

Incident ID	nAPP2230526211
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?	_____ 85 _____ (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 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.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

State of New Mexico  
Oil Conservation Division

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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: Amy Barnhill \_\_\_\_\_ Title: Lead Environmental Specialist - Water \_\_\_\_\_  
Signature: Amy Barnhill \_\_\_\_\_ Date: 02/10/2023 \_\_\_\_\_  
email: ABarnhill@chevron.com \_\_\_\_\_ Telephone: (432) 940-8524 \_\_\_\_\_

**OCD Only**

Received by: Jocelyn Harimon \_\_\_\_\_ Date: 02/15/2023 \_\_\_\_\_

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## Remediation Plan

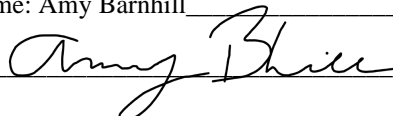
**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ 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: Amy Barnhill \_\_\_\_\_ Title: Lead Environmental Specialist - Water \_\_\_\_\_  
Signature:  Date: 02/10/2023 \_\_\_\_\_  
email: ABarnhill@chevron.com \_\_\_\_\_ Telephone: (432) 940-8524 \_\_\_\_\_

**OCD Only**

Received by: Jocelyn Harimon Date: 02/15/2023

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

Signature:  Date: 02/27/2023



2904 W 2nd St.  
Roswell, NM 88201  
voice: 575.624.2420  
fax: 575.624.2421  
www.atkinseng.com

January 30, 2023

#ogopogo\_env\_22

**Mark Andersen**

Permian Asset HSEQ Manager  
TETRA Technologies Inc./Swiftwater Inc.  
2401 N. CR 1287 Midland, TX 79701  
Phone: 432.234.0179

SUBJECT: Remediation Work Plan for the DL 10 15 OGOPOGO FEDERAL COM #422H Release (nAPP2230526211), Lea County, New Mexico

To whom it may concern,

On behalf of Atkins Engineering Associates INC. (AEA) has prepared this site assessment, delineation and remediation proposal. To properly delineate the release of liquids related to oil and gas production activities at the DL 10 15 OGOPOGO FEDERAL COM #422H AEA used **Visual Sample Plan Version 6.0** (VSP) to define a confidence interval and sample plan design. The site is in Unit I, Section 10, Township 22S, Range 33E, Lea County, New Mexico.

Table 1 summarizes release information and Site Criteria.

Table 1: Release Information and Closure Criteria			
Name	DL 10 15 OGOPOGO FEDERAL COM #422H	Company	Chevron U.S.A., Inc
API Number	30-025-49906	Location	32.40448, -103.55576
Incident Number	nAPP2230526211		
Estimated Date of Release	10/20/22	Date Reported to NMOCD	10/21/20
Landowner	State	Reported To	NMOCD District 2
Source of Release	A third party's main water supply line to the frac operations had an equipment failure when the manifold slid out of the manifold head clamp.		
Released Volume	1091 bbls	Released Material	Produced Water
Recovered Volume	720 bbls	Net Release	371 bbls
NMOCD Closure Criteria	51-100 feet to groundwater		
AEA Response Dates	N/A		



DL 10 15 OGOPOGO FEDERAL COM #422H  
January 30, 2023

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## **1.0 Background**

On October 20, 2022, a release was discovered at the DL 10 15 OGOPOGO FEDERAL COM #422H. A third party's main water supply line to the frac operations had an equipment failure when the manifold slid out of the manifold head clamp. Through estimated soil saturation calculations, the release volume was estimated by operations staff and confirmed through the attached C141. 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 DL 10 15 OGOPOGO FEDERAL COM #422H is located approximately 25 miles West of Eunice Lea County, New Mexico on Federal (BLM) land at an elevation of approximately 3,565 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 75-280 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/](https://gis.ose.state.nm.us/gisapps/ose_pod_locations/); accessed 12/16/2023). The nearest significant watercourse is Floyd Tank, located approximately 3.5 miles North 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 between 51-100 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.

Electromagnetic surveying was used as a “first-pass” investigation to accurately define the parameters or horizontal boundaries of the shallow soil investigation. A Geonics Ltd. EM-38 ground conductivity meter that has been factory calibrated was used on site to collect data.

