

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party CHISHOLM ENERGY OPERATING, LLC	OGRID 372137
Contact Name TIM GREEN	Contact Telephone 432-413-9747
Contact email tgreen@chisholmenergy.com	Incident # NCE2003552253
Contact mailing address 801 CHERRY STREET, SUITE 1200-UNIT 20, FORT WORTH, TX 76102	

Location of Release Source

Latitude 32.296558 Longitude -104.3114671
(NAD 83 in decimal degrees to 5 decimal places)

Site Name ASTEROID 20-29 FED COM WCA 2H & WCA 1H	Site Type FRAC SITE LOCATION
Date Release Discovered 01/22/2020	API# 30-015-45877/30-015-45876

Unit Letter	Section	Township	Range	County
B	20	23S	26S	EDDY

Surface Owner: State Federal Tribal Private (Name: _____)

Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 50	Volume Recovered (bbls) 30
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" 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

LAY FLAT LINE LINE THAT WAS MOVING PRODUCED WATER FOR FRAC OPERATIONS RUPTURED LENGTH OF SPILL IS 250' X 20' X .01= 50BBLs

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Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? AMOUNT SPILLED WAS OVER 25 BBLs
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<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 checked="" 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:
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>JENNIFER ELROD</u> Title: <u>SR. REGULATORY ANALYST</u> Signature: <u><i>Jennifer Elrod</i></u> Date: <u>03/13/2020</u> email: <u>JELROD@CHISHOLMENERGY.COM</u> Telephone: <u>817-953-3728</u>
<u>OCD Only</u> Received by: _____ Date: _____

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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?	_____ 100 (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 not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" 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.

<u>Characterization Report Checklist:</u> Each of the following items must be included in the report.
<input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
<input type="checkbox"/> Field data
<input checked="" type="checkbox"/> Data table of soil contaminant concentration data
<input checked="" type="checkbox"/> Depth to water determination
<input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
<input type="checkbox"/> Boring or excavation logs
<input checked="" type="checkbox"/> Photographs including date and GIS information
<input checked="" type="checkbox"/> Topographic/Aerial maps
<input checked="" type="checkbox"/> Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Incident ID	NCE2003552253
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Printed Name: JENNIFER ELROD Title: SR. REGULATORY ANALYST

Signature: *Jennifer Elrod* Date: 03/13/2020

email: JELROD@CHISHOLMENERGY.COM Telephone: 817-953-3728

OCD Only

Received by: Cristina Eads Date: 04/07/2020

Incident ID	NCE2003552253
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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: JENNIFER ELROD Title: SR. REGULATORY ANALYST
 Signature: *Jennifer Elrod* Date: 03/13/2020
 email: JELROD@CHISHOLMENERGY.COM Telephone: 817-953-3728

OCD Only

Received by: _____ Date: _____

- Approved
 Approved with Attached Conditions of Approval
 Denied
 Deferral Approved

Signature: _____ Date: _____

Incident ID	NCE2003552253
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: JENNIFER ELROD Title: SR. REGULATORY ANALYST

Signature: *Jennifer Elrod* Date: 03/13/2020

email: JELROD@CHISHOLMENERGY.COM Telephone: 817-953-3728

OCD Only

Received by: Cristina Eads Date: 04/07/2020

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: *Cristina Eads* Date: 04/07/2020

Printed Name: Cristina Eads Title: Environmental Specialist

March 3, 2020

#ceaster_env_20

NMOCD District 1
1625 N. French Drive
Hobbs, New Mexico 88210

SUBJECT: Remediation Closure Report for the Asteroid 20-29 Fed Release -NCE2003552253, Eddy County, New Mexico

Dear NMOCD District 1,

On behalf of Chisholm Energy Operating (CEO), Atkins Engineering Associates INC. (AEA) has prepared this Remediation Closure Report that describes the remediation of a release of liquids related to oil and gas production activities at the Asteroid 20 29 Fed. The site is in Unit B, Section 20, Township 23S, Range 26E, Eddy County, New Mexico, on Federal land. Figure 1 illustrates the vicinity and site location on an USGS 7.5-minute quadrangle map.

Table 1 summarizes release information and Closure Criteria.

Table 1: Release Information and Closure Criteria			
Name	Asteroid 20-29 Fed	Company	Chisholm Energy
API Number	30-015-45877 / 30-015-45876	Location	32.296558 -104.31127
Incident Number	NCE2003552253		
Estimated Date of Release	01/22/2020	Date Reported to NMOCD	01/22/2020
Land Owner	BLM	Reported To	NMOCD District 2
Source of Release	Lay flat line that was transporting produced water for hydraulic stimulation operations ruptured. Demotions of spill 250'X 50'		
Released Volume	50 bbls	Released Material	Produced Water
Recovered Volume	30 bbls	Net Release	20 bbls
NMOCD Closure Criteria	>100 feet to groundwater		
AEA Response Dates	2/7/20		

1.0 Background

On January 22, 2020, a release was discovered at the Asteroid 20-29 Fed caused by equipment failure in a lay flat line. The release volume was estimated by operations staff by calculating the volume of the area and in the hose past the check valve. Initial response activities were conducted by the operator, and included source elimination by means of repair and immediate site stabilization and release recovery. Figure 1 illustrates the vicinity and site location. The C-141 forms are included in Appendix A.

