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	NRM2003757362
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: John Hurt	Contact Telephone: 972-371-5200
Contact email: JHurt@matadorresources.com	Incident # *(assigned by OCD)*
Contact mailing address: 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	

Location of Release Source

Latitude 32.244466 Longitude -103.719877
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Rodney Robinson Federal 101H Lease Road	Site Type: Oil Well Lease Road
Date Release Discovered: 01/24/2020	API# *(if applicable)* 30-025-46278

Unit Letter	Section	Township	Range	County
L	6	24S	32E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 41 bbls	Volume Recovered (bbls)
	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)
☐	Volume/Weight Released (provide units) 315 bbls	Volume/Weight Recovered (provide units)

Cause of Release:

A third-party contractor working on grading the lease road pulled off to edge of road to let traffic pass and nicked produced water poly line with the machine's blade.

All fluid traveled downgrade along the lease road.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003757362
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? >25 bbls

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Yes, Natalie Gordon of Vertex notified NM OCD District 1 and BLM of release on 1/24/2020 via email.

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: John Hurt Title: RES Specialist

Signature: Date: 3/17/20

email: JHurt@matadorresources.com Telephone: 972- 371-5200

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003757362
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?	380 (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	NRM2003757362
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: John Hurt Title: RES Specialist

Signature: Date: 3/17/20

email: JHurt@matadorresources.com Telephone: 972-371-5200

OCD Only

Received by: Date:

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003757362
District RP	
Facility ID	
Application ID	

Closure

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

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

[x] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[x] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[x] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[x] Description of remediation activities

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

Printed Name: John Hurt Title: RES Specialist

Signature: Date: 3/17/20

email: JHurt@matadorresources.com Telephone: 972-371-5200

OCD Only

Received by: Date:

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

Closure Approved by: Date:

Printed Name: Title:

March 11, 2020 Vertex Project #: 20E-00239-002

Spill Closure Report: Rodney Robinson 101H Lease Road
Unit L, Section 6, Township 24 South, Range 32 East
County: Lea
API: 30-025-46278
Tracking Number: NCE2003652970

Prepared For: Matador Production Company
5400 LBJ Freeway, Suite 1500
Dallas, Texas 75240

New Mexico Oil Conservation Division – District 1 – Hobbs
1625 North French Drive
Hobbs, New Mexico 88240

Matador Production Company (Matador) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for a produced water release that occurred at Rodney Robinson 101H Lease Road, API 30-025-46278 (hereafter referred to as "Rodney Lease Road"). Vertex provided immediate notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 1, and Bureau of Land Management (BLM), who owns the property, on January 24, 2020, via email. The initial C-141 Release Notification (Attachment 1) was submitted on February 5, 2020. The NM OCD tracking number assigned to this incident is NCE2003652970.

This letter provides a description of the spill assessment and remediation activities, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NM OCD for closure of this release.

Incident Description

On January 24, 2020, a release occurred at Matador's Rodney Lease Road site when a third-party contractor working on grading the lease road pulled off to the edge of the road to let traffic pass and nicked the produced water poly line with the machine's blade. This incident resulted in the release of approximately 41 barrels (bbls) of produced water onto the lease road, where it traveled downgrade along the compacted lease road. The produced water poly line was pinched off on both sides to stop the release, and the poly line was repaired. No produced water was recovered from the site. A small section of BLM land bordering the road at the western end of the release footprint was affected.

Site Characterization

The release at Rodney Lease Road occurred on federally-owned land, N 32.244466, W 103.719877, approximately 22 miles west of Loving, New Mexico. The legal description for the site is Unit L, Section 6, Township 24 South, Range 32 East, Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic

are included in Figure 1, Attachment 2.

Rodney Lease Road is typical of oil and gas exploration and production lease roads in the western portion of the Permian Basin, and is currently used by heavy equipment and transport trucks to access the Rodney Robinson 101H wellpad. The following sections specifically describe the release area along the lease road leading to the wellpad.

The surrounding landscape is associated with sandy plains, interdunes and dunes at elevations of 2,700 to 5,500 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 8 and 14 inches. Historically, the plant community was dominated by grasses, which stabilized the potentially erosive sandy soils; however, more recent conditions, resulting from fire suppression and extensive grazing, show increased woody plant abundance. The dominant grass species are black grama, dropseeds and bluestems, with scattered shinnery oak and sand sage. Litter and, to a lesser extent, bare ground are a significant proportion of ground cover while grasses compose the remainder (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted lease road.

The Geological Map of New Mexico indicates the surface geology at Rodney Lease Road is comprised primarily of Qep – interlayed eolian sands and piedmont-slope deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2020). The National Resources Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as Pyote and Maljamar fine sands, characterized by deep, fine sandy and loamy fine sandy soil. It tends to be well-drained with very low-to-negligible runoff and low-to-moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is medium potential for erosional karst geology to be present near Rodney Lease Road (United States Department of the Interior, United States Geological Survey, 2020a).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is located approximately 2 miles east of the site (United States Fish and Wildlife, 2020). At Rodney Lease Road, there are no continuously flowing watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to Rodney Lease Road is a United States Geologic Survey (USGS)-identified well from 2013, located approximately 1.5 miles to the northeast. Depth to groundwater at this well is 380 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2020b). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on data included in the closure criteria determination worksheet, the release at Rodney Lease Road is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined to be associated with the following constituent concentration limits based on depth to groundwater.

Table 1. Closure Criteria for Soils Impacted by a Release		
Depth to Groundwater	**Constituent**	**Limit**
> 100 feet	Chloride	20,000 mg/kg
	TPH[1] (GRO + DRO + MRO)	2,500 mg/kg
	GRO + DRO	1,000 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

[1]Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
[2]Benzene, toluene, ethylbenzene and xylenes (BTEX)

Remedial Actions

An initial spill inspection, completed on January 24, 2020, identified and mapped the boundaries of the release area. The release area was determined to be approximately 94 feet long and 70 feet wide; the total affected area was determined to be 3,291 square feet. The Daily Field Report (DFR) associated with the initial spill inspection is included in Attachment 4.

On February 3, 2020, Vertex provided 48-hour notification of remediation and confirmation sampling to NM OCD, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 5). On February 6, 2020, Vertex was on-site to oversee remediation efforts involving the removal of contaminated soil from the impacted roadway and adjacent BLM land. A two-inch scrape of potentially impacted soil along the roadway was conducted with the use of a bulldozer; two additional areas immediately adjacent to the lease road surface were excavated to a depth of six inches. Four composite confirmatory samples were collected per the attached sample plan (Attachment 6), developed using Visual Sample Plan, a software tool supported by the Environmental Protection Agency (EPA) as a defensible sampling plan based on statistical analysis (United States Environmental Protection Agency, 2002). The composite samples were placed into laboratory-provided containers, preserved on ice and submitted to a National Environmental Laboratory Accreditation Program (NELAP)-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Final confirmatory sample analytical data are summarized in Attachment 7. Laboratory data reports and chain of custody forms are included in Attachment 8.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit was used to map the approximate center of each of the five-point composite samples. The confirmatory sample locations are presented on Figure 2 (Attachment 2).

Closure Request

Vertex does not recommend any further action to address the release at Rodney Lease Road. Laboratory analyses of the confirmatory samples showed constituent of concern concentration levels below NM OCD Closure Criteria for areas where depth to groundwater is greater than 100 feet bgs as presented in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

The areas of excavation have been backfilled using pre-tested and uncontaminated soil from a nearby location. The lease road and adjacent remediation areas have been returned to near-original grade. Vertex requests that restoration and

reclamation of the impacted area along the roadway and on the lease road surface be deferred until such time as the lease road is removed and reclaimed per 19.15.29.13 NMAC.

Vertex requests that this incident (NCE2003652970) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Matador certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NM OCD requirements to obtain closure on the January 24, 2020, release at Rodney Robinson 101H Lease Road.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 505.506.0040 or ngordon@vertex.ca.

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

Attachment 1. NM OCD C-141 Report
Attachment 2. Figures
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
Attachment 6. Visual Sample Plan Confirmatory Sampling Plan
Attachment 7. Confirmatory Sampling Laboratory Results
Attachment 8. Laboratory Data Reports/COCs

References

New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Oil Conservation Division. (2018). *Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2020). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of the Interior, United States Geological Survey. (2020a). *Caves and Karst in the U.S. National Park Service, AGI Karst Map of the U.S.* Retrieved from https://www.arcgis.com/home/webmap/viewer.html ?webmap=14675403c37948129acb758138f2dd1e

United States Department of the Interior, United States Geological Survey. (2020b). *Groundwater for New Mexico: Water Levels*. Retrieved from https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?.

United States Environmental Protection Agency. (2002). *Guidance on Choosing a Sampling Design for Environmental Data Collection.* Retrieved from https://www.epa.gov/quality/guidance-choosing-sampling-design-environmental-data-collection-use-developing-quality.

United States Fish and Wildlife. (2020). National Wetlands Inventory. Retrieved from https://www.fws.gov /wetlands/Data/Mapper.html.

Limitations

This report has been prepared for the sole benefit of Matador Production Company (Matador). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Matador. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

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
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State of New Mexico
Energy Minerals and Natural Resources Department

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

Incident ID	NRM2003757362
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Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: John Hurt	Contact Telephone: 972-371-5200
Contact email: JHurt@matadorresources.com	Incident # *(assigned by OCD)*
Contact mailing address: 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	

Location of Release Source

Latitude 32.244466 Longitude -103.719877
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Rodney Robinson Federal 101H Lease Road	Site Type: Oil Well Lease Road
Date Release Discovered: 01/24/2020	API# *(if applicable)* 30-025-46278

Unit Letter	Section	Township	Range	County
L	6	24S	32E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 41 bbls	Volume Recovered (bbls)
	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)
☐	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

A third-party contractor working on grading the lease road pulled off to edge of road to let traffic pass and nicked produced water poly line with the machine's blade.

All fluid traveled downgrade along the lease road.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003757362
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? > 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, Natalie Gordon of Vertex notified NM OCD District 1 and BLM of release on 1/24/2020 via email.	

Initial Response

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☒ 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: John Hurt Title: RES Specialist

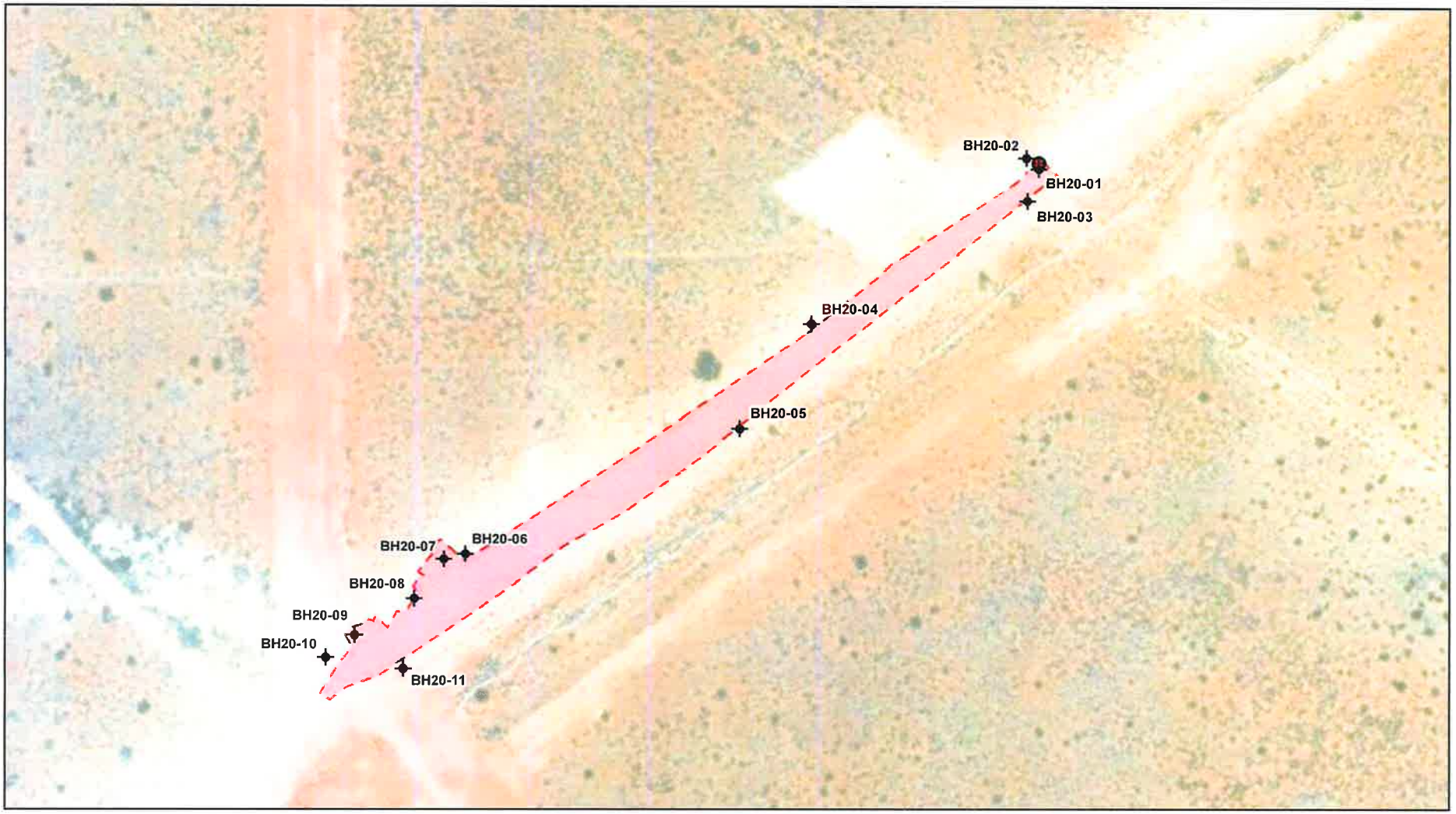
Signature: _____ Date: _____

email: JHurt@matadorresources.com Telephone: 972- 371-5200

OCD Only

Received by: _____ Date: _____

ATTACHMENT 2



Borehole
Point of Release
Spill Extent

VERTEX

0 25 50 100 150 Feet

Map Center - Long/Lat; -103.72 32.24

NAD 1983 UTM Zone 13N

Date: Feb 04/20

N

Site Schematic and Initial Characterization
Rodney Robinson Federal 101H Lease Road

