readings will be correlated to chloride concentrations (Appendix B) obtained in Step 2, below.
2. Evaluate soil chemistry to determine type and quantity of soil amendments.
    - Soil samples will be obtained and analyzed for Chloride, EC, pH, ESP, SAR.
3. The results of the soil chemistry analysis will determine the type and quantity of commercially available soil amendments. Commercial soil amendments may include:
    - Citric Acid
    - Sal-Gone
    - Elemental Sulfur
4. Organic matter (straw and manure) will be blended into the subsurface to a depth of 4-feet. The straw and manure will increase soil porosity, decrease soil pH, and provide nutrients for good plant growth. At the surface, straw helps reduce surface erosion and crusting of salts.
5. Regular application of fresh water during the remedial process is necessary to create a medium and pathway for the chloride anions to move down past the plant root zone and prevent chlorides from leaching back to the surface. The use of berms and water bars will be implemented to capture surface water run-on and prevent surface water run-off; reducing the need for artificial precipitation.

2.3 Remedy Implementation

After evaluation of the physical and chemical properties of the soil, calculations from published documents will be used to determine the proper amount of soil amendments. The proposed plan is to:

1. Temporary stockpile existing topsoil during implementation of Step 2 (below).
2. Rip upper 4 to 4.5-feet of soil with an excavator to break-up caliche (if present) to increase soil porosity.
3. Blend in organic matter (straw and manure) to increase soil porosity, decrease soil pH, and provide nutrients for good plant growth. Add elemental sulfur (if required) at a rate of 1-ton/acre during the blending process.
4. Apply fresh water during the blending process to activate sulfur and keep mulch wet.
5. Create berms, water bars, and contour impacted area to capture surface water run-on and prevent surface water run-off; to increase in-filtration rates.
6. Blend in the stockpiled topsoil from Step 1 and apply a top dressing of organic matter (straw and manure) and apply chemical amendments (i.e. Citric Acid or Sal-Gone) according to quantity determined in Section 2.2. An approved seed mixture of salt tolerant plants will be applied during the dressing of topsoil.
7. Through natural and/or artificial precipitation, simulate a 2 to 3-inch/month precipitation event to keep soil amendments activated and increase infiltration rates of chloride anions past plant root zone and prevent chloride anions leaching to surface. If necessary, additional chemical amendments may be applied during artificial precipitation.

"*A unit depth of irrigation water will remove about 80% of salts from a unit depth of impacted soil*" (Sublette, no date). Assuming the proposed precipitation rate of 2-inches/month (24"/year), an expected rate of chloride concentration reduction without any soil amendments in the upper 4-feet of soil is 50%. Calculations show that by Year 3 (Figure 1) chloride concentrations in the upper 4-feet will be below Table 1 of 19.15.29 NMAC closure criteria. We expect the reduction of chloride concentrations over time will be greater with the addition of soil amendments.

Chlroide Concentration > 600 mgkg (Lowry Report)				
	Cl (mg/kg)	Year 1	Year 2	Year 3
Average	2926	1463	732	366
Median	2880	1440	720	360

Figure 1: Chloride concentration reduction at a rate of 50% assuming 24" of precipitation/yr applied at the surface to a depth of 4-feet.

2.4 Post-Remedy Evaluation

2.4.1 Semi and Annual Monitoring

We will conduct an EMI Survey every 6-months (semi-annually) to monitor the efficacy of proposed remedy. Annually, we will conduct an EMI Survey and obtain confirmation samples in the upper 4-feet for continued monitoring of the reduction of chloride. Forty-eight hour (48-hr) notice will be given to NMOCD and the State Land Office (SLO) prior to any EMI Survey or soil sampling.

If reduction of chloride is not within the expected 50% reduction rate, the following actions shall be evaluated and performed as necessary:

- Increase precipitation rates and/or introduce chemical amendments into artificial precipitation applications.
- Blend in additional organic matter to a depth of 4-feet.
- Blend in additional organic matter at the surface only.
- Re-seed as necessary.

3 Closure

Upon annual confirmation that chloride concentrations in the upper 4-feet are below Table 1 of 19.15.29 NMAC closure criteria, we shall submit a closure plan according to 19.15.29.12.D and E NMAC and ensure that the location is remediated in accordance with 19.15.29.13 NMAC.