2.0 Site Information and Closure Criteria

The Asteroid 20-29 Fed is located approximately 9 miles South of Carlsbad Eddy County, New Mexico on Federal (BLM) land at an elevation of approximately 3387 feet above mean sea level (amsl).

Based upon the New Mexico Office of the State Engineers (NMOSE) online water well database, (Appendix B), depth to groundwater in the area is estimated to be 100-194 feet below grade surface (bgs). There are no known water sources within ½-mile of the location, according to the NMOSE database. (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed 2/25/2020). The nearest significant watercourse is unnamed drainage, located approximately 1500 feet southwest of the location. Figure 1 illustrates the site with 200 and 300-foot radii to indicate that it does not lie within a sensitive area as described in 19.15.29.12.C(4) NMAC.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of greater than 100 feet bgs. The site has been restored to meet the standards of Table I of 19.15.29.12 NMAC.

Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

3.0 Release Characterization and Remediation Activities

On February 7, 2020, 8th AEA personnel arrived on site in response to the release associated Asteroid 20 29 FED. AEA responded after the initial response conducted by Chisolm Energy's contractors. Soil samples were field-screened for chloride using an electrical conductivity (EC) meter and found no samples significantly higher than NRCS defined background.

A total of 6 composite sample locations (L1 thru L6) were investigated using a hand-auger, to depths up to 1.5 feet bgs. All samples were collected at each sampling location and field-screened using the method above. A total of 7 samples were collected for laboratory analysis for total chloride using EPA Method 300.0., EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

As summarized in Table 3, results indicated that most of the location was remediated successfully by the initial action performed by AEA and its contractors. an area approximately 50 feet wide and 250feet long remained impacted. The area is located to the east of the pad behind the production tank battery.

Field screening results indicated that the NMOCD Closure Criteria would be met or as close to production equipment as could be safely allowed.

All samples were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico (Appendix D).

Figure 3 shows the extent of the excavation and sample locations. All laboratory results are summarized in Table 3. Laboratory reports are included in Appendix D.

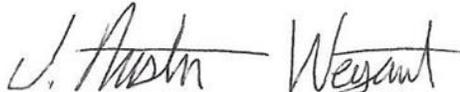
In addition to meeting the Closure Criteria, for the well pad meet the Reclamation requirement of 19.15.29.13(D)(1). Contaminated soils were removed and hauled to an NMOCD approved landfill. Waste manifest can be supplied if requested.

4.0 Scope and Limitations

The scope of our services included: assessment sampling; verifying release stabilization; regulatory liaison; remediation; and preparing this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact Austin Weyant at 575-626-3993

Submitted by:
Atkins Engineering Associates INC



Austin Weyant
Geoscientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map

Figure 2: Surface Water Radius Map

Figure 3: Site and Sample Location Map

Tables:

Table 2: NMOCD Closure Criteria Justification

Table 3a: Summary of Initial Sample Results

Table 3b: Summary of Closure Sample Results

Appendices:

Appendix A: Form C141

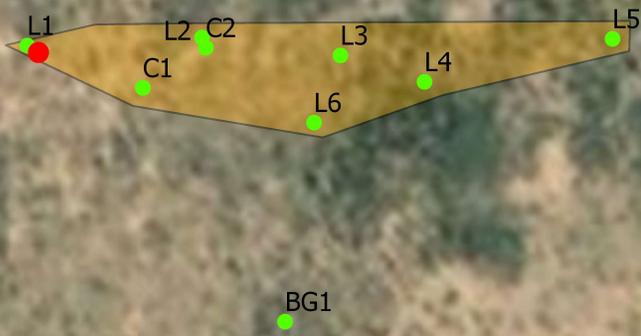
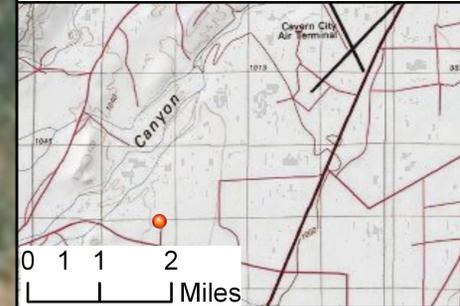
Appendix B: NMOSE Wells Report

