**October 25, 2019**

# 1RP-5655 Characterization, Remediation & Closure Report
# ROC Mesa Water System

## Prepared for
## Advance Energy Partners Hat Mesa LLC
## Houston, Texas

**Prepared by**
**R.T. Hicks Consultants, Ltd.**
**Albuquerque, New Mexico**

# C-141

## Including Closure Form

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

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NRM1925542327 |
| District RP | 1RP-5655 |
| Facility ID | fRM1925541519 |
| Application ID | pRM1925539397 |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party: Advance Energy Partners Hat Mesa LLC | OGRID: 372417 |
| Contact Name: David Harwell | Contact Telephone: 281-235-3431 |
| Contact email: DHarwell@advanceenergypartners.com | Incident # *(assigned by OCD)* |
| Contact mailing address: 11490 Westheimer Rd. Suite 950. Houston, TX 77077 | |

## Location of Release Source

Latitude 32.44597 Longitude -103.60411
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name: Mesa Water System | Site Type: Produced Water Transfer Line |
| Date Release Discovered: July 31, 2019 (19:00 hrs) | API# |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| I, P | 30 | T21S | R33E | Lea |

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (Merchant Livestock)

## 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) 80 | Volume Recovered (bbls) 48 |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☒ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☐ Other (describe) | Volume/Weight Released (provide units) | Volume/Weight Recovered (provide units) |

Cause of Release: Valve left open during flushing of the produced water line with clean water that exhibits a chloride concentration of 650 mg/L.

Volume of release calculated by Select Energy during line flushing operations. Volume recovered calculated by totaling meter on vac truck.

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| | |
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| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>✓Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br><br>> 25 bbls. |

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Immediate notice was giving via phone to Bureau Chief Jim Griswold on August 1, 2019 by
Andrew Parker of R.T. Hicks Consultants on the behalf of Advance Energy Partners Hat Mesa, LLC.

## 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: Andrew Parker Title: Sr. Env. Specialist

Signature: Andrew Parker Date: August 8, 2019 (16:45 hrs)

email: andrew@rthicksconsult.com Telephone: 970-570-9535

**OCD Only**

Received by: Ramona Marcus Date: 09/12/2019

State of New Mexico
Oil Conservation Division

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|---|---|
| Incident ID | |
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| 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? (Plates 2 and 3) | 340 (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? (Plate 5) | ☐ 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)? (Plates 5) | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church? (Plate 6) | ☐ 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? (Plates 4) | ☐ Yes ☒ No |
| Are the lateral extents of the release within 1000 feet of any other fresh water well or spring? (Plates 4) | ☐ Yes ☒ No |
| Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field? (Plate 4) | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of a wetland? (Plate 7) | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying a subsurface mine? (Plate 8) In a Potash District | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying an unstable area such as karst geology? (Plate 9) | ☐ Yes ☒ No |
| Are the lateral extents of the release within a 100-year floodplain? (Plate 10) | ☐ Yes ☒ No |
| Did the release impact areas **not** on an exploration, development, production, or storage site? PIPELINE ROW | ☐ 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.

State of New Mexico
Oil Conservation Division

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Printed Name: Andrew Parker Title: Sr. Env. Specialist

Signature: Date: October 25, 2019

email: andrew@rthicksconsult.com Telephone: 970-570-9535

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
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| District RP | |
| Facility ID | |
| Application ID | |

# Remediation Plan

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

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

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

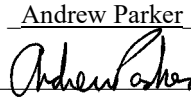
☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Andrew Parker Title: Sr. Env. Specialist

Signature:  Date: October 25, 2019

email: andrew@rthicksconsult.com Telephone: 970-570-9535

**OCD Only**

Received by: _____ Date: _____

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

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

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|---|---|
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| District RP | |
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| Application ID | |

# Closure

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

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

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

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

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

☒ Description of remediation activities

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

Printed Name: Andrew Parker Title: Sr. Env. Specialist

Signature: Andrew Parker Date: October 25, 2019

email: andrew@rthicksconsult.com Telephone: 970-570-9535

**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: _____

# Closure Report
## Characterization and Remediation

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

# R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
Artesia ▲ Carlsbad ▲ Durango ▲ Midland


October 25, 2019

NMOCD District 1 (vacant)
District 1 - HOBBS
1625 N. French Drive
Hobbs, New Mexico 88240
Via Email:
Electronic Submittal
emnrd-ocd-district1spills@state.nm.us

RE: 1RP-5655 ROC Mesa Water System
Characterization, Remediation, and Closure Report

NMOCD:

R.T. Hicks Consultants submits this characterization, remediation, and closure report on the behalf of Advance Energy Partners Hat Mesa, LLC (Advance Energy).

The produced water release occurred on July 31st, 2019 during fresh water flushing while bringing a new water transfer pipeline online. The release was confined within an open pipeline trench.

Remediation and reclamation was completed by October 16, 2019. The C-141 including the Characterization, Remediation and Closure Forms is attached. We respectfully ask NMOCD for closure of the regulatory file.

Hick Consultants relied on 19.15.29 NMAC for characterization, remediation, and closure reporting for 1RP-5655.

The source of the release is at coordinates 32.44597, -103.60411 (Latitude/Longitude; NAD 83). The release occurred from an open valve at the base of the open pipeline trench at 5-feet below ground surface.

The report is divided into three sections:

I. Initial Response
II. Characterization
III. Remediation and Closure

*Plates*

- Plate 1 – Site Map
- Plates 2 through 10 – As labeled on the C-141 Characterization Checklist
- Plate 11 – Characterization Sample Locations
- Plate 12 – Final Confirmation Sample Locations

*Tables*

- Table 1 – Nearby OSE Well Summary
- Table 2 – Summary of Characterization Results Summary
- Table 3 - Final Confirmation Sampling Results Summary

*Appendices*

- Appendix A – EM Survey Calibration Data
- Appendix B – OSE Well Logs
- Appendix C - Laboratory Certificate of Analyses

# I. Initial Response

The produced water release occurred on July 31st, 2019 and occurred during fresh water flushing while bringing a new water transfer pipeline online. The release occurred and was confined within the open pipeline trench (Figure 1).

The flushing of the transfer line was shut down at 19:00hrs at the discovery of the release. Pooling of produced water was removed via vacuum truck.

**Figure 1: Produced water pooling in pipeline trench, viewing north. GPS: 32.4449083N, -103.6041028 W. Date/Time: 2019-08-01 10:18:38.**

# II. Characterization

The following sections address items as described in 19.15.29.11.A, paragraphs 1- 4. Please refer to the C-141 characterization checklist for additional setback criteria and verification (Plates 2-10).

On August 1st and 3rd the release extent was defined by visual identification of moist soil and pooling of released water within the pipeline trench excavation and verified using electrical conductivity (EC) field parameters.

Mr. Parker and Mr. Saenz of R.T. Hicks Consultants characterized the release extent:

- With visual identification of moist soil,
- Soil sampling,
- Conducting an electromagnetic (EM) survey with a Geonics EM-38 (see Appendix A for a discussion on EM surveys), and
- Field screening with a Hanna handheld EC meter.

The release extent was delineated with a temperature corrected electrical conductivity (EC) reading of 0.20 dS/m. As discussed in Appendix A, an EC reading of 0.20 dS/m correlates with chloride concentrations below 600 mg/kg.

## *1. Site Map*

Plate 1 shows initial release extent within the pipeline trench relative to the final excavation extent and all sampling points. Plate 11 shows the initial release path relative to characterization samples. Plate 12 shows the excavation extent and confirmation sample point centroids.

## *2. Depth to Ground Water*

Most recent depth to water data was queried from the USGS and New Mexico Office of the State Engineer (OSE) online databases (Plate 2). Spatial analysis shows:

- The nearest water well is located 1.5-miles east-northeast of the release; identified as MISC-392 (CP-601). Depth to water at this well 178 ft.
- The next two nearest water wells with recorded depth to are located
    - 1.7-miles (CP-00854 POD 1) east-southeast with a depth to water of 600-feet.
    - 2.2-miles east (CP-01349, CP-01355, CP-01356, CP-01357) with an average depth to water of 571.75-feet [ = (578+582+555+572) / 4 ].

Review of well logs available from the New Mexico Office of the State Engineer (OSE) online database (see Table 1) shows that the depth to the top of the water-bearing zone, for wells under Artesian pressure, exceeds 550 feet below land surface, as shown in the “top of water bearing strata” column. Appendix B contains well logs available online from the OSE.

OSE well logs show that the nearby wells have a minimum of 103 feet of pressure head above the confining layer. It is important to recognize that at CP-00854, the nearest well with a complete well log, ground water is at a depth of 755 feet and confining pressure causes the water column to rise 155 feet for a perceived depth to water of 600 feet bgs.

We recognize that thin water-bearing units above the regional water-bearing zone may not have been recorded by the well drillers. However, more shallow water-bearing zones would be sandstone units within the Dockum Group redbeds and, like the regional water-bearing zone, would be under artesian pressure.

Ground water flow is to the south as demonstrated on the potentiometric surface map (Plate 3). We relied on the USGS water wells to generate the potentiometric surface. Regionally, USGS water wells show that ground water is within the Alluvium/Bolsom and Chinle Formations.

The potentiometric surface indicates that the depth to water, which is under artesian flow, is approximately 340 feet below ground surface, where

340 feet = 3785 ft surface elevation – 3445 ft potentiometric surface.

### *3. Wellhead Protection Area*

Plate 4 shows that the release extent is **not**:

- Within incorporated municipal boundaries or within a defined municipal fresh water well field.
- Within ½-mile private and domestic water sources (wells and springs).
- 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
- Within 1000 feet of any other fresh water well or spring

### *4. Distance to Nearest Significant Water Course*

Plate 5 shows that the release extent is **not**:

- Within ½ mile of a significant watercourse
- Within 300 feet of a continuously flowing watercourse or any other significant watercourse.
- Within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

### *5. Soil/Waste Characteristics*

The release occurred in an area where depth to water is greater than 100 ft below ground surface (bgs) and within a pipeline right-of-way (ROW).

Lithology from the surface to 4.5-feet below ground surface is a silty sand. At 4.5-feet below ground surface a medium dense caliche was encountered. From 5 to 5.5-feet below ground surface a dense caliche was encountered.

**Figure 2: Sampling trench Pooling-02 with a total depth of 9-feet below ground surface. A silty sand composes the upper 4.5-feet. Below 4.5-feet white caliche is visible at the lower depths of the sampling trench. GPS: 32.4451056 N, -103.6040639W. Date/time: 2019-08-03 11:29:24**

According to Table 1 of 19.15.29 NMAC, closure criteria limits are as follows:

| Table 1 19.15.29 NMAC | | Chloride | GRO+DRO | TPH+Ext | BTEX | Benzene |
|---|---|---|---|---|---|---|
| DTW > 100ft | | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) |
| Closure Criteria | 0-4 ft (not in-use) | 600 | 1,000 | 2,500 | 50 | 10 |
| Closure Criteria | >4 ft or "in-use" | 20,000 | 1,000 | 2,500 | 50 | 10 |

Soil sampling, an EM Survey, and field screening for EC was employed to characterize and delineate the release extent. Table 2 shows the results of the characterization.

As the release occurred at the bottom of the pipeline excavation (4.5 feet), impairment of upper few inches to 1-foot below ground surface was not impacted by the release. The upper few inches

of surface soils were removed and stockpiled for re-use during final restoration. The upper surface was field screened to an EC <0.20 dS/m at which level chloride concentrations will be below 600 mg/kg.

Chloride concentrations are below Closure Criteria of 20,000 mg/kg for soils below 4-feet. All four characterization trenches show chloride concentrations decreasing with depth from 5 to 11-feet below ground surface with the lowest concentration of 110 mg/kg at 8-feet below ground surface (Source sample trench). TPH and BTEX concentrations were below laboratory detection levels.

# III. Remediation and Closure

## *1. Excavation Protocol*

Excavation of impacted material was determined by field screening with an EM-38 or a Hanna HI98304 DiST 4 handheld meter. EC readings >0.20 dS/m indicated that chloride concentrations are likely to exceed 600 mg/kg. With respect to the upper 4-feet, excavation continued until EC readings showed concentrations <0.20 dS/m within the area of concern – at which time a 5-point composite soil sample was collected for laboratory confirmation via EPA Method 200.1 or SM4500.

If soil confirmation sample results exceeded 600 mg/kg chloride at the excavation walls, the excavation wall was extended horizontally and resampled. Horizontal excavation continued until subsequent laboratory confirmation showed chloride below 600 mg/kg in the upper 4-feet.

Excavation depth was determined by 5-point composite sampling of the base. Vertical excavation continued until the base of the excavation exhibited chloride less than 600 mg/kg at 5.5 feet bgs or less. Below 4-feet, allowable chloride concentrations per Table 1 of 19.15.29 NMAC is <20,000 mg/kg.


**Figure 3: Excavation of the release within the pipeline trench. Photograph is viewing south from sample point T-02 (S-09). GPS: 32.4470472 N, -103.6041028 W. Time/Date: 2019-09-16 15:13:13**

Excavated soil was transported to R360 for proper disposal. Clean backfill soil was purchased from Merchant Livestock Company under a Surface Use Agreement.

## *2. Remediation Activities*

The excavation extent is irregular in shape and covers a surface area of approximately 1900 square yards with a volume of approximately 2850 cu. yds. As shown on Plate 12, confirmation sampling with the excavation extent consists of ten (10) soil sample centroids representing a sampling interval of approximately 130-feet (+/- 20 ft) on center.

Table 3 is a summary of analytical results showing final confirmation sampling of the excavation walls and bases.

- TPH and Benzene at select samples were below laboratory detection levels.
- All sampled locations show chloride concentrations below 600 mg/kg in the upper 4 feet.
- All sampled bases from 5 to 5.5 ft below ground surface were below 20,000 mg/kg with the highest chloride concentration at S-05 Base at 5-ft below ground surface that exhibited 5600 mg/kg.

Laboratory Certificate of Analyses are in Appendix C.

Figure 4, below, shows final restoration after seeding and surface contouring to blend with the surrounding topography.

**Figure 4: Final backfill and reclamation of pipeline-right-of-way. Photograph viewing south from the Source area. Date/Time: 2019-10-17 14:07:52. GPS: 32.4459915 N, -103.6039734 W.**

### *3. Closure*

As discussed above, the release has been reclaimed and restored to meet closure requirements per 19.15.29.12 and 19.15.29.13 NMAC. Therefore, we respectfully request closure of the regulatory file.

Please contact me with any questions at andrew@rthicksconsult.com or 970-570-9535.

Sincerely,
R.T. Hicks Consultants, Ltd.

