

August 22, 2019

## **1RP-5575 Closure Report Tomahawk SWD Facility**



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

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

# **C-141**

## **Closure Form and Report**

**R.T. Hicks Consultants, Ltd.**

901 Rio Grande Blvd. NW, Suite F-142  
Albuquerque, NM 87104

Incident ID	NDHR1917764187
District RP	1RP-5575
Facility ID	
Application ID	pDHR1917763623

## 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 32.433627Longitude -103.617408

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Tomahawk SWD Faciltiy	Site Type: Salt Water Disposal – Tank battery
Date Release Discovered: June 12, 2019 (07:00 hrs)	API# 30-025-33069

Unit Letter	Section	Township	Range	County
L	31	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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 150	Volume Recovered (bbls): 120
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

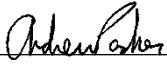
Cause of Release: Plug at bottom of northwest storage tank failed. Contents overflowed secondary containment.

Incident ID	NDHR1917764187
District RP	1RP-5575
Facility ID	
Application ID	pDHR1917763623

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?  > 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was giving via phone to Bureau Chief Jim Griswold at 14:41 hours 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*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:  Non-recoverable oil soak into the ground. Excavation of release extent commenced at 08:00 hrs. Release along lease road excavated and confirmation samples obtained at 17:00 hours. Excavation of release on SWD production pad is ongoing. Excavation and confirmation sampling will occur over the next few days.	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Andrew Parker</u>	Title: <u>Sr. Env. Specialist</u>
Signature: <u></u>	Date: <u>June 12, 2019 (22:40 hrs)</u>
email: <u>andrew@rthicksconsult.com</u>	Telephone: <u>970-570-9535</u>
<b><u>OCD Only</u></b>  Received by: <u>Dylan Rose-Coss</u> Date: <u>06/12/2019</u>	

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>355</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

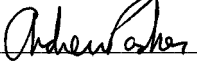
<p><b>Characterization Report Checklist:</b> <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.</li><li><input checked="" type="checkbox"/> Field data</li><li><input checked="" type="checkbox"/> Data table of soil contaminant concentration data</li><li><input checked="" type="checkbox"/> Depth to water determination</li><li><input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li><li><input checked="" type="checkbox"/> Boring or excavation logs</li><li><input checked="" type="checkbox"/> Photographs including date and GIS information</li><li><input checked="" type="checkbox"/> Topographic/Aerial maps</li><li><input checked="" type="checkbox"/> Laboratory data including chain of custody</li></ul>
---

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.

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Andrew Parker Title: Sr. Environmental Specialist

Signature:  Date: 08/22/019

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

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	
Facility ID	
Application ID	

## Remediation Plan

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

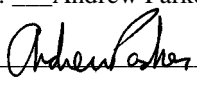
- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note 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. Environmental Specialist

Signature:  Date: 08/22/2019

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: \_\_\_\_\_

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: Andrew Parker Title: Sr. Environmental Specialist

Signature:  Date: 08/22/2019

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: \_\_\_\_\_



# R. T. HICKS CONSULTANTS, LTD.

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

August 22, 2019

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

RE: 1RP-5575 - Characterization and Closure Report  
Tomahawk SWD  
Advance Energy Partners Hat Mesa, LLC

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 release occurred on June 12, 2019 on surface owned by Merchant Livestock. The cause of the release was a corroded plug on the northwest storage tank. Crude oil and produced water overflowed the secondary containment along the southern edge. Excavation of the release began the same day and remediation was completed by July 31, 2019. The C-141 including the Characterization, Remediation, and Closure Forms is attached.

We respectfully ask NMOCD for :

- Deferment approval for the area under the tank battery, and
- Closure of the regulatory file for the non-deferred area.

Hick Consultants relied on 19.15.29 NMAC for characterization, remediation, and closure reporting for the above referenced release.

The location of the release is 32.433627, -103.617408 (Latitude/Longitude; NAD 83); Unit Letter L, Sec 31, T21S., R33E; Lea County.

The release occurred within silty sands with a hard caliche layer at 4.5 to 5.5 feet below ground surface.

The report is divided into three sections:

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

*Figures*

- Figure 1 – Site Map with Initial Characterization Sample Locations
- Figures 2 through 10 – As labeled on the C-141 Characterization Checklist

*Tables*

- Table 1 – Nearby OSE Well Summary
- Table 2 – Final Excavation Confirmation Sampling Data

*Appendices*

- Appendix A - Laboratory Certificate of Analyses
- Appendix B – OSE Well Logs

## I. Initial Response

The release occurred on June 12, 2019. One hundred-twenty of 150 barrels of crude oil and produced water was recovered. Excavation of the release began within 30 minutes of the discovery of the release.

Crude oil and produced water overflowed the secondary containment along the southern edge. The release flowed along the southern third of the production pad and onto a lease road to the south. Pooling occurred on the well pad as shown in Figure 1, below. The release extent is shown on Plate 1.



**Figure 1: Release path along the southern third of production pad. Photo is viewing west-southwest. Date/Time: 2019-06-12 09:40:31. GPS: 32.4336139 N , -103.6173333 W.**

Results of the confirmation soil sampling is discussed in *Section II.5 Soil Waste Characteristics*.

## **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 (Plate 2-10).

### **1. Site Map**

Horizontal extent of the release was determined by visual observations. R.T. Hicks Consultants was on-location during initial response activities. Plate 1 shows the release and excavation extent relative to

- the release point (source)
- soil sample grid centroid
- flow lines and tank batteries
- release and excavation extent

### **2. Depth to Ground Water**

Review of nearby water well logs available from the New Mexico Office of the State Engineer (OSE) online database (see Table 1 and Plate 2) shows:

- The depth to the water-bearing zone averages 870 feet for wells located 3-miles northeast of the release. The average depth to water in the well cluster, which is under artesian pressure, is 577 feet.
- The OSE online well log access was not accessible during the writing of this report; therefore, well log for CP-01701 was not available for review. However, depth to water at CP-01701 (2 miles southwest of the release) exhibits a depth to water of 560 feet and is most likely under artesian pressure.

Ground water flow is to the south-southeast 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 Santa Rosa and Chinle Formation. The potentiometric surface indicates the depth to water, which is under artesian pressure, is approximately 355 feet bgs (=3710-3355) at the release site.

### **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 any significant water course.
- 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:

- An active production pad,
- Within the right-of-way of a caliche lease road (Figure 2)



**Figure 2: Photo of excavation along lease road, viewing east. Date/Time: 2019-06-12 16:52:59. GPS: 32.4330417 N, -103.6181250 W.**

Advance Energy reclaimed the release according to Closure Criteria listed in Table 1 of 19.15.29 NMAC. With a depth to water >100 feet, closure criteria limits are:

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

Excavation of the release started within 30-minutes of release discovery. Therefore, no initial characterization was performed.

Table 2 shows the analytical results of confirmation sampling. The Laboratory Certificate of Analyses are located in Appendix A.

Release excavation showed the lithology as:  
0 - 5.5 ft : Silty Sand, medium brown, loose.  
5.5 ft : Caliche, white, dense.

### **III. Remediation and Closure**

#### **1. Excavation Protocol**

All surfaces were remediated in accordance with 19.15.29.13 NMAC with the exception of a 40-foot long section underneath the tank battery's southern containment wall, where the release overflowed the secondary containment (Figure 3).



**Figure 3: Tank battery where the release overflowed along the southern end of the containment wall. Stained soil is the release. Photo is viewing northeast.  
Date/Time: 2019-06-12 09:40:51. GPS: 32.4335889 N , -103.6174389 W**

The excavation was gridded with centroids of each grid spaced 20-feet +/- 5 feet on-center. Plate 1 shows the sample grid centroids G-01 through G-15.

Five-point composite soil samples were collected at the north, south, east, and west walls of the excavation grid from 0 to 4 feet. If soil sample results exceeded Closure Criteria at the excavation walls, the excavation wall was extended horizontally and resampled. Horizontal excavation continued until subsequent sampling showed chloride and hydrocarbon constituents below Closure Criteria. Excavation depth was determined by 5-point composite sampling of the grid's base. Vertical excavation continued until the base of the excavation exhibited constituents of concern below Table 1 Closure Criteria concentrations.

Excavated soil was transported to Lea Land, Inc. or R360 for proper disposal. Clean backfill soil was purchased from the landowner under a Surface Use Agreement.

## **2. Remediation Activities**

The excavation extent is irregular in shape and covers a surface area of 1,232 square yards with an excavated volume of approximately 1,600 cu. yards.

Table 2 is a summary of analytical from confirmation sampling for each grid. Grids G-01 through G-12 exhibit:

- Chloride < 600 mg/kg
- TPH (GRO/DRO) < 100 mg/kg
- TPH Ext. (GRO/DRO/MRO) < 100 mg/kg
- Benzene < 10 mg/kg
- BTEX < 50 mg/kg



At grid G-13 and G-14 Containment Wall (north wall) that is adjacent to and underneath the southern tank battery containment (source area), TPH exceeds Table 1 Closure Criteria. Where,

Grid #	Depth (ft)	TPH Ext. (mg/kg)
G-13 Containment Wall	0-4	7745
G-14 Containment Wall	0-3	17650

\* Figure 4 provides visual documentation of grid locations.

Per 19.15.29.12.C(2),

*If contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations...*

Figure #4 shows that G-13 and G-14 Containment Wall is located immediately under production tanks. **Therefore, we ask NMOCD for deferment of this 40-foot wall section.** Final remediation and reclamation shall take place in accordance with 19.15.29.12 and 19.15.29.13 NMAC after the tank battery is decommissioned and is no longer used for oil and gas operations.



**Figure 4: Photo of south containment wall viewing west. Grid 13 is immediately below the containment wall and west of the flowline (photo center). Grid 14 is immediately below the containment wall and east (foreground) of the flowline. The excavation wall to the left (south) is the south wall of Grid 15. The base of the excavation east of the flowline is G-15 Base. Date/Time: 2019-07-11 06:43. GPS: 32.4336250 N, -103.6175694 W.**

Grid G-15 comprises an area south of the containment wall and extends east as shown in Figure 5. The eastern half (as described in Figure 5 and 6), is beyond the

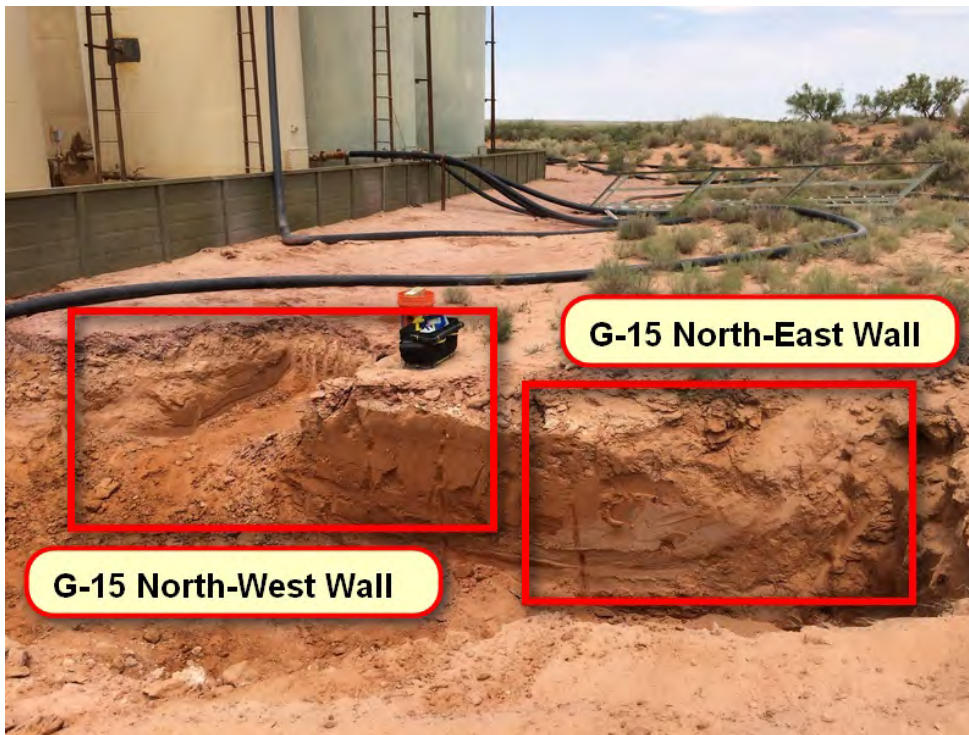


extent of the current release. The small trench that extends to the north (North-West wall) is also beyond the release extent.



**Figure 5: Photo of grid G-15 (foreground). Photo is viewing west. The base of grid G-15 extends to the flow line in photo background. The North-East wall of G-15 is visible in photo foreground right, which is east of the small trench extending to the right (north). This portion of G-15 is beyond the current release extent. The North-West wall of G-15 includes the small trench to the north. The north excavation wall of the small trench is beyond the current release extent.**

The North-West wall exhibits chloride concentrations from 0 to 4-feet that are above Table 1 of 19.15.29 NMAC Closure Criteria. The observed chloride concentrations at the North-West wall are likely from a historic release and/or consecutive releases from flowline connections to the tank battery (Figure 6). The area north of the North-West wall and to the east of the tank battery shall be the subject of a forthcoming release notification.



**Figure 6: Photo of grid G-15 viewing north-northwest. The North-East and North-West walls are beyond the current release extents. The North-West wall exhibits chloride concentrations above Closure Criteria. The observed chloride concentrations are most likely the result of historic releases.**

Photo 7 and 8, below, are photographs of the excavation and backfill.



**Figure 7: Excavating along grid G-6 (background) through G-10 (foreground). Photo is viewing west-southwest. Date/Time: 2019-06-15 10:38:17. GPS: 32.4336167N, -103.6173333W.**



**Figure 8: Backfilled excavation with surface restored to pre-existing conditions, an active production pad. Photo is from the southwest corner of grid G-6 viewing northeast. Date/Time: 2019-07-31 13:47:31. GPS: 32.4332111 N , -103.6179056 W**

Please contact me with any questions at [andrew@rthicksconsult.com](mailto:andrew@rthicksconsult.com) or 970-570-9535.