Appendix D: Laboratory Analytical Reports

Appendix E: Open Excavation Photo Log

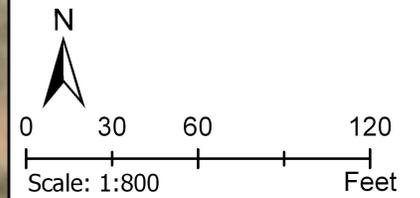
FIGURES

FIGURE 1-
Sample Location Map
Asteroid 20 29 FED



LEGEND

- Sample Location
- Excavation Area
- Release Point

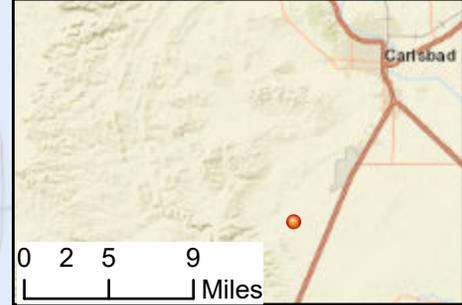


32.2964543° -104.3103506°

JOB No. ceaster.env.20
DATE FIELD: 2/07/2020 DRAWN LCM
DATE DRAWN: 2/25/2020 REVIEW JAW



**FIGURE 3-
Setbacks Map
Asteroid 20 29 Fed**

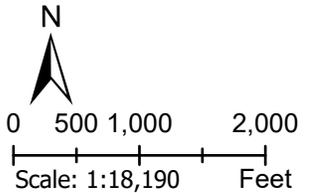


LEGEND

- Release Point
- OSE_Points_of_Diversion

Potential

- High
- Low
- Medium
- <all other values>
- FEMA_Flood_Zones_2011



JOB No. ceaster_env_20

DATE FIELD: 2/07/2020 DRAWN LCM

DATE DRAWN: 2/28/2020 REVIEW JAW



TABLES

Table 1:
Summary of Sample Results

Sample ID	Sample Date	Depth (feet bgs)	Action Taken	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMED Closure Criteria				50	10				2500	600
BG-1	2/2/2020	1	In-Situ	<0.099	<0.025	<4.9	<9.7	<48	<62.6	60
L1-1	2/2/2020	1	In-Situ	<0.098	<0.025	<4.9	<9.7	<48	<62.6	450
L1-1.5	2/2/2020	1.5	In-Situ	<0.10	<0.025	<5.0	<9.3	<48	<62.2	190
L2-1	2/2/2020	1	In-Situ	<0.10	<0.025	<5.0	<8.7	<43	<57.6	150
L3-1	2/2/2020	1	In-Situ	<0.10	<0.025	<5.0	<9.8	<49	<63.9	<60
L4-1	2/2/2020	1	In-Situ	<0.10	<0.025	<5.0	<9.6	<48	<62.6	<60
L5-05	2/2/2020	0.5	In-Situ	<0.099	<0.025	<4.9	<9.9	<49	<63.7	94
L6-1	2/2/2020	1	In-Situ	<0.10	<0.025	<5.0	<9.8	<49	<63.7	<60

APPENDIX A
FORMS C141

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy Minerals and Natural
Resources Department

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

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Release Notification

Responsible Party

Responsible Party CHISHOLM ENERGY OPERATING, LLC	OGRID 372137
Contact Name TIM GREEN	Contact Telephone 432-413-9747
Contact email tgreen@chisholmenergy.com	Incident # (assigned by OCD)
Contact mailing address 801 CHERRY STREET, SUITE 1200-UNIT 20, FORT WORTH, TX 76102	

Location of Release Source

Latitude 32.521936 Longitude -103.623806
(NAD 83 in decimal degrees to 5 decimal places)

Site Name ASTEROID 20-29 FED COM WCA 2H & WCA 1H	Site Type FRAC SITE LOCATION
Date Release Discovered 01/22/2020	API# (if applicable) 30-015-45877/30-015-45876

Unit Letter	Section	Township	Range	County
B	20	23S	26E	EDDY

Surface Owner: State Federal Tribal Private (Name: _____)

Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 50	Volume Recovered (bbls) 30
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" 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 LAY FLAT LINE THAT WAS MOVING PRODUCED WATER FOR FRAC OPERATIONS RUPTURED

LENGTH OF SPILL IS 250' X 20' X .01= 50BBLs

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? <p style="text-align: center;">AMOUNT SPILLED WAS OVER 25 BBLs</p>
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? YES, NOTICE WAS AT 2:00PM BY EMAIL FROM JENNIFER ELROD TO MIKE BRATCHER, JIM AMOS & VICTORIA VENEGAS	