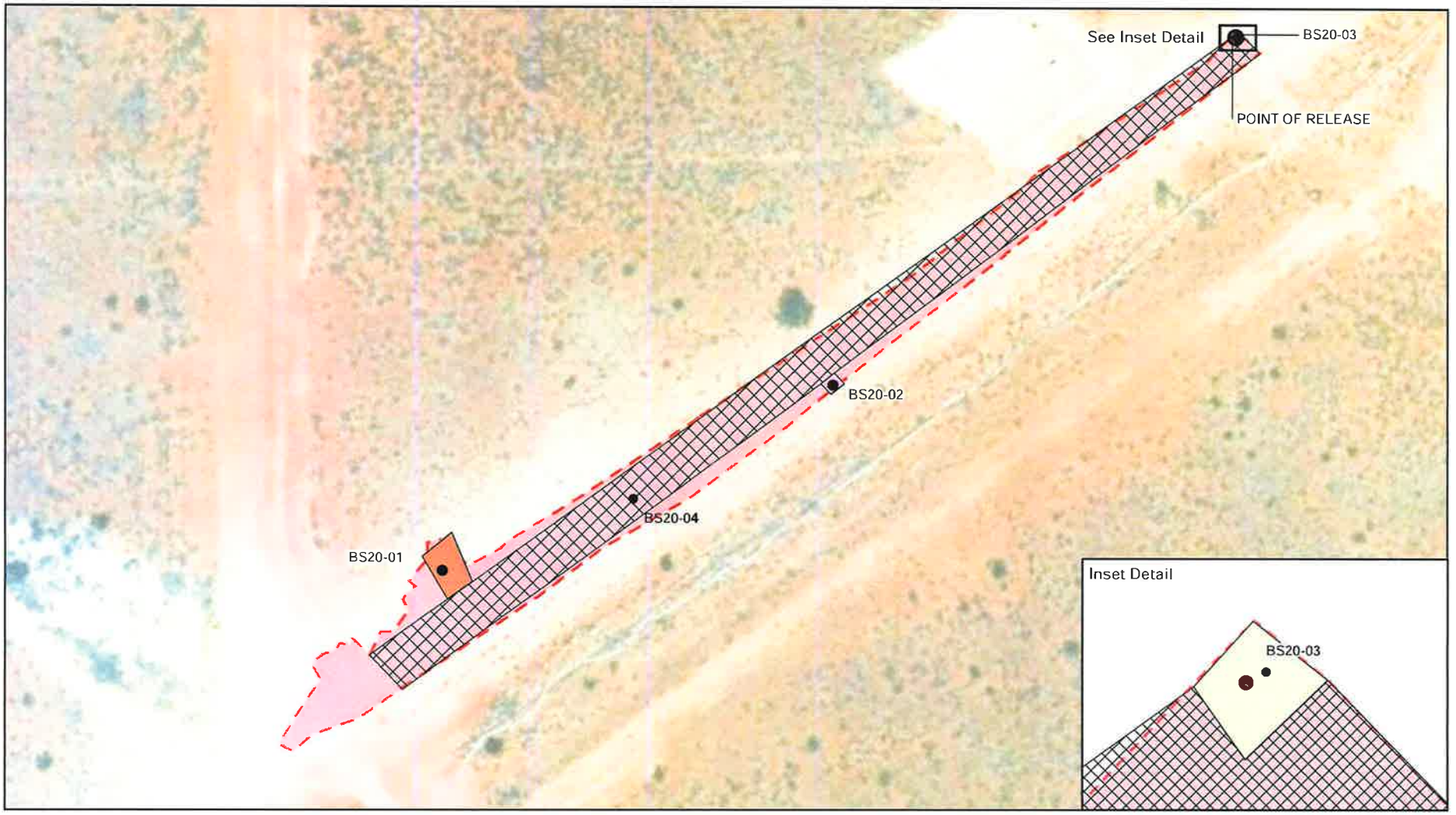
FIGURE: 1

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background image from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\20E-00239\Figure 1 SS and Initial Characterization Rodney Robinson (20E-00239).mxd



VERTEX

0 25 50 100 Feet

Map Center:
Lat/Long: 32.243561, -103.721347

NAD 1983 UTM Zone 13N
Date: Feb 11/20

N

Confirmatory Sample Locations and Excavations
Rodney Robinson 101H Lease Road

FIGURE: 2

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background image from Sidwll County, NM, 2019.

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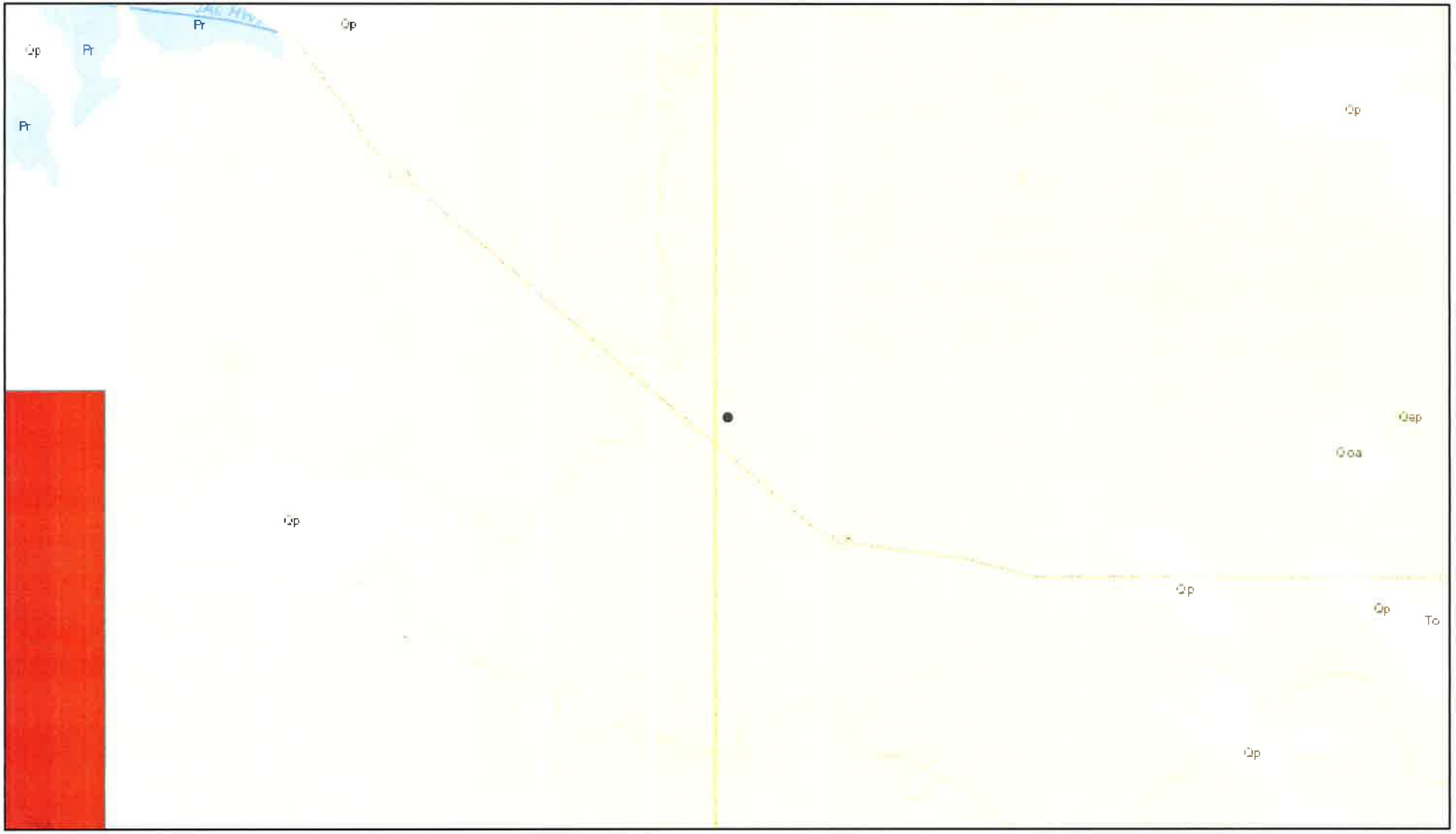
Document Path: G:\1-Projects_US PROJECTS\Matador Resources\20E-00239\002 - Rodney Robinson Federal 101H Lease Road\Rodney Robinson Confirmation and Excavation (20E-00239).mxd

ATTACHMENT 3

Table 1.			
Site Name: Rodney Robinson 101H Lease Road			
Spill Coordinates:		X: 32.244466	Y: -103.719877
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**380**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	81,681	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	6,283	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	117,057	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	28,406	feet
	ii) Within 1000 feet of any fresh water well or spring	28,406	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	6,283	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	>100	year
11	Soil Type	Eolian sands	
12	Ecological Classification	Well drained, Low runoff	
13	Geology	Eolian and Piedmont deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	>100'	<50' 51-100' >100'

Geology Map



1/28/2020, 12:43:54 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Faults

Fault, Exposed

Fault, Intermittent

Fault, Concealed

Shere Zone

Dikes

<all other values>

Dike

Dike intruding fault

Volcanic Vents

STATEMAP (1993 to Present) [Publications]