Sincerely,  
R.T. Hicks Consultants, Ltd.

Andrew Parker  
Sr. Env. Specialist

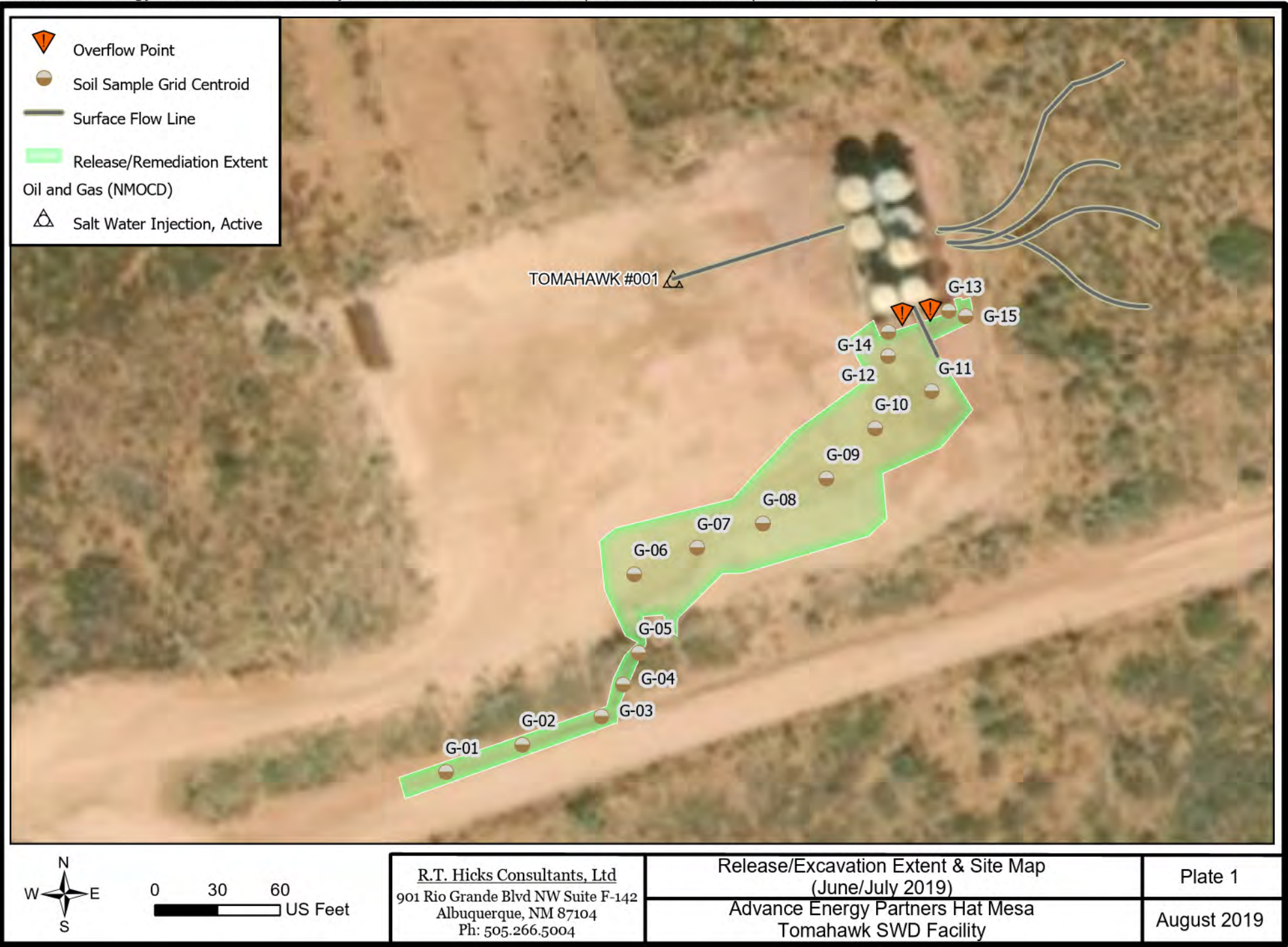
Copy: David Harwell (DHarwell@advanceenergypartners.com)  
Advance Energy Partners Hat Mesa, LLC  
Clabe Pearson (clabe@merchantlivestock.com ); Merchant Livestock  
Brad Blevins (bblevins5252@gmail.com); Merchant Livestock

# Plates

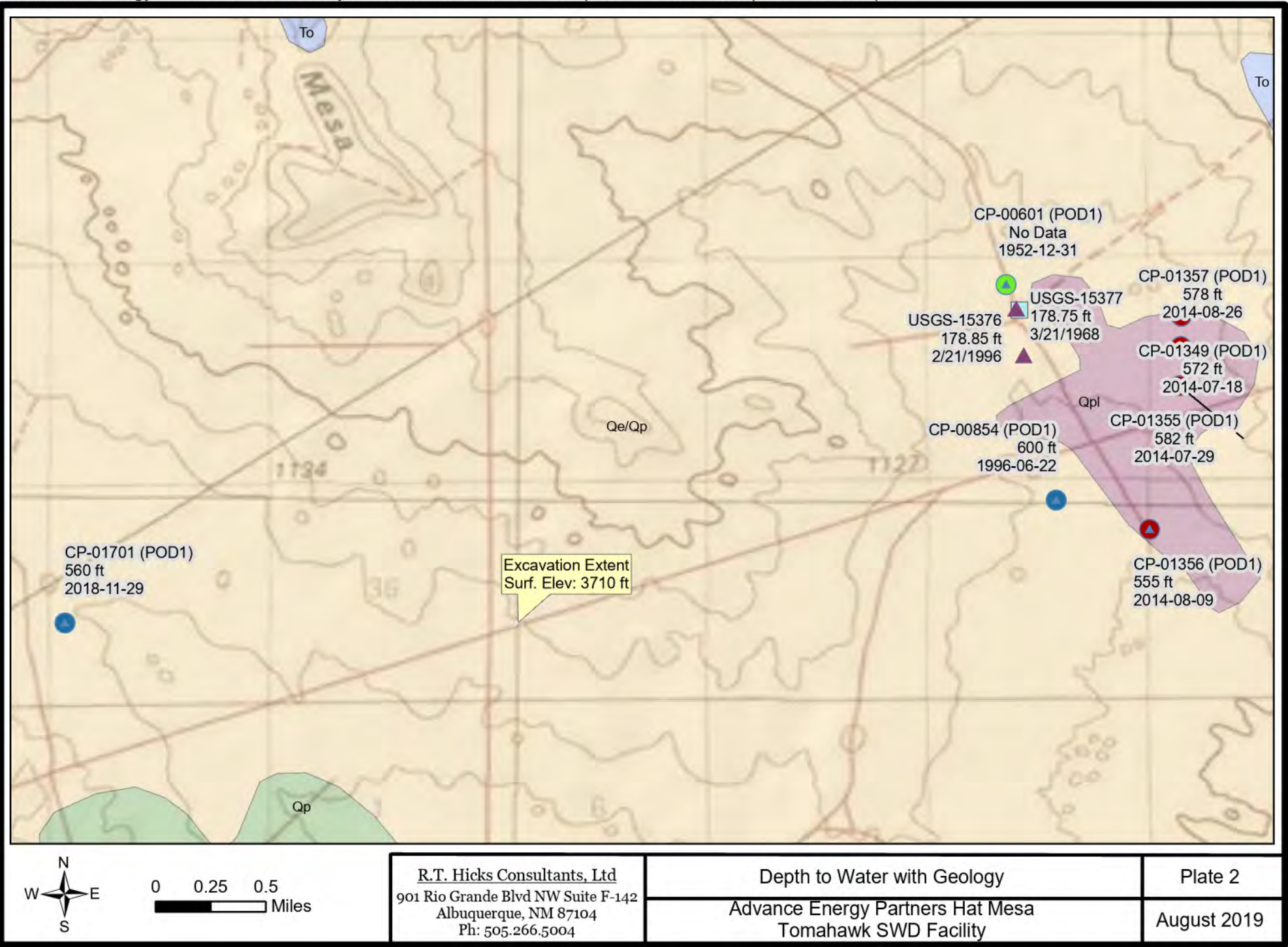
**R.T. Hicks Consultants, Ltd.**

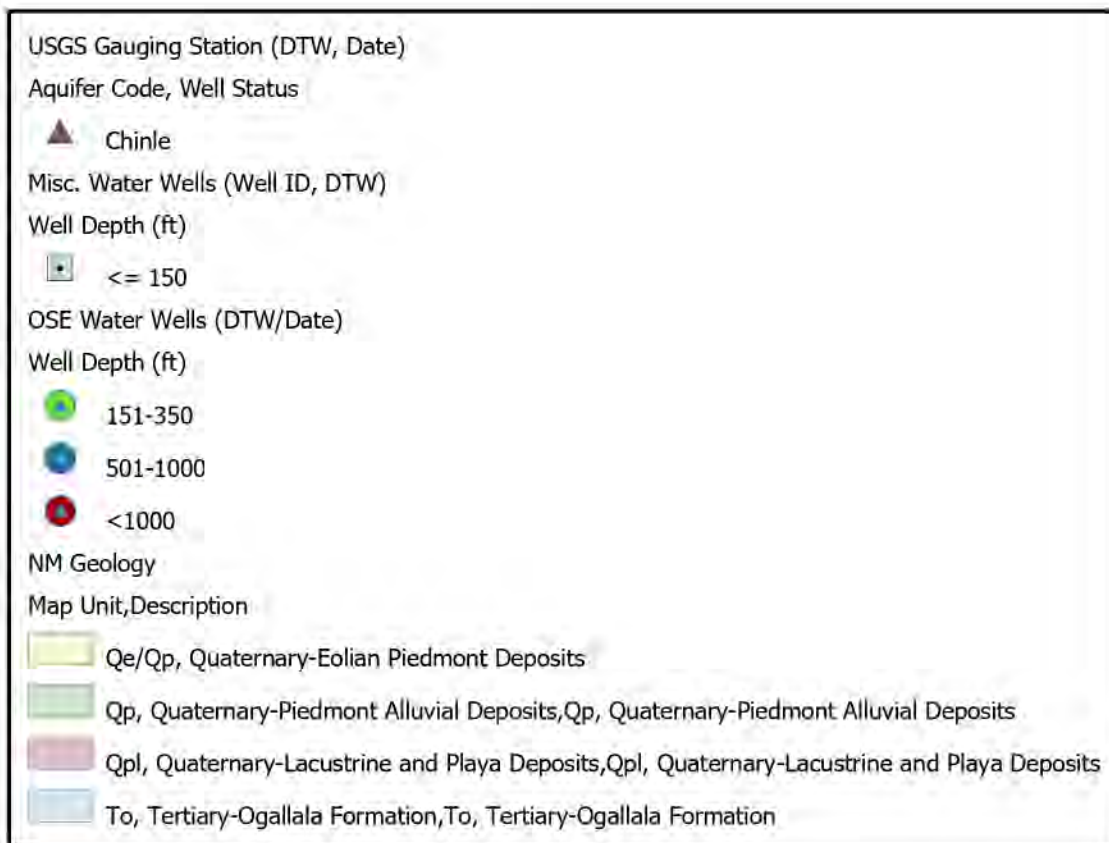
901 Rio Grande Blvd. NW, Suite F-142  
Albuquerque, NM 87104









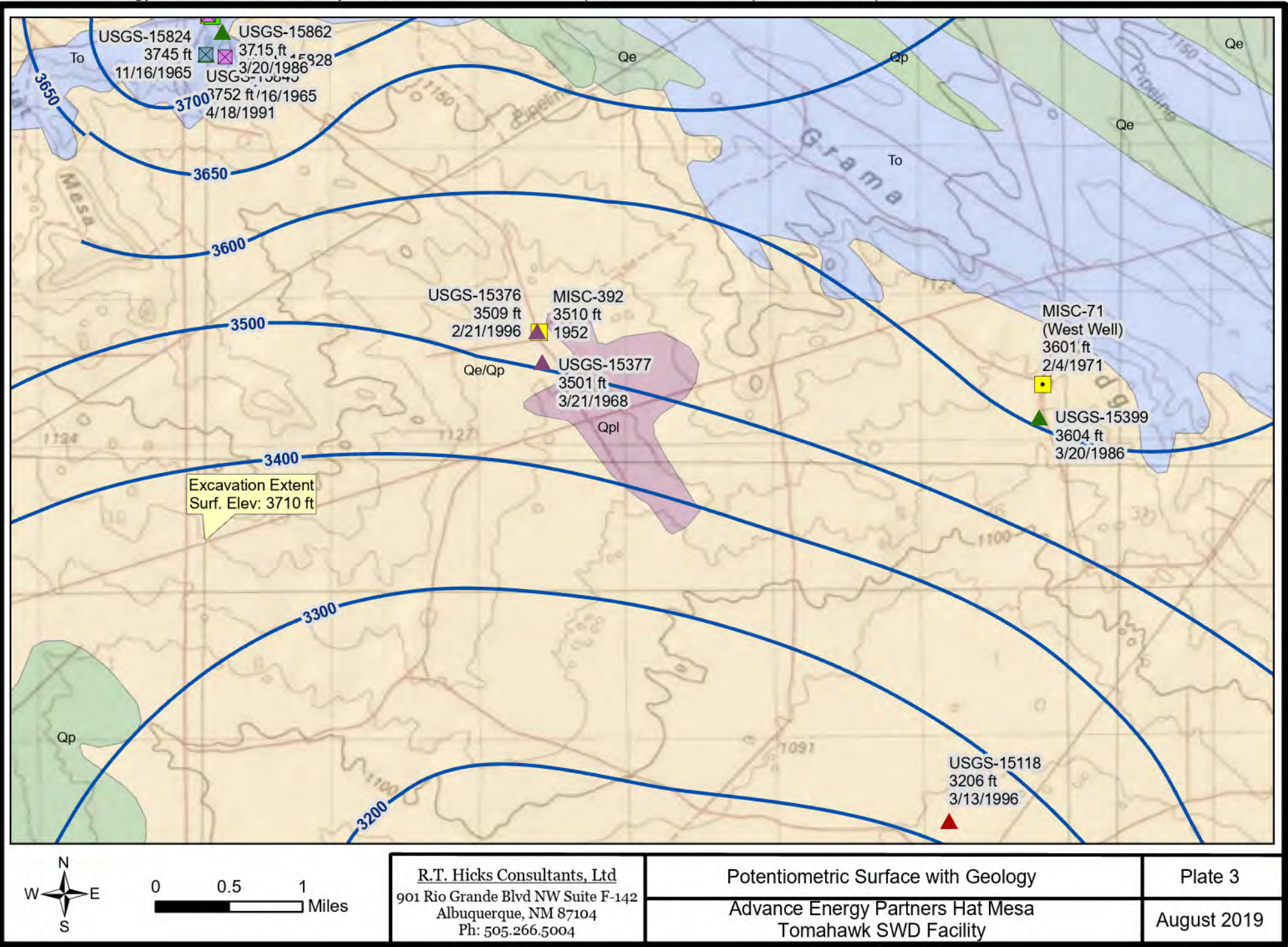


R.T. Hicks Consultants, Ltd  
901 Rio Grande Blvd NW Suite F-142  
Albuquerque, NM 87104  
Ph: 505.266.5004

Depth to Water with Geology  
Advance Energy Partners Hat Mesa  
Tomahawk SWD Facility

Plate 2  
LEGEND  
August 2019














USGS Gauging Station (GW Elev, Date)

Aquifer Code, Well Status

-  Alluvium/Bolsom
-  Alluvium/Bolsom, Site was being pumped.
-  Chinle
-  Santa Rosa
-  <Null>, Site was being pumped.