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 checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
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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>JENNIFER ELROD</u>	Title: <u>SR. REGULATORY ANALYST</u>
Signature: <u><i>Jennifer Elrod</i></u>	Date: <u>01/23/2020</u>
email: <u>jelrod@chisholmenergy.com</u>	Telephone: <u>817-953-3728</u>
<u>OCD Only</u> Received by: _____ Date: _____	

APPENDIX B
NMOSE WELLS REPORT



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 00367	C	CUB	ED	3	2	28	23S	26E		566286	3571353*	1909		
C 00537		C	ED	1	4	21	23S	26E		566277	3572558*	400		
C 00954		C	ED	3	3	1	19	23S	26E	562197	3572199	240	194	46
C 02515		C	ED	3	2	4	29	23S	26E	564971	3570832*	647		
C 02863		CUB	ED	4	4	2	30	23S	26E	563585	3571299	129		

Average Depth to Water: **194 feet**
 Minimum Depth: **194 feet**
 Maximum Depth: **194 feet**

Record Count: 5

PLSS Search:

Section(s): 20, 30, 29, 28, 21, 19, 16, 17, 18
Township: 23S
Range: 26E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

2/25/20 8:08 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

APPENDIX D
LABORATORY ANALYTICAL
REPORTS



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

February 20, 2020

Austin Weyant

Atkins Engineering Associates
2904 West Second Street
Roswell, NM 88201
TEL: (575) 624-2420
FAX (575) 624-2421

RE: Astroid 20 29 Fed

OrderNo.: 2002540

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 8 sample(s) on 2/13/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', written in a cursive style.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: BG-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 10:18:00 AM

Lab ID: 2002540-001

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/18/2020 12:16:29 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/19/2020 9:27:02 AM	50473
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/19/2020 9:27:02 AM	50473
Surr: DNOP	126	55.1-146		%Rec	1	2/19/2020 9:27:02 AM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/18/2020 3:16:10 AM	50461
Surr: BFB	82.1	66.6-105		%Rec	1	2/18/2020 3:16:10 AM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 3:16:10 AM	50461
Toluene	ND	0.049		mg/Kg	1	2/18/2020 3:16:10 AM	50461
Ethylbenzene	ND	0.049		mg/Kg	1	2/18/2020 3:16:10 AM	50461
Xylenes, Total	ND	0.099		mg/Kg	1	2/18/2020 3:16:10 AM	50461
Surr: 4-Bromofluorobenzene	89.5	80-120		%Rec	1	2/18/2020 3:16:10 AM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L1-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 10:32:00 AM

Lab ID: 2002540-002

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	450	59		mg/Kg	20	2/18/2020 12:28:50 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: CLP
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/18/2020 1:21:58 PM	50473
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/18/2020 1:21:58 PM	50473
Surr: DNOP	76.0	55.1-146		%Rec	1	2/18/2020 1:21:58 PM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/18/2020 3:39:45 AM	50461
Surr: BFB	85.3	66.6-105		%Rec	1	2/18/2020 3:39:45 AM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 3:39:45 AM	50461
Toluene	ND	0.049		mg/Kg	1	2/18/2020 3:39:45 AM	50461
Ethylbenzene	ND	0.049		mg/Kg	1	2/18/2020 3:39:45 AM	50461
Xylenes, Total	ND	0.098		mg/Kg	1	2/18/2020 3:39:45 AM	50461
Surr: 4-Bromofluorobenzene	93.2	80-120		%Rec	1	2/18/2020 3:39:45 AM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L1-1.5

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 10:56:00 AM

Lab ID: 2002540-003

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	190	60		mg/Kg	20	2/18/2020 1:05:51 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/19/2020 10:37:41 AM	50473
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/19/2020 10:37:41 AM	50473
Surr: DNOP	78.3	55.1-146		%Rec	1	2/19/2020 10:37:41 AM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2020 12:52:07 PM	50461
Surr: BFB	85.3	66.6-105		%Rec	1	2/18/2020 12:52:07 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 12:52:07 PM	50461
Toluene	ND	0.050		mg/Kg	1	2/18/2020 12:52:07 PM	50461
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2020 12:52:07 PM	50461
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2020 12:52:07 PM	50461
Surr: 4-Bromofluorobenzene	94.0	80-120		%Rec	1	2/18/2020 12:52:07 PM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L2-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 11:16:00 AM

Lab ID: 2002540-004

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	150	60		mg/Kg	20	2/18/2020 5:25:10 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	2/19/2020 11:01:14 AM	50473
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	2/19/2020 11:01:14 AM	50473
Surr: DNOP	78.6	55.1-146		%Rec	1	2/19/2020 11:01:14 AM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2020 1:15:42 PM	50461
Surr: BFB	83.3	66.6-105		%Rec	1	2/18/2020 1:15:42 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 1:15:42 PM	50461
Toluene	ND	0.050		mg/Kg	1	2/18/2020 1:15:42 PM	50461
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2020 1:15:42 PM	50461
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2020 1:15:42 PM	50461
Surr: 4-Bromofluorobenzene	90.9	80-120		%Rec	1	2/18/2020 1:15:42 PM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L3-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 11:24:00 AM