Andrew Parker
Sr. Env. Specialist

Copy: David Harwell (DHarwell@advanceenergypartners.com);
Advance Energy Partners Hat Mesa, LLC
Ryan Mann, New Mexico State Land Office (rmann@slo.state.nm.us);
Clabe Pearson (clabe@merchantlivestock.com ); Merchant Livestock;
Brad Blevins (bblevins5252@gmail.com); Merchant Livestock

# Plates

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

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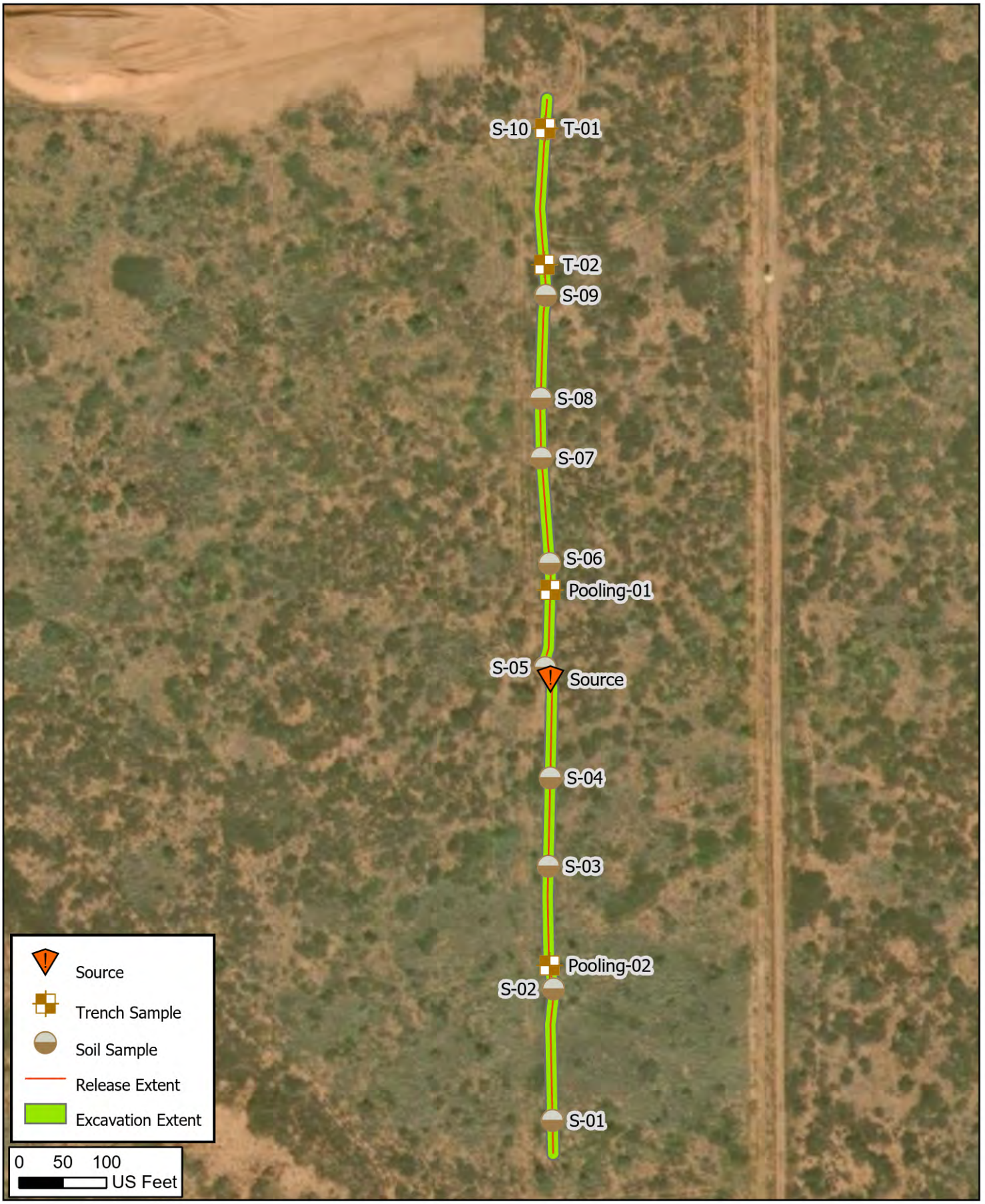


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R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

| Site Map | Plate 1 |
|---|---|
| Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

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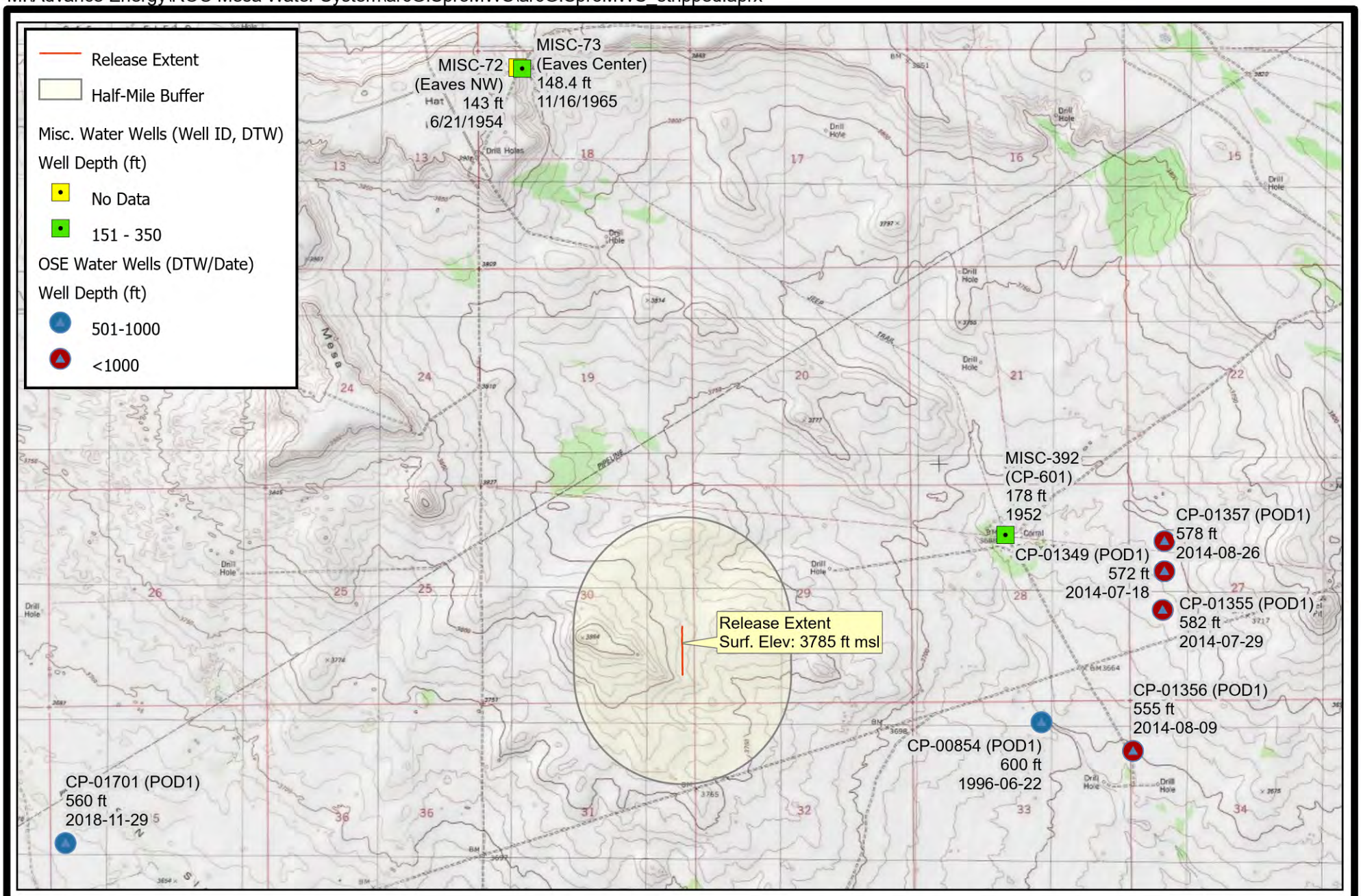


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R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Depth to Water

Plate 02

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

Oct. 24, 2019

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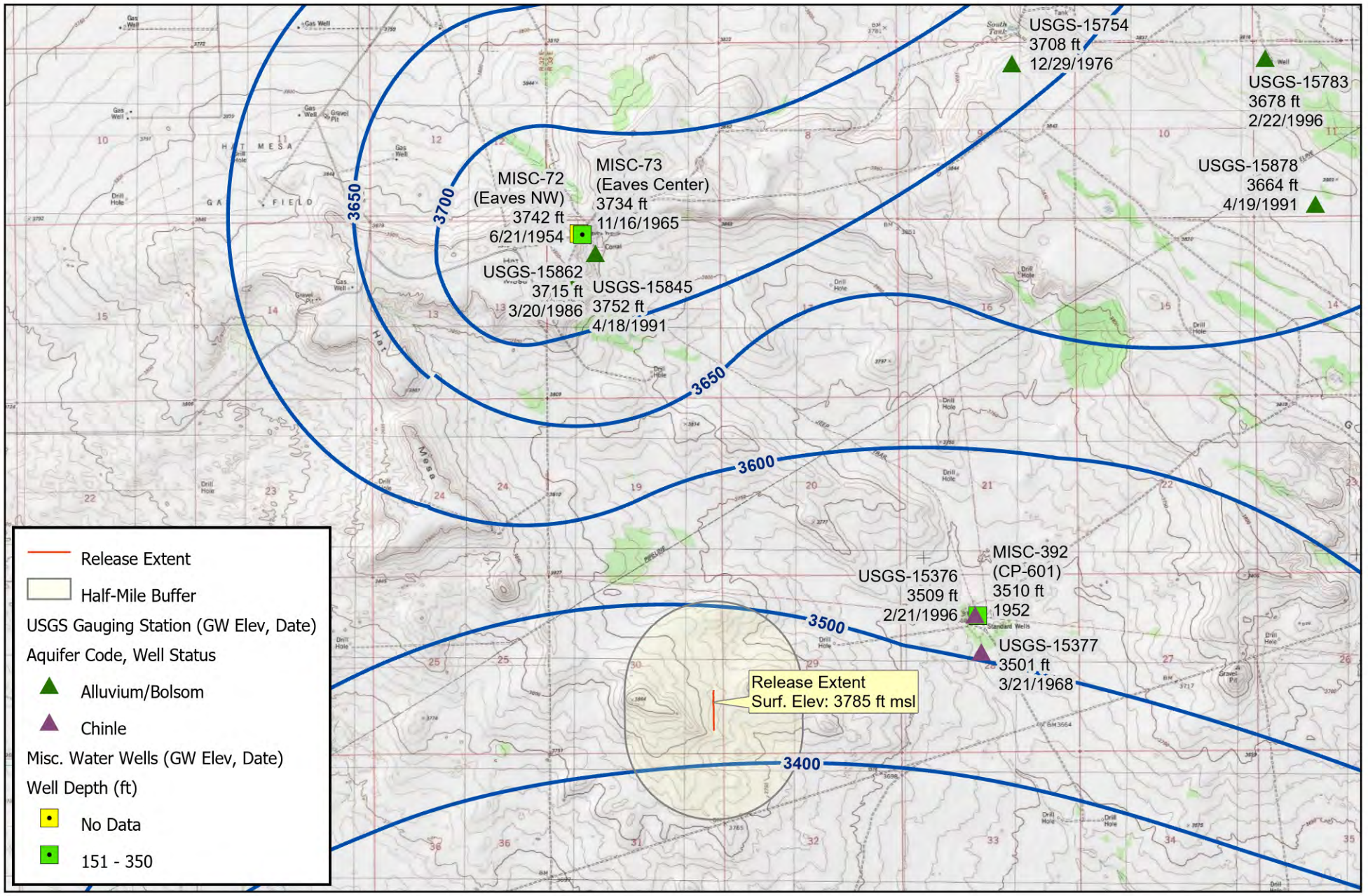


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0 0.5 1 Miles

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

| | |
|---|---|
| Potentiometric Surface | Plate 03 |
| Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

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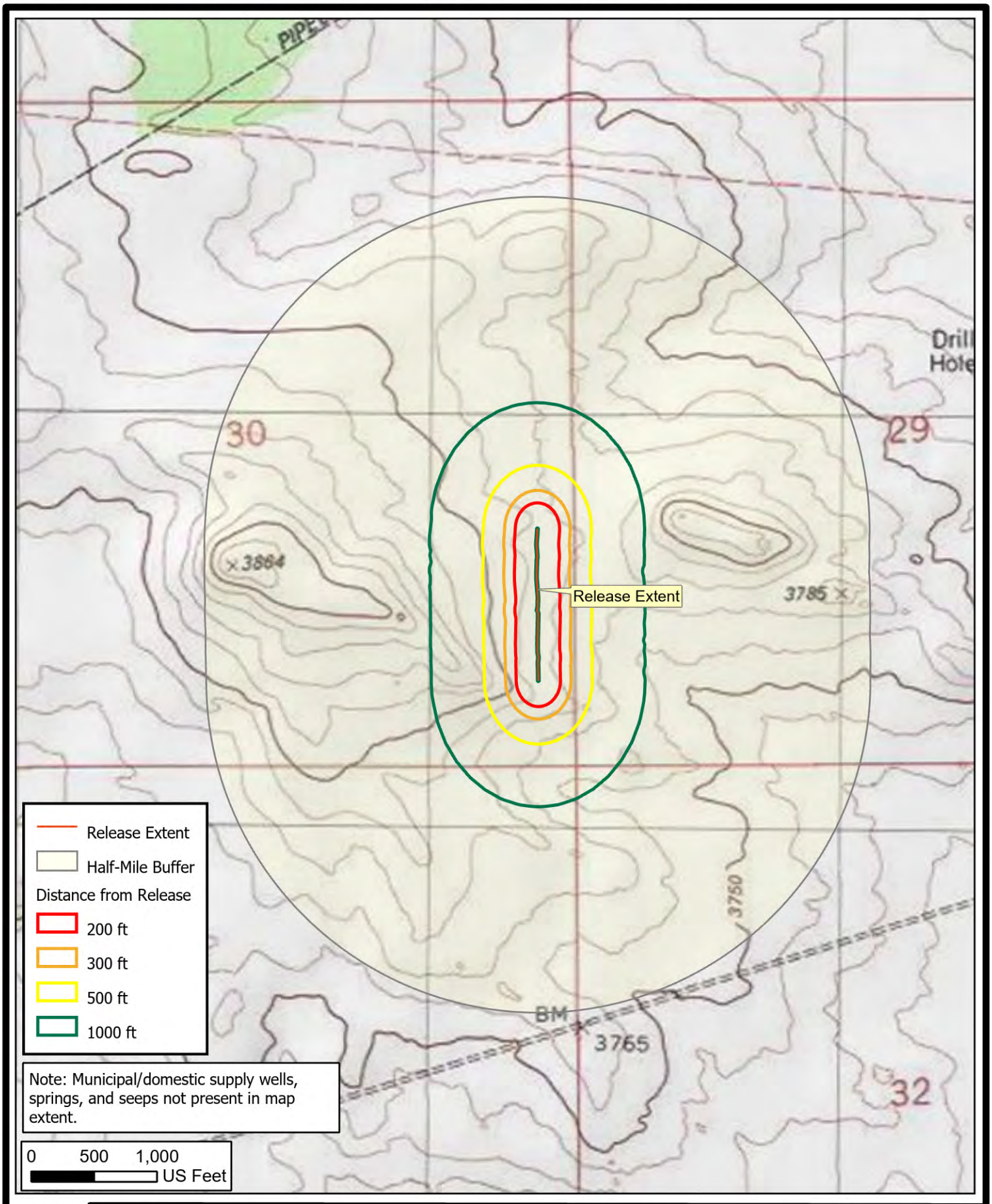
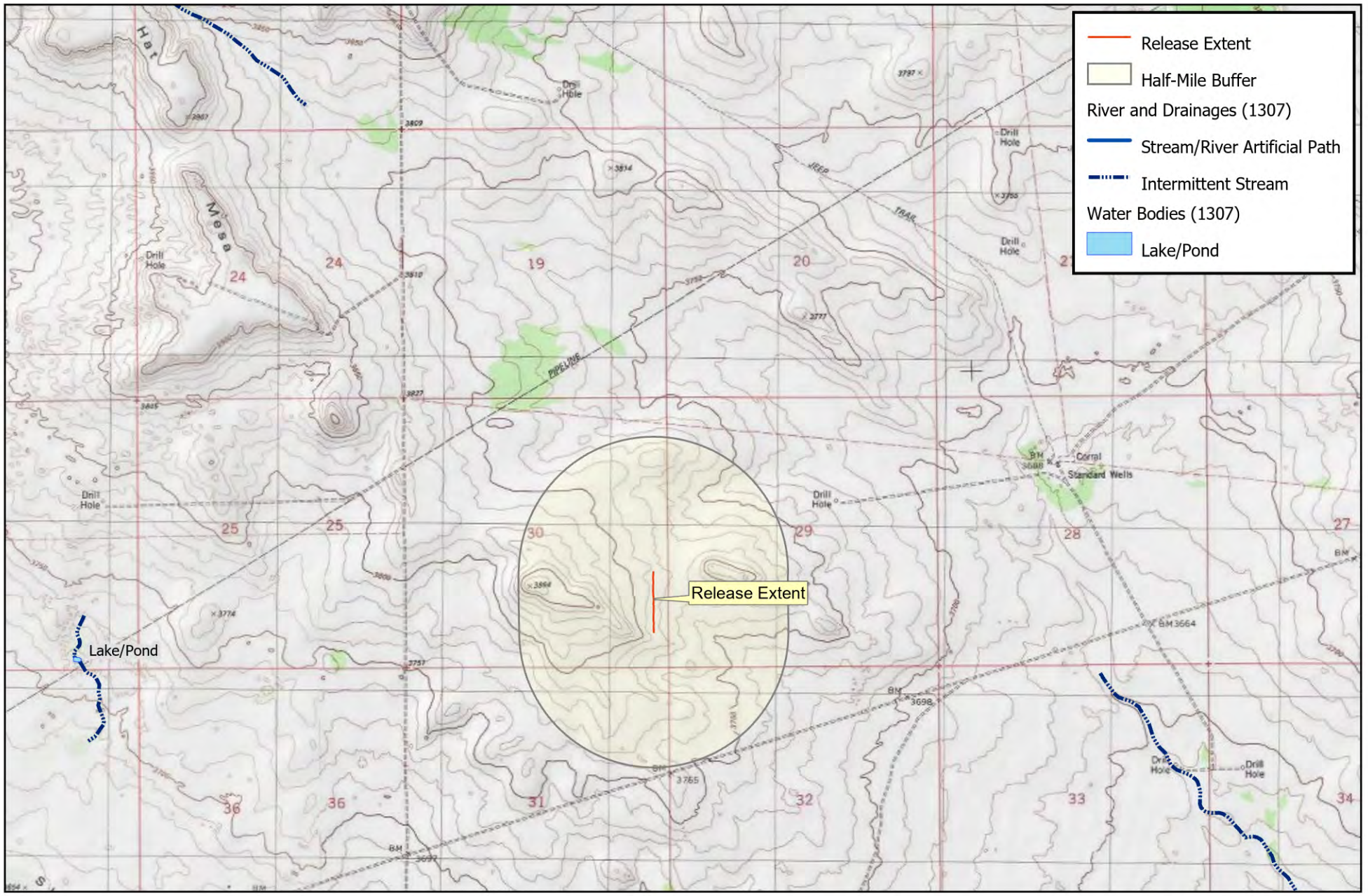



| | | |
|---|---|---|
| R.T. Hicks Consultants, Ltd<br>901 Rio Grande Blvd NW Suite F-142<br>Albuquerque, NM 87104<br>Ph: 505.266.5004 | Wellhead Protection | Plate 4 |
| | Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 25, 2019 |