Sincerely,

R.T. Hicks Consultants, Ltd

Andrew Parker
Sr. Environmental Specialist

Cc: Jim Griswold; NMOCD (Jim.Griswold@state.nm.us)
Ryan Mann; State Land Office (rmann@slo.state.nm.us)
Concho/COG

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745
✖ Durango, CO ✖ Carlsbad, NM ✖ Midland, TX✖

References

American Petroleum Institute. (2006, September). *Strategies for Addressing Salt Impacts of Produced Water Releases to Plants, soil and Groundwater.* Retrieved December 5, 2019 from https://www.api.org/~/media/Files/EHS/Environmental_Performance/4758.pdf

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Plates

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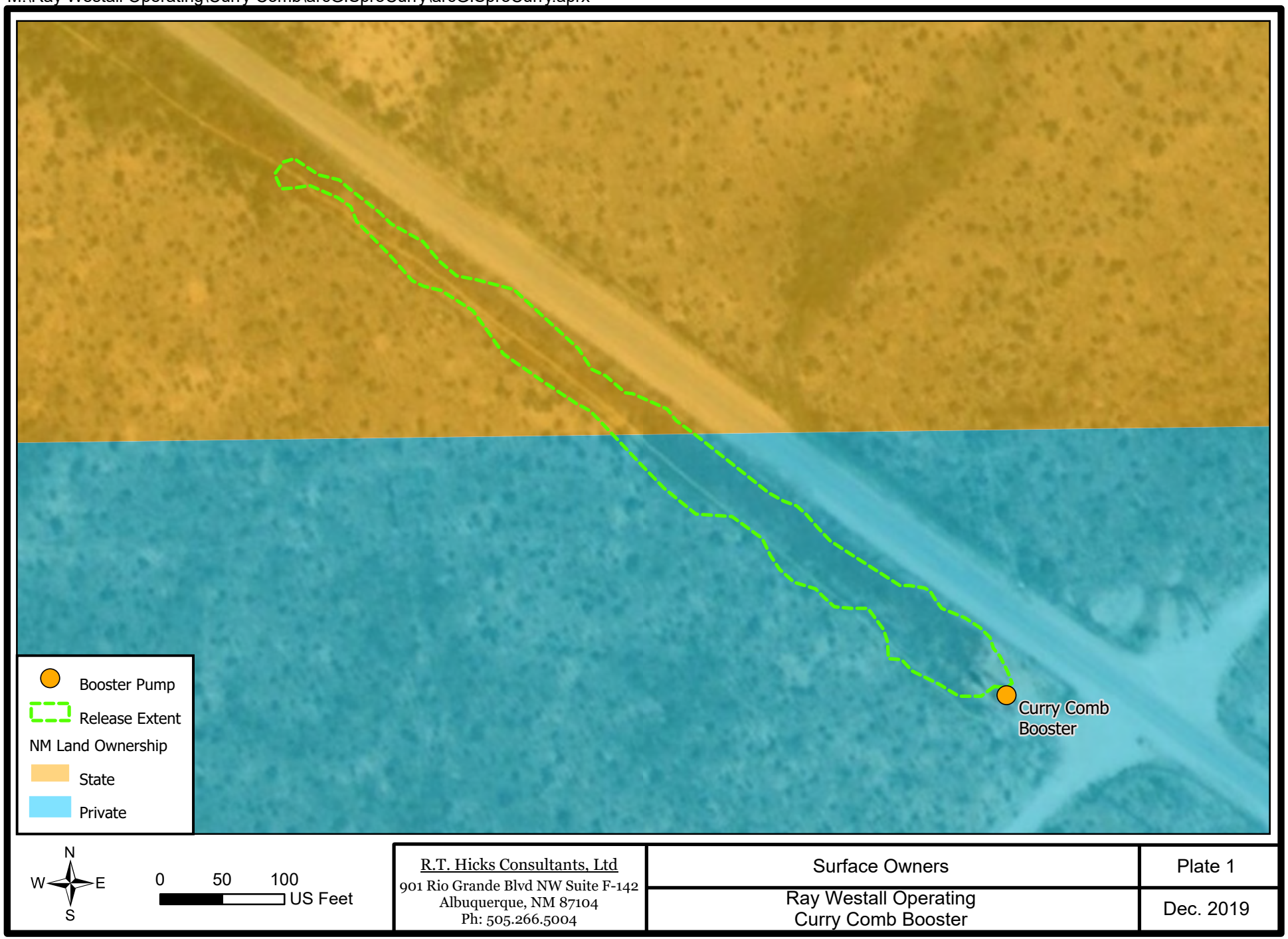