Lab ID: 2002540-005

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/18/2020 5:37:32 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: CLP
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/18/2020 1:49:37 PM	50473
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/18/2020 1:49:37 PM	50473
Surr: DNOP	63.2	55.1-146		%Rec	1	2/18/2020 1:49:37 PM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2020 1:39:17 PM	50461
Surr: BFB	83.1	66.6-105		%Rec	1	2/18/2020 1:39:17 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 1:39:17 PM	50461
Toluene	ND	0.050		mg/Kg	1	2/18/2020 1:39:17 PM	50461
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2020 1:39:17 PM	50461
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2020 1:39:17 PM	50461
Surr: 4-Bromofluorobenzene	91.9	80-120		%Rec	1	2/18/2020 1:39:17 PM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L4-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 11:28:00 AM

Lab ID: 2002540-006

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/18/2020 2:07:35 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: CLP
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	2/18/2020 1:59:00 PM	50473
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/18/2020 1:59:00 PM	50473
Surr: DNOP	83.9	55.1-146		%Rec	1	2/18/2020 1:59:00 PM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2020 2:02:52 PM	50461
Surr: BFB	80.7	66.6-105		%Rec	1	2/18/2020 2:02:52 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 2:02:52 PM	50461
Toluene	ND	0.050		mg/Kg	1	2/18/2020 2:02:52 PM	50461
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2020 2:02:52 PM	50461
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2020 2:02:52 PM	50461
Surr: 4-Bromofluorobenzene	88.9	80-120		%Rec	1	2/18/2020 2:02:52 PM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L6-1

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 11:45:00 AM

Lab ID: 2002540-007

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/18/2020 2:19:56 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: CLP
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/18/2020 2:08:24 PM	50473
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/18/2020 2:08:24 PM	50473
Surr: DNOP	81.1	55.1-146		%Rec	1	2/18/2020 2:08:24 PM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/18/2020 2:26:25 PM	50461
Surr: BFB	80.8	66.6-105		%Rec	1	2/18/2020 2:26:25 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 2:26:25 PM	50461
Toluene	ND	0.050		mg/Kg	1	2/18/2020 2:26:25 PM	50461
Ethylbenzene	ND	0.050		mg/Kg	1	2/18/2020 2:26:25 PM	50461
Xylenes, Total	ND	0.10		mg/Kg	1	2/18/2020 2:26:25 PM	50461
Surr: 4-Bromofluorobenzene	89.2	80-120		%Rec	1	2/18/2020 2:26:25 PM	50461

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2002540

Date Reported: 2/20/2020

CLIENT: Atkins Engineering Associates

Client Sample ID: L5-0.5

Project: Astroid 20 29 Fed

Collection Date: 2/7/2020 11:52:00 AM

Lab ID: 2002540-008

Matrix: SOIL

Received Date: 2/13/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	94	60		mg/Kg	20	2/18/2020 2:32:17 PM	50502
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/19/2020 11:24:55 AM	50473
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/19/2020 11:24:55 AM	50473
Surr: DNOP	76.3	55.1-146		%Rec	1	2/19/2020 11:24:55 AM	50473
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/18/2020 3:37:19 PM	50461
Surr: BFB	82.3	66.6-105		%Rec	1	2/18/2020 3:37:19 PM	50461
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/18/2020 3:37:19 PM	50461
Toluene	ND	0.049		mg/Kg	1	2/18/2020 3:37:19 PM	50461
Ethylbenzene	ND	0.049		mg/Kg	1	2/18/2020 3:37:19 PM	50461
Xylenes, Total	ND	0.099		mg/Kg	1	2/18/2020 3:37:19 PM	50461
Surr: 4-Bromofluorobenzene	89.3	80-120		%Rec	1	2/18/2020 3:37:19 PM	50461

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates

Project: Astroid 20 29 Fed

Sample ID: MB-50502	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 50502	RunNo: 66623								
Prep Date: 2/18/2020	Analysis Date: 2/18/2020	SeqNo: 2289839	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-50502	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 50502	RunNo: 66623								
Prep Date: 2/18/2020	Analysis Date: 2/18/2020	SeqNo: 2289840	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | 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 | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates

Project: Astroid 20 29 Fed

Sample ID: MB-50473	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 50473	RunNo: 66605								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2288974	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	55.1	146			

Sample ID: LCS-50473	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 50473	RunNo: 66605								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2288987	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	10	50.00	0	120	70	130			
Surr: DNOP	5.3		5.000		107	55.1	146			