M:\Advance Energy\ROC Mesa Water System\arcGISproMWS\arcGISproMWS_stripped.aprx




N
W E
S

0 0.25 0.5 Miles

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

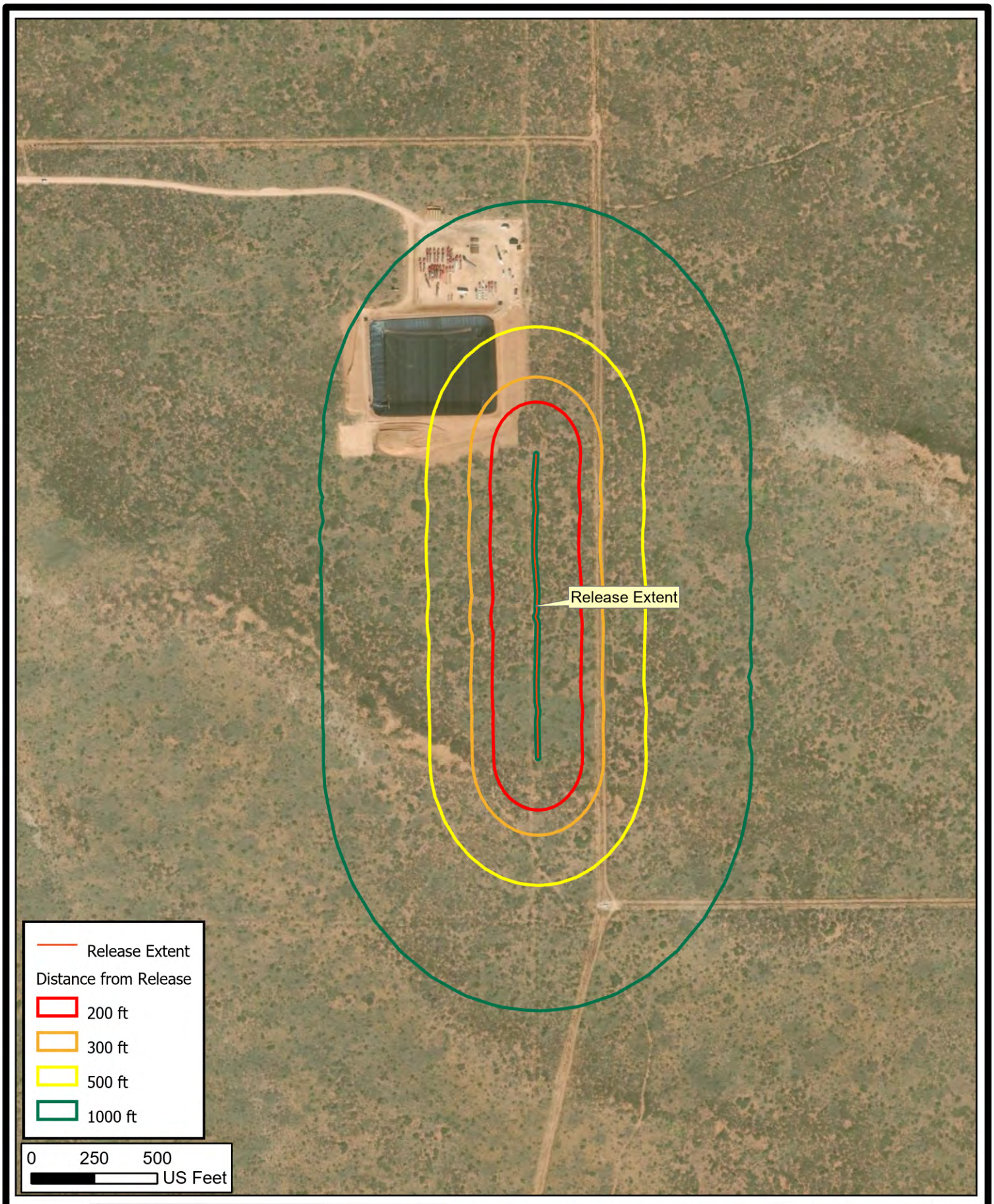
Nearby Watercourses

Plate 05

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

Oct. 24, 2019

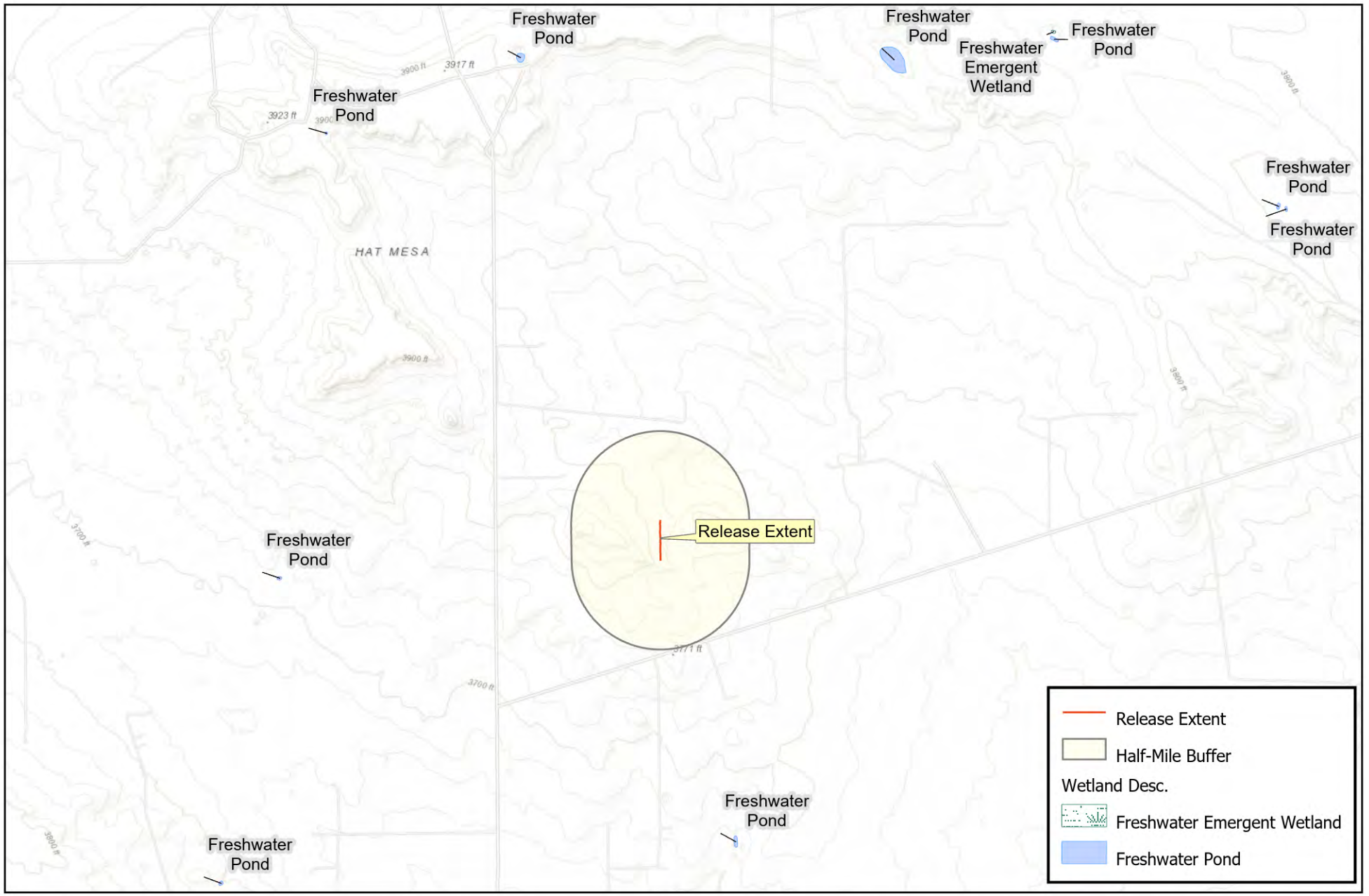
M:\Advance Energy\ROC Mesa Water System\arcGISproMWS\arcGISproMWS_stripped.aprx




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

| | |
|---|---|
| Nearby Structures | Plate 6 |
| Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

M:\Advance Energy\ROC Mesa Water System\arcGISproMWS\arcGISproMWS_stripped.aprx

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0 0.5 1 Miles

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

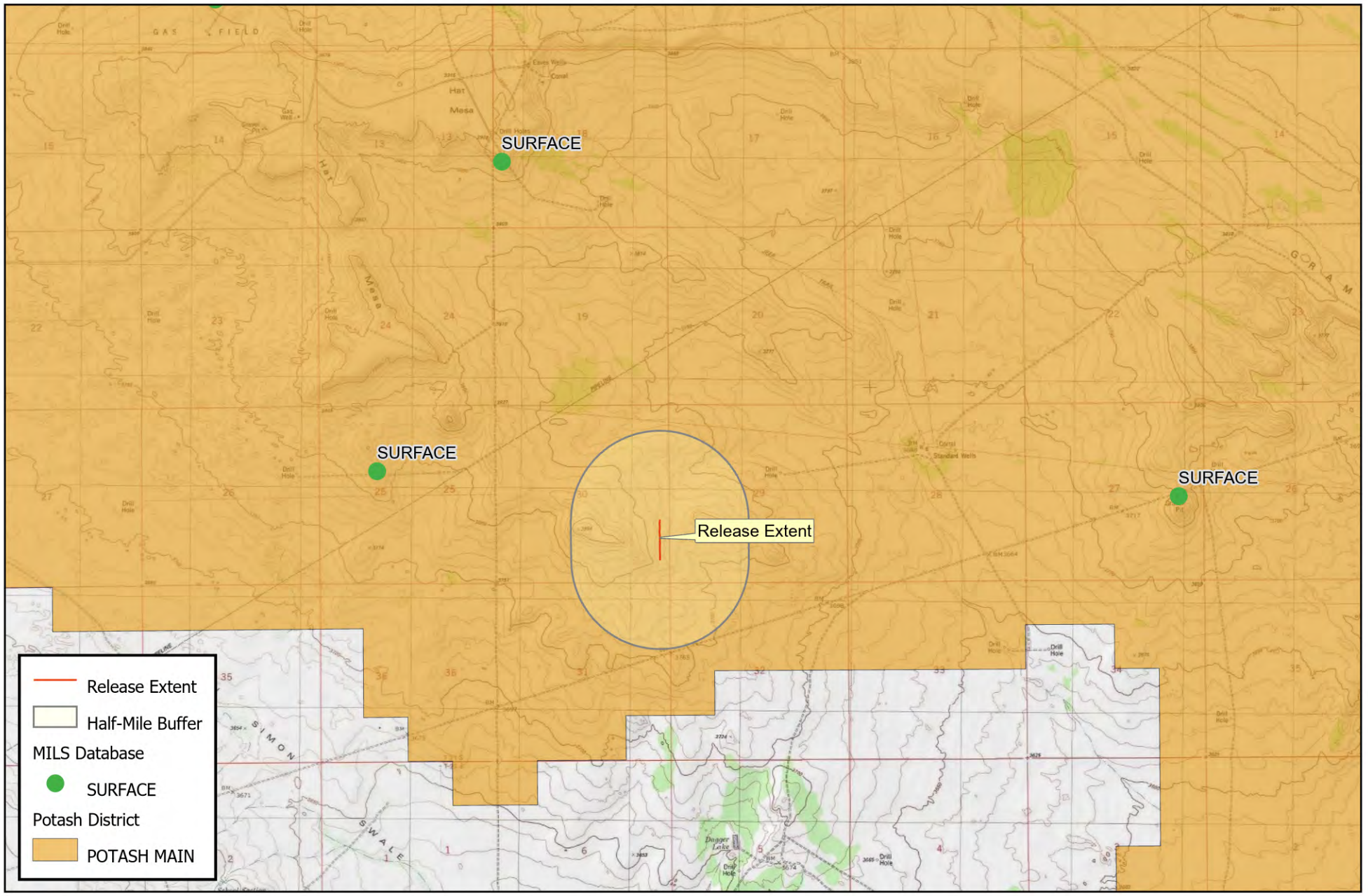
Nearby Wetlands

Plate 7

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

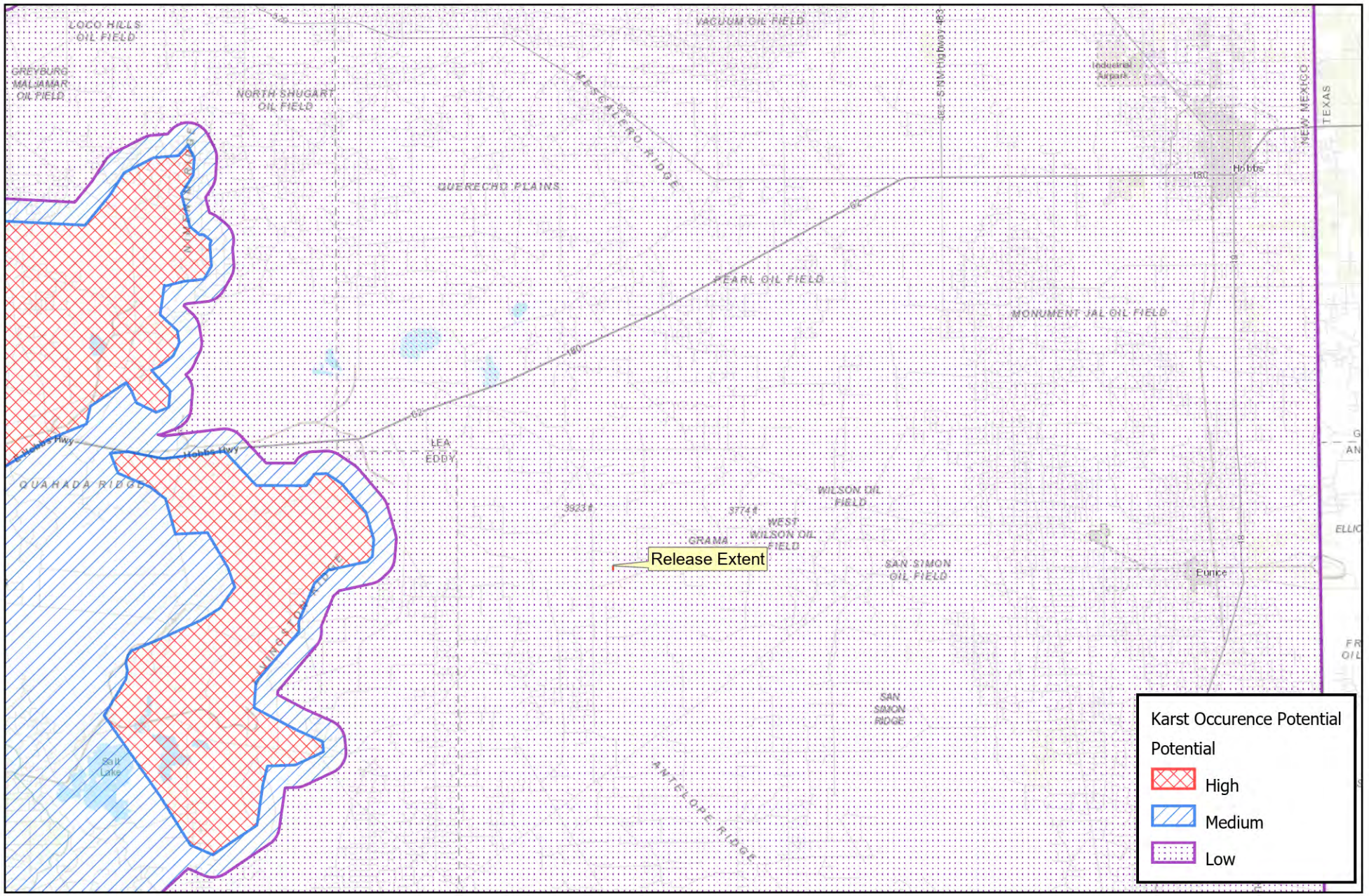
Oct. 24, 2019

M:\Advance Energy\ROC Mesa Water System\arcGISproMWS\arcGISproMWS_stripped.aprx




| | | |
|---|---|---|
| R.T. Hicks Consultants, Ltd<br>901 Rio Grande Blvd NW Suite F-142<br>Albuquerque, NM 87104<br>Ph: 505.266.5004 | Mines and Minerals | Plate 8 |
| | Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