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Surface Owners

Ray Westall Operating
Curry Comb Booster

Plate 1

Dec. 2019

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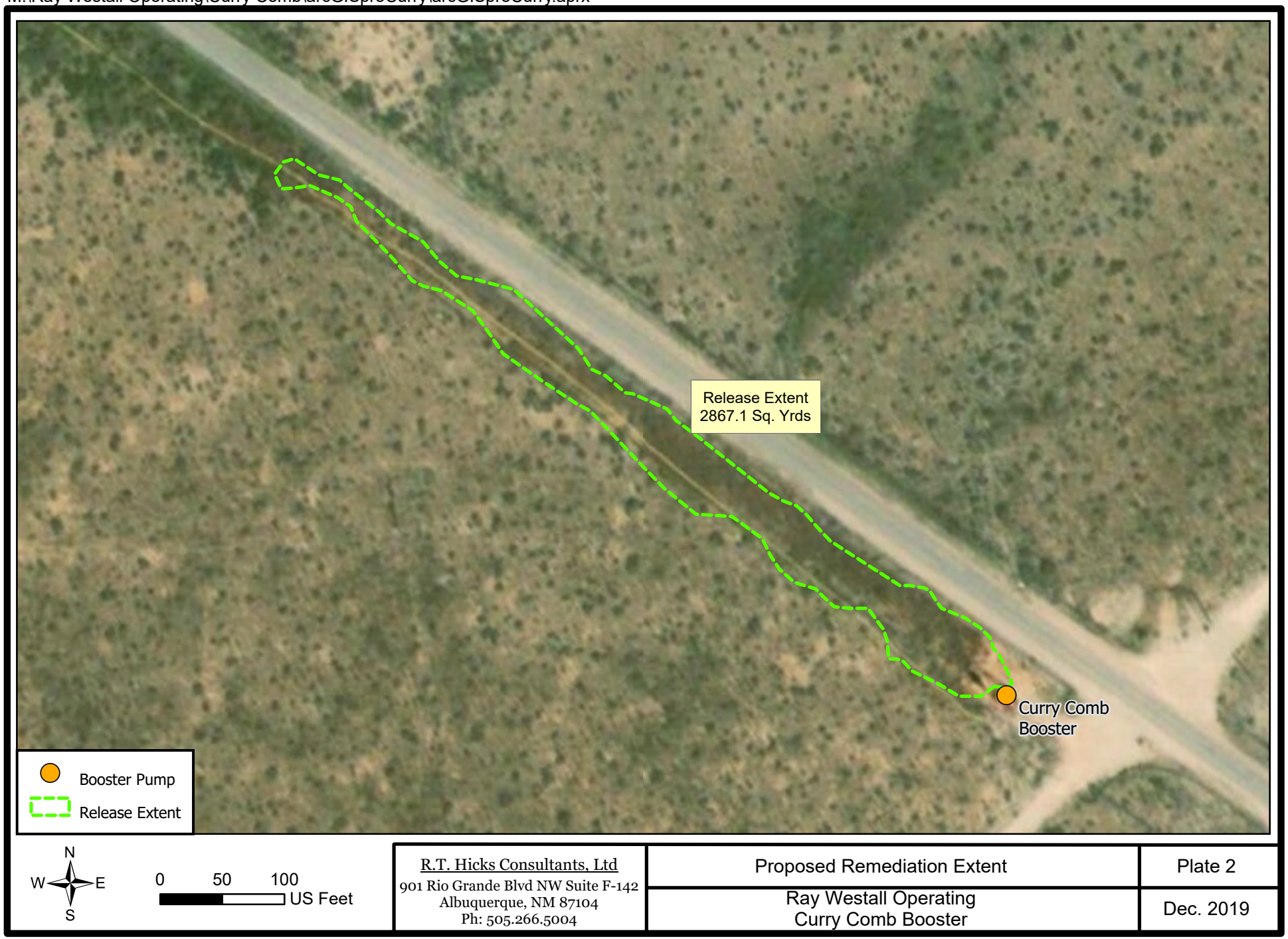

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Proposed Remediation Extent Ray Westall Operating Curry Comb Booster	Plate 2 Dec. 2019