Misc. Water Wells (GW Elev, Date)

Well Depth (ft)

-  No Data
-  151 - 350

NM Geology

Map Unit, Description

-  Qe, Quaternary-Eolian Deposits, Qe, Quaternary-Eolian Deposits
-  Qe/Qp, Quaternary-Eolian Piedmont Deposits
-  Qp, Quaternary-Piedmont Alluvial Deposits, Qp, Quaternary-Piedmont Alluvial Deposits
-  Qpl, Quaternary-Lacustrine and Playa Deposits, Qpl, Quaternary-Lacustrine and Playa Deposits
-  To, Tertiary-Ogallala Formation, To, Tertiary-Ogallala Formation

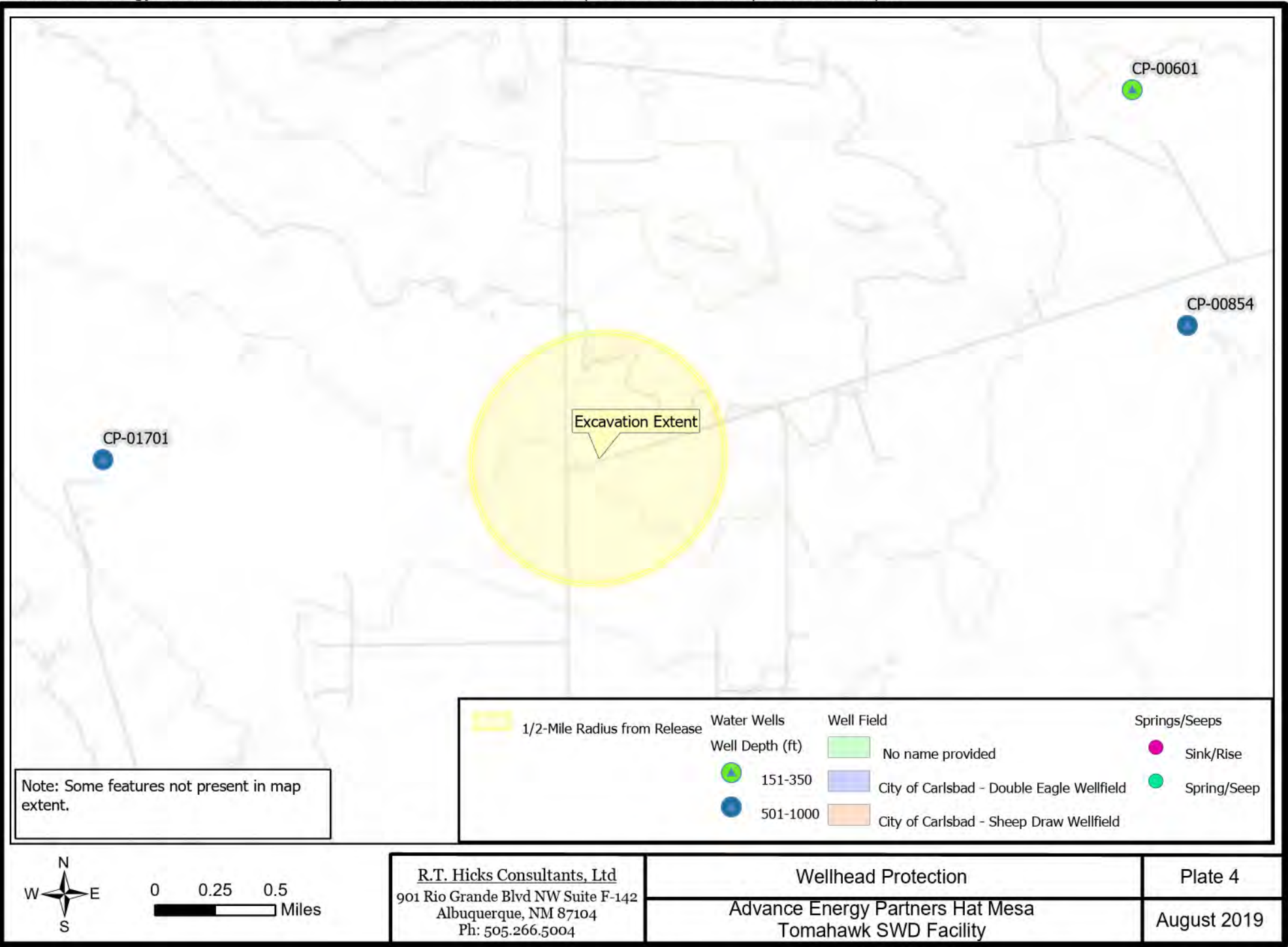
R.T. Hicks Consultants, Ltd  
901 Rio Grande Blvd NW Suite F-142  
Albuquerque, NM 87104  
Ph: 505.266.5004

Potentiometric Surface with Geology

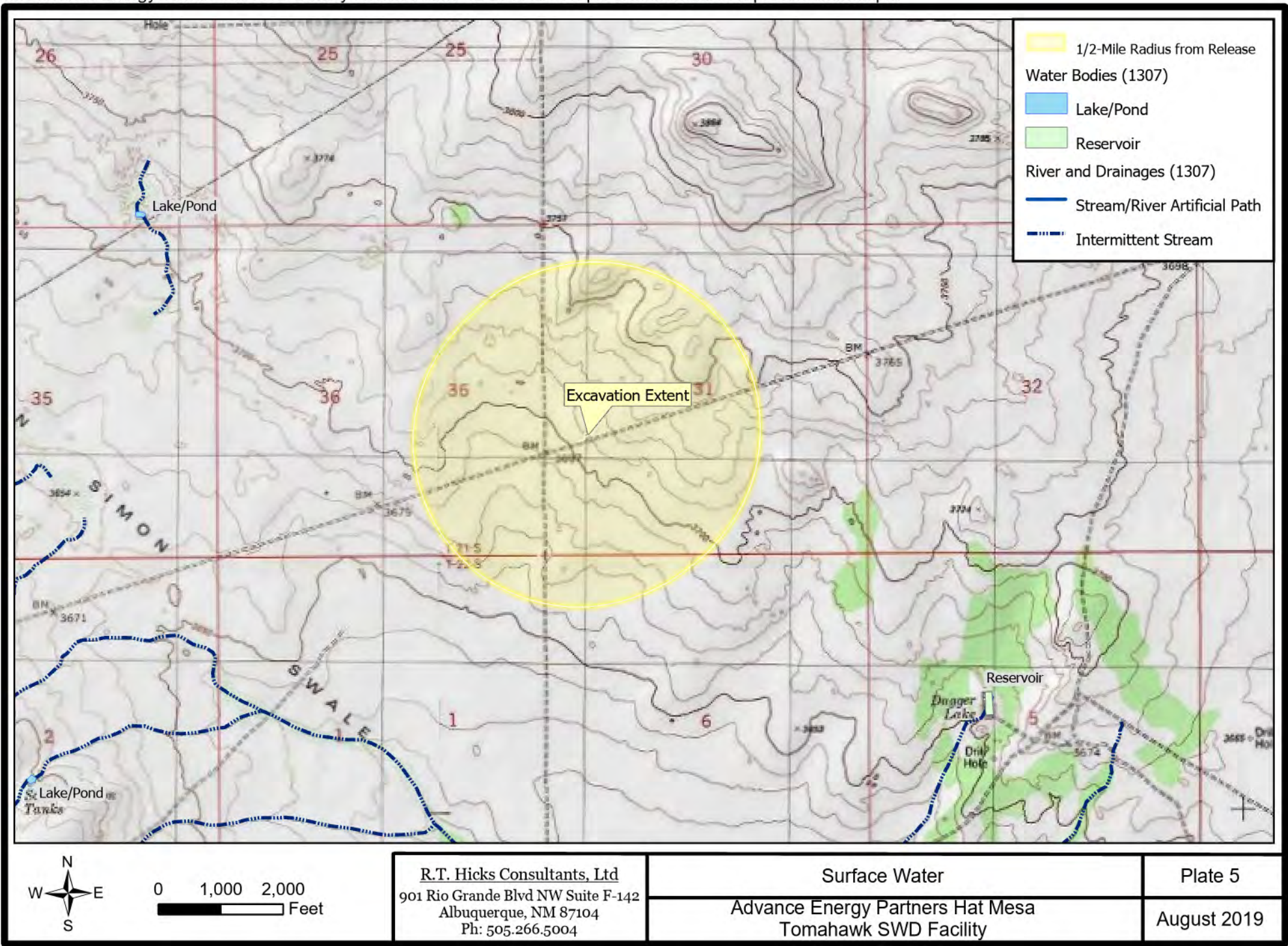
Advance Energy Partners Hat Mesa  
Tomahawk SWD Facility