Sample ID: MB-50496	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 50496	RunNo: 66605								
Prep Date: 2/18/2020	Analysis Date: 2/18/2020	SeqNo: 2289090	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		88.8	55.1	146			

Sample ID: LCS-50496	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 50496	RunNo: 66605								
Prep Date: 2/18/2020	Analysis Date: 2/18/2020	SeqNo: 2289092	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.7	55.1	146			

Sample ID: MB-50486	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 50486	RunNo: 66605								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2289790	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		111	55.1	146			

Sample ID: LCS-50486	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 50486	RunNo: 66605								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2289791	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		102	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates

Project: Astroid 20 29 Fed

Sample ID: 2002540-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BG-1	Batch ID: 50473	RunNo: 66647								
Prep Date: 2/17/2020	Analysis Date: 2/19/2020	SeqNo: 2290389	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	9.9	49.26	0	113	47.4	136			
Surr: DNOP	6.0		4.926		122	55.1	146			

Sample ID: 2002540-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BG-1	Batch ID: 50473	RunNo: 66647								
Prep Date: 2/17/2020	Analysis Date: 2/19/2020	SeqNo: 2290390	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	9.6	47.80	0	113	47.4	136	3.26	43.4	
Surr: DNOP	5.9		4.780		122	55.1	146	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates

Project: Astroid 20 29 Fed

Sample ID: mb-50461	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 50461		RunNo: 66590							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2288648		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		82.0	66.6	105			

Sample ID: ics-50461	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 50461		RunNo: 66590							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2288649		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.4	80	120			
Surr: BFB	910		1000		91.0	66.6	105			

Sample ID: 2002540-002ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: L1-1	Batch ID: 50461		RunNo: 66629							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2289499		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.1	69.1	142			
Surr: BFB	910		1000		90.7	66.6	105			

Sample ID: 2002540-002amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: L1-1	Batch ID: 50461		RunNo: 66629							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2289500		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.5	69.1	142	2.93	20	
Surr: BFB	950		1000		94.6	66.6	105	0	0	

Sample ID: mb-50481	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 50481		RunNo: 66629							
Prep Date: 2/17/2020	Analysis Date: 2/18/2020		SeqNo: 2289517		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	810		1000		80.7	66.6	105			

Sample ID: ics-50481	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 50481		RunNo: 66629							
Prep Date: 2/17/2020	Analysis Date: 2/18/2020		SeqNo: 2289518		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		92.0	66.6	105			

Qualifiers:

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- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates

Project: Astroid 20 29 Fed

Sample ID: mb-50435	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 50435		RunNo: 66590							
Prep Date: 2/13/2020	Analysis Date: 2/17/2020		SeqNo: 2288662	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		93.8	80	120			

Sample ID: ics-50435	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 50435		RunNo: 66590							
Prep Date: 2/13/2020	Analysis Date: 2/17/2020		SeqNo: 2288663	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.9	80	120			

Sample ID: mb-50461	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 50461		RunNo: 66590							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2288684	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.8	80	120			

Sample ID: LCS-50461	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 50461		RunNo: 66590							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2288685	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.6	80	120			
Toluene	0.89	0.050	1.000	0	88.8	80	120			
Ethylbenzene	0.90	0.050	1.000	0	90.5	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.2	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	80	120			

Sample ID: 2002540-001ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BG-1	Batch ID: 50461		RunNo: 66629							
Prep Date: 2/14/2020	Analysis Date: 2/18/2020		SeqNo: 2289546	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	0.9960	0	80.2	78.5	119			
Toluene	0.83	0.050	0.9960	0	83.7	75.7	123			
Ethylbenzene	0.86	0.050	0.9960	0	86.5	74.3	126			
Xylenes, Total	2.6	0.10	2.988	0	88.6	72.9	130			

Qualifiers:

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- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2002540

20-Feb-20

Client: Atkins Engineering Associates
Project: Astroid 20 29 Fed

Sample ID: 2002540-001ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BG-1	Batch ID: 50461	RunNo: 66629								
Prep Date: 2/14/2020	Analysis Date: 2/18/2020	SeqNo: 2289546	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		0.9960		93.1	80	120			

Sample ID: 2002540-001amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BG-1	Batch ID: 50461	RunNo: 66629								
Prep Date: 2/14/2020	Analysis Date: 2/18/2020	SeqNo: 2289547	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	0.9872	0	80.8	78.5	119	0.172	20	
Toluene	0.84	0.049	0.9872	0	85.2	75.7	123	0.979	20	
Ethylbenzene	0.87	0.049	0.9872	0	88.4	74.3	126	1.33	20	
Xylenes, Total	2.6	0.099	2.962	0	89.2	72.9	130	0.203	20	
Surr: 4-Bromofluorobenzene	0.92		0.9872		93.5	80	120	0	0	