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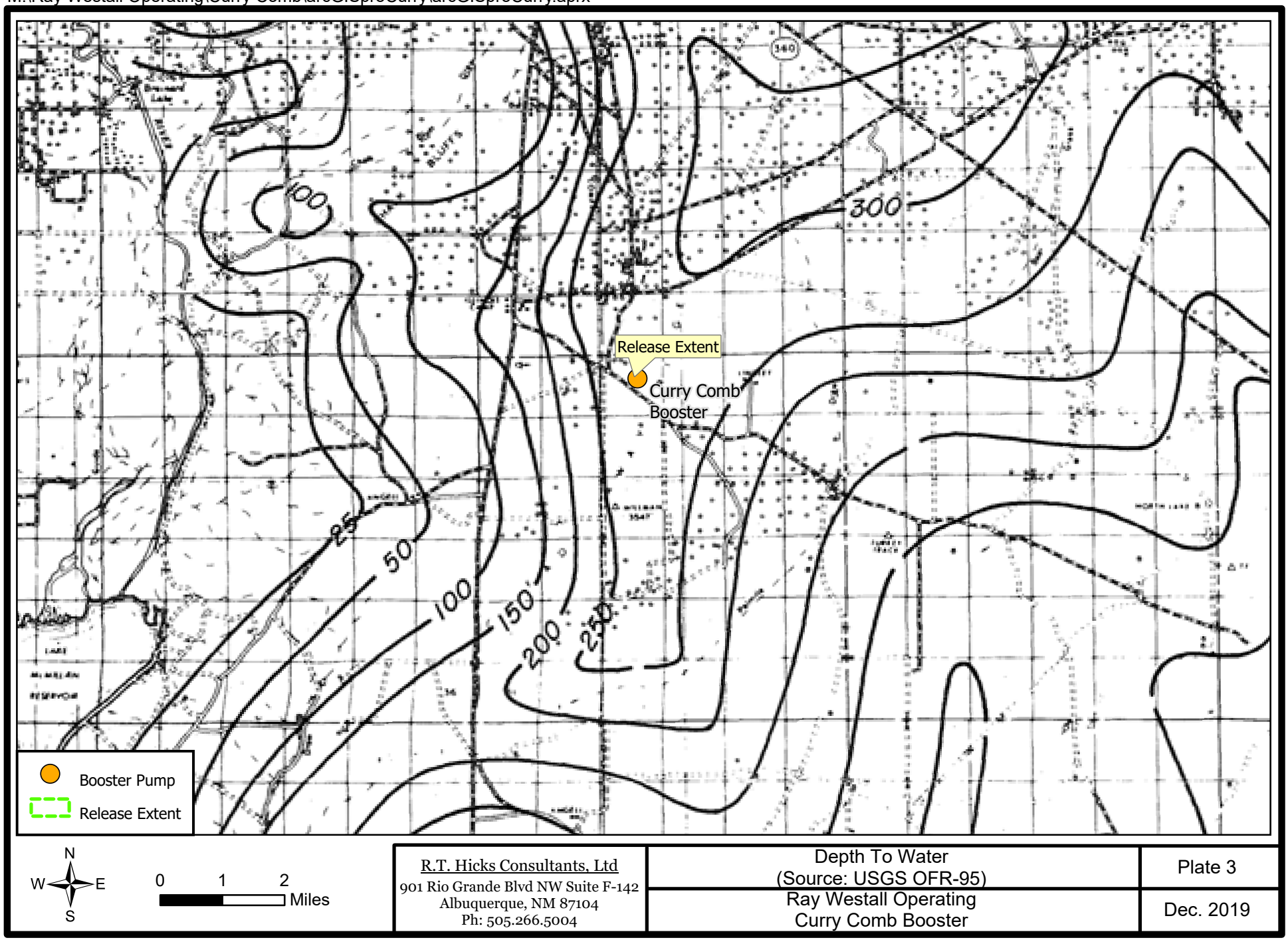


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth To Water (Source: USGS OFR-95) Ray Westall Operating Curry Comb Booster	Plate 3 Dec. 2019

Appendix A

Portions of Lowry Environmental Report

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

LOWRY environmental

April 11, 2019

Ryan Mann
Hobbs Field Office
New Mexico State Land Office
2827 North Dal Paso Street, Suite 117
Hobbs, NM 88240

Re: **Site Assessment Report and Proposed Remediation Plan**
Site Name: Currycomb Booster
GPS: Latitude: 32.690556 Longitude: -104.183977
Legals: UL "F", Sec. 4, T18S, R28E
EddyCounty, New Mexico

Lowry Environmental & Associates, LLC (LEA), on behalf of Ray Westall Operating, INC, has prepared this Site Assessment Report and Proposed Remediation Plan for the Release Site known as the Currycomb Booster.