Figure 1 attached is a product of the fixed-frequency EM method used to map variations in ground conductivity to identify anomalously conductive soils and infer changes in the soil characteristics and composition. This method used portable instrumentation consisting of a transmitter coil and a receiver coil. primary magnetic field from the transmitter coil induces subsurface eddy currents, which in turn generate a secondary magnetic field that is intercepted by the receiver coil. The ratio of the primary and secondary magnetic fields is related to ground conductivity represented as ECa in mS/m.

The conductivity values are not specific values from discrete depths; they are weighted averages of conductivity between the surface and the depth of exploration of the EM field and are termed “apparent conductivities”. The apparent conductivity values obtained are in units of millisiemens per meter (mS/m). The apparent conductivity (ECa) of the soil has been related to the paste extract conductivity {ECe} by the relationship  $ECa = 5ECe$  (McNeill, 1986a). Table 2 (from McNeill, 1986a) illustrates this general relationship. Measurements are expressed in millisiemens/meter (mS/m).

Table 1: ECe to ECa Conversion

Soil Conductivity vs Salinity (from McNeill, 1986a)			
Salinity (NRCS)	ECe (mS/cm) (Lab)	ECa (mS/m) (EM-38)	Figure Color
NRCS Soil Background (site)	0-2	0-40	White to green
Slight	0-4	40-80	Yellow
Moderate	4-8	80-100	red
High	8-12	160-240	Purple

The table above shows the general correlation between laboratory soil saturated paste ECe and the apparent conductivity ECa measured by an EM unit.

### **3.0 Release Characterization and Proposed Remediation Activities**

On January 17, 2023, AEA personnel arrived on site in response to the release associated with DL 10 15 OGOPOGO FEDERAL COM #422H. AEA performed site delineation activities on January 17, 2023, by collecting soil samples around the release site selected by VSP program with a systematic sampling with a random start location. Soil samples were field screened for chloride using an electrical conductivity (EC) meter.

A total of twenty-two (22) sample locations (SW1 – SW10 & BH1 – BH4) were investigated using a direct-push drill rig, to depths up to four (4) feet bgs. A minimum of three (3) delineation samples were collected at each soil bore location and field-screened using the method above. A total of twenty-two (22) samples were collected for laboratory analysis for total chloride using 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 and shown in figure 3 and 4, results indicated that the release did not flow and or leach of the location. An on-pad area approximately 100 feet wide and 400 feet long remains impacted. The area is located to the south of the wells and runs east and west near the location's entrances. The impacted area is also bordered by a production flow lines to the north and the locations berm to the south. The effected soils are imported B-horizon from an area caliche pit.

Lab analysis confirmed the field and EM data that delineation locations SB1-SB4 are elevated in chlorides to depths of approximately two (2) foot. Composite Sample locations SW1-SW8 confirmed the horizontal extent of chloride or salt found by the EM survey. Composite Sample locations SW8-SW10 need to be extended due to the Hydrocarbon impacts found.

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

AEA proposes an excavation of fifteen hundred (1500) cubic yards of caliche and native soil to remediate the top four (4) feet of the pad to be compliant with, 19.15.29.13(D)(1) NMAC says "The reclamation must contain a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0."

DL 10 15 OGOPOGO FEDERAL COM #422H  
January 30, 2023

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

All contaminated soil from the location will be hauled to a NMOCD approved facility (waste manifest will be available upon request).

As all discovered impacts are on the locations pad this Work Plan does not address or require revegetation or restoration work.

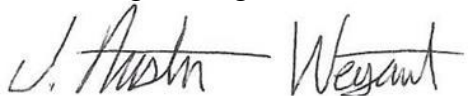
#### **4.0 Variance and Limitations**

Atkins Engineering Associates INC. (AEA) request a sample variance request from 19.15.29.D.1.c. The impacts are large in terms of horizontal area but did not substantially leach vertically. All impacts remained on pad and the post data collection activities outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000) via (VSP) show that closure sample collection at the five hundred (500) to eight hundred (800) square foot interval will still achieve the same 98% confidence interval as the standard two hundred square foot sampling plan. For these reasons AEA request a closure sample interval of 500-800 square feet.

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

A handwritten signature in black ink, appearing to read "Austin Weyant", is written over a horizontal line.