Sample ID: mb-50481	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 50481	RunNo: 66629								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2289564	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.3	80	120			

Sample ID: LCS-50481	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 50481	RunNo: 66629								
Prep Date: 2/17/2020	Analysis Date: 2/18/2020	SeqNo: 2289565	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		93.9	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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Sample Log-In Check List

Client Name: **ATK**

Work Order Number: **2002540**

RcptNo: **1**

Received By: *Juan Rojas* **2/13/2020 10:00:00 AM**

Completed By: **Leah Baca** **2/13/2020 12:41:28 PM**

Reviewed By: **DAD 2/13/20**

Leah Baca

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes No Not Present
2. How was the sample delivered? **UPS**

Log In

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

IO
 # of preserved bottles checked for pH: **2/13/20**
 (<2 or >12 unless noted)
 Adjusted? _____
 Checked by: _____

Special Handling (if applicable)

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

Person Notified:	<i>Austin Weyant</i>	Date:	<i>2/17/2020</i>
By Whom:	<i>Leah Baca</i>	Via:	<input type="checkbox"/> eMail <input checked="" type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<i>Collection time discrepancy on -002, Name discrepancy -008</i>		
Client Instructions:	<i>Go with CUC on -002, Use Name on bottle for -008</i>		

16. Additional remarks:

17. Cooler Information

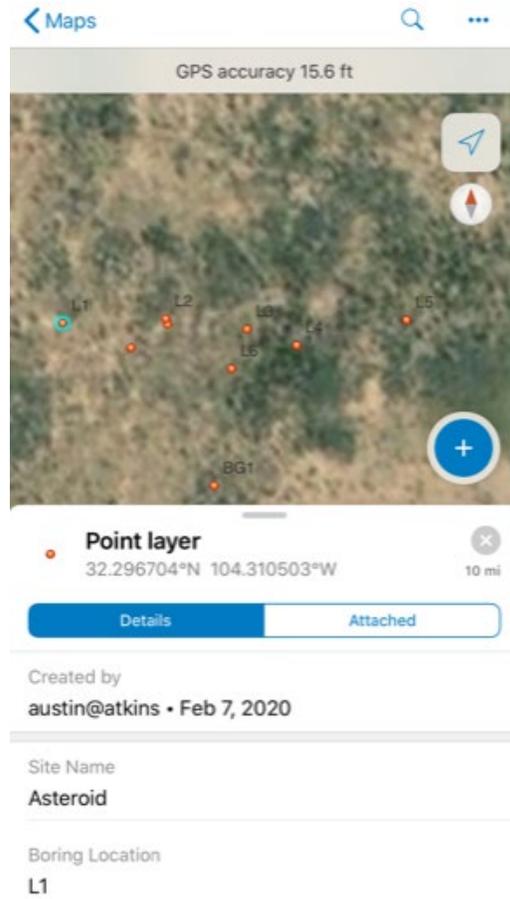
Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good				