Mapping in Complete

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census

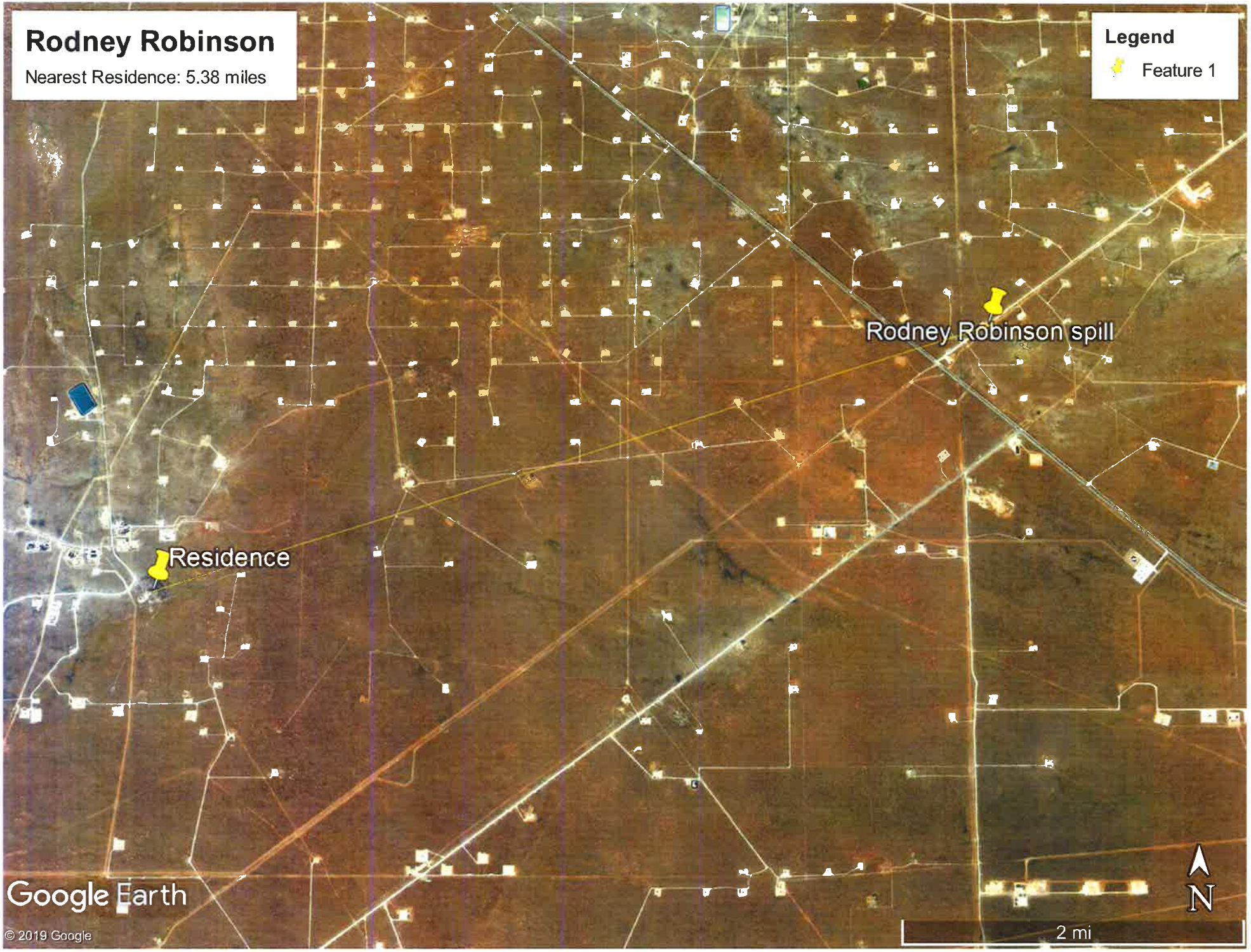
Web AppBuilder for ArcGIS

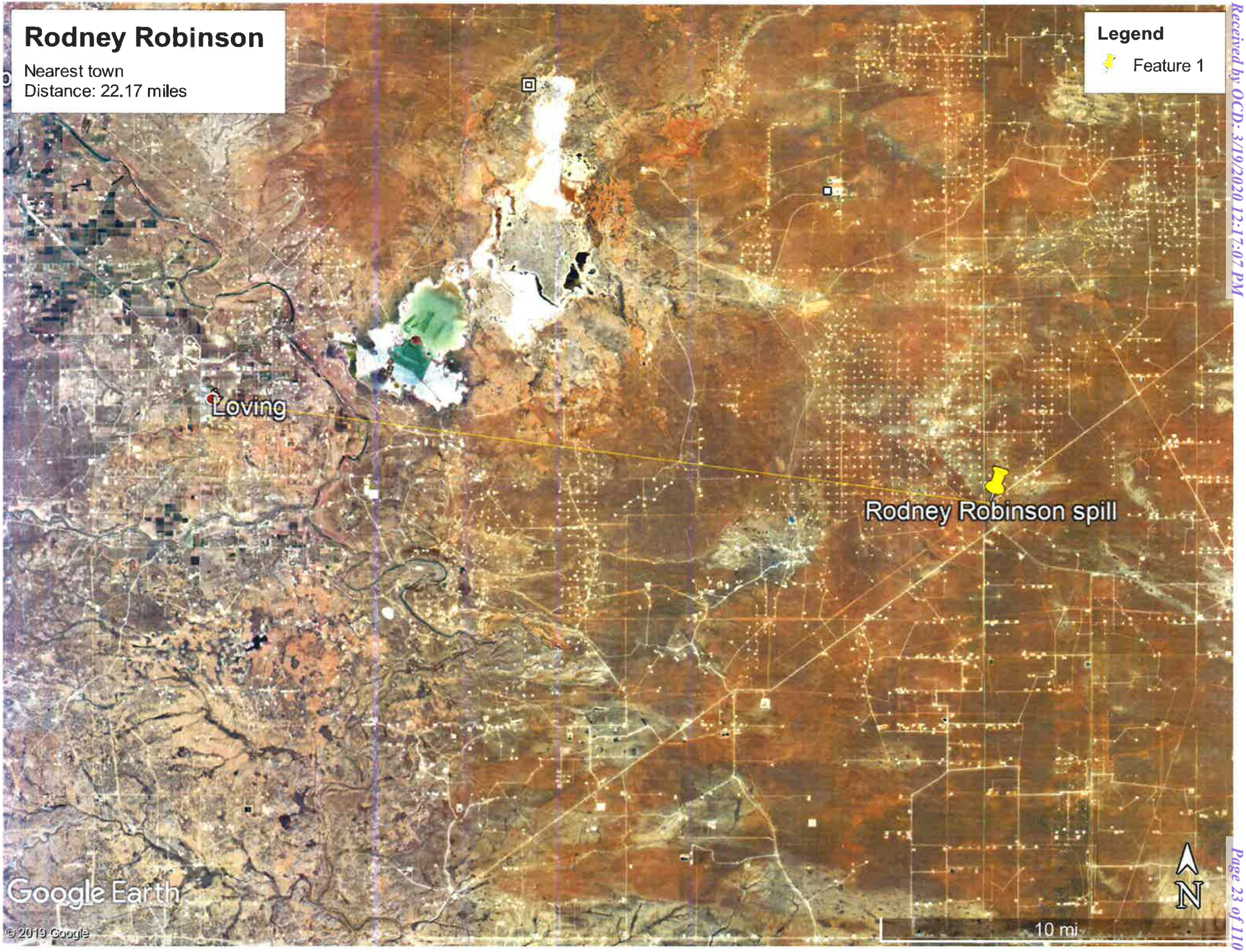
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census

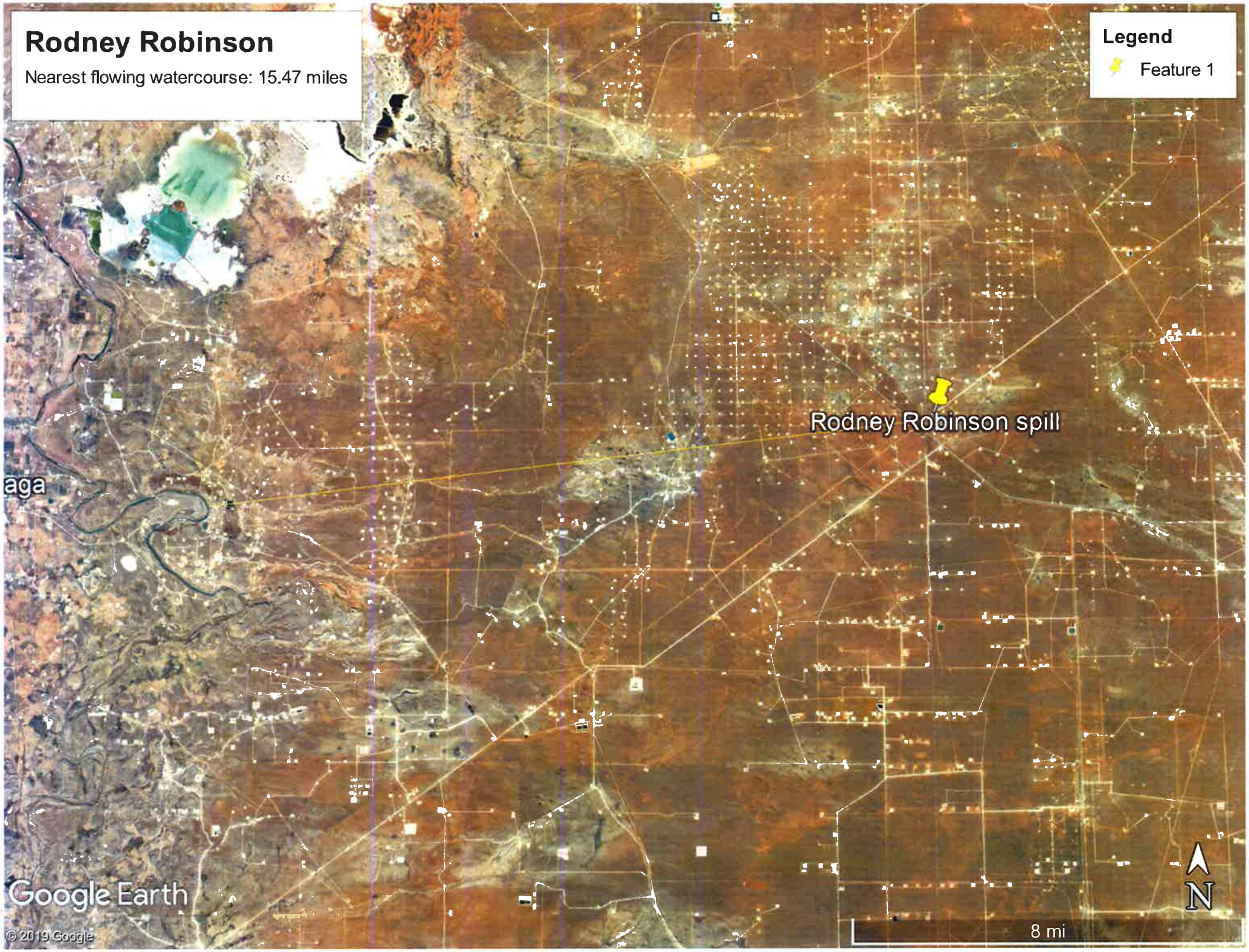
USA Karst

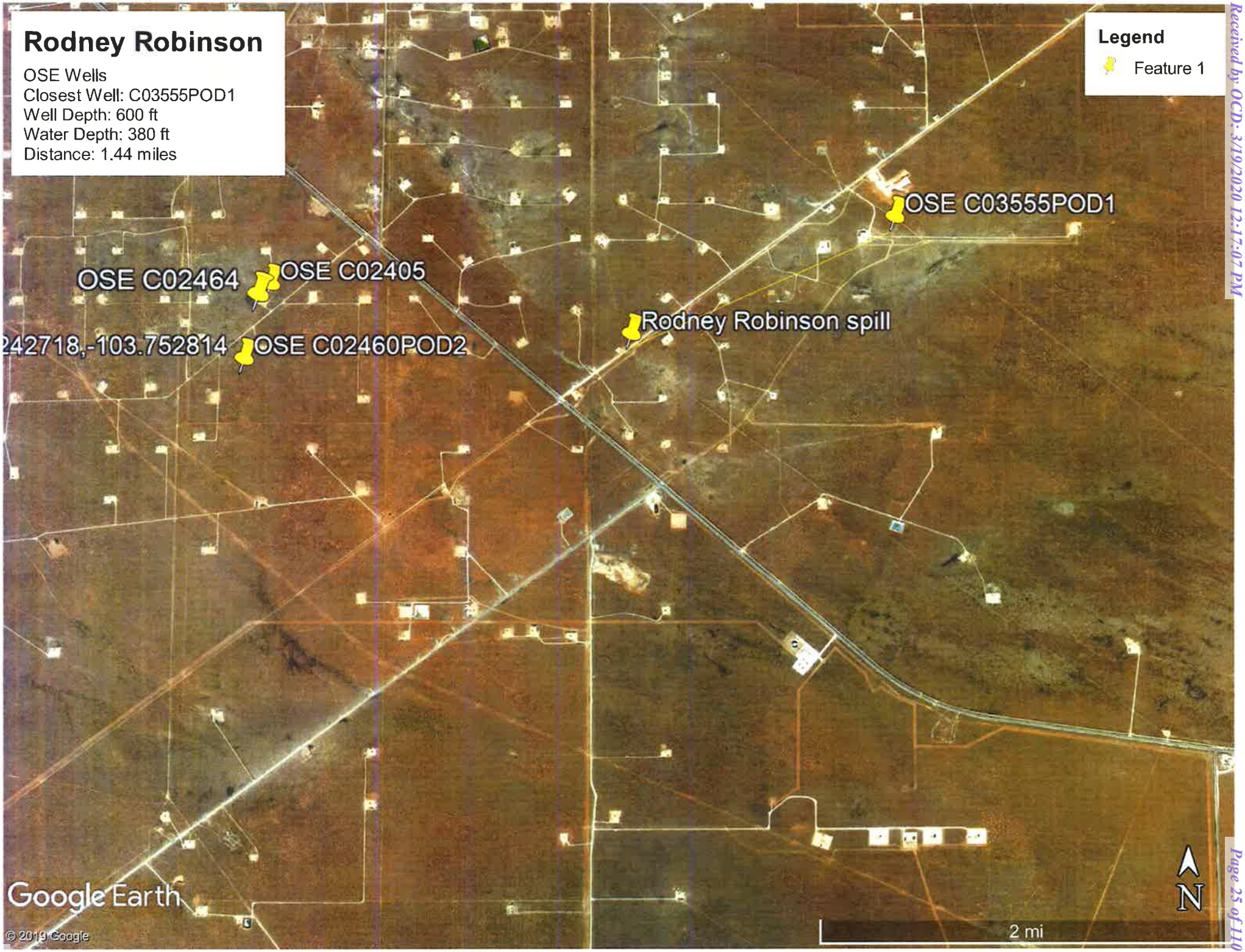
A map showing karst areas in the United States based on the U.S. Geological Survey Open-File Report 2004-1352

U.S. Geological Survey Open-File Report 2004-1352, Caves and Karst in the U.S. National Park Service, AGI Karst Map of the US. | U.S. Geological Survey Open-File Report 2004-1352 | Earthstar Geographics









New Mexico Office of the State Engineer

Wells with Well Log Information

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

(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 Subbasin	County	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 03555 POD1		C	LE	Shallow	2	2	1	05	24S	32E	622709	3569231	2328	10/20/2013	10/21/2013	11/07/2013	600	380	JOHN SIRMAN	1654
C 02405		CUB	ED	Shallow		4	1	02	24S	31E	617690	3568631*	2930	09/29/1994	09/30/1994	12/05/1994	275	160	COLLIS, ROBERT E	1184
C 02464		C	ED	Shallow	3	4	1	02	24S	31E	617589	3568530*	3019	08/24/1995	08/24/1995	09/07/1995	320	205	GLENN, CLARK A "CORKY" (LD)	421
C 02460		C	ED	Shallow			3	02	24S	31E	617496	3568022*	3108	08/21/1995	08/21/1995	09/07/1995	320		GLENN, CLARK A "CORKY" (LD)	421
C 02460 POD2		C	ED	Shallow			3	02	24S	31E	617496	3568022*	3108	08/25/1995	08/25/1995	09/07/1995	320		GLENN, CLARK A "CORKY" (LD)	421

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 620595.76 **Northing (Y):** 3568252.96 **Radius:** 3500

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

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02405	4	1		02	24S	31E	617690	3568631*

Driller License: 1184 **Driller Company:** WEST TEXAS WATER WELL SERVICE

Driller Name: COLLIS, ROBERT E.