Plate 3  
LEGEND

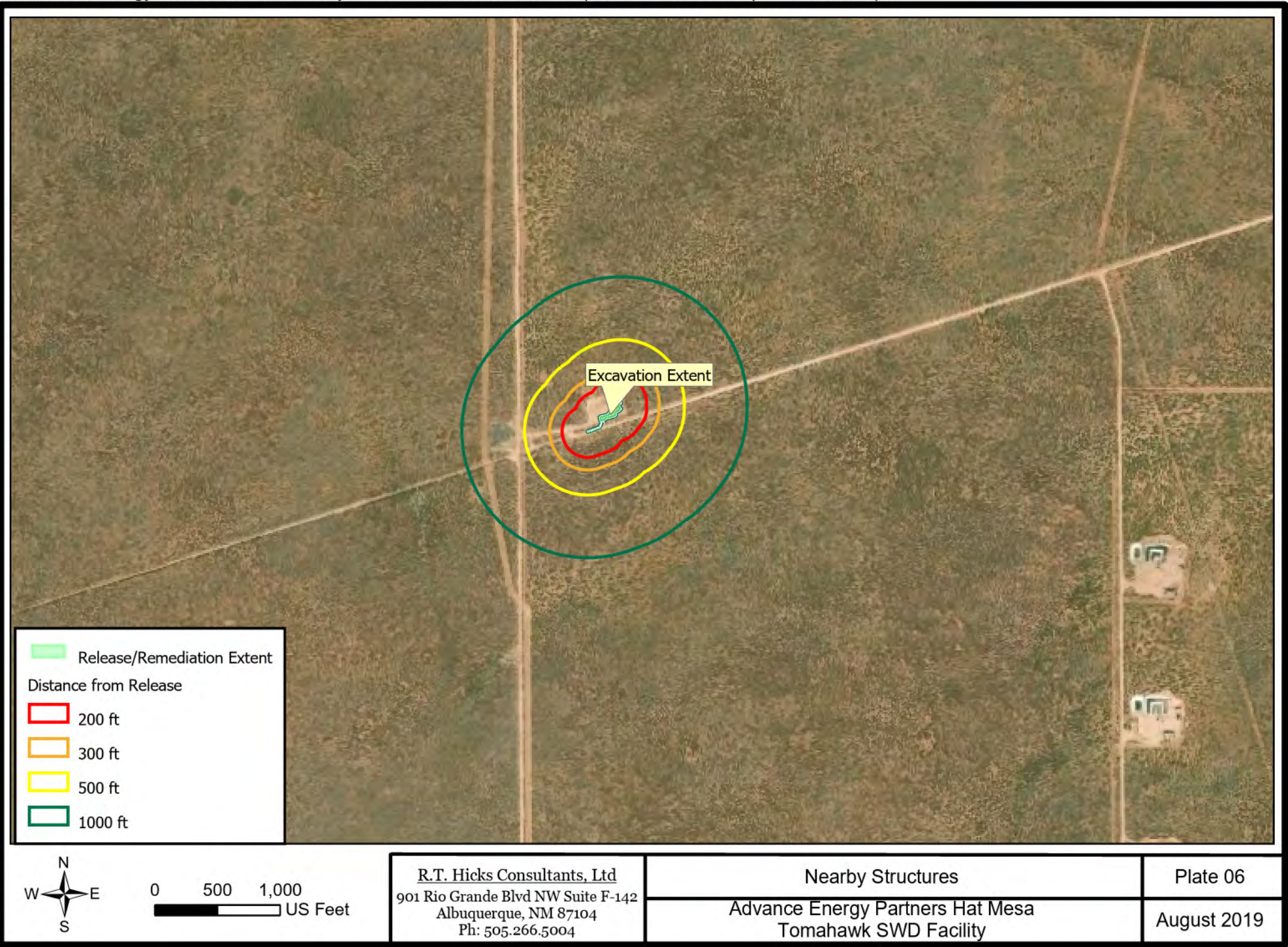
August 2019



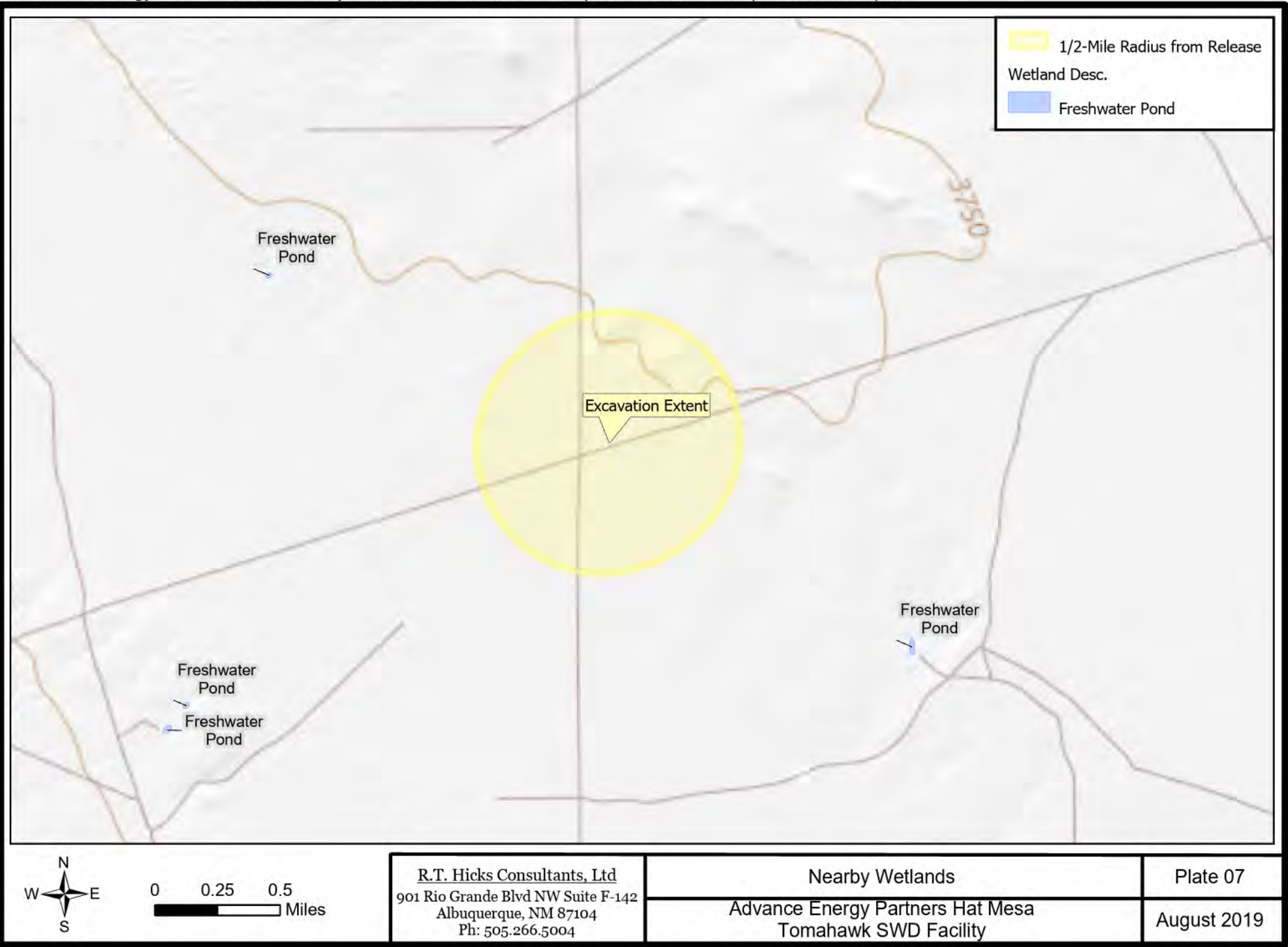


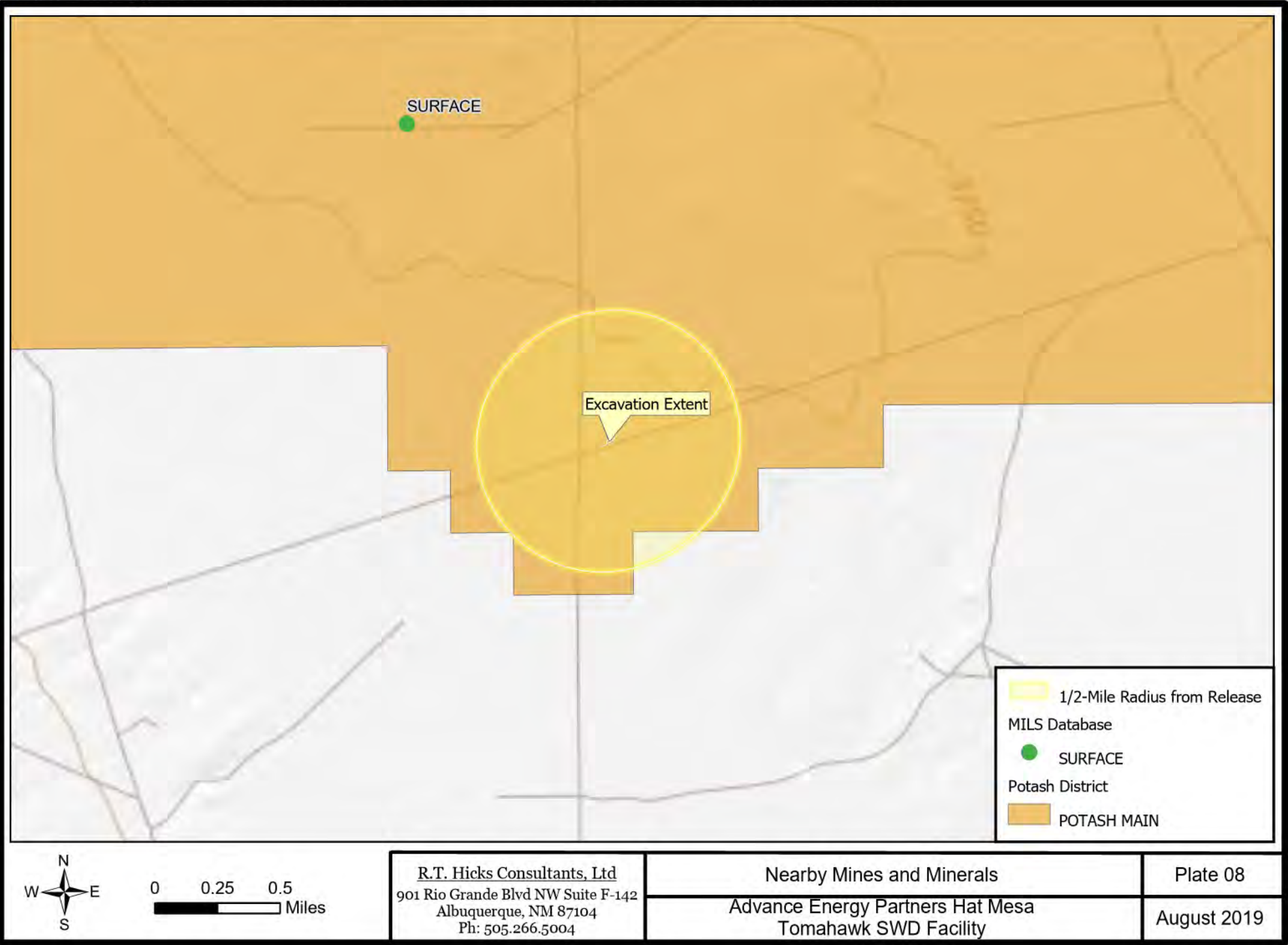




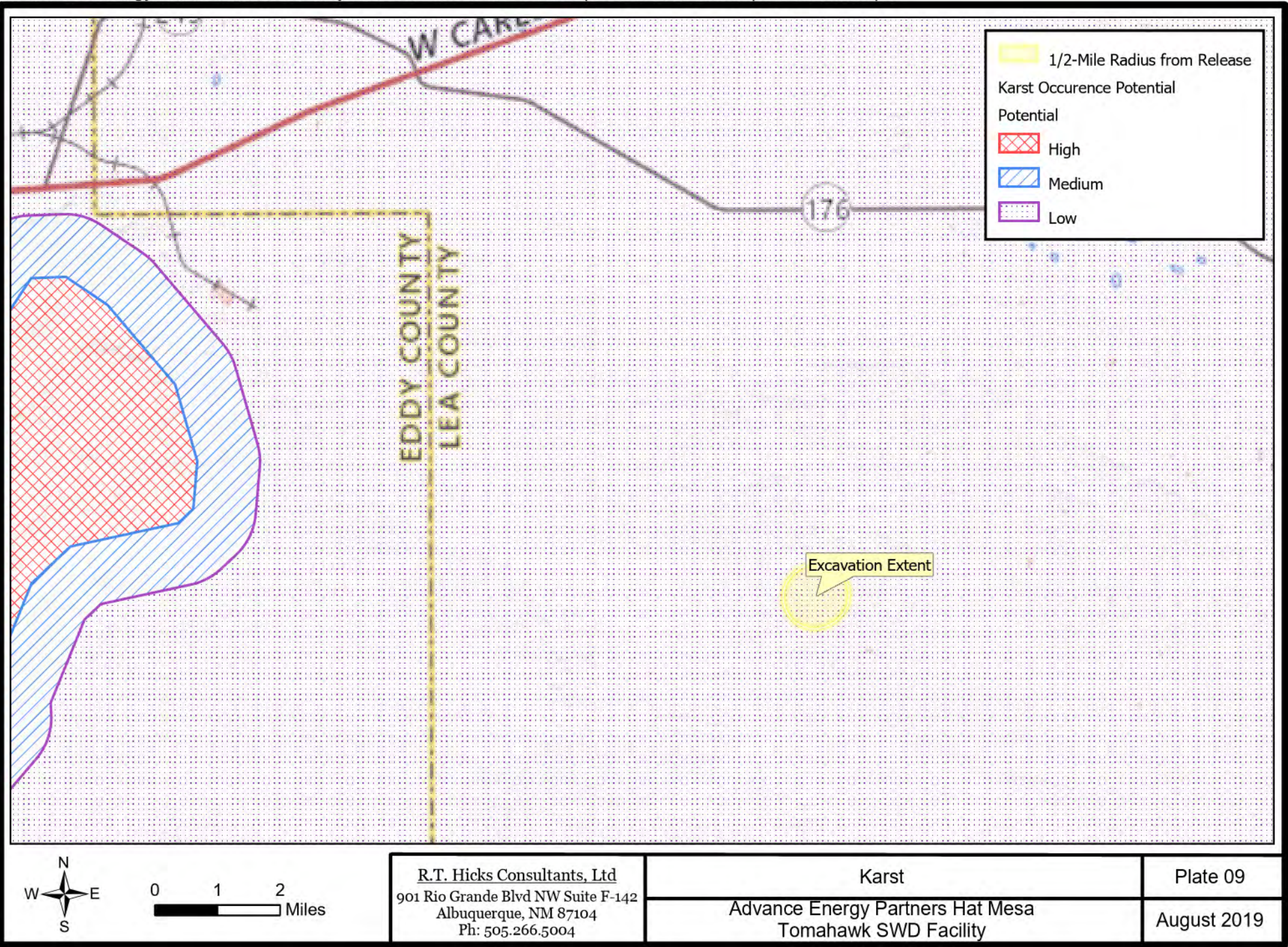




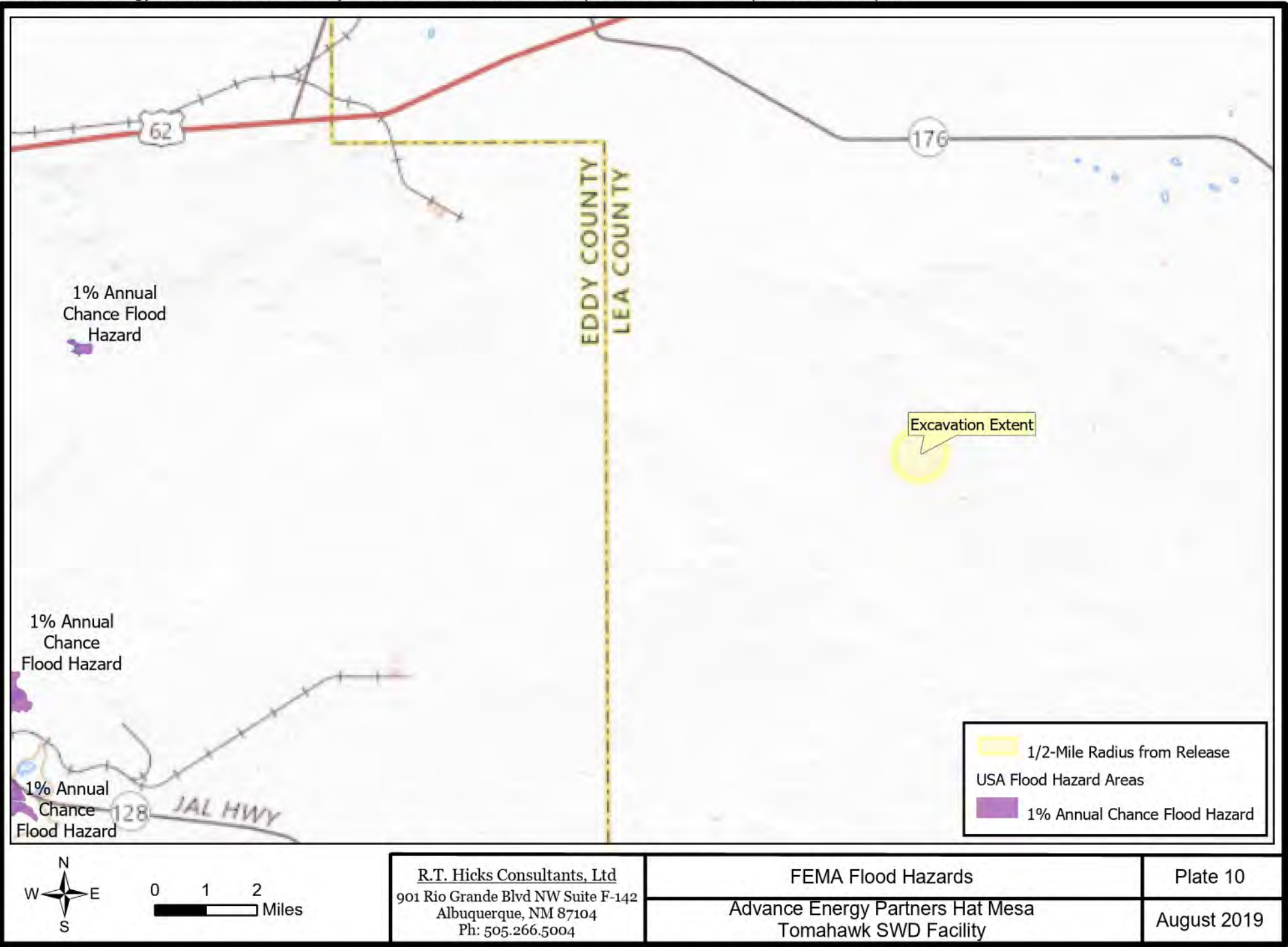














# Tables

**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	5/5/1905	Not Listed	Not Listed	178		--
CP 00854	6/22/1996	755	890	600	Artesian	155
CP 01349 POD 1	7/18/2014	960	1188	572	Artesian	388
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
CP 01701	11/29/2018	Unavailable	Unavailable	560		--
yellow highlight=		Well cluster 3 miles northeast of release				