M:\Advance Energy\ROC Mesa Water System\arcGISproMWS\arcGISproMWS_stripped.aprx

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

| Karst | Plate 9 |
|---|---|
| Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

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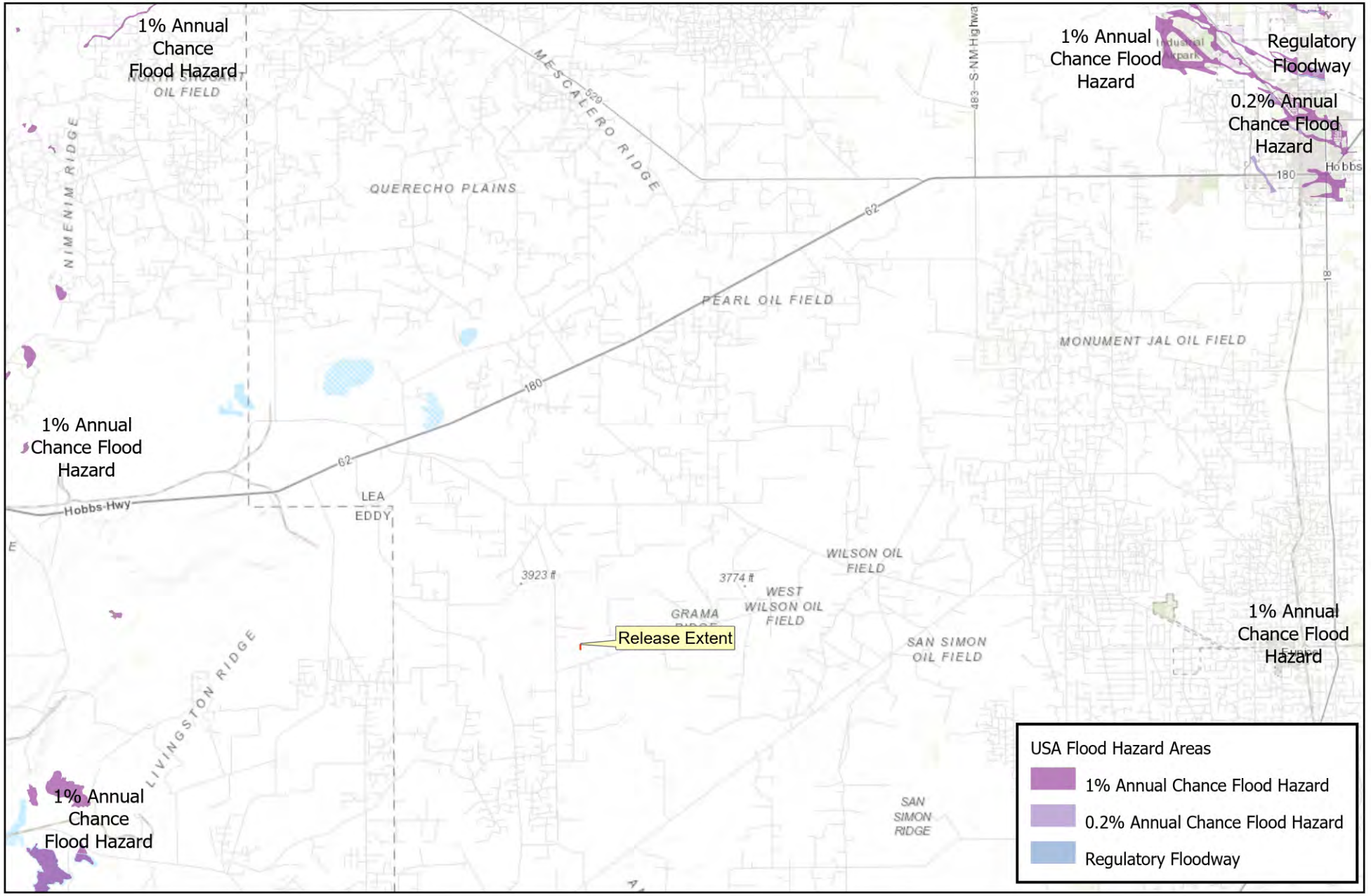


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0 3 6 Miles

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Albuquerque, NM 87104
Ph: 505.266.5004

| | |
|---|---|
| FEMA Flood Hazard | Plate 10 |
| Advance Energy Partners Hat Mesa LLC<br>1RP-5655 ROC Mesa Water System | Oct. 24, 2019 |

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

Characterization Sample Locations Relative to Release Extent

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

Plate 11

Oct. 24, 2019

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

Final Confirmation Sample Locations Relative to Excavation Extent

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

Plate 12

Oct. 24, 2019

# Tables

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

| POD Number | Date | Top of Water Bearing Strata | Bottom of Water Bearing Strata | Depth to Water | Source | Height Above Confining Layer |
|---|---|---|---|---|---|---|
| | | Feet | Feet | Feet | | Feet |
| CP-00601 | 1952 | | 223 | 178 | | |
| CP 00854 | 6/22/1996 | 755 | 890 | 600 | Artesian | 155 |
| CP 01349 POD 1 | 7/18/2014 | 990 | 1188 | 572 | Artesian | 418 |
| CP 01355 POD 1 | 7/29/2014 | 925 | 1185 | 582 | Artesian | 343 |
| CP 01356 POD 1 | 8/9/2014 | 765 | 1092 | 555 | Artesian | 210 |
| CP 01357 POD 1 | 8/26/2014 | 945 | 1286 | 578 | Artesian | 367 |

Table 2
Characterization Sample Summary

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

| Sample ID | Date | Discrete Depth (Feet) | Top Depth (Feet) | Bottom Depth (Feet) | In Use (Yes/No) | EC (Hanna) dS/m | Chloride (PPM) | GRO+DRO (PPM) | TPH Ext. (PPM) | Benzene (PPM) | BTEX (PPM) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NMOCD Limits | | | | | | | | | | | | |
| 0 - 4 feet & "not in-use" | | | | | | | 600 | -- | 2,500 | 10 | 50 | |
| > 4 ft or "in-use" | | | | | | | 20,000 | 1,000 | 2,500 | 10 | 50 | |
| Characterization Samples | | | | | | | | | | | | |
| Pooling-02 | 8/3/2019 | 5.0 | | | | 7.02 | 8600 | | | | | |
| Pooling-02 | 8/3/2019 | 7.0 | | | | 9.35 | 12000 | | | | | |
| Pooling-02 | 8/3/2019 | 9.0 | | | | 0.33 | 270 | | | | | |
| Source | 8/1/2019 | 5.0 | | | | | 12300 | <20 | <30 | <0.05 | <0.3 | |
| Source | 8/3/2019 | 8.0 | | | | 0.17 | 110 | | | | | |
| T-01 | 8/1/2019 | 5.0 | | | | 1.1 | 2160 | <20 | <30 | <0.05 | <0.3 | |
| T-01 | 8/1/2019 | 7.0 | | | | 3.23 | 5040 | | | | | |
| T-01 | 8/1/2019 | 9.0 | | | | 1.6 | 2360 | | | | | |
| T-02 | 8/1/2019 | 5.0 | | | | | 6000 | <20 | <30 | <0.05 | <0.3 | |
| T-02 | 8/1/2019 | 7.0 | | | | | 13300 | | | | | |
| T-02 | 8/1/2019 | 9.0 | | | | | 11600 | | | | | |
| T-02 | 8/3/2019 | 11.0 | | | | 0.37 | 170 | | | | | |
| North End Base | 8/1/2019 | 4.5 | | | | <0.2 | | | | | | Not Sampled |
| South End Base | 8/1/2019 | 4.5 | | | | <0.2 | | | | | | Not Sampled |

Table 3
Confirmation Sampling Summary

Advance Energy Partners Hat Mesa LLC
1RP-5655 ROC Mesa Water System

| Sample ID | Date | Discrete Depth (Feet) | Top Depth (Feet) | Bottom Depth (Feet) | In Use (Yes/No) | EC (Hanna) dS/m | Chloride (PPM) | GRO+DRO (PPM) | TPH Ext. (PPM) | Benzene (PPM) | BTEX (PPM) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NMOCD Limits | | | | | | | | | | | | |
| 0 - 4 feet & "not in-use" | | | | | | | 600 | -- | 2,500 | 10 | 50 | |
| > 4 ft or "in-use" | | | | | | | 20,000 | 1,000 | 2,500 | 10 | 50 | |
| Confirmation Samples | | | | | | | | | | | | |
| S-01 Base | 9/18/2019 | 5.0 | | | | | 464 | <20 | <30 | <0.05 | <0.3 | |
| S-01 S. Wall | 9/18/2019 | | 0.0 | 4.0 | | | 32 | | | | | |
| S-01 E. Wall | 9/18/2019 | | 0.0 | 4.0 | | | 16 | | | | | |
| S-01 W. Wall | 9/18/2019 | | 0.0 | 4.0 | | | 48 | | | | | |
| S-02 Base | 9/23/2019 | 5.0 | | | | | 1820 | <20 | <30 | <0.05 | <0.3 | |
| S-02 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.02 | 16 | | | | | |
| S-02 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 32 | | | | | |
| S-03 Base | 9/23/2019 | 5.0 | | | | | 3080 | | | | | |
| S-03 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.22 | 224 | | | | | |
| S-03 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 16 | | | | | |
| S-04 Base | 9/23/2019 | 5.5 | | | | | 4640 | | | | | |
| S-04 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.24 | 320 | | | | | |
| S-04 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 32 | | | | | |
| S-05 Base | 9/23/2019 | 5.0 | | | | | 5600 | | | | | |
| S-05 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.3 | 304 | | | | | |
| S-05 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 32 | | | | | |
| S-06 Base | 9/23/2019 | 5.0 | | | | | 4320 | <20 | <30 | <0.05 | <0.3 | |
| S-06 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.14 | 64 | | | | | |
| S-06 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 176 | | | | | |
| S-07 Base | 9/23/2019 | 5.5 | | | | | 2640 | | | | | |
| S-07 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.02 | 16 | | | | | |
| S-07 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 512 | | | | | |
| S-08 Base | 9/23/2019 | 5.5 | | | | | 2080 | | | | | |
| S-08 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.02 | <16 | | | | | |
| S-08 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 16 | | | | | |
| S-09 Base | 9/23/2019 | 5.0 | | | | | 1780 | <20 | <30 | <0.05 | <0.3 | |
| S-09 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.01 | <16 | | | | | |
| S-09 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 16 | | | | | |
| S-10 Base | 9/23/2019 | 5.0 | | | | | 928 | | | | | |
| S-10 E. Wall | 9/23/2019 | | 0.0 | 4.0 | | 0.01 | <16 | | | | | |
| S-10 N. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 16 | | | | | |
| S-10 W. Wall | 9/23/2019 | | 0.0 | 4.0 | | | 16 | | | | | |

# Appendix A

## EM Survey

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

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

# ELECTROMAGNETIC SURVEY

## RELATIONSHIP WITH ELECTRICAL CONDUCTIVITY AND CHLORIDE

Revised: October 12, 2019 (DRAFT)

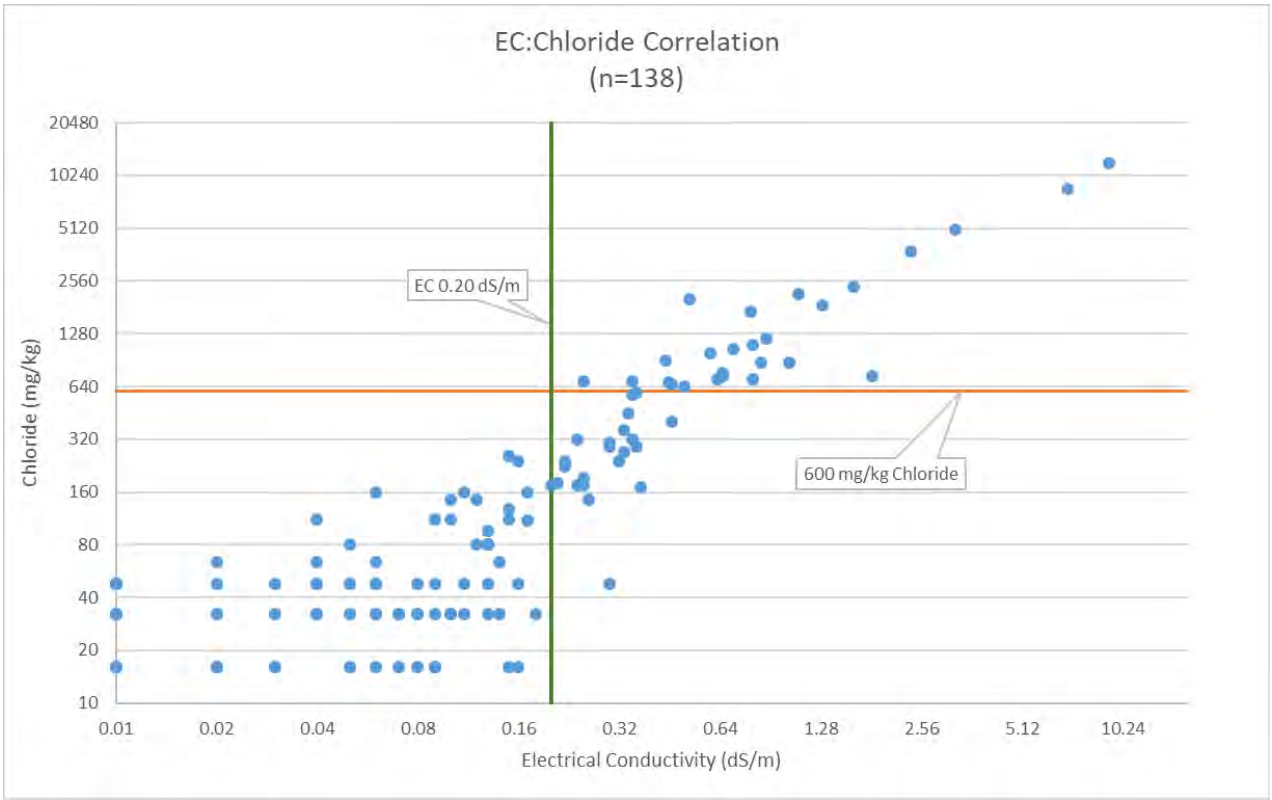
Electromagnetic surveys (EM Survey) are commonly used to measure electrical conductivity (EC, "soil salinity") in soils. Employing a Geonics EM38 (Exhibit 1), field personnel can effectively delineate the horizontal extent of a produced water release by measuring EC and monitoring for EC changes between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

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

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

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

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



# Appendix B

## OSE Well Logs

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

5F

Revised December 1975

IMPORTANT — READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM.