Drill Start Date: 09/29/1994 **Drill Finish Date:** 09/30/1994 **Plug Date:**

Log File Date: 12/05/1994 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 75 GPM

Casing Size: 6.63 **Depth Well:** 275 feet **Depth Water:** 160 feet

Water Bearing Stratifications:	Top	Bottom	Description
	210	270	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	235	275

Meter Number: 5381 **Meter Make:** ROCKWELL

Meter Serial Number: 37125202 **Meter Multiplier:** 10.0000

Number of Dials: 6 **Meter Type:** Diversion

Unit of Measure: Gallons **Return Flow Percent:**

Usage Multiplier: **Reading Frequency:** Quarterly

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount
03/27/2002	2002	14202	A	RPT		0
04/05/2002	2002	0	A	RPT		0
10/06/2002	2002	2	A	RPT		2.160
01/01/2003	2002	4	A	RPT		2.016
03/01/2003	2003	5	A	RPT		0.574
03/20/2003	2003	5	A	RPT		0.263
03/20/2003	2003	184139	A	RPT		0
06/01/2003	2003	255705	A	ab		2.196
12/01/2003	2003	406731	A	RPT		4.635
01/01/2004	2003	476606	A	TW		2.144
05/03/2004	2004	501326	A	TW		0.759
08/11/2004	2004	547915	A	RPT		1.430
04/27/2005	2005	704459	A	RPT		4.804
12/29/2005	2005	23476	R	TW	Meter Rollover	9.790

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

**YTD Meter Amounts:	Year	Amount
	2002	4.176
	2003	9.812
	2004	2.189
	2005	14.594

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	C 02460 POD2			3	02	24S	31E	617496	3568022*

Driller License: 421 **Driller Company:** GLENN'S WATER WELL SERVICE

Driller Name: GLENN, CLARK A."CORKY" (LD)

Drill Start Date: 08/25/1995 **Drill Finish Date:** 08/25/1995 **Plug Date:**

Log File Date: 09/07/1995 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 7 GPM

Casing Size: **Depth Well:** 320 feet **Depth Water:**

Water Bearing Stratifications:	Top	Bottom	Description
	260	280	Shale/Mudstone/Siltstone

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

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twp	Rng	X	Y
	C 02464	3	4	1	02	24S	31E	617589	3568530*

Driller License: 421 **Driller Company:** GLENN'S WATER WELL SERVICE

Driller Name: GLENN, CLARK A."CORKY" (LD)

Drill Start Date: 08/24/1995 **Drill Finish Date:** 08/24/1995 **Plug Date:**

Log File Date: 09/07/1995 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 12 GPM

Casing Size: 6.63 **Depth Well:** 320 feet **Depth Water:** 205 feet

Water Bearing Stratifications:	Top	Bottom	Description
	220	230	Sandstone/Gravel/Conglomerate
	230	245	Shale/Mudstone/Siltstone
	250	282	Shale/Mudstone/Siltstone

Casing Perforations:	Top	Bottom
	208	320

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

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03555 POD1	2	2	1	05	24S	32E	622709	3569231

Driller License: 1654 **Driller Company:** NOT WORKING FOR HIRE--SIRMAN DRILLING AND CONSTRUC
Driller Name: JOHN SIRMAN

Drill Start Date: 10/20/2013 **Drill Finish Date:** 10/21/2013 **Plug Date:**
Log File Date: 11/07/2013 **PCW Rcv Date:** **Source:** Shallow
Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 5 GPM
Casing Size: 6.00 **Depth Well:** 600 feet **Depth Water:** 380 feet

Water Bearing Stratifications:	Top	Bottom	Description
	475	550	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	460	520

Soil Map—Eddy Area, New Mexico, and Lea County, New Mexico

Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 17, 2017

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BA	Berino loamy fine sand, 0 to 3 percent slopes	0.5	1.2%
PA	Pajarito loamy fine sand, 0 to 3 percent slopes, eroded	2.4	5.9%
Subtotals for Soil Survey Area		**2.9**	**7.2%**
Totals for Area of Interest		**40.4**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BE	Berino-Cacique loamy fine sands association	3.7	9.1%
PT	Pyote loamy fine sand	11.1	27.4%
PU	Pyote and maljamar fine sands	22.7	56.3%
Subtotals for Soil Survey Area		**37.5**	**92.8%**
Totals for Area of Interest		**40.4**	**100.0%**

Eddy Area, New Mexico

PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w54
Elevation: 2,700 to 5,500 feet
Mean annual precipitation: 5 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Pajarito and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pajarito

Setting

Landform: Dunes, interdunes, plains
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 13 inches: loamy fine sand
H2 - 13 to 36 inches: fine sandy loam
H3 - 36 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A

Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Wink
Percent of map unit: 1 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Berino
Percent of map unit: 1 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

Lea County, New Mexico

PT—Pyote loamy fine sand

Map Unit Setting

National map unit symbol: dmqp
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Pyote and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pyote

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 25 inches: loamy fine sand
Bt - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Maljamar
Percent of map unit: 8 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Palomas
Percent of map unit: 7 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

Lea County, New Mexico

PU—Pyote and maljamar fine sands

Map Unit Setting

National map unit symbol: dmqq
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Maljamar and similar soils: 45 percent
Pyote and similar soils: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maljamar

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand
Bt - 24 to 50 inches: sandy clay loam
Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Pyote

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 30 inches: fine sand
Bt - 30 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Kermit

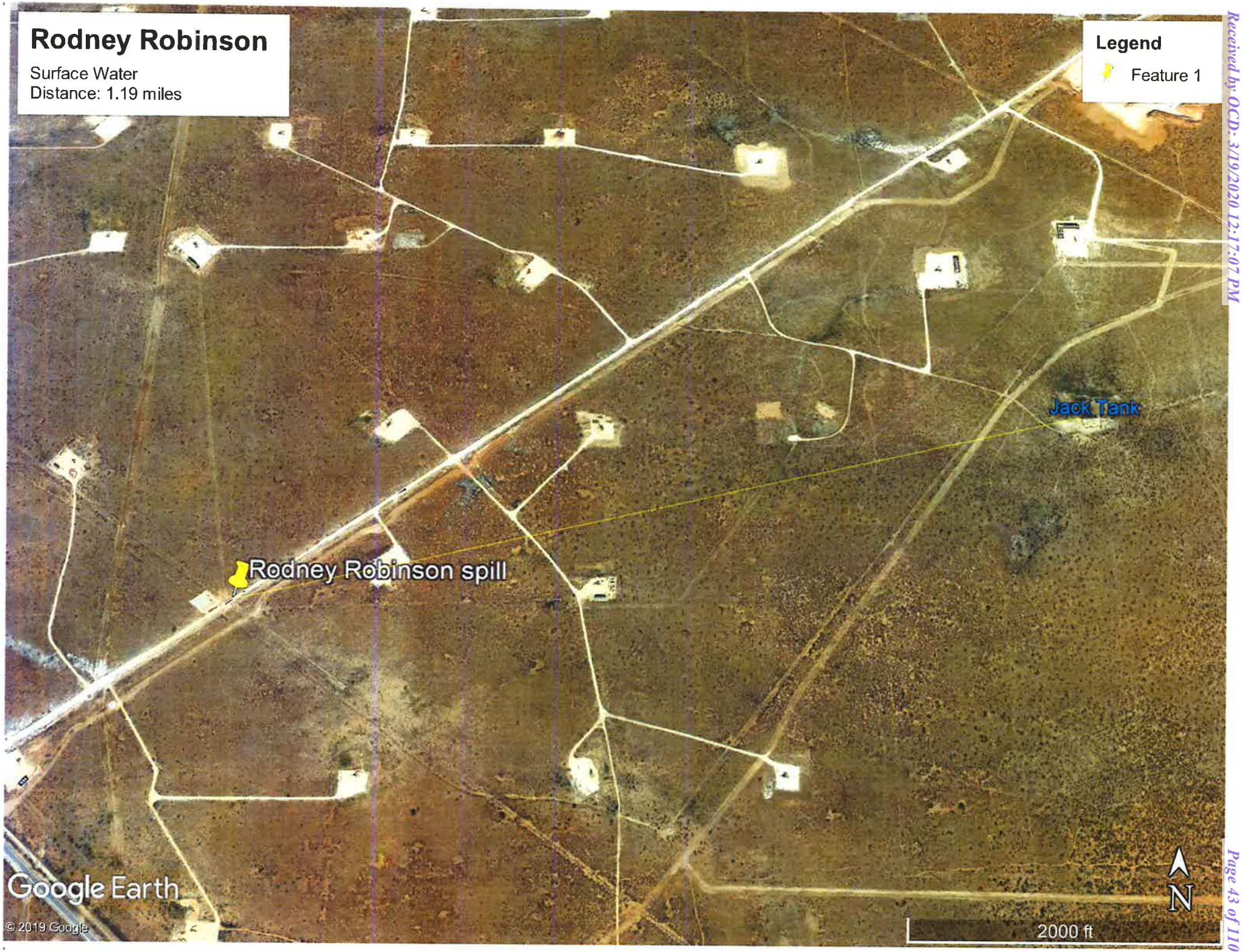
Percent of map unit: 10 percent
Ecological site: Sandhills (R042XC022NM)

Hydric soil rating: No

Data Source Information

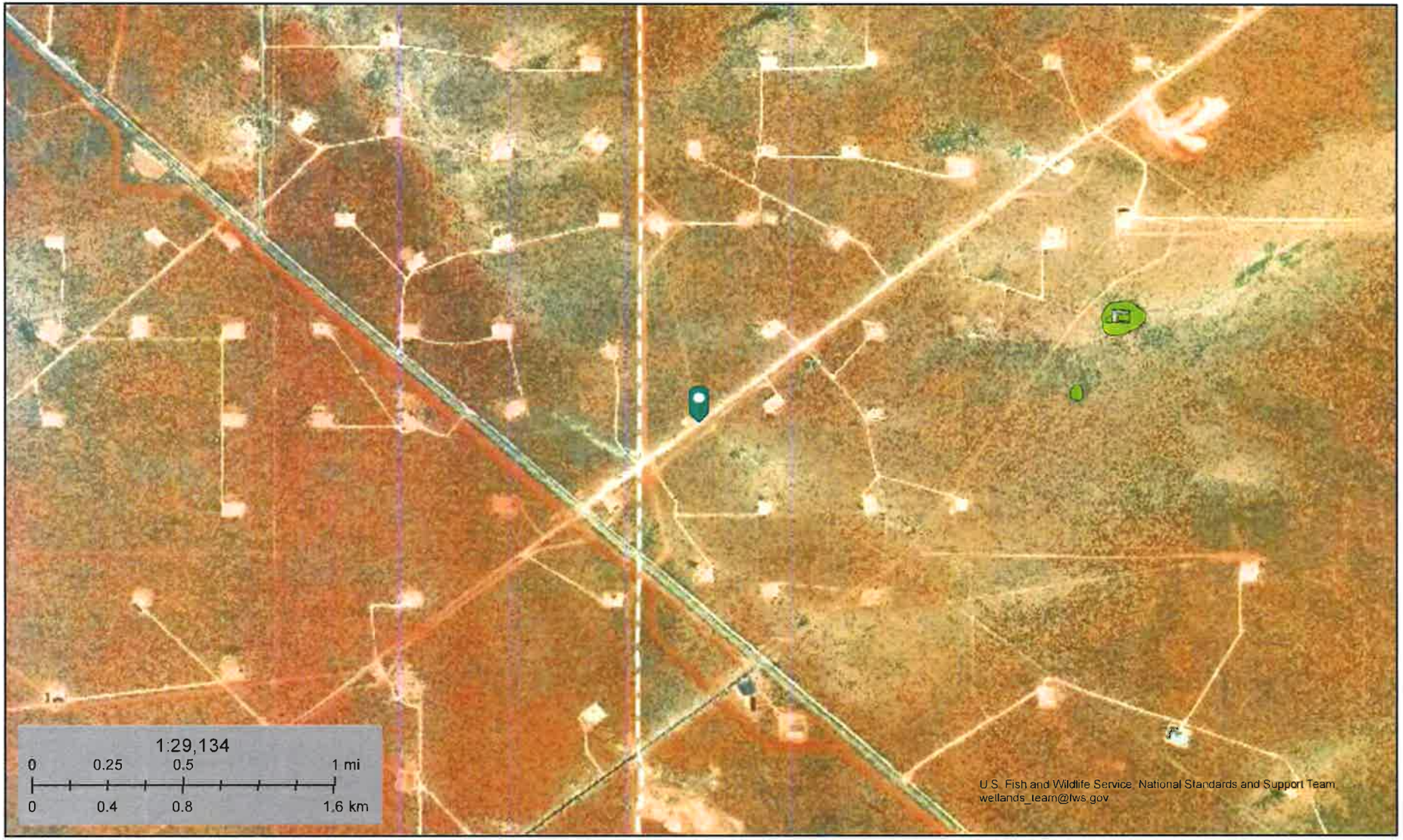
Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019



U.S. Fish and Wildlife Service
National Wetlands Inventory

Rodney Robinson Surface water



January 28, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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- Full News

USGS 321312103395601 24S.32E.10.344333

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°13'30.4", Longitude 103°39'52.7" NAD83
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 60 feet
Land surface altitude: 3,589.00 feet above NGVD29.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1950-04-13	2010-12-16	10
Revisions	Unavailable (site:0) (timeseries:0)		
Additional Data Sources	**Begin Date**	**End Date**	**Count**
Annual Water-Data Report (pdf) **offsite**	2011	2011	1

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
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U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321312103395601

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-28 13:51:01 EST
0.42 0.4 caww02

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

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USGS 321421103464901 24S.31E.04.433422

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°14'23.7", Longitude 103°46'47.8" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 627 feet
Land surface altitude: 3,419.00 feet above NGVD29.
Well completed in "Rustler Formation" (312RSLR) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1959-03-13	2013-01-16	2
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center

Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
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U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321421103464901

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-28 13:53:47 EST
0.4 0.39 caww02

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- Full News

USGS 321423103464501 24S.31E.04.43 ENGLE

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°14'22.93", Longitude 103°46'45.25" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: not determined.
Land surface altitude: 3,422 feet above NAVD88.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321423103464501

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-28 13:52:48 EST
0.42 0.39 caww02

Click to hideNews Bulletins

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

USGS 321428103395801 24S.32E.03.32124

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°14'28", Longitude 103°39'58" NAD27
Lea County, New Mexico , Hydrologic Unit 13060011
Well depth: 550 feet
Land surface altitude: 3,653 feet above NAVD88.
Well completed in "Sunrise Formation" (231SNRS) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1976-01-22	1976-01-22	1
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