Sample ID	Date	Matrix (Soil/Water)	Discrete Depth (Feet)	Top Depth (Feet)	Bottom Depth (Feet)	In Use (Yes/No)	Chloride (PPM)	GRO+DRO (PPM)	TPH Ext. (PPM)	Benzene (PPM)	BTEX (PPM)	Comments
Closure Criteria												
0 - 4 feet & "not in-use"							600	--	100	10	50	
> 4 ft or "in-use"							20,000	1,000	2,500	10	50	
G-01 N. Wall	6/12/2019	Soil		0.0	2.0	Yes	32	<20	<30	<0.05	<0.3	Road
G-01 Base	6/12/2019	Soil		1.0	2.0	Yes	16	<20	<30	<0.05	<0.3	Excavation grades deeper W. to E.
G-01 S. Wall	6/12/2019	Soil		0.0	2.0	Yes	64	<20	<30	<0.05	<0.3	Road
G-02 N. Wall	6/12/2019	Soil		0	3	Yes	32	<20	<30	<0.05	<0.3	Road
G-02 S. Wall	6/12/2019	Soil		0.0	3.0	Yes	32	<20	<30	<0.05	<0.3	Road
G-02 Base	6/12/2019	Soil		2.0	3.0	Yes	32	<20	<30	<0.05	<0.3	Excavation grades deeper W. to E.
G-03 S. Wall	6/12/2019	Sol		0.0	4.0	Yes	32	<48.3	<58.3	<0.05	<0.3	Road
G-03 N. Wall	6/12/2019	Soil		0.0	4.0	Yes	32	<21.3	<31.3	<0.05	<0.3	Road
G-03 W. Wall	6/12/2019	Soil		0.0	4.0	Yes	48	<20	<30	<0.05	<0.3	Road
G-03 Base	6/12/2019	Soil		3.0	4.5	Yes	32	<20	<30	<0.05	<0.3	Excavation grades deeper W. to E.
G-04 E. Wall	6/12/2019	Soil		0.0	3.0	No	32	<20	<30	<0.05	<0.3	Berm to pad
G-04 W. Wall	6/12/2019	Soil		0.0	3.0	No	32	<20	<30	<0.05	<0.3	Berm to pad
G-04 Base	6/12/2019	Soil	3.0			No	32	<20	<30	<0.05	<0.3	Berm to pad
G-05 E. Wall	6/12/2019	Soil		0.0	4.0	No	144	<25.1	<35.1	<0.05	<0.3	Berm to pad
G-05 W. Wall	6/12/2019	Soil		0.0	4.0	No	128	<20	<30	<0.05	<0.3	Berm to pad
G-05 Base	6/12/2019	Soil	6.0			No	80	<20	<30	<0.05	<0.3	Berm to pad
G-06 N. Wall	6/21/2019	Soil		0.0	4.0	Yes	128	<20	<30	<0.05	<0.3	
G-06 W. Wall	6/21/2019	Soil		0.0	4.0	Yes	352	<20	<30	<0.05	<0.3	
G-06 Base	6/15/2019	Soil	4.0			Yes	240	<20	<30	<0.05	<0.3	
G-07 S. Wall	6/17/2019	Soil		0.0	3.0	Yes	320	<20	<30	<0.025	<0.15	
G-07 N. Wall	6/17/2019	Soil		0.0	3.0	Yes	320	<20	<30	<0.025	<0.15	
G-07 Base	6/15/2019	Soil	3.0			Yes	416	<20	<30	<0.05	<0.3	
G-7 Base HA	7/9/2019	Soil	4.0			Yes	160	<20	<30	<0.05	<0.3	Hand Auger from 3 to 4 feet
G-08 N. Wall	6/28/2019	Soil		0.0	4.0	Yes	96	<20	<30	<0.05	<0.3	
G-08 S. Wall	6/15/2019	Soil		0.0	2.0	Yes	288	<20	<30	<0.05	<0.3	
G-08 Base	6/15/2019	Soil	2.0			Yes	272	<20	<30	<0.05	<0.3	
G-8 Base HA	7/9/2019	Soil	4.0			Yes	256	<20	<30	<0.05	<0.3	Hand auger from 2 to 4 feet
G-09 E. Wall	6/17/2019	Soil		0.0	2.0	Yes	64	<20	<30	<0.025	<0.15	
G-09 S. Wall	6/17/2019	Soil		0.0	2.0	Yes	48	<20	<30	<0.025	<0.15	
G-09 N. Wall	6/17/2019	Soil		0.0	2.0	Yes	32	<20	<30	<0.025	<0.15	
G-09 Base	6/15/2019	Soil	2.0			Yes	48	<20	<30	<0.05	<0.3	
G-9 Base HA	7/9/2019	Soil	3.0			Yes	16	<20	<30	<0.05	<0.3	Hand Auger from 2 to 3 feet
G-10 S. Wall	6/15/2019	Soil		0.0	3.5	Yes	64	<66.8	<76.8	<0.05	<0.3	
G-10 N. Wall	6/15/2019	Soil		0.0	3.5	Yes	80	<20	<30	<0.05	<0.3	
G-10 Base	6/15/2019	Soil	3.5			Yes	48	<20	<30	<0.05	<0.3	

Table 2  
Summary of Analytical  
Confirmation Sampling

Sample ID	Date	Matrix (Soil/Water)	Discrete Depth (Feet)	Top Depth (Feet)	Bottom Depth (Feet)	In Use (Yes/No)	Chloride (PPM)	GRO+DRO (PPM)	TPH Ext. (PPM)	Benzene (PPM)	BTEX (PPM)	Comments
Closure Criteria												
0 - 4 feet & "not in-use"							600	--	100	10	50	
> 4 ft or "in-use"							20,000	1,000	2,500	10	50	
G-11 E. Wall	6/28/2019	Soil		0.0	4.0	Yes	448	<20	<30	<0.05	<0.3	
G-11 S. Wall	6/21/2019	Soil		0.0	3.0	Yes	208	<20	<30	<0.05	<0.3	
G-11 Base	6/15/2019	Soil	3.5			Yes	224	<20	<30	<0.05	<0.3	
G-12 Base	7/10/2019	Soil	5			Yes	576	<20	<30	<0.05	<0.3	
G-12 W. Wall	7/10/2019	Soil		0	4	Yes	112	<20	<30	<0.05	<0.3	
G-12 N. Wall + 5 ft	7/10/2019	Soil		0	4	Yes	256	<20	<30	<0.05	<0.3	
G-13 Containment Wall	6/28/2019	Soil		0.0	4.0	Yes	240	<b>6949</b>	<b>7745</b>	<0.5	29.8	Defer
G-13 Base (at wall)	6/28/2019	Soil	4.5			Yes	752	<135	<162	<0.05	<0.3	
G-14 Containment Wall	6/21/2019	Soil		0	3	Yes	112	<b>15900</b>	<b>17650</b>	0.274	68.3	Defer
G-14 Base (at wall)	6/21/2019	Soil	3			Yes	432	<118	<163.7	<0.05	<0.3	Defer
G-15 Base	7/16/2019	Soil	5.0			Yes	1100	<14.1	<61.1	<0.024	<0.216	
G-15 E. Wall	7/16/2019	Soil		0.0	4.0	Yes	180	<14.4	<62.4	<0.024	<0.215	
G-15 S. Wall	7/16/2019	Soil		0.0	4.0	Yes	360	<14.2	<60.2	<0.024	<0.22	
<b>G-15 N. Wall</b>	7/16/2019	Soil		0.0	4.0	Yes	<b>660</b>	<14.2	<61.2	<0.024	<0.216	Outside the current release extent
<b>G-15 N-W Wall</b>	7/16/2019	Soil		0.0	4.0	Yes	<b>990</b>	<14.1	<61.1	<0.024	<0.217	Outside the current release extent
<b>G-15 N-E Wall</b>	7/16/2019	Soil		0.0	4.0	Yes	<b>400</b>	<14.6	<63.6	<0.024	<0.216	Outside the current release extent
Green Highlight	Soil sample not within current release extent											
Bold Text	Constituent above Table 1 19.15.29 NMAC Closure Criteria											

# **Appendix A**

## **Laboratory Certificates of Analyses**

**R.T. Hicks Consultants, Ltd.**

901 Rio Grande Blvd. NW, Suite F-142  
Albuquerque, NM 87104

June 14, 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 06/13/19 8:10.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G1 N. WALL 0-2' (H902046-01)**

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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTEX	<0.300	0.300	06/13/2019	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	32.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 92.0 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 06/13/2019  
 Reported: 06/14/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 06/12/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G1 BASE 1-2' (H902046-02)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 91.3 % 41-142

Surrogate: 1-Chlorooctadecane 98.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G1 S. WALL 0-2' (H902046-03)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67		
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72		
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756		
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39		
Total BTX	<0.300	0.300	06/13/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	64.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 90.4 % 41-142

Surrogate: 1-Chlorooctadecane 98.9 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G2 N. WALL 0-3' (H902046-04)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 89.5 % 41-142

Surrogate: 1-Chlorooctadecane 99.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/14/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G2 S. WALL 0-3' (H902046-05)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67		
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72		
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756		
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39		
Total BTX	<0.300	0.300	06/13/2019	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	32.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 95.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G2 BASE 2-3' (H902046-06)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTEx	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 78.3 % 41-142

Surrogate: 1-Chlorooctadecane 86.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G3 S. WALL 0-4' (H902046-07)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-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	06/14/2019	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	38.3	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/14/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G3 N. WALL 0-4' (H902046-08)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTEX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	11.3	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 89.1 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/14/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G3 E. WALL 0-4' (H902046-09)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 88.6 % 41-142

Surrogate: 1-Chlorooctadecane 96.1 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G3 BASE 3-4.5' (H902046-10)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	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	32.0	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 84.0 % 41-142

Surrogate: 1-Chlorooctadecane 92.7 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G4 E. WALL 0-3' (H902046-11)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67		
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72		
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756		
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39		
Total BTX	<0.300	0.300	06/13/2019	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	32.0	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 84.3 % 41-142

Surrogate: 1-Chlorooctadecane 91.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

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

Received:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/14/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

### Sample ID: G4 W. WALL 0-3' (H902046-12)

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	06/13/2019	ND	1.96	98.0	2.00	2.67		
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72		
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756		
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39		
Total BTEx	<0.300	0.300	06/13/2019	ND						

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

Chloride, SM4500CI-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	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 87.9 % 41-142

Surrogate: 1-Chlorooctadecane 95.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 4 BASE 3' (H902046-13)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500CI-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	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 85.8 % 41-142

Surrogate: 1-Chlorooctadecane 96.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	06/13/2019	Sampling Date:	06/12/2019
Reported:	06/14/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G5 E. WALL 0-4' (H902046-14)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	15.1	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 87.4 % 41-142

Surrogate: 1-Chlorooctadecane 96.9 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G5 BASE 6' (H902046-15)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	80.0	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 84.2 % 41-142

Surrogate: 1-Chlorooctadecane 90.1 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/13/2019  
Reported: 06/14/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/12/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G5 W. WALL 0-4' (H902046-16)**

BTX 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	06/13/2019	ND	1.96	98.0	2.00	2.67	
Toluene*	<0.050	0.050	06/13/2019	ND	1.97	98.7	2.00	2.72	
Ethylbenzene*	<0.050	0.050	06/13/2019	ND	1.82	91.2	2.00	0.756	
Total Xylenes*	<0.150	0.150	06/13/2019	ND	5.53	92.1	6.00	1.39	
Total BTX	<0.300	0.300	06/13/2019	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	06/14/2019	ND	400	100	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	06/13/2019	ND	185	92.6	200	2.14	
DRO >C10-C28*	<10.0	10.0	06/13/2019	ND	256	128	200	3.06	
EXT DRO >C28-C36	<10.0	10.0	06/13/2019	ND					

Surrogate: 1-Chlorooctane 89.3 % 41-142

Surrogate: 1-Chlorooctadecane 95.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

---

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager



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

Page 1/2



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

RUSH PAGE 2/2

June 18, 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 06/17/19 9:12.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 6 BASE 4' (H902076-01)**