Austin Weyant  
Geoscientist

DL 10 15 OGOPOGO FEDERAL COM #422H  
January 30, 2023

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**ATTACHMENTS:**

**Figures:**

Figure 1: EM Conductivity Survey

Figure 2: Surface Water Radius Map

Figure 3: Site and Sample Location Map

Figure 4: Pipeline map

**Tables:**

Table 2: NMOCD Closure Criteria

Justification Table 3a: Summary of Initial  
Sample Results

**Appendices:**

Appendix A: Form C141

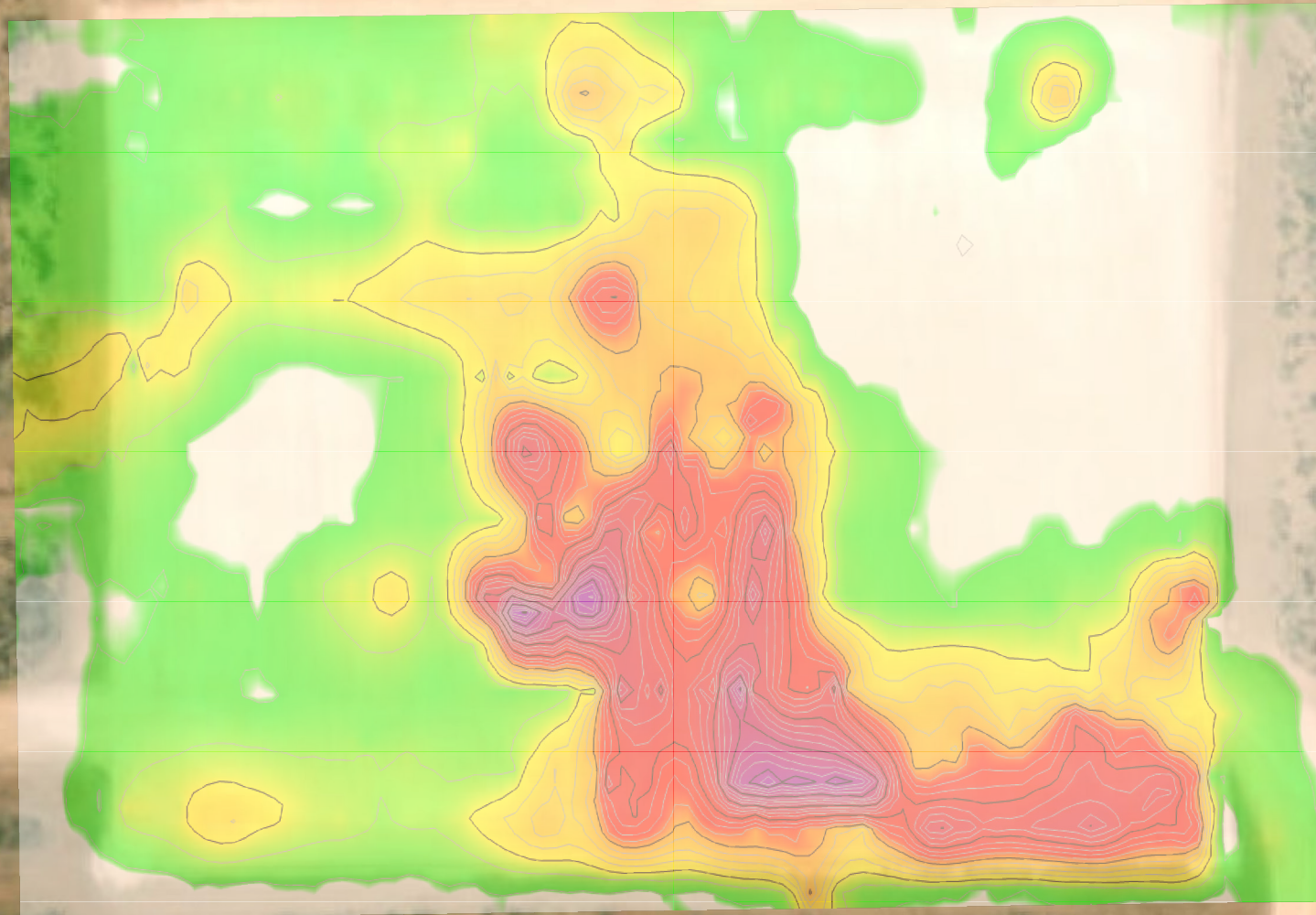
Appendix B: NMOSE Wells Report Appendix

C: VSP Sampling Protocol Appendix D:

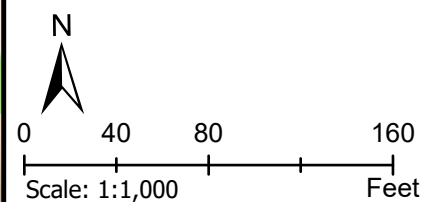
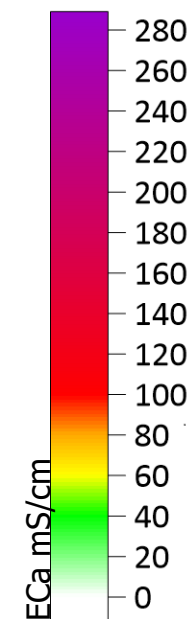
Laboratory Analytical Reports

# FIGURES





**LEGEND**  
● WellGIS



JOB No. Ogopogo\_env\_22

DATE FIELD: 12/9/22 DRAWN JAW

DATE DRAWN: 12/12/2022 REVIEW LCM

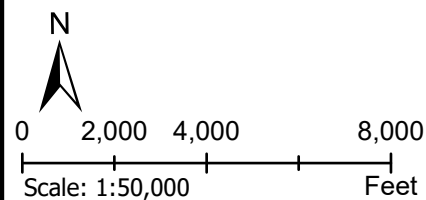


**FIGURE 2**  
**Ogopogo API 49907**  
**Setback Map**

## LEGEND

- Apx\_Clip
- OSE\_PODs
- Lakes\_Playas
- Flowlines\_SENM
- Springs\_Seeps

ECa mS/cm



JOB No. Ogopogo\_env\_22

DATE FIELD: 12/9/22

DRAWN JAW

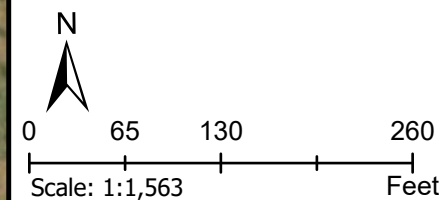
DATE DRAWN: 12/30/2022 REVIEW LCM

**Atkins**  
 ENGINEERING ASSOCIATES



## LEGEND

- Location
- WellGIS
- [ - - ] Apx\_Clip



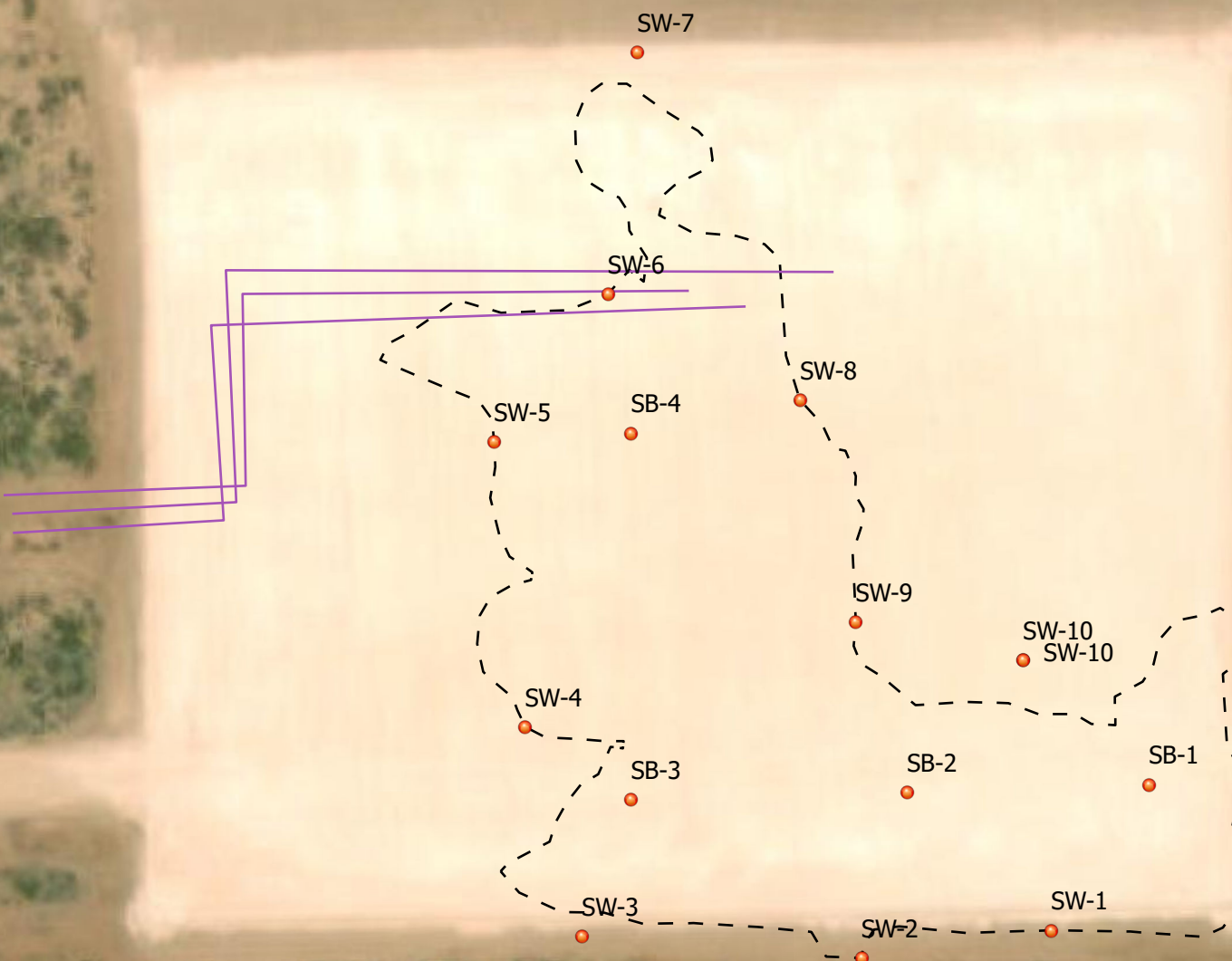
JOB No. Ogopogo\_env\_22

DATE FIELD: 12/9/22      DRAWN JAW

DATE DRAWN: 12/30/2022 REVIEW LCM





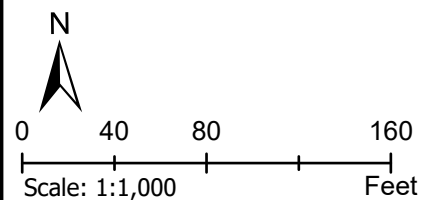


## LEGEND

[ - - ] Apx. Release Area

— Pipeline

● Location



JOB No. Ogopogo\_env\_22

DATE FIELD: 12/9/22 DRAWN JAW

DATE DRAWN: 1/26/2023 REVIEW LCM

# TABLES

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes
Depth to Groundwater (feet bgs)	51-100 ft	NMOSE shothole records
Horizontal Distance From All Water Sources Within 1/2 Mile (ft)	3.5 miles	USA Topo
Horizontal Distance to Nearest Significant Watercourse (ft)	3.5 miles	USA Topo

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater		Closure Criteria (units in mg/kg)				
		Chloride *numerical limit or background, whichever is greater	TPH	GRO + DRO	BTEX	Benzene
< 50' BGS		600	100		50	10
51' to 100'		10000	2500	1000	50	10
>100'		20000	2500	1000	50	10
Surface Water	yes or no	if yes, then				
<300' from continuously flowing watercourse or other significant watercourse?	no	600	100		50	10
<200' from lakebed, sinkhole or playa lake?	no					
Water Well or Water Source						
<500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	no					
<1000' from fresh water well or spring?	no					
Human and Other Areas						
<300' from an occupied permanent residence, school, hospital, institution or church?	no					
within incorporated municipal boundaries or within a defined municipal fresh water well field?	no					
<100' from wetland?	no					
within area overlying a subsurface mine	no					
within an unstable area?	no					
within a 100-year floodplain?	no					