80227

# Declaration of Owner of Underground Water Right

'79 APR 20 PM 3 01

CAPITAN BASIN
BASIN NAME

Declaration No. CP-601 Date received April 17, 1979

STATE ENGINEER OFFICE
SANTA FE, N.M. 87501

STATEMENT

1. Name of Declarant THE MERCHANT LIVESTOCK COMPANY
   Mailing Address P.O. Box 548 Carlsbad
   County of Eddy, State of New Mexico
2. Source of water supply shallow
   (artesian or shallow water aquifer)
3. Describe well location under one of the following subheadings:
   a. ___ ¼ NE ¼ NW ¼ of Sec. 28 Twp. 21S Rge. 33-E N.M.P.M., in Lea County.
   b. Tract No. ___ of Map No. ___ of the ___.
   c. X = ___ feet, Y = ___ feet, N. M. Coordinate System ___ Zone in the ___ Grant.
   On land owned by ___.
4. Description of well: date drilled 1952 driller ___ depth 223' feet.
   outside diameter of casing 6 5/8 inches; original capacity ___ gal. per min.; present capacity 3 gal. per min.; pumping lift ___ feet; static water level 178 feet (above) (below) land surface;
   make and type of pump ___
   make, type, horsepower, etc., of power plant ___
   Fractitional or percentage interest claimed in well 100%
5. Quantity of water appropriated and beneficially used ~~(acre feet per annum)~~ up to 3 (acre feet per annum)
   for stock water purposes.
6. Acreage actually irrigated ___ acres, located and described as follows (describe only lands actually irrigated):

| Subdivision | Sec. | Twp. | Range | Acres Irrigated | Owner |
|---|---|---|---|---|---|
| | | | stock only | | The Merchant Livestock Co. |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

'79 APR 17 AM 8 1
STATE ENGINEER OFFICE
ROSWELL, N. M.

(Note: location of well and acreage actually irrigated must be shown on plat on reverse side.)

7. Water was first applied to beneficial use ___ month ___ day 1952 year and since that time has been used fully and continuously on all of the above described lands or for the above described purposes except as follows: ___

8. Additional statements or explanations
   name of well - Standard

I, J. D. Merchant, Jr., President being first duly sworn upon my oath, depose and say that the above is a full and complete statement prepared in accordance with the instructions on the reverse side of this form and submitted in evidence of ownership of a valid underground water right, that I have carefully read each and all of the items contained therein and that the same are true to the best of my knowledge and belief.

THE MERCHANT LIVESTOCK CO. declarant.
by: J. D. Merchant, Jr. President

Subscribed and sworn to before me this 12th day of April, A.D. 1979

My commission expires March 2, 1980 Notary Public

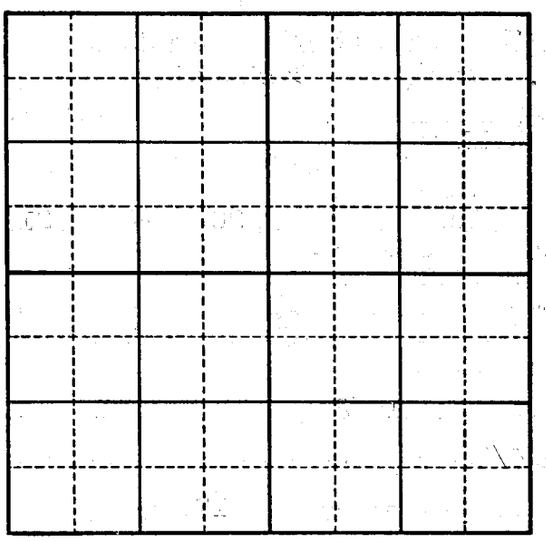
563298

FILED

UNDER NEW MEXICO LAW A DECLARATION IS ONLY A STATEMENT OF DECLARANT'S CLAIM. ACCEPTANCE FOR FILING DOES NOT CONSTITUTE APPROVAL OR REJECTION OF THE CLAIM.

**Locate well and areas actually irrigated as accurately as possible on following plat:**

**Section (s) ....., Township ....., Range ..... N. M. P. M.**



## INSTRUCTIONS

Declaration shall be executed (preferably typewritten) in triplicate and must be accompanied by a **$1.00 filing fee.** Each of triplicate copies must be properly signed and attested.

A separate declaration must be filed for each well in use.

All blanks shall be filled out fully. Required information which cannot be sworn to by declarant shall be supplied by affidavit of person or persons familiar with the facts and shall be submitted herewith.

Secs. 1-3. Complete all blanks.

Sec. 4. Fill out all blanks applicable as fully as possible.

Sec. 5. Irrigation use shall be stated in acre feet of water per acre per year applied on the land. If used for domestic, municipal. or other purposes, state total quantity in acre feet used annually.

Sec. 6. Describe only the acreage actually irrigated. When necessary to clearly define irrigated acreages, describe to nearest 2½ acre subdivision. If located on unsurveyed lands. describe by legal supdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily-located natural object.

Sec. 7. Explain and give dates as nearly as possible of any years when all or part of acreage claimed was not irrigated.

Sec. 8. If well irrigates or supplies supplemental water to any other land than that described above, or if land is also irrigated from any other source, explain under this section. Give any other data necessary to fully describe water right.

If additional space is necessary, use a separate sheet or sheets and attach securely hereto.

SF

EC

'79 APR 20 PM 3 00

STATE ENGINEER OFFICE
SANTA FE, N.M. 87501

April 17, 1979

Files: CP-584; CP-585; CP-586; CP-587; CP-588;
CP-589; CP-590; CP-591; CP-592; CP-593;
CP-594; CP-595; CP-596; CP-597; CP-598;
CP-599; CP-600; CP-601; CP-602

The Merchant Livestock Company
P. O. Box 548
Carlsbad, NM 88220

Gentlemen:

Enclosed are your copies of Declarations of Owner of Underground Water Right as numbered above, which have been filed for record in the office of the State Engineer.

Please refer to each individual number in all future correspondence concerning these declarations.

The filing of these declarations does not indicate affirmation or rejection of the statements contained therein.

Yours very truly,

J. C. Groseclose
Basin Supervisor

JCG/fh
Encls.
cc: Santa Fe

563298

# 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 |
|---|---|---|---|---|---|---|---|---|---|
| | CP 00854 POD1 | 1 | 1 | 2 | 33 | 21S | 33E | 633879 | 3590223 |

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

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

| | | | | | |
|---|---|---|---|---|---|
| **Drill Start Date:** | 06/22/1996 | **Drill Finish Date:** | 06/22/1996 | **Plug Date:** | |
| **Log File Date:** | 07/11/1996 | **PCW Rcv Date:** | 10/17/2013 | **Source:** | Shallow |
| **Pump Type:** | SUBMER | **Pipe Discharge Size:** | 2.875 | **Estimated Yield:** | 100 GPM |
| **Casing Size:** | 6.63 | **Depth Well:** | 950 feet | **Depth Water:** | 600 feet |

**Water Bearing Stratifications:**

| Top | Bottom | Description |
|---|---|---|
| 755 | 805 | Sandstone/Gravel/Conglomerate |
| 860 | 890 | Sandstone/Gravel/Conglomerate |

**Casing Perforations:**

| Top | Bottom |
|---|---|
| 760 | 950 |

| | | | |
|---|---|---|---|
| **Meter Number:** | 8514 | **Meter Make:** | BLANCETT |
| **Meter Serial Number:** | 040711711 | **Meter Multiplier:** | 1.0000 |
| **Number of Dials:** | 7 | **Meter Type:** | Diversion |
| **Unit of Measure:** | Barrels 42 gal. | **Return Flow Percent:** | |
| **Usage Multiplier:** | | **Reading Frequency:** | Quarterly |

**Meter Readings (in Acre-Feet)**

| Read Date | Year | Mtr Reading | Flag | Rdr | Comment | Mtr Amount |
|---|---|---|---|---|---|---|
| 03/15/2004 | 2004 | 121 | A | jw | | 0 |
| 03/29/2004 | 2004 | 69871 | A | jw | | 0 |
| 05/17/2004 | 2004 | 8758 | A | jw | | 2.651 |
| 06/11/2004 | 2004 | 79641 | A | jw | | 2.998 |
| 01/27/2012 | 2012 | 18062553 | A | RPT | Initial reading | 0 |
| 03/01/2012 | 2012 | 19039807 | A | RPT | | 2.999 |
| 05/29/2013 | 2013 | 179696 | A | RPT | initial reading | 0 |
| 10/07/2013 | 2013 | 460774 | A | RPT | Qtr IV 2013 | 36.229 |
| 11/11/2013 | 2013 | 540326 | A | RPT | | 10.254 |
| 01/01/2014 | 2013 | 614283 | A | RPT | | 9.533 |
| 10/01/2014 | 2014 | 1122654 | A | RPT | | 65.526 |
| 01/01/2015 | 2014 | 1212343 | A | RPT | | 11.560 |
| 03/31/2015 | 2015 | 1307063 | A | RPT | | 12.209 |
| 06/27/2015 | 2015 | 1369556 | A | RPT | | 8.055 |

**Meter Readings (in Acre-Feet)**

| Read Date | Year | Mtr Reading | Flag | Rdr | Comment | Mtr Amount |
|---|---|---|---|---|---|---|
| 09/30/2015 | 2015 | 1371471 | A | RPT | | 0.247 |
| 10/22/2015 | 2015 | 1400502 | A | RPT | | 3.742 |
| 11/30/2015 | 2015 | 1400502 | A | RPT | | 0 |
| 04/28/2016 | 2016 | 1464116 | A | RPT | "JD33 Well" | 8.199 |
| 06/01/2016 | 2016 | 1464116 | A | RPT | | 0 |
| 07/27/2016 | 2016 | 1496980 | A | RPT | JD33 Well | 4.236 |
| 09/01/2016 | 2016 | 1510835 | A | RPT | JD 33 Well | 1.786 |
| 09/30/2016 | 2016 | 1517146 | A | RPT | | 0.813 |
| 10/31/2016 | 2016 | 1531178 | A | RPT | JD 33 well | 1.809 |
| 11/29/2016 | 2016 | 1553285 | A | RPT | JD33 Well | 2.849 |
| 03/01/2017 | 2017 | 1583100 | A | RPT | | 3.843 |

| **YTD Meter Amounts: | Year | Amount |
|---|---|---|
| | 2004 | 5.649 |
| | 2012 | 2.999 |
| | 2013 | 56.016 |
| | 2014 | 77.086 |
| | 2015 | 24.253 |
| | 2016 | 19.692 |
| | 2017 | 3.843 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|
| | CP 01349 POD1 | 2 | 3 | 1 | 27 | 21S | 33E | 635304 | 3591576 |

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

**Driller Name:** GLENN, CLARK A."CORKY"

**Drill Start Date:** 07/12/2014 **Drill Finish Date:** 07/18/2014 **Plug Date:**

**Log File Date:** 08/04/2014 **PCW Rcv Date:** **Source:** Artesian

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

**Casing Size:** 7.00 **Depth Well:** 1188 feet **Depth Water:** 572 feet

| Water Bearing Stratifications: | Top | Bottom | Description |
|---|---|---|---|
| | 990 | 1188 | Sandstone/Gravel/Conglomerate |

| Casing Perforations: | Top | Bottom |
|---|---|---|
| | 721 | 1188 |

# WELL RECORD & LOG

**OFFICE OF THE STATE ENGINEER**

**www.ose.state.nm.us**

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2014 SEP 10 PM 2:15

## 1. GENERAL AND WELL LOCATION

| | |
|---|---|
| OSE POD NUMBER (WELL NUMBER): CP-1355 (East Standard South) *** Revised 09/09/14 *** | OSE FILE NUMBER(S): |
| WELL OWNER NAME(S): Merchants/Glenn's Water Well Service, Inc. | PHONE (OPTIONAL): 575-398-2424 |
| WELL OWNER MAILING ADDRESS: P. O. Box 692 | CITY: Tatum STATE: NM ZIP: 88267 |

| WELL LOCATION (FROM GPS) | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|
| LATITUDE | 32 | 26 | 54.8 | N |
| LONGITUDE | 103 | 33 | 58.3 | W |

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NE1/4NW1/4SW1/4 Section 27, Township 21 South, Range 33 East on Merchants Livestock Land

## 2. DRILLING & CASING INFORMATION

| LICENSE NUMBER | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| WD 421 | Corky Glenn | Glenn's Water Well Service, Inc. |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 07/22/14 | 07/29/14 | 1,192' | 1,192' | 925' |

COMPLETED WELL IS: (•) ARTESIAN ( ) DRY HOLE ( ) SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 582'

DRILLING FLUID: (•) AIR ( ) MUD ADDITIVES – SPECIFY:

DRILLING METHOD: (•) ROTARY ( ) HAMMER ( ) CABLE TOOL ( ) OTHER – SPECIFY:

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM (inches) | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE | CASING INSIDE DIAM. (inches) | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|---|---|---|---|---|---|---|---|
| 0' | 40' | 20" | 16" | None | 15 1/2" | .250 | |
| 0' | 757' | 14 3/4" | 9 5/8" | Thread & Collar | 8.921" | 36 lbs. | none |
| 690' | 1,192' | 8 3/4" | 7" (502.14' Total) | Thread & Collar | 6.366" | 23 lbs. | 1/8" |
| | | | 317.96 perforated | | | | |
| | | | on bottom of liner | | | | |
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## 3. ANNULAR MATERIAL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| 0 | 40' | 20" | Cemented | 2 yds. | Top Pour |
| 0 | 757' | 14 3/4" | Float and shoe cemented to surface | 962 | Circulated |
| | | | | | |
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FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

| FILE NUMBER | CP-1355 | POD NUMBER | 1 | TRN NUMBER | 549450 |
|---|---|---|---|---|---|
| LOCATION | Exp1 | 21S.33E.27.312 | | | PAGE 1 OF 2 |

## 4. HYDROGEOLOGIC LOG OF WELL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | THICKNESS (feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units) | WATER BEARING? (YES / NO) | ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm) |
|---|---|---|---|---|---|
| 0 | 4' | 4' | Sand | ○ Y ◉ N | |
| 4' | 28' | 24' | Caliche | ○ Y ◉ N | |
| 28' | 120' | 92' | Sand & Clay | ○ Y ◉ N | |
| 120' | 260' | 140' | Red Clay | ○ Y ◉ N | |
| 260' | 757' | 497' | Red & Brown Shale, and Clay (some blue) | ○ Y ◉ N | |
| 757' | 815' | 58' | Red & Brown Shale | ○ Y ◉ N | |
| 815' | 840' | 25' | Blue Clay & Shale | ○ Y ◉ N | |
| 840' | 925' | 85' | Red and Brown Shale (some sandrock) | ○ Y ◉ N | |
| 925' | 975' | 50' | Watersand and Gravel | ◉ Y ○ N | |
| 975' | 1,185' | 210' | Watersand (brown sandrock) | ◉ Y ○ N | |
| 1,185' | 1,192' | 7' | Red Shale | ○ Y ◉ N | |
| | | | | ○ Y ◉ N | |
| | | | | ○ Y ◉ N | |
| | | | | ○ Y ◉ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ◉ PUMP ○ AIR LIFT ○ BAILER ○ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm):

## 5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

0' to 757' drilled with mud.
757' to 1192' drilled with air and foam.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

## 6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Corky Glenn — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

9/9/14 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

| FILE NUMBER | CP-1355 | POD NUMBER | 1 | TRN NUMBER | 549450 |
|---|---|---|---|---|---|
| LOCATION | 21S.33E.27.312 | | | | PAGE 2 OF 2 |

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE RECEIVED 2014 AUG 18 AM 8:53

### 1. GENERAL AND WELL LOCATION

| | |
|---|---|
| OSE POD NUMBER (WELL NUMBER): CP - 1355 East Standard (South) | OSE FILE NUMBER(S): |
| WELL OWNER NAME(S): Merchants Livestock/Glenn's Water Well Service, Inc. | PHONE (OPTIONAL): (575)398-2424 |
| WELL OWNER MAILING ADDRESS: P.O. Box 692 | CITY: Tatum STATE: NM ZIP: 88267 |

| WELL LOCATION (FROM GPS) | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|
| LATITUDE | 32 | 26 | 54.8 | N |
| LONGITUDE | 103 | 33 | 58.3 | W |

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NE/NW/SW Sec. 27, T21S, R33E on Merchants Livestock Land

### 2. DRILLING & CASING INFORMATION

| LICENSE NUMBER | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| WD 421 | Corky Glenn | Glenn's Water Well Service, Inc. |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 7/29/14 | 8/2/14 | 1192' | 1192' | 925' |

COMPLETED WELL IS: (•) ARTESIAN ( ) DRY HOLE ( ) SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 582'

DRILLING FLUID: ( ) AIR ( ) MUD ADDITIVES – SPECIFY:

DRILLING METHOD: (•) ROTARY ( ) HAMMER ( ) CABLE TOOL ( ) OTHER – SPECIFY:

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM (inches) | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE | CASING INSIDE DIAM. (inches) | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|---|---|---|---|---|---|---|---|
| 0' | 40' | 20" | 16" | None | 15 1/2" | .250 | |
| 0' | 757' | 14 3/4" | 9 5/8" | Thread and Collar | .352 | 36 lbs. | none |
| 757' | 1192' | 8 3/4' | 7" | Thread and Collar | 6.5" | 23 lbs. | 1/8" |
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### 3. ANNULAR MATERIAL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| 0' | 40' | 20" | Cemented | 2 yds | Top Pour |
| 0' | 757' | 14 3/4" | Float and Shoe Cemented to Surface | 1034 | Circulated |
| | | | | | |
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| | | | | | |

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

| FILE NUMBER | CP-1355 | POD NUMBER | 1 | TRN NUMBER | 549450 |
|---|---|---|---|---|---|
| LOCATION | Exp1 | 21S.33E.27.312 | | | PAGE 1 OF 2 |

## 4. HYDROGEOLOGIC LOG OF WELL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | THICKNESS (feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units) | WATER BEARING? (YES / NO) | ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm) |
|---|---|---|---|---|---|
| 0' | 4' | 4' | Soil | ○ Y ◉ N | |
| 4' | 28' | 24' | Caleche | ○ Y ◉ N | |
| 28' | 120' | 92' | Sand and Clay | ○ Y ◉ N | |
| 120' | 260' | 140' | Red Clay | ○ Y ◉ N | |
| 260' | 757' | 497' | Red and Brown Shale and Clay(some blue) | ○ Y ◉ N | |
| 757' | 815' | 58' | Red and Brown Shale | ○ Y ◉ N | |
| 815' | 840' | 25' | Blue Clay and Shale | ○ Y ◉ N | |
| 840' | 925' | 85' | Red and Brown Shale(some sandrock) | ○ Y ◉ N | |
| 925' | 975' | 50' | Watersand and Gravel | ◉ Y ○ N | |
| 975' | 1185' | 210' | Watersand(brown sandrock) | ◉ Y ○ N | |
| 1185' | 1192' | 7' | Red Shale | ○ Y ◉ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |
| | | | | ○ Y ○ N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ◉ PUMP ○ AIR LIFT ○ BAILER ○ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 50

## 5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

0' to 757' drilled with mud. 757' to 1192' drilled with air and foam.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

## 6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Corky Glenn — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

8/7/14 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

| FILE NUMBER | CP-1355 | POD NUMBER | 1 | TRN NUMBER | 549450 |
|---|---|---|---|---|---|
| LOCATION | Exp1 | 21S.33E.27.312 | | | PAGE 2 OF 2 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|
| | CP 01356 POD1 | 4 | 2 | 2 | 33 | 21S | 33E | 634560 | 3590014 |

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

**Driller Name:** GLENN, CLARK A."CORKY"

**Drill Start Date:** 08/01/2014 **Drill Finish Date:** 08/09/2014 **Plug Date:**

**Log File Date:** 08/25/2014 **PCW Rcv Date:** **Source:** Artesian

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

**Casing Size:** 6.37 **Depth Well:** 1098 feet **Depth Water:** 555 feet

| Water Bearing Stratifications: | Top | Bottom | Description |
|---|---|---|---|
| | 765 | 795 | Sandstone/Gravel/Conglomerate |
| | 795 | 825 | Shale/Mudstone/Siltstone |
| | 825 | 920 | Sandstone/Gravel/Conglomerate |
| | 920 | 935 | Shale/Mudstone/Siltstone |
| | 935 | 968 | Sandstone/Gravel/Conglomerate |
| | 968 | 976 | Shale/Mudstone/Siltstone |
| | 976 | 1005 | Sandstone/Gravel/Conglomerate |
| | 1005 | 1092 | Sandstone/Gravel/Conglomerate |

| Casing Perforations: | Top | Bottom |
|---|---|---|
| | 735 | 1098 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|
| | CP 01357 POD1 | 4 | 3 | 1 | 27 | 21S | 33E | 634782 | 3591347 |

| | | | | | |
|---|---|---|---|---|---|
| **Driller License:** | 421 | **Driller Company:** | GLENN'S WATER WELL SERVICE | | |
| **Driller Name:** | GLENN, CLARK A."CORKY" | | | | |
| **Drill Start Date:** | 08/16/2014 | **Drill Finish Date:** | 08/26/2014 | **Plug Date:** | |
| **Log File Date:** | 09/10/2014 | **PCW Rcv Date:** | | **Source:** | Artesian |
| **Pump Type:** | | **Pipe Discharge Size:** | | **Estimated Yield:** | |
| **Casing Size:** | 6.37 | **Depth Well:** | 1286 feet | **Depth Water:** | 578 feet |

| Water Bearing Stratifications: | Top | Bottom | Description |
|---|---|---|---|
| | 945 | 960 | Sandstone/Gravel/Conglomerate |
| | 960 | 1077 | Shale/Mudstone/Siltstone |
| | 1077 | 1215 | Sandstone/Gravel/Conglomerate |
| | 1215 | 1286 | Shale/Mudstone/Siltstone |

| Casing Perforations: | Top | Bottom |
|---|---|---|
| | 846 | 1286 |

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

### 1. GENERAL AND WELL LOCATION

| OSE POD NO. (WELL NO.) | WELL TAG ID NO. | OSE FILE NO(S). |
|---|---|---|
| CP-1701-POD1 | | |

| WELL OWNER NAME(S) | PHONE (OPTIONAL) |
|---|---|
| The Jimmy Mills GST and 2005 GST Trusts | |

| WELL OWNER MAILING ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| c/o Stacey Mills PO Box 1359 | Loving | NM | 88256-1358 |

| WELL LOCATION (FROM GPS) | | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|---|
| | LATITUDE | 32 | 26 | 0.5 | N |
| | LONGITUDE | 103 | 39 | 10.1 | W |

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

### 2. DRILLING & CASING INFORMATION

| LICENSE NO. | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| WD1706 | Bryce Wallace | Elite Drillers Corporation |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 10/15/18 | 11/29/18 | 840 | 880 | 560 |

COMPLETED WELL IS: [x] ARTESIAN [ ] DRY HOLE [ ] SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 457

DRILLING FLUID: [x] AIR [ ] MUD ADDITIVES – SPECIFY:

DRILLING METHOD: [x] ROTARY [ ] HAMMER [ ] CABLE TOOL [ ] OTHER – SPECIFY:

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM (inches) | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE (add coupling diameter) | CASING INSIDE DIAM. (inches) | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|---|---|---|---|---|---|---|---|
| 0 | 20 | 12.75 | ASTM53 Grade B Steel | N/A | 12.57 | .188 | |
| +2 | 460 | 12.25 | ASTM53 Grade B steel | Welded | 6.065 | .28 | |
| 460 | 840 | 12.25 | SDR17 PVC | Spline | 6 | SDR17 | .032 |
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### 3. ANNULAR MATERIAL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| 0 | 20 | 12.75 | Portland I/II Cement | 17 | Pour |
| 0 | 453 | 12.25 | Baroid Benseal Grout | 247 | Trimmie |
| 453 | 860 | 12.25 | 8/16 Silica Sand | 285 | Pour |
| | | | | | |
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FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/17)

| FILE NO. | CP-1701 | POD NO. | 1 | TRN NO. | 619305 |
|---|---|---|---|---|---|
| LOCATION | Exp1 | 21S.32E.35.31 | | WELL TAG ID NO. | — |

## 4. HYDROGEOLOGIC LOG OF WELL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | THICKNESS (feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)** | WATER BEARING? (YES / NO) | ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm) |
|---|---|---|---|---|---|
| 0 | 5 | 5 | Topsoil | Y N | |
| 5 | 8 | 3 | Caliche | Y N | |
| 8 | 80 | 72 | Tan/Red sandy caliche | Y N | |
| 80 | 190 | 110 | Red clay | Y N | |
| 190 | 400 | 210 | Tan/Red sandstone | Y N | |
| 400 | 560 | 160 | Red siltstone | Y N | |
| 560 | 575 | 15 | Red siltstone/Gyp | ✓ Y N | 5.00 |
| 575 | 750 | 175 | Red siltstone | Y N | |
| 750 | 770 | 20 | Red siltstone/Gyp | ✓ Y N | 25.00 |
| 770 | 840 | 70 | Red siltstone | Y N | |
| 840 | 880 | 40 | Red Shale | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☑ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 30.00

## 5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

## 6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Bryce Wallace — 12/10/2018

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

| FILE NO. CP-1701 | POD NO. 1 | TRN NO. 619305 |
|---|---|---|
| LOCATION Exp1 215.32E.35.31 | WELL TAG ID NO. — | PAGE 2 OF 2 |

# Appendix C

## Laboratory Certificates of Analyses

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

CARDINAL Laboratories

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

August 02, 2019

ANDREW PARKER

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ADVANCE ENERGY

Enclosed are the results of analyses for samples received by the laboratory on 08/01/19 16:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 08/01/2019 | Sampling Date: | 08/01/2019 |
| Reported: | 08/02/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | MWS | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

### Sample ID: T -01 5' (H902643-01)

**BTEX 8021B** mg/kg Analyzed By: ms

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.86 | 93.1 | 2.00 | 1.80 | |
| Toluene* | <0.050 | 0.050 | 08/02/2019 | ND | 2.02 | 101 | 2.00 | 0.0515 | |
| Ethylbenzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.99 | 99.5 | 2.00 | 0.787 | |
| Total Xylenes* | <0.150 | 0.150 | 08/02/2019 | ND | 6.03 | 101 | 6.00 | 1.11 | |
| Total BTEX | <0.300 | 0.300 | 08/02/2019 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *105 %* *73.3-129*

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **2160** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10* | <10.0 | 10.0 | 08/01/2019 | ND | 201 | 101 | 200 | 7.96 | |
| DRO >C10-C28* | <10.0 | 10.0 | 08/01/2019 | ND | 198 | 98.8 | 200 | 13.3 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 08/01/2019 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *103 %* *41-142*

*Surrogate: 1-Chlorooctadecane* *111 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 08/01/2019 | Sampling Date: | 08/01/2019 |
| Reported: | 08/02/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | MWS | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

**Sample ID: T -01 7' (H902643-02)**

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **5040** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

**Sample ID: T -01 9' (H902643-03)**

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **2360** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 08/01/2019 | Sampling Date: | 08/01/2019 |
| Reported: | 08/02/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | MWS | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

### Sample ID: T -02 5' (H902643-04)

**BTEX 8021B** mg/kg Analyzed By: ms

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.86 | 93.1 | 2.00 | 1.80 | |
| Toluene* | <0.050 | 0.050 | 08/02/2019 | ND | 2.02 | 101 | 2.00 | 0.0515 | |
| Ethylbenzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.99 | 99.5 | 2.00 | 0.787 | |
| Total Xylenes* | <0.150 | 0.150 | 08/02/2019 | ND | 6.03 | 101 | 6.00 | 1.11 | |
| Total BTEX | <0.300 | 0.300 | 08/02/2019 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *103 %* *73.3-129*

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **6000** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10* | <10.0 | 10.0 | 08/01/2019 | ND | 201 | 101 | 200 | 7.96 | |
| DRO >C10-C28* | <10.0 | 10.0 | 08/01/2019 | ND | 198 | 98.8 | 200 | 13.3 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 08/01/2019 | ND | | | | | |

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

*Surrogate: 1-Chlorooctadecane* *112 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 08/01/2019 | Sampling Date: | 08/01/2019 |
| Reported: | 08/02/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | MWS | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

**Sample ID: T -02 7' (H902643-05)**

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **13300** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

**Sample ID: T -02 9' (H902643-06)**

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **11600** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | QM-07 |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 08/01/2019 | Sampling Date: | 08/01/2019 |
| Reported: | 08/02/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | MWS | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

### Sample ID: SOURCE 5' (H902643-07)

**BTEX 8021B** mg/kg Analyzed By: ms

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.86 | 93.1 | 2.00 | 1.80 | |
| Toluene* | <0.050 | 0.050 | 08/02/2019 | ND | 2.02 | 101 | 2.00 | 0.0515 | |
| Ethylbenzene* | <0.050 | 0.050 | 08/02/2019 | ND | 1.99 | 99.5 | 2.00 | 0.787 | |
| Total Xylenes* | <0.150 | 0.150 | 08/02/2019 | ND | 6.03 | 101 | 6.00 | 1.11 | |
| Total BTEX | <0.300 | 0.300 | 08/02/2019 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *103 %* *73.3-129*

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **12300** | 16.0 | 08/02/2019 | ND | 432 | 108 | 400 | 3.77 | |

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10* | <10.0 | 10.0 | 08/01/2019 | ND | 201 | 101 | 200 | 7.96 | |
| DRO >C10-C28* | <10.0 | 10.0 | 08/01/2019 | ND | 198 | 98.8 | 200 | 13.3 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 08/01/2019 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *98.0 %* *41-142*

*Surrogate: 1-Chlorooctadecane* *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Notes and Definitions

| | |
|---|---|
| QM-07 | The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery. |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| RPD | Relative Percent Difference |
| ** | Samples not received at proper temperature of 6°C or below. |
| *** | Insufficient time to reach temperature. |
| - | Chloride by SM4500Cl-B does not require samples be received at or below 6°C |
| | Samples reported on an as received basis (wet) unless otherwise noted on report |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

| | | | |
|---|---|---|---|
| Company Name: | RT Hicks | **BILL TO** | |
| Project Manager: | Andrew Parker | P.O. #: | |
| Address: | on-File | Company: | RT Hicks |
| City: | State: Zip: | Attn: | Mail to ABQ |
| Phone #: | Fax #: | Address: | |
| Project #: | Project Owner: | City: | |
| Project Name: | Advance Energy | State: Zip: | |
| Project Location: | MWS | Phone #: | |
| Sampler Name: | Andrew Parker | Fax #: | |

| FOR LAB USE ONLY Lab I.D. | Sample I.D. | (G)RAB OR (C)OMP. | # CONTAINERS | MATRIX: GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | PRESERV.: ACID/BASE: | ICE / COOL | OTHER : | SAMPLING: DATE | TIME | ANALYSIS REQUEST: BTEX, Benzene | TPH (GRO, DRO, MRO) | Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H902643 | | | | | | | | | | | | | | | | | |
| 1 | T-01 5 FT | G | 1 | | | X | | | | | X | | 8/1/19 | 14:00 | X | X | X |
| 2 | T-01 7 FT | | | | | | | | | | | | | 14:05 | | | X |
| 3 | T-01 9 FT | | | | | | | | | | | | | 14:10 | | | X |
| 4 | T-02 5 FT | | | | | | | | | | | | | 14:15 | X | X | X |
| 5 | T-02 7 FT | | | | | | | | | | | | | 14:20 | | | X |
| 6 | T-02 9 FT | | | | | | | | | | | | | 14:25 | | | X |
| 7 | Source 5 FT | ↓ | ↓ | | | ↓ | | | | | ↓ | | ↓ | 14:30 | X | X | X |



| | | | |
|---|---|---|---|
| Relinquished By: | Date: 8/1/19 | Received By: | |
| | Time: 16:40 | | |
| Relinquished By: | Date: | Received By: | |
| | Time: | | |

Delivered By: (Circle One) 1.7° #97
Sampler - UPS - Bus - Other: Corrected 2.1°

| Sample Condition | | CHECKED BY: (Initials) |
|---|---|---|
| Cool | Intact | |
| ☑ Yes ☐ No | ☑ Yes ☐ No | TR |

| | | | |
|---|---|---|---|
| Phone Result: | ☐ Yes | ☐ No | Add'l Phone #: |
| Fax Result: | ☐ Yes | ☐ No | Add'l Fax #: |

REMARKS:

RUSH

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*

August 07, 2019

Andrew Parker

R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, NM 87104
TEL: (505) 266-5004
FAX (505) 266-0745

RE: Advance Energy OrderNo.: 1908149

Dear Andrew Parker:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/5/2019 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: **1908149**
Date Reported: **8/7/2019**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** R.T. Hicks Consultants, LTD
**Project:** Advance Energy
**Lab Order:** 1908149

**Lab ID:** 1908149-001 **Collection Date:** 8/3/2019 10:10:00 AM
**Client Sample ID:** T-02 @ 11Ft **Matrix:** SOIL

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CJS** | |
| Chloride | 170 | 60 | | mg/Kg | 20 | 8/5/2019 1:53:26 PM | 46583 |

**Lab ID:** 1908149-002 **Collection Date:** 8/3/2019 10:45:00 AM
**Client Sample ID:** Source @ 8Ft **Matrix:** SOIL

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CJS** | |
| Chloride | 110 | 60 | | mg/Kg | 20 | 8/5/2019 2:05:51 PM | 46583 |