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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTEX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 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	240	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 7 BASE 3' (H902076-02)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	416	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 8 BASE 2' (H902076-03)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 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	272	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 105 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 8 S. WALL 0-2' (H902076-04)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	288	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 9 BASE 2' (H902076-05)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 106 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 06/17/2019  
 Reported: 06/18/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 06/15/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G 10 S.WALL 0-3.5' (H902076-06)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	64.0	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	56.8	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 10 N.WALL 0-3.5' (H902076-07)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	80.0	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 06/17/2019  
 Reported: 06/18/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 06/15/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G10 BASE 3.5' (H902076-08)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTEX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/17/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 106 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 11 BASE 3.5' (H902076-09)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	<0.300	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	06/17/2019	ND	400	100	400	18.2	

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	06/17/2019	ND	186	93.2	200	0.218	
DRO >C10-C28*	<10.0	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/17/2019  
Reported: 06/18/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/15/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 BASE 3' (H902076-10)**

BTX 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	06/17/2019	ND	2.28	114	2.00	3.01	
Toluene*	<0.050	0.050	06/17/2019	ND	2.31	116	2.00	3.49	
Ethylbenzene*	<0.050	0.050	06/17/2019	ND	2.16	108	2.00	2.78	
Total Xylenes*	0.356	0.150	06/17/2019	ND	6.59	110	6.00	3.15	
Total BTX	0.356	0.300	06/17/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	192	16.0	06/17/2019	ND	400	100	400	18.2		

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	06/17/2019	ND	186	93.2	200	0.218	
<b>DRO &gt;C10-C28*</b>	<b>56.6</b>	10.0	06/17/2019	ND	177	88.3	200	1.36	
EXT DRO >C28-C36	<10.0	10.0	06/17/2019	ND					

Surrogate: 1-Chlorooctane 105 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

---

Cardinal Laboratories

\*=Accredited Analyte

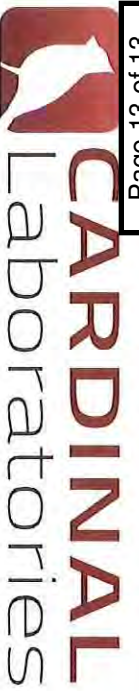
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager





CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

<b>Company Name:</b> RT Hicks Consultants <b>Project Manager:</b> Andrew Parker <b>Address:</b> 01-File <b>City:</b> State: Zip: <b>Phone #:</b> Fax #: <b>Project #:</b> Project Owner: <b>Project Name:</b> Advance Energy <b>Project Location:</b> Tomahawk S&D <b>Sampler Name:</b> Andrew Parker <b>FOR LAB USE ONLY</b>				<b>BILL TO</b> <b>P.O. #:</b> <b>Company:</b> RT Hicks <b>Attn:</b> Mail to 480 <b>Address:</b> 01-File <b>City:</b> State: Zip: <b>Phone #:</b> Fax #: <b>Project Name:</b> Advance Energy <b>Project Location:</b> Tomahawk S&D <b>Sampler Name:</b> Andrew Parker			
<b>Lab I.D.</b> Sample I.D.				<b>ANALYSIS REQUEST</b>			
<b>Relinquished By:</b> <i>Andrew Parker</i> Date: 10-17-19 <b>Relinquished By:</b> <i>Andrew Parker</i> Date: 07-30 <b>Delivered By:</b> (Circle One) <i>Andrew Parker</i> Date: 07-17-19 <b>Sampler - UPS - Bus - Other:</b> <i>7.80 #47</i>				<b>Received By:</b> <i>Andrew Parker</i> Date: 07-17-19 <b>Received By:</b> <i>Andrew Parker</i> Date: 07-17-19 <b>Sample Condition:</b> Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> <b>CHECKED BY:</b> (Initials) <i>AP</i>			
<b>REMARKS:</b>				<b>REMARKS:</b>			

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	ANALYSIS REQUEST
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :			
1	606 Base 4 ft	C										
2	607 Base 3 ft											
3	608 Base 2 ft											
4	608 S. Wall 0-2 ft											
5	609 Base 2 ft											
6	610 S. Wall 0-3.5 ft											
7	610 N. Wall 0-3.5 ft											
8	610 Base 3.5 ft											
9	611 Base 3.5 ft											
10	612 Base 3 ft											

DATE	TIME	ANALYSIS REQUEST
6-15-19	15:15	X GRO, DRO, TPH EXT
6-15-19	15:30	X BTEX, Benzene
6-15-19	15:40	X Chloride
6-15-19	15:50	
6-15-19	16:00	
6-15-19	16:10	
6-15-19	16:15	
6-15-19	16:20	
6-15-19	16:25	
6-15-19	16:30	



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

---

June 19, 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 06/18/19 10:50.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 7 S. WALL 0-3' (H902087-01)**

BTX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56		
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25		
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63		
Total Xylenes*	<0.075	0.075	06/18/2019	ND	6.39	106	6.00	0.830		
Total BTX	<0.150	0.150	06/18/2019	ND						

Surrogate: Dibromofluoromethane 96.2 % 90.4-111  
Surrogate: Toluene-d8 101 % 85.3-114  
Surrogate: 4-Bromofluorobenzene 96.6 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	06/18/2019	ND	400	100	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	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	<10.0	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 97.8 % 41-142  
Surrogate: 1-Chlorooctadecane 99.9 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 7 N. WALL 0-3' (H902087-02)**

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56	
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25	
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63	
Total Xylenes*	<0.075	0.075	06/18/2019	ND	6.39	106	6.00	0.830	
Total BTEx	<0.150	0.150	06/18/2019	ND					

Surrogate: Dibromofluoromethane 96.3 % 90.4-111

Surrogate: Toluene-d8 103 % 85.3-114

Surrogate: 4-Bromofluorobenzene 97.1 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	06/18/2019	ND	416	104	400	0.00	QR-03	

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	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	<10.0	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 8 N. WALL 0-2' (H902087-03)**

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56		
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25		
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63		
<b>Total Xylenes*</b>	<b>0.091</b>	0.075	06/18/2019	ND	6.39	106	6.00	0.830		
Total BTEx	<0.150	0.150	06/18/2019	ND						

Surrogate: Dibromofluoromethane 96.4 % 90.4-111  
Surrogate: Toluene-d8 94.8 % 85.3-114  
Surrogate: 4-Bromofluorobenzene 105 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	06/18/2019	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*	11.6	10.0	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	89.2	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 93.1 % 41-142  
Surrogate: 1-Chlorooctadecane 92.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 9 S. WALL 0-2' (H902087-04)**

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56		
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25		
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63		
Total Xylenes*	<0.075	0.075	06/18/2019	ND	6.39	106	6.00	0.830		
Total BTEx	<0.150	0.150	06/18/2019	ND						

Surrogate: Dibromofluoromethane 94.8 % 90.4-111  
Surrogate: Toluene-d8 102 % 85.3-114  
Surrogate: 4-Bromofluorobenzene 94.7 % 80.1-121

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	06/18/2019	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	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	<10.0	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 95.6 % 41-142  
Surrogate: 1-Chlorooctadecane 82.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 9 N. WALL 0-2' (H902087-05)**

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56	
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25	
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63	
Total Xylenes*	<0.075	0.075	06/18/2019	ND	6.39	106	6.00	0.830	
Total BTEx	<0.150	0.150	06/18/2019	ND					

Surrogate: Dibromofluoromethane 96.2 % 90.4-111  
Surrogate: Toluene-d8 100 % 85.3-114  
Surrogate: 4-Bromofluorobenzene 96.9 % 80.1-121

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	06/18/2019	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	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	<10.0	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 98.1 % 41-142  
Surrogate: 1-Chlorooctadecane 88.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/18/2019  
Reported: 06/19/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/17/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 9 E. WALL 0-2' (H902087-06)**

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	06/18/2019	ND	1.86	93.1	2.00	1.56		
Toluene*	<0.025	0.025	06/18/2019	ND	1.98	98.8	2.00	1.25		
Ethylbenzene*	<0.025	0.025	06/18/2019	ND	1.98	98.9	2.00	1.63		
Total Xylenes*	<0.075	0.075	06/18/2019	ND	6.39	106	6.00	0.830		
Total BTEx	<0.150	0.150	06/18/2019	ND						

Surrogate: Dibromofluoromethane 96.9 % 90.4-111  
Surrogate: Toluene-d8 101 % 85.3-114  
Surrogate: 4-Bromofluorobenzene 96.0 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	06/18/2019	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	06/18/2019	ND	230	115	200	1.60	
DRO >C10-C28*	<10.0	10.0	06/18/2019	ND	206	103	200	0.805	
EXT DRO >C28-C36	<10.0	10.0	06/18/2019	ND					

Surrogate: 1-Chlorooctane 86.5 % 41-142  
Surrogate: 1-Chlorooctadecane 78.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager

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

[illegible]



June 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 06/24/19 10:00.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 6 N. WALL 0-4' (H902154-01)**

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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTEX	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	128	16.0	06/25/2019	ND	400	100	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	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 113 % 41-142

Surrogate: 1-Chlorooctadecane 116 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 06/24/2019  
 Reported: 06/25/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK  
 Project Location: NOT GIVEN

 Sampling Date: 06/21/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G 6 W. WALL 0-4' (H902154-02)**

BTX 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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTX	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	06/25/2019	ND	400	100	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	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 116 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 11 E. WALL 0-3' (H902154-03)**

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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTEX	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 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	752	16.0	06/25/2019	ND	400	100	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	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 112 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 11 S. WALL 0-3' (H902154-04)**

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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTEx	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	208	16.0	06/25/2019	ND	400	100	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	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 116 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 E. WALL 0-3' (H902154-05)**

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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTEx	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	416	16.0	06/25/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 W. WALL 0-2' (H902154-06)**

BTX 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	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTX	<0.300	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	496	16.0	06/25/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	<10.0	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	<10.0	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 115 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 13 BASE 0.8' (H902154-07)**

BTX 8021B		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/24/2019	ND	2.05	103	2.00	0.846	
Toluene*	0.127	0.050	06/24/2019	ND	2.09	105	2.00	1.69	
Ethylbenzene*	0.568	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96	
Total Xylenes*	5.13	0.150	06/24/2019	ND	6.07	101	6.00	1.65	
Total BTX	5.83	0.300	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 148 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	432	16.0	06/25/2019	ND	400	100	400	3.92		

TPH 8015M	mg/kg		Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	228	10.0	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	1460	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	168	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 152 % 41-142

Surrogate: 1-Chlorooctadecane 151 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 14 CONTAINMENT WALL 0-3' (H902154-08)**

BTEx 8021B		mg/kg	Analyzed By: ms					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.274</b>	0.250	06/24/2019	ND	2.05	103	2.00	0.846	
<b>Toluene*</b>	<b>7.09</b>	0.500	06/24/2019	ND	2.09	105	2.00	1.69	
<b>Ethylbenzene*</b>	<b>6.82</b>	0.500	06/24/2019	ND	1.97	98.5	2.00	2.96	
<b>Total Xylenes*</b>	<b>54.1</b>	1.50	06/24/2019	ND	6.07	101	6.00	1.65	
<b>Total BTEX</b>	<b>68.3</b>	2.75	06/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 131 % 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
<b>Chloride</b>	<b>112</b>	16.0	06/25/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg	Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>1700</b>	100	06/25/2019	ND	205	103	200	4.77	
<b>DRO &gt;C10-C28*</b>	<b>14200</b>	100	06/25/2019	ND	193	96.6	200	5.60	
<b>EXT DRO &gt;C28-C36</b>	<b>1750</b>	100	06/25/2019	ND					

Surrogate: 1-Chlorooctane 236 % 41-142

Surrogate: 1-Chlorooctadecane 537 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/24/2019  
Reported: 06/25/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 06/21/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 14 BASE 3' (H902154-09)**

BTEx 8021B			mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/24/2019	ND	2.05	103	2.00	0.846		
Toluene*	<0.050	0.050	06/24/2019	ND	2.09	105	2.00	1.69		
Ethylbenzene*	<0.050	0.050	06/24/2019	ND	1.97	98.5	2.00	2.96		
Total Xylenes*	<0.150	0.150	06/24/2019	ND	6.07	101	6.00	1.65		
Total BTEx	<0.300	0.300	06/24/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	432	16.0	06/25/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/24/2019	ND	205	103	200	4.77	
DRO >C10-C28*	108	10.0	06/24/2019	ND	193	96.6	200	5.60	
EXT DRO >C28-C36	45.7	10.0	06/24/2019	ND					

Surrogate: 1-Chlorooctane 114 % 41-142

Surrogate: 1-Chlorooctadecane 126 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager

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

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

Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #:
REMARKS:			

RFN

July 01, 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 06/28/19 16:45.