Site Assessment/Characterization	
What is the shallowest depth to groundwater beneath the area affected by the release?	>100 Ft.
Did this release impact groundwater or surface water?	No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	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)?	No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	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?	No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	No
Are the lateral extents of the release within 300 feet of a wetland?	No
Are the lateral extents of the release overlying a subsurface mine?	No
Are the lateral extents of the release overlying an unstable area such as karst geology?	No
Are the lateral extents of the release within a 100-year floodplain?	No
Did the release impact areas **not** on an exploration, development, production or storage site?	Yes

A search of groundwater databases maintained by the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey was conducted in an effort to determine the average depth to groundwater within a 1 Mile radius of the Site and identify any registered water wells within a 1/2 Mile radius of the Site. A search of the NMOSE database suggested the presence of 1 water well (CP 00478) approximately 3,800 Ft. from the site. A search of the USGS database identified did not identify any water wells within a 1-Mile radius of the Site.

Based on the volume and nature of the release, inferred depth to groundwater and NMOCD Siting Criteria, the NMOCD Closure Criteria for the Site is as follows:

Closure Criteria for Soil Impacted by a Release	
Benzene	**10 mg/kg**
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)	**50 mg/kg**
Total Petroleum Hydrocarbons	**2500 mg/kg**
Combined GRO and DRO	**1000 mg/kg**
Chloride	**20000 mg/kg**

NMOCD Siting Criteria data was gathered from available resources including Bureau of Land Management (BLM) shapefiles; topographic maps; NMOSE and USGS databases; and aerial imagery. The results are depicted on Figures 1 & 2. Depth to groundwater information is provided as Attachment #4.

INITIAL SITE ASSESSMENT

On **April 1, 2019,** an initial site assessment was conducted. During the initial site assessment, six (6) test trenches (TT 1 through TT 6) were advanced within the release margins in an effort to determine the vertical extent of impacted soil affected above the NMOCD Closure Criteria. Soil samples were collected at approximate 1 Ft. intervals field screened, and submitted to an NMOCD-approved laboratory for analysis of BTEX, TPH and/or chloride. Laboratory analytical results indicated BTEX, TPH and chloride concentrations were below the NMOCD Closure Criteria in each of the submitted soil samples.

Laboratory analytical results indicated chloride concentrations exceeded the NMOCD Reclamation Standard for soil not on an active production pad in soil samples TT 1 @ 2' (2,800 mg/kg), TT 2 @ 3' (6,480 mg/kg), TT 3 @ 3' (4,880 mg/kg), TT 4 @ 3' (2,960 mg/kg), TT 6 @ 3' (3,680 mg/kg), NH 4 @ Surf. (2,080 mg/kg), SH 4 @ 12-18" (3,200 mg/kg), NH 6 @ Surf. and NH 6 @ 12-18" (1,800 mg/kg).

A table summarizing laboratory analytical results from soil samples collected during the initial site assessment is provided on the following page:

Concentrations of BTEX, TPH and/or Chloride in Soil											
Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					4500Cl
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{36} (mg/kg)	TPH C_6-C_{36} (mg/kg)	Chloride (mg/kg)
TT 1 @ 2'	4/1/19	2'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,800**
TT 1 @ 3'	4/1/19	3'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	112
TT 2 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**6,480**
TT 2 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	13.2	13.2	<10.0	13.2	**1,330**
TT 3 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**4,880**
TT-3 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**2,080**
TT 4 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,960**
TT 4 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	624
TT 5 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	**3,200**
TT 6 @ 3'	4/1/19	3'	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**3,680**
TT 6 @ Floor	4/1/19	4'	In-Situ	<0.050	<0.300	<10.0	10.3	10.3	<10.0	10.3	160
NH 2 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	144
NH 2 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	10.7	10.7	<10.0	10.7	144
SH 2 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	11.8	11.8	10.0	21.8	32.0
SH-2 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
NH 4 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	**2,080**
NH 4 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SH 4 @ Surf.	4/1/19	Surf.	In-Situ			<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SH 4 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	11.2	11.2	<10.0	11.2	**3,200**
NH 6 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	11.4	11.4	<10.0	21.6	624
NH 6 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	10.7	10.7	<10.0	10.7	**1,800**
SH 6 @ Surf.	4/1/19	Surf.	In-Situ	-	-	<10.0	27.0	27.0	<10.0	27.0	80.0
SH 6 @ 12-18"	4/1/19	12-18"	In-Situ	<0.050	<0.300	<10.0	16.7	16.7	<10.0	16.7	48.0
NMOCD Reclamation Standard				**10**	**50**	**-**	**-**	**-**	**-**	**100**	**600**

A "Site & Sample Location Map" is provided as Attachment #3. Field Data, if applicable, is provided as Attachment #7. Soil profile observations are provided on Attachment #5. Laboratory analytical reports are provided as Attachment #6.