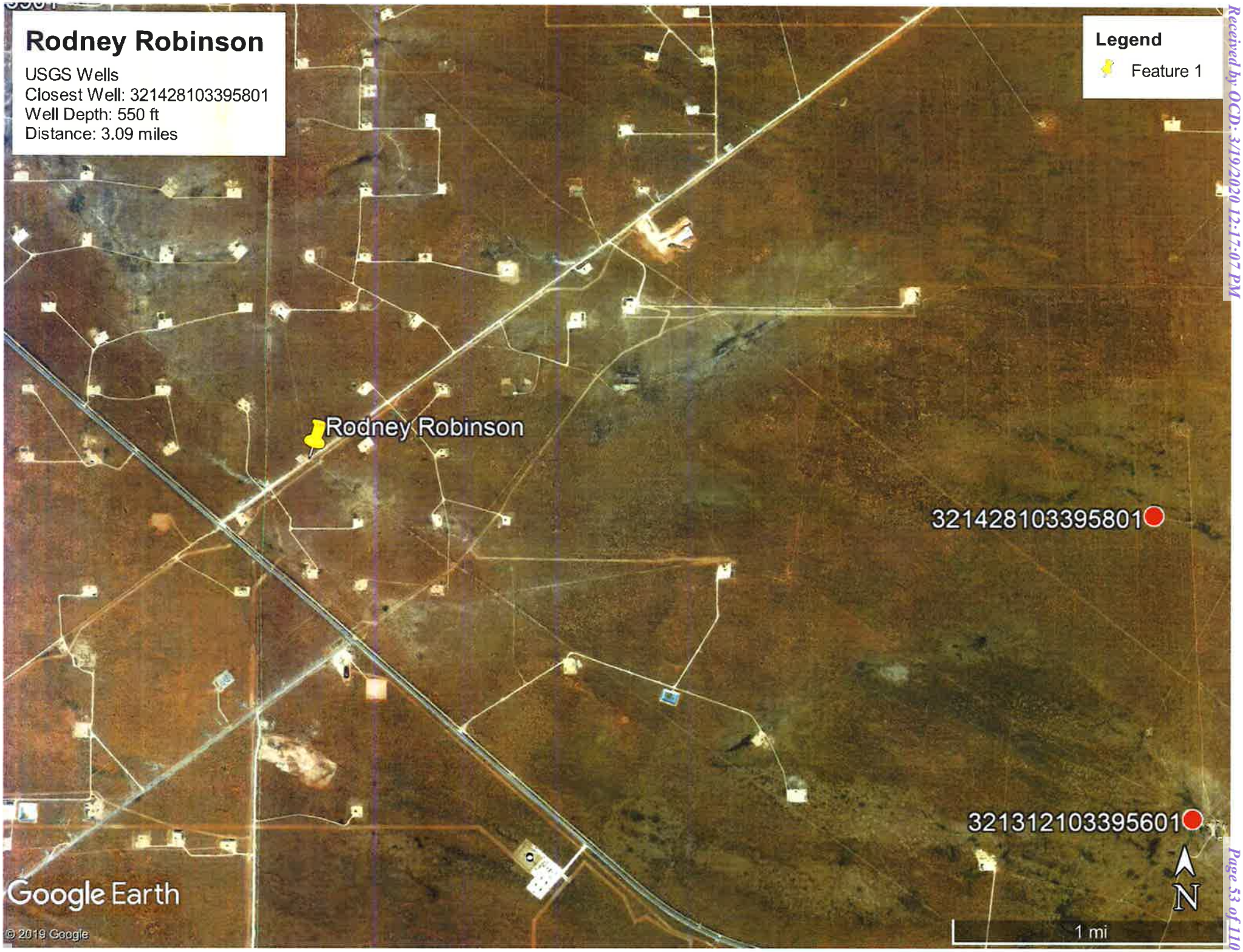
Record for this site is maintained by the USGS New Mexico Water Science Center

Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321428103395801

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-28 13:37:56 EST
0.29 0.28 caww01



ATTACHMENT 4

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	1/24/2020
Site Location Name:	Rodney Robinson Federal 101H - Lease Road	Report Run Date:	1/25/2020 1:50 AM
Project Owner:		File (Project) #:	
Project Manager:		API #:	30-0025-46278
Client Contact Name:	John Hurt	Reference	
Client Contact Phone #:			

Summary of Times

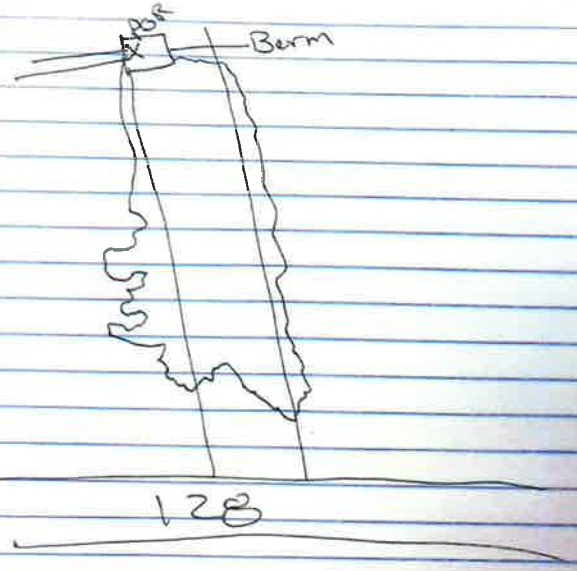
Left Office	1/24/2020 2:00 PM
Arrived at Site	1/24/2020 4:00 PM
Departed Site	1/24/2020 4:45 PM
Returned to Office	

Daily Site Visit Report

VERTEX

Site Sketch

Matador Rodney spill
Line Strike on road right off Hwy 128 at MM19
Crew built berm around line that was hit to Contain Fluid that was still leaking from the line.
An Oxy rep was on site. The spill followed the road down towards the entrance off 128



Daily Site Visit Report

VERTEX

Summary of Daily Operations

17:14 Arrive on location
Complete safety paperwork
Talk to operator on site
Map area of spill
Take photos of area

Next Steps & Recommendations

1

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: Northeast

Spill area

Viewing Direction: Southwest

Bermed area around point of release

Viewing Direction: West

Spill area

Viewing Direction: East

Spill area

Daily Site Visit Report

Viewing Direction: South

Spill area

Daily Site Visit Report

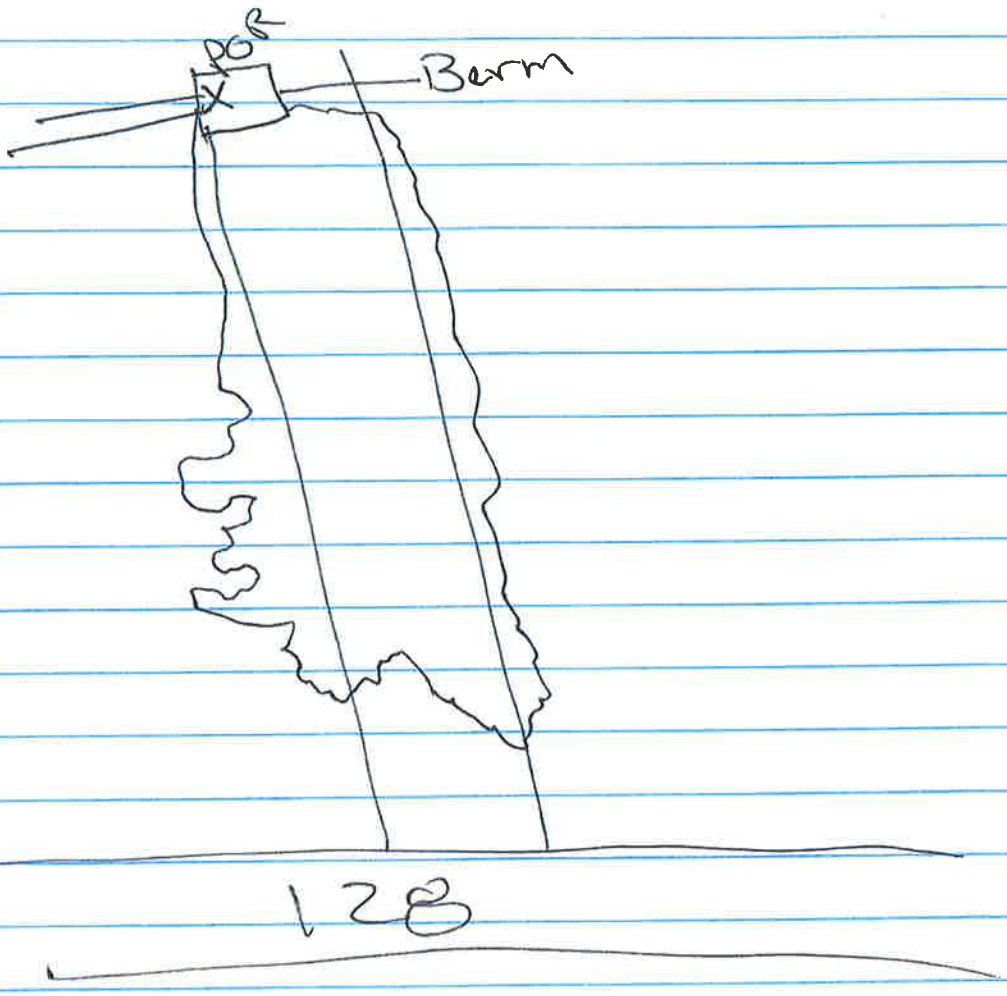
VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Matador Rodney spill.
Line strike on road right off Hwy 128 at MM19
Crew built berm around line that was hit to contain fluid that was still leaking from the line.
An Oxy rep was on site. The spill followed the road down towards the entrance off 128



Rodney 1/29/20
Leave office 9:00 AM beginning mileage: 26664
on location 10:00 AM

Area of spill has been flagged out by someone else.
Collected a total of 11 sample points
Three of the 11 were for vertical delineation

- BH9 was taken for depth where trucks were driving over spill area and spreading. Surface shows to be clean
- BH4 was to check surface for edge of spill. Field screens show it splashed further off. BH4.1 was taken to verify edge.
- BH5 was to verify edge. Took second sample further away to verify edge (BH5.1)

Entire spill seems to have mainly stayed in the road and was only spread out by passing vehicles on the busy road.

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	1/29/2020
Site Location Name:	Rodney Robinson Federal 101H - Lease Road	Report Run Date:	1/29/2020 10:52 PM
Project Owner:	John Hurt	File (Project) #:	20E-00239
Project Manager:	Natalie Gordon	API #:	30-0025-46278
Client Contact Name:	John Hurt	Reference	01/24/20 Release
Client Contact Phone #:			

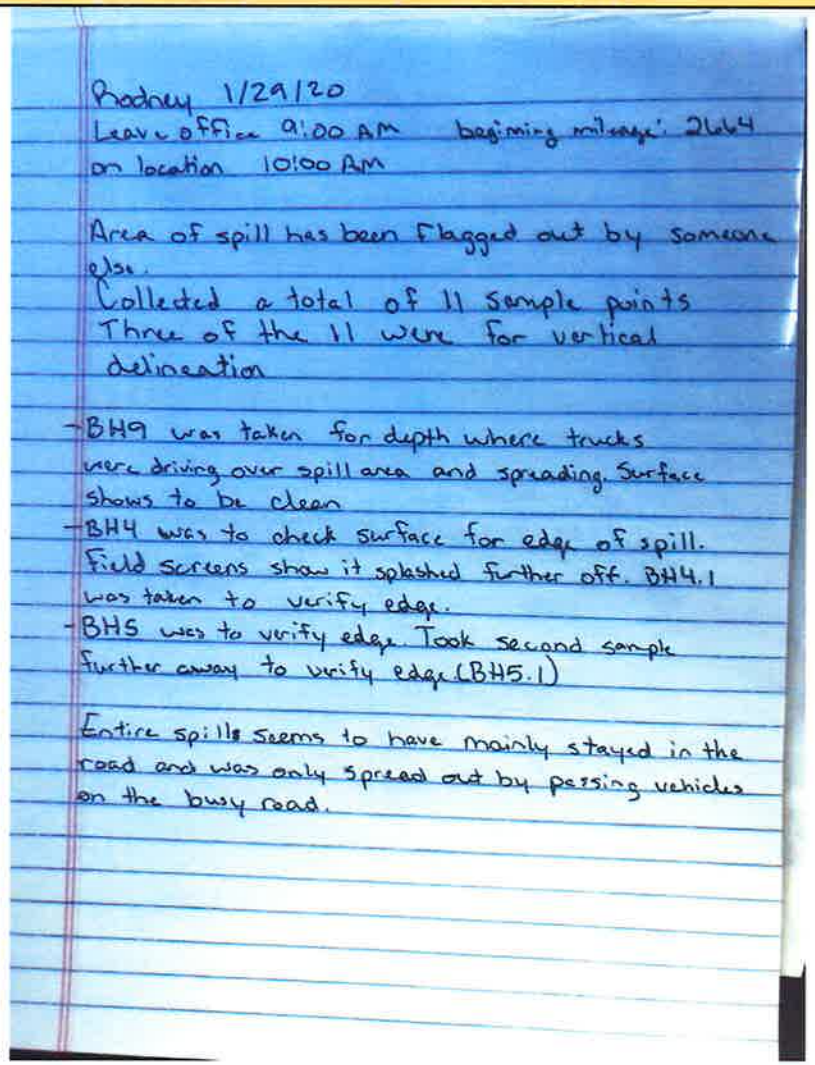
Summary of Times

Left Office	1/29/2020 9:00 AM
Arrived at Site	1/29/2020 10:06 AM
Departed Site	1/29/2020 2:10 PM
Returned to Office	1/29/2020 3:51 PM

Daily Site Visit Report

VERTEX

Site Sketch



Rodney 1/29/20
Leave office 9:00 AM beginning mileage: 2664
on location 10:00 AM

Area of spill has been flagged out by someone else.
Collected a total of 11 sample points
Three of the 11 were for vertical delineation