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

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 06/28/2019  
Reported: 07/01/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/28/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 11 E. WALL 0-4' (H902241-01)**

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	07/01/2019	ND	1.62	81.0	2.00	0.494	
Toluene*	<0.050	0.050	07/01/2019	ND	1.67	83.4	2.00	2.24	
Ethylbenzene*	<0.050	0.050	07/01/2019	ND	1.58	78.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	07/01/2019	ND	4.91	81.9	6.00	0.0507	
Total BTEX	<0.300	0.300	07/01/2019	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	448	16.0	07/01/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/29/2019	ND	196	98.1	200	8.76	
DRO >C10-C28*	<10.0	10.0	06/29/2019	ND	200	99.8	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 98.8 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/28/2019  
Reported: 07/01/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/28/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 8 N. WALL 0-4' (H902241-02)**

BTX 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	07/01/2019	ND	1.62	81.0	2.00	0.494		
Toluene*	<0.050	0.050	07/01/2019	ND	1.67	83.4	2.00	2.24		
Ethylbenzene*	<0.050	0.050	07/01/2019	ND	1.58	78.8	2.00	1.31		
Total Xylenes*	<0.150	0.150	07/01/2019	ND	4.91	81.9	6.00	0.0507		
Total BTX	<0.300	0.300	07/01/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	96.0	16.0	07/01/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/29/2019	ND	196	98.1	200	8.76	
DRO >C10-C28*	<10.0	10.0	06/29/2019	ND	200	99.8	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 99.6 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/28/2019  
Reported: 07/01/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/28/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 W. WALL 0-4' (H902241-03)**

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	07/01/2019	ND	1.62	81.0	2.00	0.494	
Toluene*	<0.050	0.050	07/01/2019	ND	1.67	83.4	2.00	2.24	
Ethylbenzene*	<0.050	0.050	07/01/2019	ND	1.58	78.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	07/01/2019	ND	4.91	81.9	6.00	0.0507	
Total BTEX	<0.300	0.300	07/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	704	16.0	07/01/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/29/2019	ND	196	98.1	200	8.76	
DRO >C10-C28*	<10.0	10.0	06/29/2019	ND	200	99.8	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 99.1 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/28/2019  
Reported: 07/01/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/28/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 E. WALL 0-4' (H902241-04)**

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	07/01/2019	ND	1.62	81.0	2.00	0.494	
Toluene*	0.461	0.200	07/01/2019	ND	1.67	83.4	2.00	2.24	
Ethylbenzene*	1.35	0.200	07/01/2019	ND	1.58	78.8	2.00	1.31	
Total Xylenes*	11.9	0.600	07/01/2019	ND	4.91	81.9	6.00	0.0507	
Total BTX	13.7	1.20	07/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 121 % 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	208	16.0	07/01/2019	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
									S-04

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	476	10.0	06/29/2019	ND	196	98.1	200	8.76	
DRO >C10-C28*	3120	10.0	06/29/2019	ND	200	99.8	200	7.78	
EXT DRO >C28-C36	432	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 139 % 41-142

Surrogate: 1-Chlorooctadecane 188 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/28/2019  
Reported: 07/01/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 06/28/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 13 BASE 4.5' (H902241-05)**

BTX 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	07/01/2019	ND	1.62	81.0	2.00	0.494	
Toluene*	<0.050	0.050	07/01/2019	ND	1.67	83.4	2.00	2.24	
Ethylbenzene*	<0.050	0.050	07/01/2019	ND	1.58	78.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	07/01/2019	ND	4.91	81.9	6.00	0.0507	
Total BTX	<0.300	0.300	07/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	752	16.0	07/01/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/29/2019	ND	196	98.1	200	8.76	
DRO >C10-C28*	125	10.0	06/29/2019	ND	200	99.8	200	7.78	
EXT DRO >C28-C36	27.0	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	06/28/2019	Sampling Date:	06/28/2019
Reported:	07/01/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G 13 CONTAINMENT WALL 0-4' (H902241-06)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	07/01/2019	ND	1.62	81.0	2.00	0.494	
<b>Toluene*</b>	<b>1.80</b>	0.500	07/01/2019	ND	1.67	83.4	2.00	2.24	
<b>Ethylbenzene*</b>	<b>2.86</b>	0.500	07/01/2019	ND	1.58	78.8	2.00	1.31	
<b>Total Xylenes*</b>	<b>25.2</b>	1.50	07/01/2019	ND	4.91	81.9	6.00	0.0507	
<b>Total BTEX</b>	<b>29.8</b>	3.00	07/01/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 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
<b>Chloride</b>	<b>240</b>	16.0	07/01/2019	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>939</b>	10.0	06/29/2019	ND	196	98.1	200	8.76	
<b>DRO &gt;C10-C28*</b>	<b>6010</b>	10.0	06/29/2019	ND	200	99.8	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>796</b>	10.0	06/29/2019	ND					

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10*</b>	<b>939</b>	10.0	06/29/2019	ND	196	98.1	200	8.76	
<b>DRO &gt;C10-C28*</b>	<b>6010</b>	10.0	06/29/2019	ND	200	99.8	200	7.78	
<b>EXT DRO &gt;C28-C36</b>	<b>796</b>	10.0	06/29/2019	ND					

Surrogate: 1-Chlorooctane 168 % 41-142

Surrogate: 1-Chlorooctadecane 268 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager



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

[illegible]

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

Relinquished By: <i>Adelphi</i>	Date: <i>6.28.19</i>	Received By: <i>Monica Delatoy</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>16:45</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:  <i>POST</i>	
	Time:			
Delivered By: (Circle One)	Sample Condition Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/>		CHECKED BY: (Initials) <i>TE.</i>	
Sampler - UPS - Bus - Other:	<i>4.12</i>	<i>497</i>		



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

---

July 10, 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 07/09/19 16:35.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 07/09/2019  
Reported: 07/10/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 07/09/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: G 7 BASE HA 4' (H902343-01)**

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	07/10/2019	ND	2.06	103	2.00	0.682	
Toluene*	<0.050	0.050	07/10/2019	ND	2.09	104	2.00	1.06	
Ethylbenzene*	<0.050	0.050	07/10/2019	ND	1.98	99.0	2.00	2.19	
Total Xylenes*	<0.150	0.150	07/10/2019	ND	6.04	101	6.00	2.63	
Total BTEX	<0.300	0.300	07/10/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	07/10/2019	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	07/09/2019	ND	209	104	200	1.50	
DRO >C10-C28*	<10.0	10.0	07/09/2019	ND	201	101	200	0.0214	
EXT DRO >C28-C36	<10.0	10.0	07/09/2019	ND					

Surrogate: 1-Chlorooctane 113 % 41-142

Surrogate: 1-Chlorooctadecane 118 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/09/2019  
Reported: 07/10/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 07/09/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: G 8 BASE HA 4' (H902343-02)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/10/2019	ND	2.06	103	2.00	0.682	
Toluene*	<0.050	0.050	07/10/2019	ND	2.09	104	2.00	1.06	
Ethylbenzene*	<0.050	0.050	07/10/2019	ND	1.98	99.0	2.00	2.19	
Total Xylenes*	<0.150	0.150	07/10/2019	ND	6.04	101	6.00	2.63	
Total BTEx	<0.300	0.300	07/10/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	256	16.0	07/10/2019	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	07/09/2019	ND	209	104	200	1.50	
DRO >C10-C28*	<10.0	10.0	07/09/2019	ND	201	101	200	0.0214	
EXT DRO >C28-C36	<10.0	10.0	07/09/2019	ND					

Surrogate: 1-Chlorooctane 116 % 41-142

Surrogate: 1-Chlorooctadecane 125 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/09/2019  
Reported: 07/10/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 07/09/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: G 9 BASE HA 3' (H902343-03)**

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	07/10/2019	ND	2.06	103	2.00	0.682	
Toluene*	<0.050	0.050	07/10/2019	ND	2.09	104	2.00	1.06	
Ethylbenzene*	<0.050	0.050	07/10/2019	ND	1.98	99.0	2.00	2.19	
Total Xylenes*	<0.150	0.150	07/10/2019	ND	6.04	101	6.00	2.63	
Total BTEX	<0.300	0.300	07/10/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	07/10/2019	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	07/09/2019	ND	209	104	200	1.50	
DRO >C10-C28*	<10.0	10.0	07/09/2019	ND	201	101	200	0.0214	
EXT DRO >C28-C36	<10.0	10.0	07/09/2019	ND					

Surrogate: 1-Chlorooctane 123 % 41-142

Surrogate: 1-Chlorooctadecane 127 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/09/2019  
Reported: 07/10/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK  
Project Location: NOT GIVEN

Sampling Date: 07/09/2019  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 BASE HA 4' (H902343-04)**

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	07/10/2019	ND	2.06	103	2.00	0.682	
Toluene*	<0.050	0.050	07/10/2019	ND	2.09	104	2.00	1.06	
Ethylbenzene*	<0.050	0.050	07/10/2019	ND	1.98	99.0	2.00	2.19	
Total Xylenes*	<0.150	0.150	07/10/2019	ND	6.04	101	6.00	2.63	
Total BTEx	<0.300	0.300	07/10/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	768	16.0	07/10/2019	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	07/09/2019	ND	209	104	200	1.50	
DRO >C10-C28*	<10.0	10.0	07/09/2019	ND	201	101	200	0.0214	
EXT DRO >C28-C36	<10.0	10.0	07/09/2019	ND					

Surrogate: 1-Chlorooctane 118 % 41-142

Surrogate: 1-Chlorooctadecane 123 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

---

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <b>RT Hicks</b>		P.O. #:		<b>BILL TO</b>										<b>ANALYSIS REQUEST</b>									
Project Manager: <b>Andrew Parker</b>		Company: <b>RT Hicks</b>																					
Address: <b>On-File</b>		Attn: <b>Mail to</b>																					
City:		Address: <b>Aliso</b>																					
Phone #:		City:																					
Project #:		State: <b>Zip:</b>																					
Project Name: <b>Advance Energy</b>		Phone #:																					
Project Location: <b>Tamahquale</b>		Fax #:																					
Sampler Name: <b>Andrew Parker</b>																							

FOR LAB USE ONLY		MATRIX		PRESERV.		SAMPLING																					
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	GRO, DRO, DRO EXT	BTEX										
<b>H902343</b>	1 G7 Base HA 4 FT		1			X							7-9-19	14:00	X	X	X										
	2 G8 Base HA 3 FT 4 FT													14:10	X	X	X										
	3 G9 Base HA 3 FT													14:20	X	X	X										
	4 G12 Base HA 4 FT													14:30	X	X	X										

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

Relinquished By: <b>Celudal</b>		Date: <b>7-9-19</b>		Received By: <b>James D. Dwyer</b>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:		RECEIVED									
Relinquished By:		Time: <b>16:35</b>		Received By:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:											
Delivered By: (Circle One)		Time:		CHECKED BY: (Initials)		REMARKS:													
Sampler - UPS - Bus - Other:		Time:		7:00 AM															

July 12, 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 07/11/19 14:40.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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

**Analytical Results For:**

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

Received: 07/11/2019  
Reported: 07/12/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 07/10/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 BASE 5' (H902383-01)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95	
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70	
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86	
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14	
Total BTEX	<0.300	0.300	07/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	576	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	204	102	200	4.89	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	219	109	200	8.98	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 111 % 41-142

Surrogate: 1-Chlorooctadecane 131 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/11/2019  
Reported: 07/12/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 07/10/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 12 W. WALL +5' 0-4' (H902383-02)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95		
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70		
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86		
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14		
Total BTEx	<0.300	0.300	07/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	204	102	200	4.89	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	219	109	200	8.98	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 125 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/11/2019	Sampling Date:	07/10/2019
Reported:	07/12/2019	Sampling Type:	Soil
Project Name:	ADVANCE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	TOMAHAWK SWD	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: G 12 N. WALL + 5' 0-4' (H902383-03)**

BTX 8021B		mg/kg		Analyzed By: BF				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/12/2019	ND	1.92	95.9	2.00	7.95	
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70	
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86	
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14	
Total BTX	<0.300	0.300	07/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 135 % 73.3-129

Chloride, SM4500CI-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	204	102	200	4.89	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	219	109	200	8.98	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 124 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 07/11/2019  
Reported: 07/12/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 07/11/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 15 BASE 4.5' (H902383-04)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95		
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70		
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86		
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14		
Total BTEx	<0.300	0.300	07/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	736	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	194	97.2	200	3.48	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	197	98.6	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 89.9 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 07/11/2019  
 Reported: 07/12/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 07/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G 15 S. WALL 0-4' (H902383-05)**

BTX 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	07/12/2019	ND	1.92	95.9	2.00	7.95	
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70	
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86	
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14	
Total BTX	<0.300	0.300	07/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	320	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	194	97.2	200	3.48	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	197	98.6	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 87.5 % 41-142

Surrogate: 1-Chlorooctadecane 97.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 07/11/2019  
 Reported: 07/12/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 07/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G 15 E. WALL 0-2' (H902383-06)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95		
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70		
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86		
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14		
Total BTEx	<0.300	0.300	07/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	880	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	194	97.2	200	3.48	
DRO >C10-C28*	<10.0	10.0	07/12/2019	ND	197	98.6	200	1.83	
EXT DRO >C28-C36	<10.0	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 97.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 07/11/2019  
 Reported: 07/12/2019  
 Project Name: ADVANCE ENERGY  
 Project Number: TOMAHAWK SWD  
 Project Location: NOT GIVEN

 Sampling Date: 07/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: G 15 E. WALL 2-4' (H902383-07)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95		
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70		
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86		
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14		
Total BTEX	<0.300	0.300	07/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	240	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	202	101	200	2.97	
DRO >C10-C28*	96.5	10.0	07/12/2019	ND	200	100	200	1.40	
EXT DRO >C28-C36	13.3	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 123 % 41-142

Surrogate: 1-Chlorooctadecane 131 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/11/2019  
Reported: 07/12/2019  
Project Name: ADVANCE ENERGY  
Project Number: TOMAHAWK SWD  
Project Location: NOT GIVEN

Sampling Date: 07/11/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: G 15 E. WALL 0-4' (H902383-08)**

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	07/12/2019	ND	1.92	95.9	2.00	7.95		
Toluene*	<0.050	0.050	07/12/2019	0.057	1.97	98.4	2.00	6.70		
Ethylbenzene*	<0.050	0.050	07/12/2019	ND	1.92	95.8	2.00	6.86		
Total Xylenes*	<0.150	0.150	07/12/2019	ND	5.89	98.2	6.00	7.14		
Total BTEx	<0.300	0.300	07/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 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	880	16.0	07/12/2019	ND	400	100	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	07/12/2019	ND	202	101	200	2.97	
DRO >C10-C28*	180	10.0	07/12/2019	ND	200	100	200	1.40	
EXT DRO >C28-C36	25.9	10.0	07/12/2019	ND					

Surrogate: 1-Chlorooctane 119 % 41-142

Surrogate: 1-Chlorooctadecane 128 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-04	The RPD for the BS/BSD was outside of historical limits.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

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 client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



---

Celey D. Keene, Lab Director/Quality Manager



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

[illegible]

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

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

**Client Sample ID:** 6-15 E Wall 0-4'

**Project:** Advance Energy

**Collection Date:** 7/16/2019 11:30:00 AM

**Lab ID:** 1907820-001A

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	180	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/18/2019 10:05:04 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/18/2019 10:05:04 AM
Surr: DNOP	91.8	70-130		%Rec	1	7/18/2019 10:05:04 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2019 9:35:37 AM
Surr: BFB	92.4	73.8-119		%Rec	1	7/18/2019 9:35:37 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 9:35:37 AM
Toluene	ND	0.048		mg/Kg	1	7/18/2019 9:35:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/18/2019 9:35:37 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/18/2019 9:35:37 AM
Surr: 4-Bromofluorobenzene	93.5	80-120		%Rec	1	7/18/2019 9:35:37 AM