PROPOSED REMEDIATION PLAN

Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment, Ray Westall Operating, INC proposes the following remediation activities designed to advance the Site toward an approved closure:

•Utilizing mechanical equipment, excavate impacted soil affected above the NMOCD Reclamation Standard in the areas characterized by samples points TT 1, TT 2, TT 3, TT 4 TT 5, TT 6 NH 4 and SH-4.

-The area characterized by sample point TT 1 will be excavated to a depth of 3 Ft. bgs.
-The area characterized by sample point TT 2 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 3 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 4 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 5 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point TT 6 will be excavated to a depth of 4 Ft. bgs.
-The area characterized by sample point NH 4 will be excavated to a depth of 12 In. bgs.
-The area characterized by sample point SH 4 will be excavated to a depth beyond 18 In. bgs.

•Excavation sidewalls will be advance horizontally until laboratory analytical results indicate chloride concentrations are below the NMOCD Reclamation Standard (600 mg/kg).
• Excavated soil will be temporarily stockpiled on-site, pending transportation under manifest to an NMOCD-approved disposal facility.
• Upon receiving favorable laboratory analytical results from confirmation soil samples (below the NMOCD Reclamation Standards) excavated areas will be backfilled with locally sourced, non-impacted "like" material. Excavation backfill will be placed at or near original relative positions. The affected area will be contoured and/or compacted to achieve erosion control, stability and preservation of surface water flow to the extent practicable.
• Upon reclaiming the facility, the Site will be reseeded in accordance with the landowner and/or applicable surface agency during the first favorable growing season.
• Areas affected by restoration and reclamation activities will be monitored until a life-form ratio of plus or minimum fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds.

SAMPLING PLAN

Upon completion of excavation activities, representative five-point composite excavation confirmation soil samples will be collected from the excavation sidewalls in each cardinal direction, representing no more than **100 linear ft**. A minimum of **one (1**) representative five-point composite excavation confirmation soil sample will be collected from the base of the excavated area representing every **1000 square feet**. Additional, "discrete" confirmation soil samples will be collected from wet or visibly stained areas inferred to have been affected by the release, as necessary.

TIMELINE AND ESTIMATED VOLUME OF SOIL TO BE REMEDIATED

Remediation activities are expected to be completed **within 90 days** of receiving necessary approval(s) of this Site Assessment Summary and Proposed Remediation Plan. Based on laboratory analytical results, site characteristics and field observations made during the initial site assessment it is estimated that approximately **3,000 cubic yards** of soil has been affected above the NMOCD Closure Criteria.

If you have any questions, or need any additional information, please feel free to contact Donnie Mathews or the undersigned by phone or email.

Respectfully,

Joel W. Lowry
Environmental Professional
Lowry Environmental & Associates, LLC

Attachments:
Attachment #1- Figure 1 - Topographic Map
Attachment #2- Figure 2 - Aerial Map
Attachment #3- Figure 3 - Site & Sample Location Map
Attachment #4- Depth to Groundwater Information
Attachment #5- Soil Profile
Attachment #6- Laboratory Analytical Reports
Attachment #7- Field Data