- BH9 was taken for depth where trucks were driving over spill area and spreading. Surface shows to be clean
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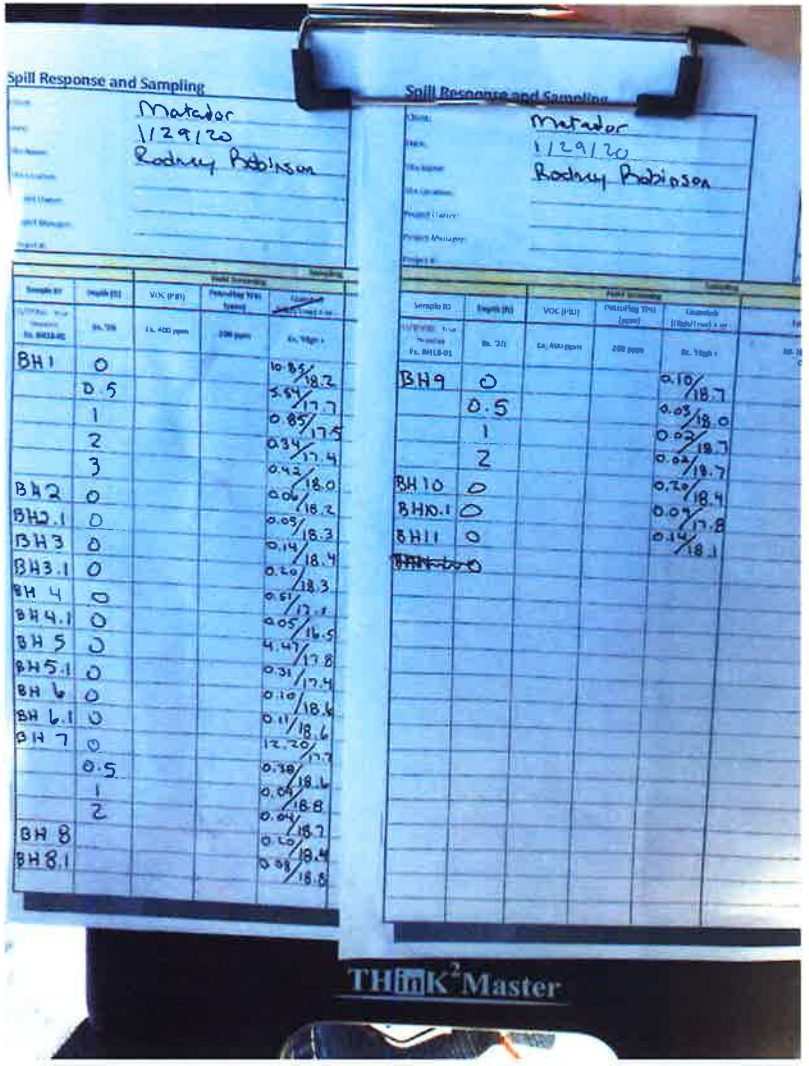
- BH5 was to verify edge. Took second sample further away to verify edge (BH5.1)

Entire spill seems to have mainly stayed in the road and was only spread out by passing vehicles on the busy road.

Daily Site Visit Report



Daily Site Visit Report

VERTEX

Summary of Daily Operations

10:06 Arrive on location
Safety paperwork
Flag sample points
Delineation of spill area
Field screen samples

Next Steps & Recommendations

1 Return to office

2 Discuss plan of remediation

Daily Site Visit Report

VERTEX

Site Photos

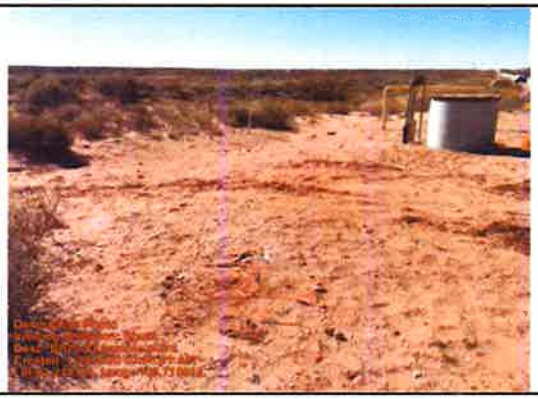
Viewing Direction: South

Bh20-01 sample point

Viewing Direction: West

Bh20-02 sample point

Viewing Direction: South



Bh20-03 sample point

Viewing Direction: East

Bh20-04 sample point

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
Bh20-05	Bh20-06 sample point
Viewing Direction: South	**Viewing Direction**: South
	
Bh20-07 sample point	Bh20-08

Daily Site Visit Report

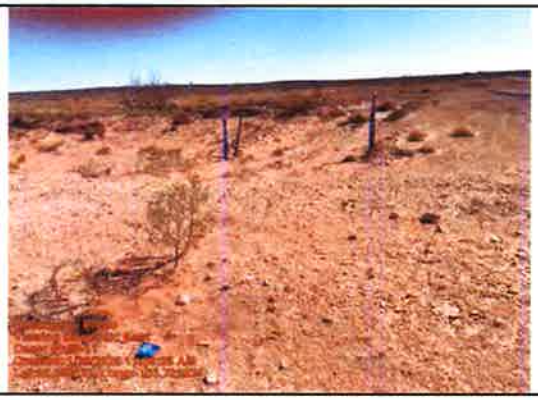
Viewing Direction: South

Bh20-09

Viewing Direction: South

Bh20-10

Viewing Direction: East



Bh20-11

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	2/6/2020
Site Location Name:	Rodney Robinson Federal 101H - Lease Road	Report Run Date:	2/11/2020 6:14 PM
Project Owner:	John Hurt	File (Project) #:	20E-00239
Project Manager:	Natalie Gordon	API #:	30-0025-46278
Client Contact Name:	John Hurt	Reference	01/24/20 Release
Client Contact Phone #:			

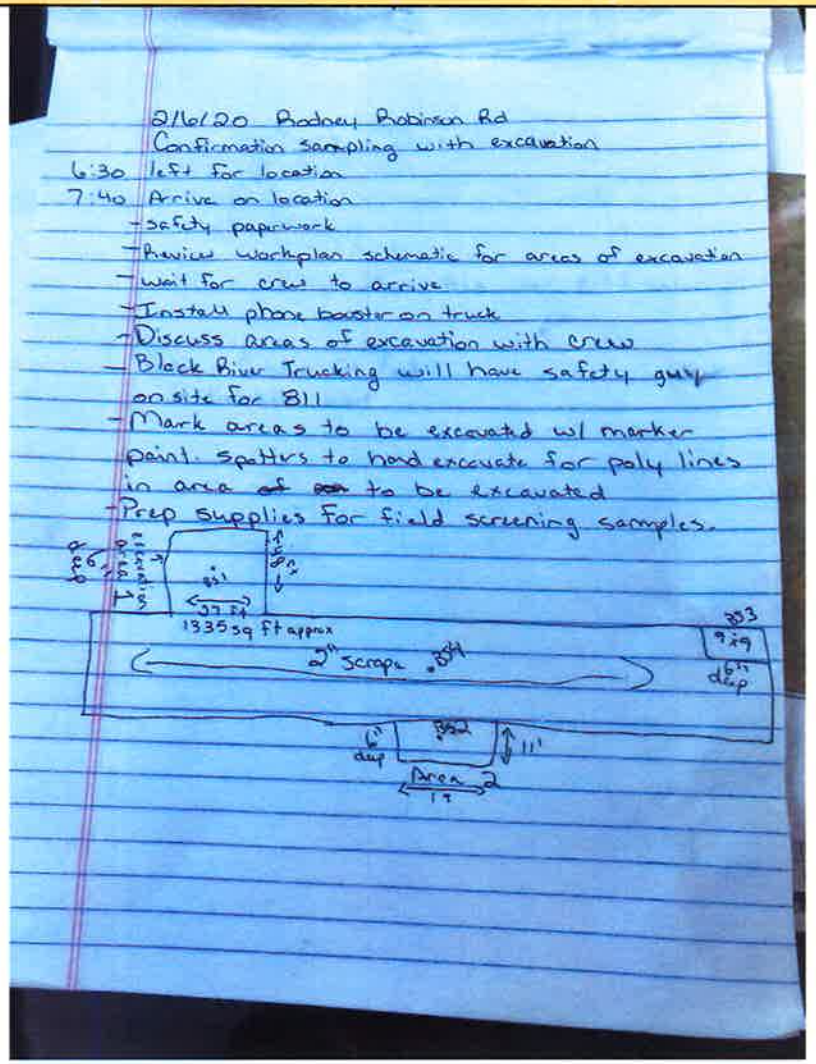
Summary of Times

Left Office	2/6/2020 6:20 AM
Arrived at Site	2/6/2020 7:40 AM
Departed Site	2/6/2020 2:29 PM
Returned to Office	2/6/2020 5:23 PM

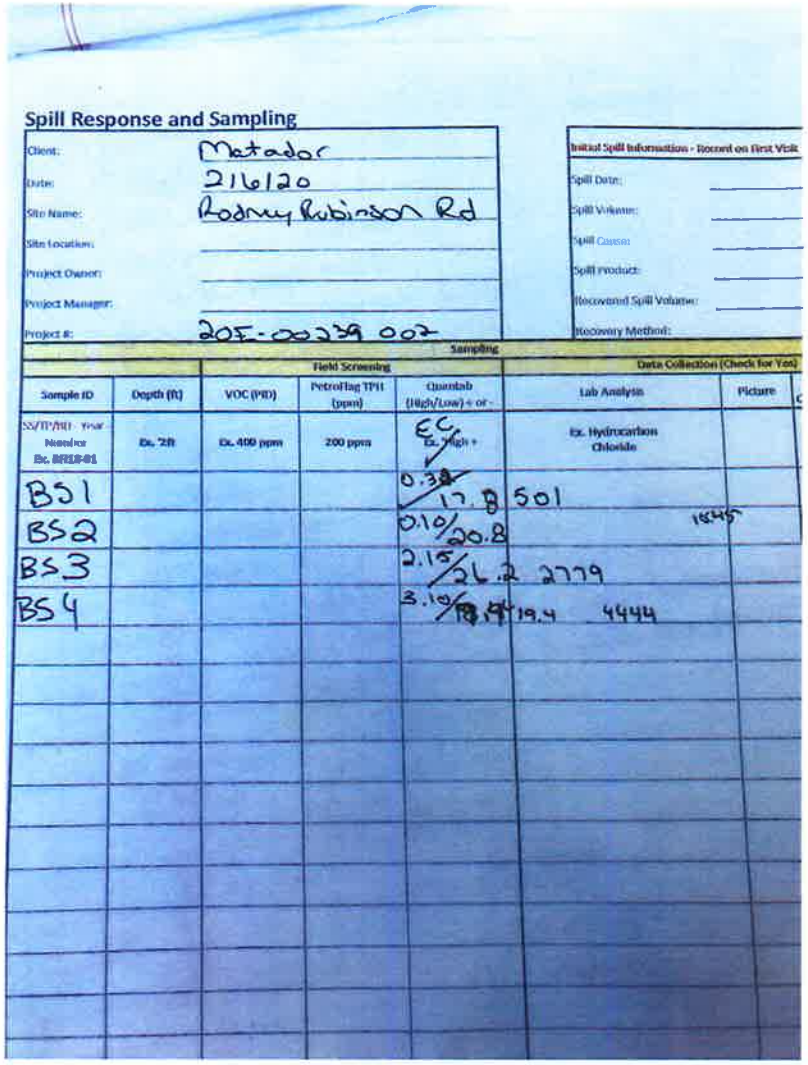
Daily Site Visit Report

VERTEX

Site Sketch



Daily Site Visit Report



Spill Response and Sampling

Client:	Matador
Date:	2/6/20
Site Name:	Rodney Robinson Rd
Site Location:	
Project Owner:	
Project Manager:	
Project #:	20E-00239 007

Initial Spill Information - Record on First Visit

Spill Date:
Spill Volume:
Spill Cause:
Spill Product:
Recovered Spill Volume:
Recovery Method:

Sampling

		Field Screening			Data Collection (Check for Yes)	
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lab Analysis	Picture
SS/TP/BH - Year - Number Ex. BH20-01	Ex. 2ft	Ex. 400 ppm	200 ppm	EC Ex. High +	Ex. Hydrocarbon Chloride	
BS1				0.38/17.8	501	
BS2				0.10/20.8	1645	
BS3				2.15/21.2	2779	
BS4				3.10/19.4	4444	

Daily Site Visit Report

VERTEX

Summary of Daily Operations

10:12 Arrive on location
Safety paperwork
Discuss excavation plan with crew
Excavate three areas
Collect samples
Field screen samples

Next Steps & Recommendations

1 Return to office

2 Send confirmation samples to lab

3 Scan and file paperwork

Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: South
	
Excavation area 1 6” BS20-01 L48’xW27’	Excavation area 2 @ 6” L11’xW17’ BS20-02

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: South
	
Excavation area 3 @ 6” BS20-03 L9’xW9’	Excavation area 4 @ 2” scrape

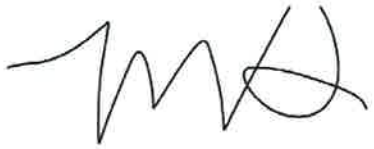
Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:



ATTACHMENT 5

Natalie Gordon

From: Natalie Gordon
Sent: Monday, February 3, 2020 3:25 PM
To: 'emnrd-ocd-district1spills@state.nm.us'; Mike Bratcher (mike.bratcher@state.nm.us); 'ramona.marcus@state.nm.us'; 'blm_nm_cfo_spill@blm.gov'; Wade , Kelsey
Cc: Dennis Williams (DWilliams@vertex.ca); 'John Hurt'
Subject: Rodney Robinson Federal 101H Lease Road 48-hr Sampling Notification - Matador Resources

All:

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled confirmation sampling to be conducted at Rodney Robinson Federal 101H Lease Road for an incident that occurred on 01/24/2020. The initial C-141 was submitted by Matador Production Company on 02/03/2020. No RP #/Incident # has been assigned at this time.

On February 5, 2020 beginning at 8:00 a.m., Vertex personnel will be onsite to guide remediation efforts of the above-reference release. Once excavation activities are complete at approximately 3:30 p.m., Vertex will collect confirmation samples to obtain closure of the incident.

If you need assistance with directions to the site, or have any questions or concerns, please do not hesitate to contact me at 505-506-0040.