**Lab ID:** 1908149-003 **Collection Date:** 8/3/2019 11:00:00 AM
**Client Sample ID:** Pooling-02 @ 5Ft **Matrix:** SOIL

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CAS** | |
| Chloride | 8600 | 300 | | mg/Kg | 100 | 8/6/2019 12:57:42 PM | 46583 |

**Lab ID:** 1908149-004 **Collection Date:** 8/3/2019 11:15:00 AM
**Client Sample ID:** Pooling-02 @ 7Ft **Matrix:** SOIL

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CAS** | |
| Chloride | 12000 | 600 | | mg/Kg | 200 | 8/6/2019 1:10:07 PM | 46583 |

**Lab ID:** 1908149-005 **Collection Date:** 8/3/2019 11:30:00 AM
**Client Sample ID:** Pooling-02 @ 9Ft **Matrix:** SOIL

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CJS** | |
| Chloride | 270 | 60 | | mg/Kg | 20 | 8/5/2019 2:43:04 PM | 46583 |

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#: **1908149**

***07-Aug-19***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Advance Energy

| Sample ID: **MB-46583** | SampType: **mblk** | TestCode: **EPA Method 300.0: Anions** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **46583** | RunNo: **61924** | | | | | | | |
| Prep Date: **8/5/2019** | Analysis Date: **8/5/2019** | SeqNo: **2100001** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID: **LCS-46583** | SampType: **lcs** | TestCode: **EPA Method 300.0: Anions** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **46583** | RunNo: **61924** | | | | | | | |
| Prep Date: **8/5/2019** | Analysis Date: **8/5/2019** | SeqNo: **2100002** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.6 | 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 |

**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: RT HICKS | Work Order Number: 1908149 | RcptNo: 1

Received By: Anne Thorne 8/5/2019 8:30:00 AM

Completed By: Erin Melendrez 8/5/2019 8:56:36 AM

Reviewed By: ENM 8/5/19

## Chain of Custody

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

## 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 ☐ |
| | Approved by client. | | |
| 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. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 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: DAD 8/5/19

## 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 | 8.5 | Good | Not Present | | | |

# Chain-of-Custody Record

Client: RT Hicks

Mailing Address: on-File

Phone #: 970-570-9535

email or Fax#: andrew@rthicksconsult.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 24-hr

Project Name: Advance Energy

Project #: MWS

Project Manager: Andrew Parker

Sampler: Jacob Sanz/Andrew Parker

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 8.6-0.1=8.5°C CF

HEAL No. 1908149

**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. | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/3/19 | 10:10 | Soil | T-02 @ 11 FT | 4oz Jar | ICE | -001 | | | | | | | X | | | |
| | 10:45 | | Source @ 8FT | | | -002 | | | | | | | | | | |
| | 11:00 | | Pooling-02 @ 5FT | | | -003 | | | | | | | | | | |
| | 11:15 | | Pooling-02 @ 7FT | | | -004 | | | | | | | | | | |
| ↓ | 11:30 | ↓ | Pooling-02 @ 9FT | ↓ | ↓ | -005 | | | | | | | ↓ | | | |

| Date | Time | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 8/5 | 8:30 | | | | 08/05/19 | 0830 |
| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |

Remarks:
Rush Chloride only
AT 08/05/19 0830
Client Approved Temp

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.

CARDINAL Laboratories

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

September 25, 2019

ANDREW PARKER

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ADVANCE ENERGY

Enclosed are the results of analyses for samples received by the laboratory on 09/24/19 8:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 09/24/2019 | Sampling Date: | 09/18/2019 |
| Reported: | 09/25/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | ROC MESA WATER SYSTEM | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

### Sample ID: S - 01 BASE 5' (H903276-01)

**BTEX 8021B** mg/kg Analyzed By: BF

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| Benzene* | <0.050 | 0.050 | 09/25/2019 | ND | 1.86 | 93.1 | 2.00 | 1.03 | |
| Toluene* | <0.050 | 0.050 | 09/25/2019 | ND | 1.84 | 92.2 | 2.00 | 0.422 | |
| Ethylbenzene* | <0.050 | 0.050 | 09/25/2019 | ND | 1.82 | 91.0 | 2.00 | 1.55 | |
| Total Xylenes* | <0.150 | 0.150 | 09/25/2019 | ND | 5.46 | 91.1 | 6.00 | 1.46 | |
| Total BTEX | <0.300 | 0.300 | 09/25/2019 | ND | | | | | |

*Surrogate: 4-Bromofluorobenzene (PID* *84.9 %* *73.3-129*

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **464** | 16.0 | 09/24/2019 | ND | 416 | 104 | 400 | 0.00 | |

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| GRO C6-C10* | <10.0 | 10.0 | 09/24/2019 | ND | 201 | 100 | 200 | 5.88 | |
| DRO >C10-C28* | <10.0 | 10.0 | 09/24/2019 | ND | 198 | 98.9 | 200 | 8.26 | |
| EXT DRO >C28-C36 | <10.0 | 10.0 | 09/24/2019 | ND | | | | | |

*Surrogate: 1-Chlorooctane* *91.1 %* *41-142*

*Surrogate: 1-Chlorooctadecane* *94.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

R T HICKS CONSULTANTS
ANDREW PARKER
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

| | | | |
|---|---|---|---|
| Received: | 09/24/2019 | Sampling Date: | 09/18/2019 |
| Reported: | 09/25/2019 | Sampling Type: | Soil |
| Project Name: | ADVANCE ENERGY | Sampling Condition: | Cool & Intact |
| Project Number: | ROC MESA WATER SYSTEM | Sample Received By: | Tamara Oldaker |
| Project Location: | NOT GIVEN | | |

### Sample ID: S - 01 S. WALL 0-4' (H903276-02)

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **32.0** | 16.0 | 09/24/2019 | ND | 416 | 104 | 400 | 0.00 | |

### Sample ID: S - 01 E. WALL 0-4' (H903276-03)

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **16.0** | 16.0 | 09/24/2019 | ND | 416 | 104 | 400 | 0.00 | |

### Sample ID: S - 01 W. WALL 0-4' (H903276-04)

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

| Analyte | Result | Reporting Limit | Analyzed | Method Blank | BS | % Recovery | True Value QC | RPD | Qualifier |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **48.0** | 16.0 | 09/24/2019 | ND | 416 | 104 | 400 | 0.00 | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

| | |
|---|---|
| Company Name: RT Hicks | **BILL TO** |
| Project Manager: Andrew Parker | P.O. #: |
| Address: On File | Company: R T. Hicks |
| City: State: Zip: | Attn: Send to ABQ |
| Phone #: Fax #: | Address: office |
| Project #: Project Owner: | City: |
| Project Name: Advance Energy | State: Zip: |
| Project Location: ROC Mesa Water Systems | Phone #: |
| Sampler Name: JACOB SAENZ | Fax #: |

| FOR LAB USE ONLY | | | | MATRIX | | | | | | PRESERV. | | | SAMPLING | | ANALYSIS REQUEST | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab I.D. | Sample I.D. | (G)RAB OR (C)OMP. | # CONTAINERS | GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | ACID/BASE: | ICE / COOL | OTHER : | DATE | TIME | Chloride | BTEX, GRO, DRO, MRO TPH | | | | | | | | | | | |
| H903276 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | S-01 BASE 5 FT | C | 1 | | | X | | | | | X | | 9/14/19 | 2pm | X | X | X | | | | | | | | | | |
| 2 | S-01 S. WALL 0-4FT | | | | | | | | | | | | | 2:15pm | | | | | | | | | | | | | |
| 3 | S-01 E WALL 0-4FT | | | | | | | | | | | | | 2:30pm | | | | | | | | | | | | | |
| 4 | S-01 W. WALL 0-4FT | V | V | | | V | | | | | V | | | 2:45pm | V | | | | | | | | | | | | |

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

| | | | |
|---|---|---|---|
| Relinquished By: | Date: 9/24 | Received By: Tamara Oldaker | Phone Result: ☐ Yes ☐ No Add'l Phone #: |
| | Time: 8:55 am | | Fax Result: ☐ Yes ☐ No Add'l Fax #: |
| Relinquished By: | Date: | Received By: | REMARKS: RFN |
| | Time: | | |
| Delivered By: (Circle One) -0.9c #97 | Sample Condition Cool Intact ☑ Yes ☐ Yes ☐ No ☐ No | CHECKED BY: (Initials) T.O. | |
| Sampler - UPS - Bus - Other: Corrected 1.3c | | | |

CARDINAL Laboratories

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

September 25, 2019

ANDREW PARKER

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: ADVANCE ENERGY

Enclosed are the results of analyses for samples received by the laboratory on 09/23/19 15:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| S - 02 0-4' W. WALL | H903269-01 | Soil | 23-Sep-19 09:00 | 23-Sep-19 15:25 |
| S - 02 E. WALL 0-4' | H903269-02 | Soil | 23-Sep-19 09:15 | 23-Sep-19 15:25 |
| S - 02 BASE 5' | H903269-03 | Soil | 23-Sep-19 09:30 | 23-Sep-19 15:25 |
| S - 03 W. WALL 0-4' | H903269-04 | Soil | 23-Sep-19 09:45 | 23-Sep-19 15:25 |
| S - 03 E. WALL 0-4' | H903269-05 | Soil | 23-Sep-19 10:00 | 23-Sep-19 15:25 |
| S - 03 BASE 5' | H903269-06 | Soil | 23-Sep-19 10:15 | 23-Sep-19 15:25 |
| S - 04 W. WALL 0-4' | H903269-07 | Soil | 23-Sep-19 10:30 | 23-Sep-19 15:25 |
| S - 04 E. WALL 0-4' | H903269-08 | Soil | 23-Sep-19 10:45 | 23-Sep-19 15:25 |
| S - 04 BASE 5.5' | H903269-09 | Soil | 23-Sep-19 11:00 | 23-Sep-19 15:25 |
| S - 05 W. WALL 0-4' | H903269-10 | Soil | 23-Sep-19 11:15 | 23-Sep-19 15:25 |
| S - 05 E. WALL 0-4' | H903269-11 | Soil | 23-Sep-19 11:30 | 23-Sep-19 15:25 |
| S - 05 BASE 5' | H903269-12 | Soil | 23-Sep-19 11:45 | 23-Sep-19 15:25 |
| S - 06 W. WALL 0-4' | H903269-13 | Soil | 23-Sep-19 12:00 | 23-Sep-19 15:25 |
| S - 06 E. WALL 0-4' | H903269-14 | Soil | 23-Sep-19 12:15 | 23-Sep-19 15:25 |
| S - 06 BASE 5' | H903269-15 | Soil | 23-Sep-19 12:30 | 23-Sep-19 15:25 |
| S - 07 E. WALL 0-4' | H903269-16 | Soil | 23-Sep-19 12:45 | 23-Sep-19 15:25 |
| S - 07 W. WALL 0-4' | H903269-17 | Soil | 23-Sep-19 13:00 | 23-Sep-19 15:25 |
| S - 07 BASE 5.5' | H903269-18 | Soil | 23-Sep-19 13:15 | 23-Sep-19 15:25 |
| S - 08 W. WALL 0-4' | H903269-19 | Soil | 23-Sep-19 14:00 | 23-Sep-19 15:25 |
| S - 08 E. WALL 0-4' | H903269-20 | Soil | 23-Sep-19 14:05 | 23-Sep-19 15:25 |
| S - 08 BASE 5.5' | H903269-21 | Soil | 23-Sep-19 14:10 | 23-Sep-19 15:25 |
| S - 09 W. WALL 0-4' | H903269-22 | Soil | 23-Sep-19 14:15 | 23-Sep-19 15:25 |
| S - 09 E. WALL 0-4' | H903269-23 | Soil | 23-Sep-19 14:20 | 23-Sep-19 15:25 |
| S - 09 BASE 5' | H903269-24 | Soil | 23-Sep-19 14:25 | 23-Sep-19 15:25 |
| S - 10 W. WALL 0-4' | H903269-25 | Soil | 23-Sep-19 14:30 | 23-Sep-19 15:25 |
| S - 10 E. WALL 0-4' | H903269-26 | Soil | 23-Sep-19 14:35 | 23-Sep-19 15:25 |
| S - 10 BASE 5' | H903269-27 | Soil | 23-Sep-19 14:40 | 23-Sep-19 15:25 |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |
|---|---|---|

| | | | | |
|---|---|---|---|---|
| S - 10 N. WALL 0-4' | H903269-28 | Soil | 23-Sep-19 14:45 | 23-Sep-19 15:25 |

Client requested rerun of chloride on sample -16 and -17. Sample -17 was close to the original value, but -16 was not. Looks like a sample extraction error. Data was replaced to reflect the correct chloride value for sample -16 and the new value for -17. This is the revised report and will replace the original report sent on 09/24/19.

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 02 0-4' W. WALL

**H903269-01 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **32.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 02 E. WALL 0-4'

**H903269-02 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 02 BASE 5'

**H903269-03 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **1820** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |
| **Volatile Organic Compounds by EPA Method 8021** | | | | | | | | | | |
| Benzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Toluene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Ethylbenzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total Xylenes* | <0.150 | | 0.150 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total BTEX | <0.300 | | 0.300 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | | | *84.5 %* | *73.3-129* | | *9092413* | BF | *24-Sep-19* | *8021B* | |
| **Petroleum Hydrocarbons by GC FID** | | | | | | | | | | |
| GRO C6-C10* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| DRO >C10-C28* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| EXT DRO >C28-C36 | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| *Surrogate: 1-Chlorooctane* | | | *92.3 %* | *41-142* | | *9092307* | MS | *24-Sep-19* | *8015B* | |
| *Surrogate: 1-Chlorooctadecane* | | | *98.6 %* | *37.6-147* | | *9092307* | MS | *24-Sep-19* | *8015B* | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 03 W. WALL 0-4'

**H903269-04 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 03 E. WALL 0-4'

**H903269-05 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **224** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 03 BASE 5'

**H903269-06 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **3080** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 04 W. WALL 0-4'

**H903269-07 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **32.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 04 E. WALL 0-4'

**H903269-08 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **320** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 04 BASE 5.5'

**H903269-09 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **4640** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 05 W. WALL 0-4'

**H903269-10 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **32.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 05 E. WALL 0-4'

**H903269-11 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **304** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 05 BASE 5'

**H903269-12 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **5600** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 06 W. WALL 0-4'

**H903269-13 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **176** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 06 E. WALL 0-4'

**H903269-14 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **64.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 06 BASE 5'

**H903269-15 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **4320** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |
| **Volatile Organic Compounds by EPA Method 8021** | | | | | | | | | | |
| Benzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Toluene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Ethylbenzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total Xylenes* | <0.150 | | 0.150 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total BTEX | <0.300 | | 0.300 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | | | *86.6 %* | *73.3-129* | | *9092413* | BF | *24-Sep-19* | *8021B* | |
| **Petroleum Hydrocarbons by GC FID** | | | | | | | | | | |
| GRO C6-C10* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| DRO >C10-C28* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| EXT DRO >C28-C36 | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| *Surrogate: 1-Chlorooctane* | | | *91.3 %* | *41-142* | | *9092307* | MS | *24-Sep-19* | *8015B* | |
| *Surrogate: 1-Chlorooctadecane* | | | *94.3 %* | *37.6-147* | | *9092307* | MS | *24-Sep-19* | *8015B* | |

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 07 E. WALL 0-4'

**H903269-16 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 07 W. WALL 0-4'

**H903269-17 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **512** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 07 BASE 5.5'

**H903269-18 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **2640** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 08 W. WALL 0-4'

**H903269-19 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092403 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 08 E. WALL 0-4'

**H903269-20 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 08 BASE 5.5'

**H903269-21 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **2080** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 09 W. WALL 0-4'

**H903269-22 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 09 E. WALL 0-4'

**H903269-23 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 09 BASE 5'

**H903269-24 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **1780** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |
| **Volatile Organic Compounds by EPA Method 8021** | | | | | | | | | | |
| Benzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Toluene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Ethylbenzene* | <0.050 | | 0.050 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total Xylenes* | <0.150 | | 0.150 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| Total BTEX | <0.300 | | 0.300 | mg/kg | 50 | 9092413 | BF | 24-Sep-19 | 8021B | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | | | *85.4 %* | *73.3-129* | | *9092413* | BF | *24-Sep-19* | *8021B* | |
| **Petroleum Hydrocarbons by GC FID** | | | | | | | | | | |
| GRO C6-C10* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| DRO >C10-C28* | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| EXT DRO >C28-C36 | <10.0 | | 10.0 | mg/kg | 1 | 9092307 | MS | 24-Sep-19 | 8015B | |
| *Surrogate: 1-Chlorooctane* | | | *95.7 %* | *41-142* | | *9092307* | MS | *24-Sep-19* | *8015B* | |
| *Surrogate: 1-Chlorooctadecane* | | | *102 %* | *37.6-147* | | *9092307* | MS | *24-Sep-19* | *8015B* | |