APPENDIX E
OPEN EXCAVATION PHOTO LOG

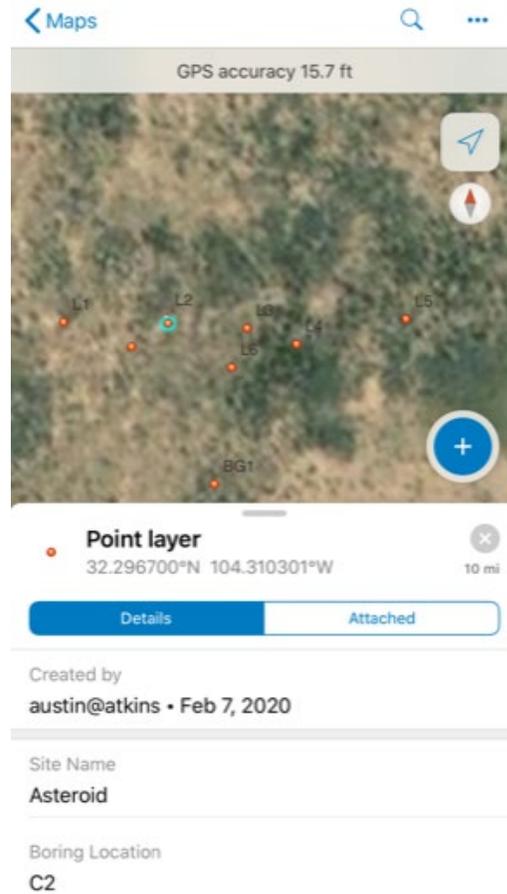
Photo Log

Asteroid 20 29 FED

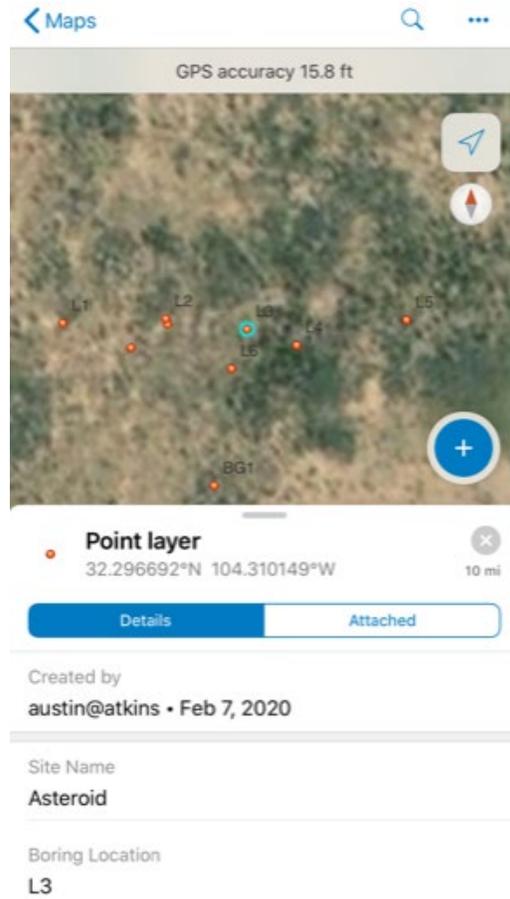
L1 Geo- Reference photo



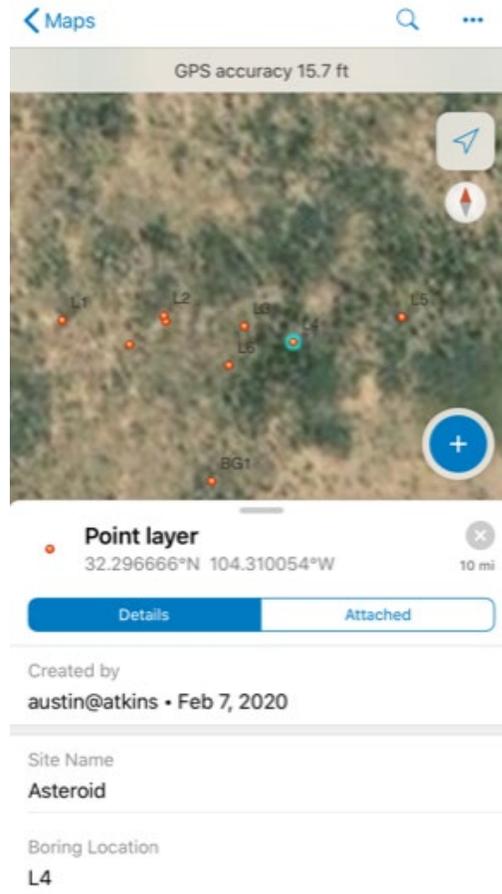
L2 Geo- Reference photo



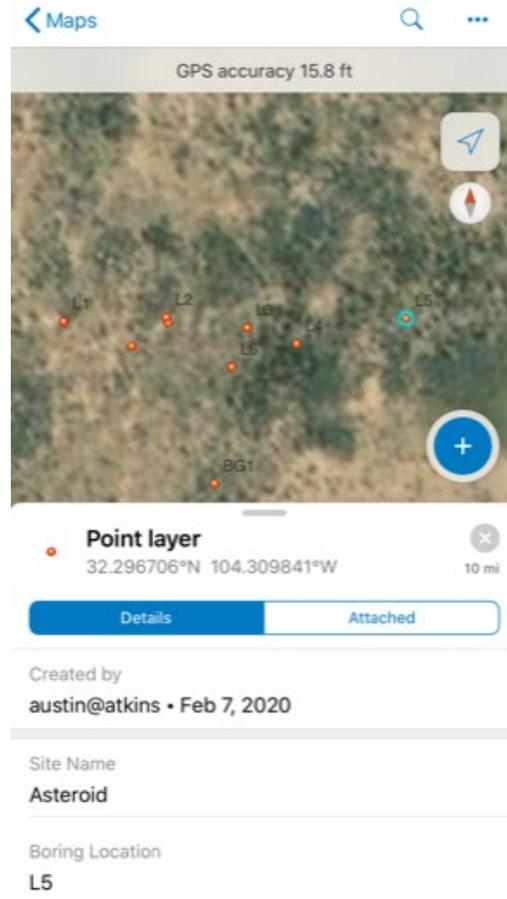
L3 Geo- Reference photo



L4 Geo- Reference photo



L5 Geo- Reference photo



L6 Geo- Reference photo