Thank you,
Natalie

ATTACHMENT 6

VSP Sample Design Report for Calculating a One-Sided Confidence Interval for the Population Median Using Systematic Grid Sampling

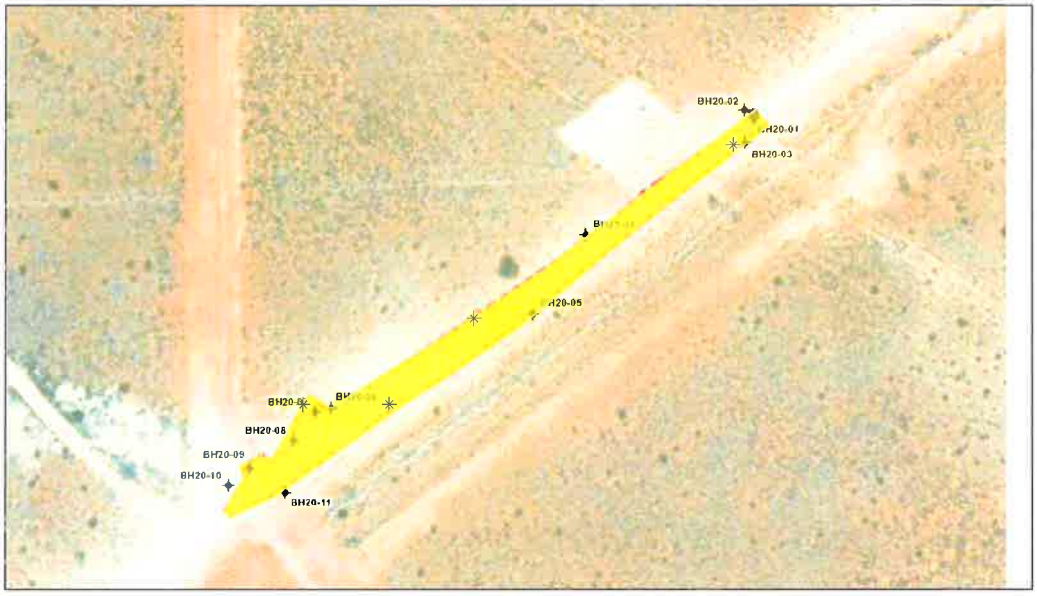
Summary

This report summarizes the sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan.

The following table summarizes the sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Construct a Confidence Interval on the True Median
Type of Sampling Design	Non-Parametric
Sample Placement (Location) in the Field	Systematic with a random start location
Formula for calculating number of sampling locations	Nonparametric Confidence Limits
Calculated total number of samples	3
Number of samples on map [a]	4
Number of selected sample areas [b]	1
Specified sampling area [c]	56076.35 ft^2
Size of grid / Area of grid cell [d]	136.719 feet / 18692.1 ft^2
Grid pattern	Square
Total cost of sampling [e]	$2,500.00

[a] This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.
[b] The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.
[c] The sampling area is the total surface area of the selected colored sample areas on the map of the site.
[d] Size of grid / Area of grid cell gives the linear and square dimensions of the grid used to systematically place samples.
[e] Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Area 2						
X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
-36.5831	-2.8343			Systematic		
100.1360	-2.8343			Systematic		
236.8551	133.8848			Systematic		
647.0125	407.3230			Systematic		

Primary Sampling Objective
The primary purpose of sampling at this site is to construct a confidence interval on the true population median value. After the samples are collected and analyzed, the resulting sample values can be used to construct a one-sided confidence interval. Once the confidence interval is computed (which will be an upper threshold), you can have the specified confidence that the true population median is less than the upper threshold.

Selected Sampling Approach
A non-parametric design was used to determine the number of samples. A parametric formula was not chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that parametric assumptions are not true. These assumptions will be examined in post-sampling data analysis.

Both parametric and non-parametric equations rely on assumptions about the population. Typically, however, non-parametric equations require fewer assumptions and allow for more uncertainty about the statistical distribution of values at the site. The trade-off is that if the parametric assumptions are valid, the required number of samples is usually less than if a non-parametric equation was used.

VSP offers many options to determine the locations at which measurements are made or samples are collected and subsequently measured. For this design, systematic grid point sampling was chosen. Locating the sample points systematically provides data that are all equidistant apart. This approach does not provide as much information about the spatial structure of the potential contamination as simple random sampling does. Knowledge of the spatial structure is useful for geostatistical analysis. However, it ensures that all portions of the site are equally represented. Statistical analyses of systematically collected data are valid if a random start to the grid is used.

Number of Total Samples: Calculation Equation and Inputs
Two sample confidence interval calculation methods are available for when $n \leq 20$ and $n > 20$ (Conover, 1980, p. 111-117) (Gilbert, 1987,p. 141-142). In VSP, the user specifies a one-sided or two-sided CI, and the percent confidence desired to be within a specified number of percentiles of the median. A binary search is then performed on the CI equations to solve for the minimum sample size to satisfy these parameters. VSP first uses the $n \leq 20$ method to determine if a solution can be found where $n \leq 20$, and if not, then uses the $n > 20$ method.

For a one-sided CI, the n≤20 method follows a binomial distribution and determines the lowest value of n where the y^{th} quantile of the sample would be equal to or above the true median at least X% of the time (Note that the sample sizes work out to be the same regardless of whether the CI will be a lower or upper tailed, so the same formula can be used for any one-sided CI). X% is the specified confidence for one-sided confidence intervals, and the average of 100% and the specified confidence for two-sided confidence intervals. The y^{th} quantile is determined by taking 50% and subtracting the allowable number of percentiles from the median specified by the user.

For a two-sided CI, the n≤20 method is the same as performing a one-sided confidence interval, but replacing the specified percent confidence with the average of 100% and the specified percent confidence. If no solution is found where n≤20, a binary search is conducted using Equation (1) for a one-sided CI and Equation (2) for a two-sided interval to compute the value of r (r is the the rank of the lowest value expected to fall within the confidence interval when ranking the n samples from smallest to largest), rounding r up to the next higher integer. The search is repeated until the smallest n is found where 100*2*r/n is greater than 50% minus the allowable number of percentiles from the median specified by the user.

$$r = 0.5*n - 0.5*w_{\alpha}\sqrt{n} \qquad (1)$$

$$r = 0.5*n - 0.5*w_{\alpha/2}\sqrt{n} \qquad (2)$$

Where:

n is the sample size

r is the rank of the lowest value expected to fall within the confidence interval when ranking the n samples from smallest to largest

w_{α} is the specified quantile of a normal distribution, e.g. if α=0.2 then w_{α} is the 0.2 quantile (20^{th} percentile) of a normal distribution.

The n>20 method described above is an approximation method, so VSP also performs a final check using a binomial distribution in a similar manner to the n≤20 method, and may increase the sample size by 1 to ensure the specified confidence levels are met.

The values of the inputs that resulted in the estimated number of survey sampling locations are:

Analyte	n	Parameter	
		α	Tolerance [a]
Analyte 1	3	0.01	50

[a] Indicates the maximum number of percentiles between the estimated median and the true median.

Cost of Sampling
The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is $2,500.00, which averages out to a per sample cost of $833.33. The following table summarizes the inputs and resulting cost estimates.

COST INFORMATION			
Cost Details	**Per Analysis**	**Per Sample**	**4 Samples**
Field collection costs		$100.00	$400.00
Analytical costs (Analyte 1)	$400.00	$400.00	$1,600.00
Sum of Field & Analytical costs		**$500.00**	**$2,000.00**
Fixed planning and validation costs			$1,000.00
Total cost			**$3,000.00**

Recommended Data Analysis Activities
Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000).

The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Because the primary objective for sampling for this site is to compute a confidence interval, the data should be assessed in this context. Assuming the data are adequate, at least one statistical test should be done to evaluate whether the data are normally distributed. Appropriate confidence intervals for the median value should then be calculated. Results of the exploratory and quantitative assessments of the data should be reported, along with conclusions that may be supported by them.

Once data is collected, a CI can be computed using the binomial distribution. The values are ordered from smallest to largest and numbered from 1 to n. Given parameters n and 0.5, the probability of r or fewer observations for a lower tail and/or s or more observations for an upper tail can be computed using each value from 1 to n for both r and s. For a lower one-sided CI, determine the largest value of r such that probability of r occurrences following the binomial distribution is less than α. For an upper one-sided CI, determine the smallest value of s such that the probability of s occurrences following the binomial distribution is greater than $1-\alpha$. For a two-sided CI, follow the method used for the one-sided CI's except substituting $\alpha/2$ for α. The measured values that correspond to these numbered values are the values used for the confidence intervals.

ATTACHMENT 7

Client Name: Matador Production Company
Site Name: Rodney Robinson Federal 101H Lease Road
Project #: 20E-00239-002
Lab Reports: 2001C16 and 2002341

Table 2. Characterization and Confirmatory Sampling Field Screen and Lab Data

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH 20-01	0	January 29, 2020	-	-	**15,682**	<0.024	<0.219	<4.9	59.0	<43	59	59	**20,000**
BH 20-01	0.5	January 29, 2020	-	-	**8,040**	-	-	-	-	-	-	-	-
BH 20-01	1	January 29, 2020	-	-	1,279	-	-	-	-	-	-	-	-
BH 20-01	2	January 29, 2020	-	-	547	<0.024	<0.217	<4.8	<9.9	<50	<14.7	<64.7	470
BH 20-01	3	January 29, 2020	-	-	637	-	-	-	-	-	-	-	-
BH 20-02	0	January 29, 2020	-	-	109	-	-	-	-	-	-	-	-
BH 20-03	0	January 29, 2020	-	-	215	-	-	-	-	-	-	-	-
BH 20-04	0	January 29, 2020	-	-	806	-	-	-	-	-	-	-	-
BH 20-05	0	January 29, 2020	-	-	**6,491**	<0.023	<0.207	<4.6	17.0	<48	17	17	340
BH 20-05.1	0	January 29, 2020	-	-	504	-	-	-	-	-	-	-	-
BH 20-06	0	January 29, 2020	-	-	149	-	-	-	-	-	-	-	-
BH 20-07	0	January 29, 2020	-	-	**17,652**	-	-	-	-	-	-	-	-
BH 20-07	0.5	January 29, 2020	-	-	553	<0.023	<0.211	<4.7	<9.9	<50	<14.6	<64.6	650
BH 20-07	1	January 29, 2020	-	-	126	-	-	-	-	-	-	-	-
BH 20-07	2	January 29, 2020	-	-	58	-	-	-	-	-	-	-	-
BH 20-08	0	January 29, 2020	-	-	302	-	-	-	-	-	-	-	-
BH 20-09	0	January 29, 2020	-	-	145	-	-	-	-	-	-	-	-
BH 20-09	0.5	January 29, 2020	-	-	75	-	-	-	-	-	-	-	-
BH 20-09	1	January 29, 2020	-	-	29	-	-	-	-	-	-	-	-
BH 20-09	2	January 29, 2020	-	-	29	-	-	-	-	-	-	-	-
BH 20-10	0	January 29, 2020	-	-	302	-	-	-	-	-	-	-	-
BH 20-11	1	January 29, 2020	-	-	228	-	-	-	-	-	-	-	-
BS 20-01	0.5	February 6, 2020	-	-	501	<0.024	<0.219	<4.9	<9.4	<47	<14.3	<61.3	320
BS 20-02	0.5	February 6, 2020	-	-	<0	<0.025	<0.222	<4.9	<8.7	<44	<13.6	<57.6	<60
BS 20-03	0.5	February 6, 2020	-	-	2,779	<0.025	<0.222	<4.9	<9.5	<47	<14.4	<61.4	3,000
BS 20-04	0.167	February 6, 2020	-	-	4,444	<0.025	<0.225	<5.0	<9.4	<47	<14.4	<61.4	5,000

"-" - Not assessed/analyzed
Bold and shaded indicates exceedance outside of, or near, applied action level

ATTACHMENT 8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 06, 2020

Natalie Gordon

Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX

RE: Rodney Robinson Federal 101H Lease Road OrderNo.: 2001C16

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/31/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2001C16**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson Federal 101H Lease R
Lab ID: 2001C16-001 **Matrix:** SOIL

Client Sample ID: BH20-01 0'
Collection Date: 1/29/2020 11:00:00 AM
Received Date: 1/31/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	59	8.6		mg/Kg	1	2/3/2020 9:33:04 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	2/3/2020 9:33:04 AM
Surr: DNOP	117	55.1-146		%Rec	1	2/3/2020 9:33:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/4/2020 7:41:46 PM
Surr: BFB	97.0	66.6-105		%Rec	1	2/4/2020 7:41:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/4/2020 7:41:46 PM
Toluene	ND	0.049		mg/Kg	1	2/4/2020 7:41:46 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/4/2020 7:41:46 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/4/2020 7:41:46 PM
Surr: 4-Bromofluorobenzene	90.4	80-120		%Rec	1	2/4/2020 7:41:46 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	20000	600		mg/Kg	200	2/5/2020 5:44:07 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001C16**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson Federal 101H Lease R
Lab ID: 2001C16-002 **Matrix:** SOIL

Client Sample ID: BH20-01 2'
Collection Date: 1/29/2020 11:15:00 AM
Received Date: 1/31/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/3/2020 9:42:15 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/3/2020 9:42:15 AM
Surr: DNOP	87.4	55.1-146		%Rec	1	2/3/2020 9:42:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/4/2020 8:51:28 PM
Surr: BFB	77.0	66.6-105		%Rec	1	2/4/2020 8:51:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/4/2020 8:51:28 PM
Toluene	ND	0.048		mg/Kg	1	2/4/2020 8:51:28 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/4/2020 8:51:28 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/4/2020 8:51:28 PM
Surr: 4-Bromofluorobenzene	86.8	80-120		%Rec	1	2/4/2020 8:51:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	470	61		mg/Kg	20	2/4/2020 4:23:32 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001C16**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson Federal 101H Lease R
Lab ID: 2001C16-003 **Matrix:** SOIL