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 10 W. WALL 0-4'

**H903269-25 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 10 E. WALL 0-4'

**H903269-26 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| Chloride | <16.0 | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 10 BASE 5'

**H903269-27 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **928** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### S - 10 N. WALL 0-4'

**H903269-28 (Soil)**

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardinal Laboratories** | | | | | | | | | | |
| **Inorganic Compounds** | | | | | | | | | | |
| **Chloride** | **16.0** | | 16.0 | mg/kg | 4 | 9092419 | AC | 24-Sep-19 | 4500-Cl-B | |





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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### Inorganic Compounds - Quality Control

### Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 9092403 - 1:4 DI Water** | | | | | | | | | | |
| **Blank (9092403-BLK1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | ND | 16.0 | mg/kg | | | | | | | |
| **LCS (9092403-BS1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | 432 | 16.0 | mg/kg | 400 | | 108 | 80-120 | | | |
| **LCS Dup (9092403-BSD1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | 432 | 16.0 | mg/kg | 400 | | 108 | 80-120 | 0.00 | 20 | |
| **Batch 9092419 - 1:4 DI Water** | | | | | | | | | | |
| **Blank (9092419-BLK1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | ND | 16.0 | mg/kg | | | | | | | |
| **LCS (9092419-BS1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | 416 | 16.0 | mg/kg | 400 | | 104 | 80-120 | | | |
| **LCS Dup (9092419-BSD1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Chloride | 416 | 16.0 | mg/kg | 400 | | 104 | 80-120 | 0.00 | 20 | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

### Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 9092413 - Volatiles** | | | | | | | | | | |
| **Blank (9092413-BLK1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Benzene | ND | 0.050 | mg/kg | | | | | | | |
| Toluene | ND | 0.050 | mg/kg | | | | | | | |
| Ethylbenzene | ND | 0.050 | mg/kg | | | | | | | |
| Total Xylenes | ND | 0.150 | mg/kg | | | | | | | |
| Total BTEX | ND | 0.300 | mg/kg | | | | | | | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | *0.0875* | | mg/kg | *0.100* | | *87.5* | *73.3-129* | | | |
| **LCS (9092413-BS1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Benzene | 1.86 | 0.050 | mg/kg | 2.00 | | 93.1 | 72.2-131 | | | |
| Toluene | 1.84 | 0.050 | mg/kg | 2.00 | | 92.2 | 71.7-126 | | | |
| Ethylbenzene | 1.82 | 0.050 | mg/kg | 2.00 | | 91.0 | 68.9-126 | | | |
| Total Xylenes | 5.46 | 0.150 | mg/kg | 6.00 | | 91.1 | 71.4-125 | | | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | *0.0820* | | mg/kg | *0.100* | | *82.0* | *73.3-129* | | | |
| **LCS Dup (9092413-BSD1)** | | | | Prepared & Analyzed: 24-Sep-19 | | | | | | |
| Benzene | 1.84 | 0.050 | mg/kg | 2.00 | | 92.1 | 72.2-131 | 1.03 | 6.91 | |
| Toluene | 1.84 | 0.050 | mg/kg | 2.00 | | 91.8 | 71.7-126 | 0.422 | 7.12 | |
| Ethylbenzene | 1.79 | 0.050 | mg/kg | 2.00 | | 89.6 | 68.9-126 | 1.55 | 7.88 | |
| Total Xylenes | 5.39 | 0.150 | mg/kg | 6.00 | | 89.8 | 71.4-125 | 1.46 | 7.46 | |
| *Surrogate: 4-Bromofluorobenzene (PID)* | *0.0820* | | mg/kg | *0.100* | | *82.0* | *73.3-129* | | | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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## *Analytical Results For:*

| | | |
|---|---|---|
| R T HICKS CONSULTANTS<br>901 RIO GRANDE BLVD SUITE F-142<br>ALBUQUERQUE NM, 87104 | Project: ADVANCE ENERGY<br>Project Number: ROC MESA WATER SYSTEM<br>Project Manager: ANDREW PARKER<br>Fax To: NONE | Reported:<br>25-Sep-19 14:48 |

### Petroleum Hydrocarbons by GC FID - Quality Control

### Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 9092307 - General Prep - Organics** | | | | | | | | | | |
| **Blank (9092307-BLK1)** | | | | Prepared & Analyzed: 23-Sep-19 | | | | | | |
| GRO C6-C10 | ND | 10.0 | mg/kg | | | | | | | |
| DRO >C10-C28 | ND | 10.0 | mg/kg | | | | | | | |
| EXT DRO >C28-C36 | ND | 10.0 | mg/kg | | | | | | | |
| *Surrogate: 1-Chlorooctane* | *48.0* | | mg/kg | *50.0* | | *96.1* | *41-142* | | | |
| *Surrogate: 1-Chlorooctadecane* | *51.9* | | mg/kg | *50.0* | | *104* | *37.6-147* | | | |
| **LCS (9092307-BS1)** | | | | Prepared & Analyzed: 23-Sep-19 | | | | | | |
| GRO C6-C10 | 202 | 10.0 | mg/kg | 200 | | 101 | 76.5-133 | | | |
| DRO >C10-C28 | 199 | 10.0 | mg/kg | 200 | | 99.6 | 72.9-138 | | | |
| Total TPH C6-C28 | 401 | 10.0 | mg/kg | 400 | | 100 | 78-132 | | | |
| *Surrogate: 1-Chlorooctane* | *53.3* | | mg/kg | *50.0* | | *107* | *41-142* | | | |
| *Surrogate: 1-Chlorooctadecane* | *54.7* | | mg/kg | *50.0* | | *109* | *37.6-147* | | | |
| **LCS Dup (9092307-BSD1)** | | | | Prepared & Analyzed: 23-Sep-19 | | | | | | |
| GRO C6-C10 | 202 | 10.0 | mg/kg | 200 | | 101 | 76.5-133 | 0.0144 | 20.6 | |
| DRO >C10-C28 | 180 | 10.0 | mg/kg | 200 | | 89.9 | 72.9-138 | 10.3 | 20.6 | |
| Total TPH C6-C28 | 382 | 10.0 | mg/kg | 400 | | 95.4 | 78-132 | 4.97 | 18 | |
| *Surrogate: 1-Chlorooctane* | *53.6* | | mg/kg | *50.0* | | *107* | *41-142* | | | |
| *Surrogate: 1-Chlorooctadecane* | *54.0* | | mg/kg | *50.0* | | *108* | *37.6-147* | | | |

Cardinal Laboratories

*=Accredited Analyte



Celey D. Keene, Lab Director/Quality Manager

## Notes and Definitions

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





Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| | | BILL TO | |
|---|---|---|---|
| Company Name: | R.T. Hicks | P.O. #: | |
| Project Manager: | Andrew Parker | Company: | R.T. Hicks |
| Address: | ON FILE | Attn: | Send to ABQ |
| City: | State: Zip: | Address: | office |
| Phone #: | Fax #: | City: | |
| Project #: | Project Owner: | State: Zip: | |
| Project Name: | Advance Energy | Phone #: | |
| Project Location: | ROC Mesa Water System | Fax #: | |
| Sampler Name: | JACOB GAERZ | | |

| FOR LAB USE ONLY | | | | MATRIX | | | | | | PRESERV. | | | SAMPLING | | ANALYSIS REQUEST | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab I.D. | Sample I.D. | | (G)RAB OR (C)OMP. | # CONTAINERS | GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | ACID/BASE: | ICE / COOL | OTHER : | DATE | TIME | Chloride | BTEX | TPH Extended | | | | | | | | | |
| H903269 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | S-02 | 0-4Ft W.Wall | C | 1 | | | X | | | | | X | | 9/23/19 | 9am | X | | | | | | | | | | | |
| 2 | S-02 | E.Wall 0-4Ft | | | | | | | | | | | | | 9:15am | | | | | | | | | | | | |
| 3 | S-02 | BASE 5Ft | | | | | | | | | | | | | 9:30am | | X | X | | | | | | | | | |
| 4 | S-03 | W. WALL 0-4Ft | | | | | | | | | | | | | 9:45am | | | | | | | | | | | | |
| 5 | S-03 | E. Wall 0-4Ft | | | | | | | | | | | | | 10:00am | | | | | | | | | | | | |
| 6 | S-03 | Base 5Ft | | | | | | | | | | | | | 10:15am | | | | | | | | | | | | |
| 7 | S-04 | W. Wall 0-4Ft | | | | | | | | | | | | | 10:30am | | | | | | | | | | | | |
| 8 | S-04 | E. Wall 0-4Ft | | | | | | | | | | | | | 10:45am | | | | | | | | | | | | |
| 9 | S-04 | Base 5.5Ft | | | | | | | | | | | | | 10am | | | | | | | | | | | | |

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

| | | | |
|---|---|---|---|
| Relinquished By: | Date: 9/23/19 | Received By: | Verbal Result: ☐ Yes ☐ No Add'l Phone #: |
| | Time: 3:25pm | | All Results are emailed. Please provide Email address: |
| Relinquished By: | Date: | Received By: | REMARKS: Page 1/3 |
| | Time: | | |

| | | | | |
|---|---|---|---|---|
| Delivered By: (Circle One) | Observed Temp. °C 3.1 | Sample Condition Cool Intact | CHECKED BY: (Initials) | Turnaround Time: Standard ☐ Rush ☒ |
| Sampler - UPS - Bus - Other: | Corrected Temp. °C 3.5 | ☑ Yes ☑ Yes ☐ No ☐ No | T.D. | Thermometer ID #97 Correction Factor +0.4 °C |

Bacteria (only) Sample Condition: Cool Intact ☐ Yes ☐ Yes ☐ No ☐ No — Observed Temp. °C — Corrected Temp. °C

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† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

CARDINAL Laboratories

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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| | |
|---|---|
| Company Name: | R.T. Hicks |
| Project Manager: | Andrew Parker |
| Address: | ON FILE |
| City: | State: Zip: |
| Phone #: | Fax #: |
| Project #: | Project Owner: |
| Project Name: | Advance Energy |
| Project Location: | ROC Mesa Vista Water System |
| Sampler Name: | JACOB SAENZ |

**BILL TO**

| | |
|---|---|
| P.O. #: | |
| Company: | R.T. Hicks |
| Attn: | Send to ABQ office |
| Address: | |
| City: | |
| State: Zip: | |
| Phone #: | |
| Fax #: | |

**ANALYSIS REQUEST**

| FOR LAB USE ONLY Lab I.D. | Sample I.D. | | | (G)RAB OR (C)OMP. | # CONTAINERS | MATRIX: GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | PRESERV.: ACID/BASE: | ICE / COOL | OTHER : | SAMPLING: DATE | TIME | Chloride | BTEX | TPH Extended |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H903269 | | | | | | | | | | | | | | | | | | | |
| 10 | S-05 | W. Wall | 0-4Ft | C | 1 | | | X | | | | | X | | 9/03/14 | 11:15am | X | | |
| 11 | S-05 | E. Wall | 0-4Ft | | | | | | | | | | | | | 11:30am | | | |
| 12 | S-05 | BASE | 5Ft | | | | | | | | | | | | | 11:45am | | | |
| 13 | S-06 | W. Wall | 0-4Ft | | | | | | | | | | | | | 12pm | | | |
| 14 | S-06 | E. Wall | 0-4Ft | | | | | | | | | | | | | 12:15pm | | | |
| 15 | S-06 | BASE | 5Ft | | | | | | | | | | | | | 12:30pm | X | X | |
| 16 | S-07 | E. Wall | 0-4Ft | | | | | | | | | | | | | 12:45pm | | | |
| 17 | S-07 | W. Wall | 0-4Ft | | | | | | | | | | | | | 1pm | | | |
| 18 | S-07 | BASE | 5.5Ft | | | | | | | | | | | | | 1:15pm | | | |



| | | | |
|---|---|---|---|
| Relinquished By: | Date: 9/24/14 | Received By: | Verbal Result: ☐ Yes ☐ No Add'l Phone #: |
| | Time: 7:25pm | | All Results are emailed. Please provide Email address: |
| Relinquished By: | Date: | Received By: | REMARKS: Page 2/3 |
| | Time: | | |

| | | | | |
|---|---|---|---|---|
| Delivered By: (Circle One) | Observed Temp. °C 3.1 | Sample Condition Cool Intact | CHECKED BY: (Initials) | Turnaround Time: Standard ☐ Rush ☒ |
| Sampler - UPS - Bus - Other: | Corrected Temp. °C 3.5 | ☐ Yes ☐ Yes ☐ No ☐ No | TG | Thermometer ID #97 Correction Factor + 0.4 °C |

Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No; Intact ☐ Yes ☐ No; Observed Temp. °C; Corrected Temp. °C

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† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

CARDINAL Laboratories

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

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| | | | |
|---|---|---|---|
| Company Name: | RT Hicks Consultants | **BILL TO** | |
| Project Manager: | Andrew Parker | P.O. #: | |
| Address: | on file | Company: | RT Hicks |
| City: | State: Zip: | Attn: | Send To |
| Phone #: | 970-570-9535 Fax #: | Address: | ABQ |
| Project #: | Project Owner: | City: | |
| Project Name: | Advance Energy | State: | Zip: |
| Project Location: | ROS Roc Mesa Water System | Phone #: | |
| Sampler Name: | Jacob Saenz | Fax #: | |

| FOR LAB USE ONLY | | | | MATRIX | | | | | | | PRESERV. | | | SAMPLING | | ANALYSIS REQUEST | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab I.D. | Sample I.D. | (G)RAB OR (C)OMP. | # CONTAINERS | GROUNDWATER | WASTEWATER | SOIL | OIL | SLUDGE | OTHER : | ACID/BASE: | ICE / COOL | OTHER : | DATE | TIME | Chloride | BTEX | TPH Extended | | | | | | | | | | |
| H903269 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | S-08 W.WALL 0-4 FT | C | 1 | | | X | | | | | | | 9-23 | 14:00 | X | | | | | | | | | | | | |
| 20 | S-08 E.WALL 0-4 FT | | | | | | | | | | | | | 14:05 | | | | | | | | | | | | | |
| 21 | S-08 BASE 5.5 FT | | | | | | | | | | | | | 14:10 | | | | | | | | | | | | | |
| 22 | S-09 W.WALL 0-4 FT | | | | | | | | | | | | | 14:15 | | | | | | | | | | | | | |
| 23 | S-09 E.WALL 0-4 FT | | | | | | | | | | | | | 14:20 | | | | | | | | | | | | | |
| 24 | S-09 BASE 5 FT | | | | | | | | | | | | | 14:25 | | X | X | | | | | | | | | | |
| 25 | S-10 W.WALL 0-4 FT | | | | | | | | | | | | | 14:30 | | | | | | | | | | | | | |
| 26 | S-10 E.WALL 0-4 FT | | | | | | | | | | | | | 14:35 | | | | | | | | | | | | | |
| 27 | S-10 BASE 5 FT | | | | | | | | | | | | | 14:40 | | | | | | | | | | | | | |
| 28 | S-10 N.WALL 0-4 FT | | | | | | | | | | | | | 14:45 | | | | | | | | | | | | | |



| | | | |
|---|---|---|---|
| Relinquished By: | Date: 9/23/19 | Received By: | Verbal Result: ☐ Yes ☐ No Add'l Phone #: |
| | Time: 3:25 pm | Tamara Oldaker | All Results are emailed. Please provide Email address: |
| Relinquished By: | Date: | Received By: | REMARKS: Page 3/3 |
| | Time: | | |

| | | | | |
|---|---|---|---|---|
| Delivered By: (Circle One) | Observed Temp. °C 3.1 | Sample Condition Cool Intact | CHECKED BY: (Initials) | Turnaround Time: Standard ☐ Rush ☒ |
| Sampler - UPS - Bus - Other: | Corrected Temp. °C 3.5 | ☐ Yes ~~☐ Yes~~ ☐ No ☐ No | TO | Thermometer ID #97 Correction Factor +0.4 °C |

Bacteria (only) Sample Condition: Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No; Observed Temp. °C; Corrected Temp. °C

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