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

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

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

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

**Client Sample ID:** 6-15 S Wall 0-4'

**Project:** Advance Energy

**Collection Date:** 7/16/2019 11:35:00 AM

**Lab ID:** 1907820-002A

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	360	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/18/2019 10:27:01 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/18/2019 10:27:01 AM
Surr: DNOP	104	70-130		%Rec	1	7/18/2019 10:27:01 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/18/2019 10:45:57 AM
Surr: BFB	86.8	73.8-119		%Rec	1	7/18/2019 10:45:57 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 10:45:57 AM
Toluene	ND	0.049		mg/Kg	1	7/18/2019 10:45:57 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/18/2019 10:45:57 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/18/2019 10:45:57 AM
Surr: 4-Bromofluorobenzene	88.6	80-120		%Rec	1	7/18/2019 10:45:57 AM

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

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

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

**CLIENT:** R.T. Hicks Consultants, LTD  
**Project:** Advance Energy  
**Lab ID:** 1907820-003A

**Client Sample ID:** 6-15 N Wall 0-4'  
**Collection Date:** 7/16/2019 11:40:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	660	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/18/2019 10:49:15 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/18/2019 10:49:15 AM
Surr: DNOP	83.1	70-130		%Rec	1	7/18/2019 10:49:15 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2019 11:56:17 AM
Surr: BFB	90.1	73.8-119		%Rec	1	7/18/2019 11:56:17 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 11:56:17 AM
Toluene	ND	0.048		mg/Kg	1	7/18/2019 11:56:17 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/18/2019 11:56:17 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/18/2019 11:56:17 AM
Surr: 4-Bromofluorobenzene	91.3	80-120		%Rec	1	7/18/2019 11:56:17 AM

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

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

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

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

**Client Sample ID:** 6-15 Base 5'

**Project:** Advance Energy

**Collection Date:** 7/16/2019 11:45:00 AM

**Lab ID:** 1907820-004A

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	1100	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/18/2019 11:11:26 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/18/2019 11:11:26 AM
Surr: DNOP	86.2	70-130		%Rec	1	7/18/2019 11:11:26 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2019 12:19:46 PM
Surr: BFB	90.5	73.8-119		%Rec	1	7/18/2019 12:19:46 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 12:19:46 PM
Toluene	ND	0.048		mg/Kg	1	7/18/2019 12:19:46 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/18/2019 12:19:46 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/18/2019 12:19:46 PM
Surr: 4-Bromofluorobenzene	90.8	80-120		%Rec	1	7/18/2019 12:19:46 PM

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

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

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

**CLIENT:** R.T. Hicks Consultants, LTD  
**Project:** Advance Energy  
**Lab ID:** 1907820-005A

**Client Sample ID:** 6-15 N-W Wall 0-4'  
**Collection Date:** 7/16/2019 11:50:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	990	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/18/2019 11:33:46 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/18/2019 11:33:46 AM
Surr: DNOP	110	70-130		%Rec	1	7/18/2019 11:33:46 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2019 12:43:22 PM
Surr: BFB	88.9	73.8-119		%Rec	1	7/18/2019 12:43:22 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 12:43:22 PM
Toluene	ND	0.048		mg/Kg	1	7/18/2019 12:43:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/18/2019 12:43:22 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/18/2019 12:43:22 PM
Surr: 4-Bromofluorobenzene	89.8	80-120		%Rec	1	7/18/2019 12:43:22 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1907820

Date Reported:

**CLIENT:** R.T. Hicks Consultants, LTD  
**Project:** Advance Energy  
**Lab ID:** 1907820-006A

**Client Sample ID:** 6-15 N-E Wall 0-4'  
**Collection Date:** 7/16/2019 12:00:00 PM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Chloride	400	60		mg/Kg	20	7/18/2019
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/18/2019 11:55:57 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/18/2019 11:55:57 AM
Surr: DNOP	104	70-130		%Rec	1	7/18/2019 11:55:57 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2019 1:06:54 PM
Surr: BFB	99.8	73.8-119		%Rec	1	7/18/2019 1:06:54 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	7/18/2019 1:06:54 PM
Toluene	ND	0.048		mg/Kg	1	7/18/2019 1:06:54 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/18/2019 1:06:54 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/18/2019 1:06:54 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	7/18/2019 1:06:54 PM

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

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

# **Appendix B**

## **OSE Well Logs**

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

SF

Revised December 1975

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

# Declaration of Owner of Underground Water Right

CAPITAN BASIN  
BASIN NAME

Declaration No. CP-601

Date received April 17, 1979

STATE ENGINEER OFFICE  
SANTA FE, N.M. 87501

## STATEMENT

- Name of Declarant THE MERCHANT LIVESTOCK COMPANY  
Mailing Address P.O. Box 548 Carlsbad  
County of Eddy, State of New Mexico
- Source of water supply shallow  
(artesian or shallow water aquifer)
- Describe well location under one of the following subheadings:
  - $\frac{1}{4}$  NE  $\frac{1}{4}$  NW  $\frac{1}{4}$  of Sec. 28 Twp. 21S Rge. 33-E N.M.P.M., in Lea County.
  - Tract No. \_\_\_\_\_ of Map No. \_\_\_\_\_ of the \_\_\_\_\_
  - X = \_\_\_\_\_ feet, Y = \_\_\_\_\_ feet, N. M. Coordinate System \_\_\_\_\_ Zone \_\_\_\_\_ in the \_\_\_\_\_ Grant.  
On land owned by \_\_\_\_\_
- 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 \_\_\_\_\_  
Fractional or percentage interest claimed in well 100%
- Quantity of water appropriated and beneficially used up to 3  
(~~acre feet per annum~~) (acre feet per annum)  
for stock water purposes.
- Acreage actually irrigated \_\_\_\_\_ acres, located and described as follows (describe only lands actually irrigated):

Subdivision	Sec.	Twp.	Range	Acres Irrigated	Owner
			<u>stock only</u>		<u>The Merchant Livestock Co.</u>

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

- Water was first applied to beneficial use 1952 month \_\_\_\_\_ day \_\_\_\_\_ 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: \_\_\_\_\_

- 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  
day of April, A.D. 1979

Subscribed and sworn to before me this 12th

My commission expires March 2, 1980

John F. Saunders Notary Public

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.

563298

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  $2\frac{1}{2}$  acre subdivision. If located on unsurveyed lands, describe by legal subdivision "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

EL

\*70 APR 20 PM 3 00

April 17, 1979

STATE ENGINEER OFFICE  
CARLSBAD, N.M. 81501

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)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64 Q16 Q4 Sec Tws Rng</b>	<b>X</b>	<b>Y</b>
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)

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

<b>Water Bearing Stratifications:</b>	<b>Top</b>	<b>Bottom</b>	<b>Description</b>
	755	805	Sandstone/Gravel/Conglomerate
	860	890	Sandstone/Gravel/Conglomerate

<b>Casing Perforations:</b>	<b>Top</b>	<b>Bottom</b>
	760	950

<b>Meter Number:</b> 8514	<b>Meter Make:</b> BLANCETT
<b>Meter Serial Number:</b> 040711711	<b>Meter Multiplier:</b> 1.0000
<b>Number of Dials:</b> 7	<b>Meter Type:</b> Diversion
<b>Unit of Measure:</b> Barrels 42 gal.	<b>Return Flow Percent:</b>
<b>Usage Multiplier:</b>	<b>Reading Frequency:</b> 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)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64 Q16 Q4 Sec Tws Rng</b>	<b>X</b>	<b>Y</b>
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  
SARASOTA, 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 LATITUDE 32		MINUTES 26	SECONDS 54.8	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE 103		33	58.3	W	* 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 WD 421		NAME OF LICENSED DRILLER Corky Glenn			NAME OF WELL DRILLING COMPANY Glenn's Water Well Service, Inc.				
	DRILLING STARTED 07/22/14		DRILLING ENDED 07/29/14		DEPTH OF COMPLETED WELL (FT) 1,192'		BORE HOLE DEPTH (FT) 1,192'		DEPTH WATER FIRST ENCOUNTERED (FT) 925'	
	COMPLETED WELL IS: <input checked="" type="radio"/> ARTESIAN <input type="radio"/> DRY HOLE <input type="radio"/> SHALLOW (UNCONFINED)						STATIC WATER LEVEL IN COMPLETED WELL (FT) 582'			
	DRILLING FLUID: <input checked="" type="radio"/> AIR <input type="radio"/> MUD ADDITIVES - SPECIFY:									
	DRILLING METHOD: <input checked="" type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input type="radio"/> OTHER - SPECIFY:									
	DEPTH (feet bgl)		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)		
	FROM	TO								
	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						
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT				
	FROM	TO								
	0'	40'	20"	Cemented	2 yds.	Top Pour				
	0	757'	14 3/4"	Float and shoe cemented to surface	962	Circulated				

FOR OSE INTERNAL USE

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

FILE NUMBER	CP-1355	POD NUMBER	1	TRN NUMBER	549450
LOCATION	Exp/ 215.33E.27.313				PAGE 1 OF 2

PAGE 1 OF 2

	DEPTH (feet bgl)		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)
	FROM	TO				
4. HYDROGEOLOGIC LOG OF WELL	0	4'	4'	Sand	<input type="radio"/> Y <input checked="" type="radio"/> N	
	4'	28'	24'	Caliche	<input type="radio"/> Y <input checked="" type="radio"/> N	
	28'	120'	92'	Sand & Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
	120'	260'	140'	Red Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
	260'	757'	497'	Red & Brown Shale, and Clay (some blue)	<input type="radio"/> Y <input checked="" type="radio"/> N	
	757'	815'	58'	Red & Brown Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
	815'	840'	25'	Blue Clay & Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
	840'	925'	85'	Red and Brown Shale (some sandrock)	<input type="radio"/> Y <input checked="" type="radio"/> N	
	925'	975'	50'	Watersand and Gravel	<input checked="" type="radio"/> Y <input type="radio"/> N	
	975'	1,185'	210'	Watersand (brown sandrock)	<input checked="" type="radio"/> Y <input type="radio"/> N	
	1,185'	1,192'	7'	Red Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
					<input type="radio"/> Y <input checked="" type="radio"/> N	
					<input type="radio"/> Y <input checked="" type="radio"/> N	
					<input type="radio"/> Y <input checked="" type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
	METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input checked="" type="radio"/> PUMP					TOTAL ESTIMATED WELL YIELD (gpm):
<input type="radio"/> AIR LIFT <input type="radio"/> BAILER <input type="radio"/> OTHER - SPECIFY:						
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:					
	<div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">             SIGNATURE OF DRILLER / PRINT SIGNED NAME         </div> <div style="text-align: center;">             DATE         </div> </div>					

FOR USE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 06/08/2012)	
FILE NUMBER	CP-1355	POD NUMBER	1
LOCATION	215.33E.27.312	TRN NUMBER	549450
			PAGE 2 OF 2



# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)

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 LATITUDE 32	MINUTES 26	SECONDS 54.8	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND		
		LONGITUDE 103	33	58.3	W	* 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 WD 421		NAME OF LICENSED DRILLER Corky Glenn			NAME OF WELL DRILLING COMPANY Glenn's Water Well Service, Inc.		
	DRILLING STARTED 7/29/14		DRILLING ENDED 8/2/14		DEPTH OF COMPLETED WELL (FT) 1192'		BORE HOLE DEPTH (FT) 1192'	
					DEPTH WATER FIRST ENCOUNTERED (FT) 925'			
	COMPLETED WELL IS: <input checked="" type="radio"/> ARTESIAN <input type="radio"/> DRY HOLE <input type="radio"/> SHALLOW (UNCONFINED)						STATIC WATER LEVEL IN COMPLETED WELL (FT) 582'	
	DRILLING FLUID: <input type="radio"/> AIR <input type="radio"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input type="radio"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		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)
	FROM	TO						
	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"	
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						
	0'	40'	20"	Cemented	2 yds	Top Pour		
	0'	757'	14 3/4"	Float and Shoe Cemented to Surface	1034	Circulated		

FOR OSE INTERNAL USE


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

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

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl)		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)
FROM	TO				
0'	4'	4'	Soil	<input type="radio"/> Y <input checked="" type="radio"/> N	
4'	28'	24'	Caleche	<input type="radio"/> Y <input checked="" type="radio"/> N	
28'	120'	92'	Sand and Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
120'	260'	140'	Red Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
260'	757'	497'	Red and Brown Shale and Clay(some blue)	<input type="radio"/> Y <input checked="" type="radio"/> N	
757'	815'	58'	Red and Brown Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
815'	840'	25'	Blue Clay and Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
840'	925'	85'	Red and Brown Shale(some sandrock)	<input type="radio"/> Y <input checked="" type="radio"/> N	
925'	975'	50'	Watersand and Gravel	<input checked="" type="radio"/> Y <input type="radio"/> N	
975'	1185'	210'	Watersand(brown sandrock)	<input checked="" type="radio"/> Y <input type="radio"/> N	
1185'	1192'	7'	Red Shale	<input type="radio"/> Y <input checked="" type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
				<input type="radio"/> Y <input type="radio"/> N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:			<input checked="" type="radio"/> PUMP	TOTAL ESTIMATED WELL YIELD (gpm): 50	
<input type="radio"/> AIR LIFT <input type="radio"/> BAILER <input type="radio"/> OTHER - SPECIFY:					

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:	
	 SIGNATURE OF DRILLER / PRINT SIGNEE NAME	8/7/14 DATE

FOR OSE INTERNAL USE

FILE NUMBER	CP-1355	POD NUMBER	1	TRN NUMBER	549450
LOCATION	Exp1 215-33E-27-313				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)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64 Q16 Q4</b>	<b>Sec</b>	<b>Tws</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
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

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64 Q16 Q4</b>	<b>Sec</b>	<b>Tws</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
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
-----	------