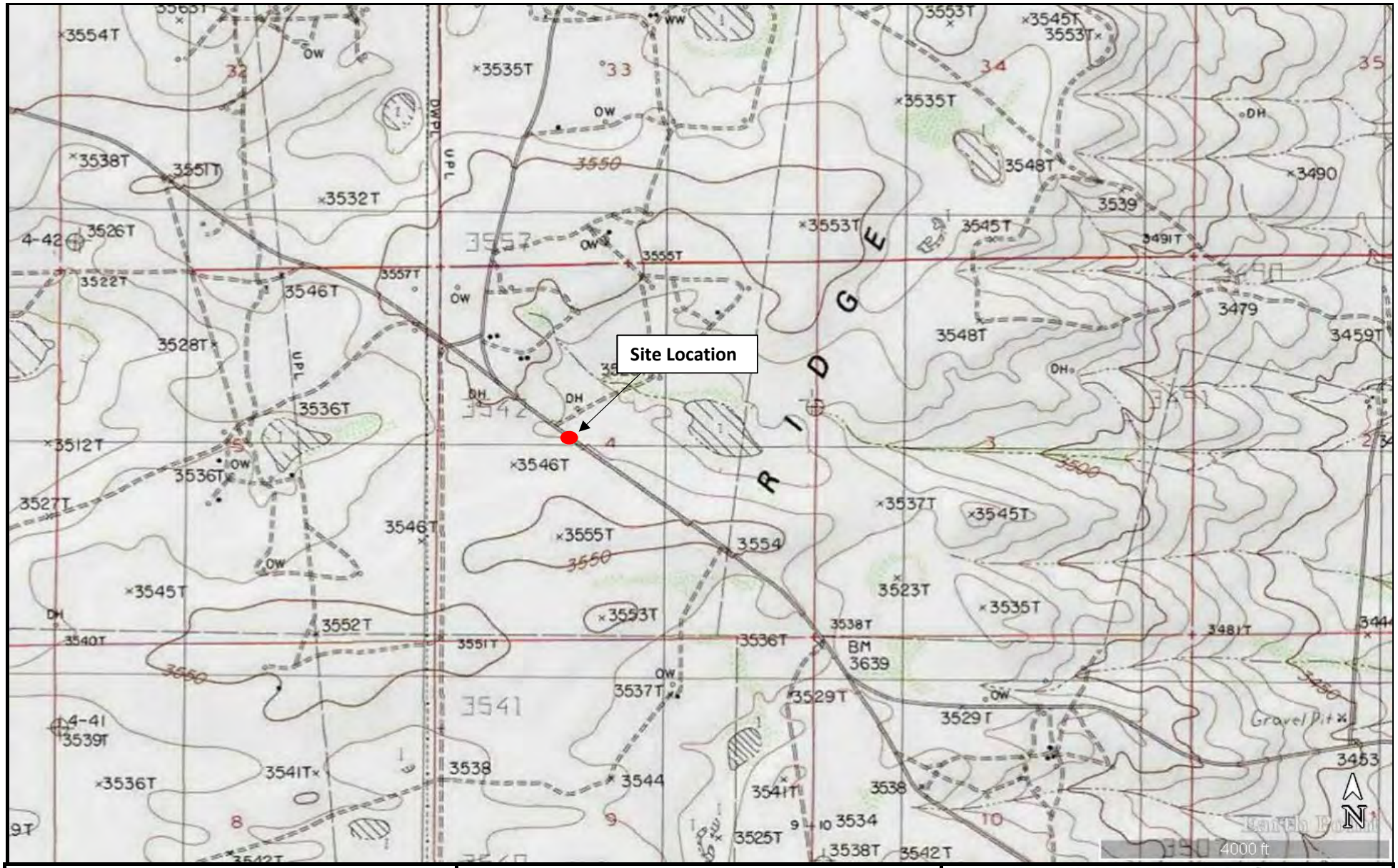
LIMITATIONS

This document has been prepared on behalf of Ray Westall Operating, INC. Use of information contained in this report, including exhibits and attachments, by any other party without the consent of LEA and/or Ray Westall Operating, INC is prohibited.

This document has been prepared in a professional manner, using the degree of skill and care exercised by similar environmental professionals. LEA notes that the facts and conditions referenced in this document may change over time and that the conclusions and recommendations are only applicable to the facts and conditions as described at the time this document was prepared.

LEA has prepared this report to the best of its ability. No other warranty, expressed or implied, is made or intended.

Attachment #1
Figure 1 - Topographic Map



LEGEND:

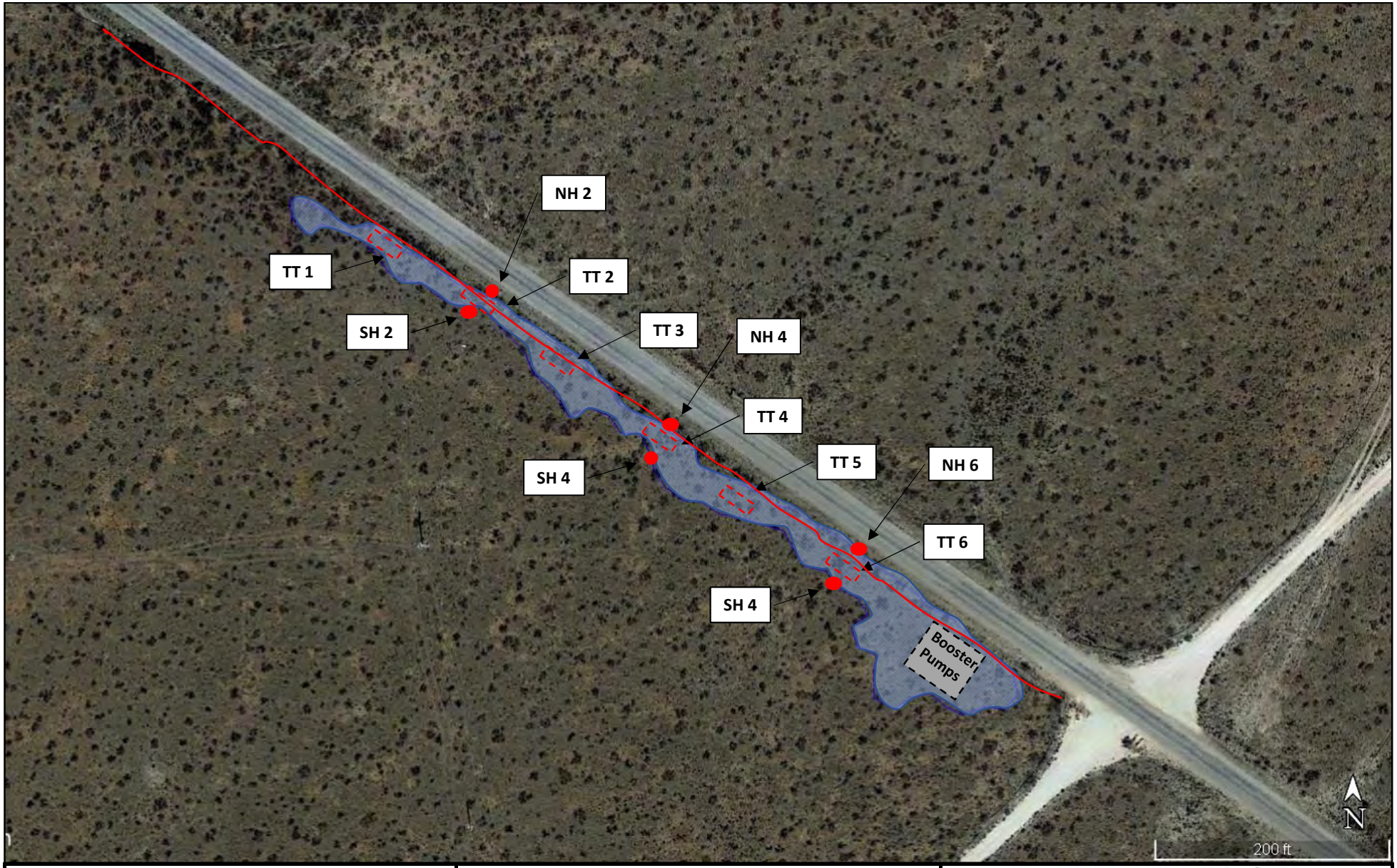
- Site Location

Figure 1
Topographic Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

Attachment #3
Figure 3 - Site & Sample Location Map



LEGEND:
- Sample Location
- Affected Area
- Test Trench
- Poly Pipeline

Figure 3
Site & Sample Location Map
Ray Westall Operating, INC
Currycomb Booster
GPS: 32.690556, -104.183977
EddyCounty, New Mexico

LOWRY environmental

Drafted by: jwl Checked by: client Date: 4/11/2019

Appendix B

EMI Survey and EC:Cl Correlation

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Albuquerque, NM 87104

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745
✖ Durango, CO ✖ Carlsbad, NM ✖ Midland, TX

ELECTROMAGNETIC SURVEY

RELATIONSHIP WITH ELECTRICAL CONDUCTIVITY AND CHLORIDE

Revised: October 12, 2019 (DRAFT)

Electromagnetic surveys (EM Survey) are commonly used to measure electrical conductivity (EC, "soil salinity") in soils. Employing a Geonics EM38 (Exhibit 1), field personnel can effectively delineate the horizontal extent of a produced water release by measuring EC and monitoring for EC changes between background and higher EC readings. Increasing EC measurements suggest that the edge of the release extent is approaching.

Exhibit 1: Measuring EC with the EM38 in the vertical position.

The EM38 detects EC from the surface to a depth of approximately 4-feet. EC measurements can be obtained in the vertical or horizontal positions. In the vertical position, EC readings are weighted toward the lower depths of 3 to 4 feet. In the horizontal position, EC readings are weighted toward the upper 0 to 2 feet. If a higher EC reading is obtained in the horizontal position than the vertical position, produced water has likely impacted the upper surface more than at lower depths. If a higher EC reading is obtained in the vertical position than the horizontal position, produced water has likely impacted lower soils than the upper surface soils.

The below charts show the correlation between EC and Chloride (Cl) measurements measured over 139 sample points (n=138). The EC measurements collected in the field are temperature corrected (TC) to 25º Celsius.

Analysis of data shows that an EC values greater than 0.20 dS/m is the delineation threshold where chloride in soil has a potential to be greater than 600 mg/kg. Furthermore, field personnel can survey a release and identify "hot spots" with the highest EC readings. These hot spots are likely areas where impacted to near surface soils (0 to 4 feet) from released produced water will be the greatest.