Client Sample ID: BH20-05 0'
Collection Date: 1/29/2020 12:00:00 PM
Received Date: 1/31/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	17	9.6		mg/Kg	1	2/3/2020 9:51:28 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/3/2020 9:51:28 AM
Surr: DNOP	97.1	55.1-146		%Rec	1	2/3/2020 9:51:28 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/4/2020 9:14:40 PM
Surr: BFB	81.2	66.6-105		%Rec	1	2/4/2020 9:14:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	2/4/2020 9:14:40 PM
Toluene	ND	0.046		mg/Kg	1	2/4/2020 9:14:40 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/4/2020 9:14:40 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/4/2020 9:14:40 PM
Surr: 4-Bromofluorobenzene	88.8	80-120		%Rec	1	2/4/2020 9:14:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	340	60		mg/Kg	20	2/4/2020 4:35:53 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001C16**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson Federal 101H Lease R
Lab ID: 2001C16-004 **Matrix:** SOIL

Client Sample ID: BH20-07 0.5'
Collection Date: 1/29/2020 12:40:00 PM
Received Date: 1/31/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/3/2020 10:00:39 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/3/2020 10:00:39 AM
Surr: DNOP	125	55.1-146		%Rec	1	2/3/2020 10:00:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/4/2020 9:37:47 PM
Surr: BFB	77.0	66.6-105		%Rec	1	2/4/2020 9:37:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	2/4/2020 9:37:47 PM
Toluene	ND	0.047		mg/Kg	1	2/4/2020 9:37:47 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/4/2020 9:37:47 PM
Xylenes, Total	ND	0.094		mg/Kg	1	2/4/2020 9:37:47 PM
Surr: 4-Bromofluorobenzene	87.7	80-120		%Rec	1	2/4/2020 9:37:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	650	60		mg/Kg	20	2/4/2020 4:48:13 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001C16**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson Federal 101H Lease Road

Sample ID: **MB-50242**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **50242**	RunNo: **66289**							
Prep Date: **2/4/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277916**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50242**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **50242**	RunNo: **66289**							
Prep Date: **2/4/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277917**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001C16**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson Federal 101H Lease Road

Sample ID: **MB-50189**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50189**	RunNo: **66246**
Prep Date: **1/31/2020**	Analysis Date: **2/3/2020**	SeqNo: **2275621** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		93.6	55.1	146			

Sample ID: **LCS-50189**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50189**	RunNo: **66246**
Prep Date: **1/31/2020**	Analysis Date: **2/3/2020**	SeqNo: **2275622** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	63.9	124			
Surr: DNOP	4.5		5.000		89.9	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001C16**
06-Feb-20

Client: Vertex Resource Group Ltd.
Project: Rodney Robinson Federal 101H Lease Road

Sample ID: **mb-50185**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **PBS**	Batch ID: **50185**			RunNo: **66278**					
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**			SeqNo: **2277391**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	790		1000		79.4	66.6	105			

Sample ID: **lcs-50185**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **50185**			RunNo: **66278**					
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**			SeqNo: **2277393**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.9	80	120			
Surr: BFB	910		1000		91.2	66.6	105			

Sample ID: **mb-50219**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **PBS**	Batch ID: **50219**			RunNo: **66278**					
Prep Date: **2/3/2020**	Analysis Date: **2/5/2020**			SeqNo: **2277403**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	750		1000		75.4	66.6	105			

Sample ID: **lcs-50219**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **50219**			RunNo: **66278**					
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**			SeqNo: **2277404**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	850		1000		85.5	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001C16**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson Federal 101H Lease Road

Sample ID: **mb-50185**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277424** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		86.5	80	120			

Sample ID: **lcs-50185**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277425** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.3	80	120			
Toluene	0.93	0.050	1.000	0	93.3	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.0	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	80	120			

Sample ID: **2001C16-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH20-01 0'**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277427** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.024	0.9625	0.01701	85.9	78.5	119			
Toluene	0.88	0.048	0.9625	0.02323	89.4	75.7	123			
Ethylbenzene	0.90	0.048	0.9625	0.01983	91.5	74.3	126			
Xylenes, Total	2.7	0.096	2.887	0.06122	92.1	72.9	130			
Surr: 4-Bromofluorobenzene	0.91		0.9625		94.8	80	120			

Sample ID: **2001C16-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH20-01 0'**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277428** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.023	0.9346	0.01701	83.3	78.5	119	5.91	20	
Toluene	0.84	0.047	0.9346	0.02323	86.9	75.7	123	5.62	20	
Ethylbenzene	0.84	0.047	0.9346	0.01983	88.3	74.3	126	6.33	20	
Xylenes, Total	2.6	0.093	2.804	0.06122	89.6	72.9	130	5.52	20	
Surr: 4-Bromofluorobenzene	0.83		0.9346		89.3	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001C16**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson Federal 101H Lease Road

Sample ID: **mb-50219**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **50219**	RunNo: **66278**
Prep Date: **2/3/2020**	Analysis Date: **2/5/2020**	SeqNo: **2277435** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.85		1.000		85.3	80	120			

Sample ID: **lcs-50219**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **50219**	RunNo: **66278**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277436** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.92		1.000		91.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **VERTEX CARLSBAD** Work Order Number: **2001C16** RcptNo: **1**

Received By: **Isaiah Ortiz** **1/31/2020 8:50:00 AM** IO

Completed By: **Isaiah Ortiz** **1/31/2020 9:24:19 AM** IO

Reviewed By: SR 1/31/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: YG 1/31/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	Good	Not Present			

Chain-of-Custody Record

Client: Vertex

Mailing Address: on file

Phone #: on file

email or Fax#: Natalie Gordon

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Rodney Robinson Federal 101H Lease Road

Project #: 20E-00239-002

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.6-0.1(CF)=0.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2001C16	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl), F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
1/29	11:00	Soil	BH20-01 0'	4oz	ice	-001	✓	✓					✓			
1/29	11:15	1	BH20-01 2'	1	1	-002	✓	✓					✓			
1/29	12:00	1	BH20-05 0'	1	1	-003	✓	✓					✓			
1/29	12:40	↓	BH20-07 0.5'	↓	↓	-004	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/30/20	1500				1/30/20	1500
1/30/20	1900			courier	1/31/20	0850

Remarks: CC: Natalie Gordon

Matador

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 13, 2020

Dennis Williams
Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX

RE: Rodney Robinson OrderNo.: 2002341

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 4 sample(s) on 2/8/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2002341**
Date Reported: **2/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson
Lab ID: 2002341-001 **Matrix:** SOIL

Client Sample ID: BS20-01 0.5'
Collection Date: 2/6/2020 10:00:00 AM
Received Date: 2/8/2020 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/12/2020 9:52:12 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/12/2020 9:52:12 AM
Surr: DNOP	113	55.1-146		%Rec	1	2/12/2020 9:52:12 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2020 9:20:08 PM
Surr: BFB	77.0	66.6-105		%Rec	1	2/11/2020 9:20:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/11/2020 9:20:08 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2020 9:20:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2020 9:20:08 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2020 9:20:08 PM
Surr: 4-Bromofluorobenzene	86.2	80-120		%Rec	1	2/11/2020 9:20:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	320	60		mg/Kg	20	2/11/2020 3:30:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2002341**
Date Reported: **2/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson
Lab ID: 2002341-002 **Matrix:** SOIL

Client Sample ID: BS20-02 0.5'
Collection Date: 2/6/2020 10:45:00 AM
Received Date: 2/8/2020 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	2/12/2020 10:19:42 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/12/2020 10:19:42 AM
Surr: DNOP	99.6	55.1-146		%Rec	1	2/12/2020 10:19:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2020 10:29:39 PM
Surr: BFB	78.9	66.6-105		%Rec	1	2/11/2020 10:29:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	2/11/2020 10:29:39 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2020 10:29:39 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2020 10:29:39 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/11/2020 10:29:39 PM
Surr: 4-Bromofluorobenzene	88.0	80-120		%Rec	1	2/11/2020 10:29:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	2/11/2020 4:08:13 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2002341**
Date Reported: **2/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson
Lab ID: 2002341-003 **Matrix:** SOIL

Client Sample ID: BS20-03 0.5'
Collection Date: 2/6/2020 11:45:00 AM
Received Date: 2/8/2020 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/12/2020 10:28:50 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/12/2020 10:28:50 AM
Surr: DNOP	85.5	55.1-146		%Rec	1	2/12/2020 10:28:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2020 11:39:08 PM
Surr: BFB	79.2	66.6-105		%Rec	1	2/11/2020 11:39:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	2/11/2020 11:39:08 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2020 11:39:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2020 11:39:08 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/11/2020 11:39:08 PM
Surr: 4-Bromofluorobenzene	88.9	80-120		%Rec	1	2/11/2020 11:39:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3000	150		mg/Kg	50	2/12/2020 9:45:55 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2002341**
Date Reported: **2/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Rodney Robinson
Lab ID: 2002341-004 **Matrix:** SOIL

Client Sample ID: BS20-04 2"
Collection Date: 2/6/2020 2:00:00 PM
Received Date: 2/8/2020 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/12/2020 10:38:02 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/12/2020 10:38:02 AM
Surr: DNOP	87.8	55.1-146		%Rec	1	2/12/2020 10:38:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2020 12:02:15 AM
Surr: BFB	78.3	66.6-105		%Rec	1	2/12/2020 12:02:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	2/12/2020 12:02:15 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2020 12:02:15 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2020 12:02:15 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/12/2020 12:02:15 AM
Surr: 4-Bromofluorobenzene	87.4	80-120		%Rec	1	2/12/2020 12:02:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	5000	300		mg/Kg	100	2/12/2020 9:58:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002341**

13-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson

Sample ID: **MB-50382**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **50382**	RunNo: **66467**
Prep Date: **2/11/2020**	Analysis Date: **2/11/2020**	SeqNo: **2284146** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50382**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **50382**	RunNo: **66467**
Prep Date: **2/11/2020**	Analysis Date: **2/11/2020**	SeqNo: **2284148** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002341**

13-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson

Sample ID: **MB-50393**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50393**	RunNo: **66489**
Prep Date: **2/11/2020**	Analysis Date: **2/12/2020**	SeqNo: **2284655** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	55.1	146			

Sample ID: **LCS-50393**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50393**	RunNo: **66489**
Prep Date: **2/11/2020**	Analysis Date: **2/12/2020**	SeqNo: **2284656** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	115	70	130			
Surr: DNOP	5.0		5.000		101	55.1	146			

Sample ID: **2002341-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-01 0.5'**	Batch ID: **50393**	RunNo: **66489**
Prep Date: **2/11/2020**	Analysis Date: **2/12/2020**	SeqNo: **2284658** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	64	9.7	48.40	0	132	47.4	136			
Surr: DNOP	6.7		4.840		138	55.1	146			

Sample ID: **2002341-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-01 0.5'**	Batch ID: **50393**	RunNo: **66489**
Prep Date: **2/11/2020**	Analysis Date: **2/12/2020**	SeqNo: **2285115** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	9.1	45.58	0	127	47.4	136	9.86	43.4	
Surr: DNOP	5.4		4.558		118	55.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002341**

13-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson

Sample ID: **2002341-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-01 0.5'**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285139** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.58	0	91.8	69.1	142			
Surr: BFB	880		983.3		89.7	66.6	105			

Sample ID: **2002341-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-01 0.5'**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285140** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.46	0	92.0	69.1	142	0.316	20	
Surr: BFB	860		978.5		88.3	66.6	105	0	0	

Sample ID: **lcs-50355**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285152** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	82.4	80	120			
Surr: BFB	880		1000		88.3	66.6	105			

Sample ID: **mb-50355**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285153** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		81.8	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002341**

13-Feb-20

Client: Vertex Resource Group Ltd.

Project: Rodney Robinson

Sample ID: **2002341-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-02 0.5'**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9814	0.01685	97.6	78.5	119			
Toluene	1.0	0.049	0.9814	0.01517	101	75.7	123			
Ethylbenzene	1.0	0.049	0.9814	0	103	74.3	126			
Xylenes, Total	3.1	0.098	2.944	0.02305	104	72.9	130			
Surr: 4-Bromofluorobenzene	0.90		0.9814		91.4	80	120			

Sample ID: **2002341-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-02 0.5'**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285160** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9940	0.01685	99.4	78.5	119	3.06	20	
Toluene	1.0	0.050	0.9940	0.01517	103	75.7	123	2.95	20	
Ethylbenzene	1.1	0.050	0.9940	0	106	74.3	126	3.98	20	
Xylenes, Total	3.2	0.099	2.982	0.02305	106	72.9	130	2.94	20	
Surr: 4-Bromofluorobenzene	0.93		0.9940		93.3	80	120	0	0	

Sample ID: **LCS-50355**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285171** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	88.2	80	120			
Toluene	0.91	0.050	1.000	0	91.1	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.0	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	80	120			

Sample ID: **mb-50355**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **50355**	RunNo: **66461**
Prep Date: **2/10/2020**	Analysis Date: **2/11/2020**	SeqNo: **2285172** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **VERTEX CARLSBAD** Work Order Number: **2002341** RcptNo: **1**

Received By: **Erin Melendrez** **2/8/2020 8:35:00 AM**

Completed By: **Erin Melendrez** **2/8/2020 10:58:56 AM**

Reviewed By: YG 2/10/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JR 2/10/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good				

Chain-of-Custody Record

Client: Vertex

Mailing Address: on file

Phone #: on file

email or Fax#: Natalie Gordon

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Rodney Robinson

Project #: 20E-00239 - 002

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including cf): 5.3+0.1(cf)=5.4 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2002341	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2/6	10:00	soil	BS20-01 0.5'	4 oz	ice	-001	✓	✓					✓			
2/6	10:45	soil	BS20-02 0.5'	4 oz	ice	-002	✓	✓					✓			
2/6	11:45	soil	BS20-03 0.5'	4 oz	ice	-003	✓	✓					✓			
2/6	2:00	soil	BS20-04 2"	4 oz	ice	-004	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
2/7	1300				2/7/20	1300
2/7	1900			Courier	2/8/20	0835

Remarks:
CC: Natalie Gordon
matador

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.