Sample ID	Sample Date	Depth (feet bgs)	Proposed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMED Deleni Criteria				50	10				100	600
SB1 (0-1.5)	1/17/2023	0-1.5	excavate	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	2340
SB1 (2)	1/17/2023	2	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	84.1
SB1 (3)	1/17/2023	3	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	63.9
SB2 (0-1.5)	1/17/2023	0-1.5	excavate	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	5280
SB2 (2)	1/17/2023	2	excavate	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	782
SB2 (3)	1/17/2023	3	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	96
SB3 (0-1.5)	1/17/2023	0-1.5	excavate	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	1650
SB3 (2)	1/17/2023	2	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	112
SB3 (3)	1/17/2023	3	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	78.2
SB4 (0-1.5)	1/17/2023	0-1.5	excavate	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	2220
SB4 (3)	1/17/2023	3	excavate	<0.0250	<0.0251	<20.0	80.5	256	336.5	461
SB4 (4)	1/17/2023	4	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	<20
SW1	1/17/2023	0.5	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	138
SW2	1/17/2023	0.5	in-situ	<0.0250	<0.0251	<20.0	48.2	<50.0	48.2	20.4
SW3	1/17/2023	0.5	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	20.4
SW4	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	634	2240	2874	80.7
SW5	1/17/2023	0.5	in-situ	<0.0250	<0.0251	<20.0	<25.0	<50.0	<95.0	710
SW6	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	160	347	507	156
SW7	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	306	257	563	243
SW8	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	1280	2270	3550	198
SW9	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	1440	2290	3730	632
SW10	1/17/2023	0.5	excavate	<0.0250	<0.0251	<20.0	138	89.3	227.3	823

"--" = Not Analyzed

# APPENDIX A FORMS C141

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

State of New Mexico  
Energy Minerals and Natural  
Resources Department

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

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

Incident ID	nAPP2230526211
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## Release Notification

### Responsible Party

Responsible Party: Chevron U.S.A., Inc.	OGRID: 4323
Contact Name: Jessica Zemen	Contact Telephone: 432-530-9187
Contact email: jessicazemen@chevron.com	Incident # (assigned by OCD)
Contact mailing address: 6301 Deauville Blvd Midland, TX 79706	

### Location of Release Source

Latitude: 32.40448 \_\_\_\_\_ Longitude: -103.55576 \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: DL 10 15 OGOPOGO FEDERAL COM #422H	Site Type: Oil
Date Release Discovered: 10/20/2022	API# (if applicable): 30-025-49906

Unit Letter	Section	Township	Range	County
I	10	22S	33E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls): 1091 bbls	Volume Recovered (bbls): 1000 bbls
	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:

A third party's main water supply line to the frac operations had an equipment failure when the manifold slid out of the manifold head clamp.

Incident ID	nAPP2230526211
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Facility ID	
Application ID	

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?  Release volume 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)?  Jessica Zemen sent an email to Mike Bratcher on 10/21/2022 detailing the release information.	

### 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>Jessica Zemen</u>	Title: <u>Lead Environmental Specialist, Field Support</u>
Signature: <u>Jessica K Zemen</u>	Date: <u>10/31/2022</u>
email: <u>jessicazemen@chevron.com</u>	Telephone: <u>432-530-9187</u>
<b><u>OCD Only</u></b>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>11/01/2022</u>

State of New Mexico  
Oil Conservation Division

Page 3

Incident ID	nAPP2230526211
District RP	
Facility ID	
Application ID	

Spill Calculations:

Area	Standing Liquid	In Soil	dimensions / shape	Oil Volume	Water Volume
1	2 inches		rectangular (169*72*0.1667)		361.27
2	0.25 inches		rectangular (135*20*0.0208)		10.02
3					
4					
5					
6					
7					
8					
Total Fluid				0	371

**6 Vacuum Trucks Loads**

6 x 120 bbls. = 720 bbls.

**Total Fluid Released**

720 bbls. + 371 bbls. = **1091 bbls.**



# APPENDIX B

## NMOSE WELLS REPORT



# 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 NO. (WELL NO.) CP-1724-POD-1 OGS North		WELL TAG ID NO.		OSE FILE NO(S).		
	WELL OWNER NAME(S) Merchant Livestock Company/Glenn's Water Well Service, Inc.				PHONE (OPTIONAL) 575-398-2424		
	WELL OWNER MAILING ADDRESS PO Box 692				CITY Tatum	STATE NM	
					ZIP 88267		
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 23	SECONDS 44.39 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84		
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE SW1/4 NW1/4 Section 18, Township 22 South, Range 34 East on Merchant Livestock Company Land							
2. DRILLING & CASING INFORMATION	LICENSE NO. WD 421		NAME OF LICENSED DRILLER Corky Glenn		NAME OF WELL DRILLING COMPANY Glenn's Water Well Service, Inc.		
	DRILLING STARTED 04/16/19	DRILLING ENDED 04/20/19	DEPTH OF COMPLETED WELL (FT) 1,172'	BORE HOLE DEPTH (FT) 1,172'	DEPTH WATER FIRST ENCOUNTERED (FT) 800'		
	COMPLETED WELL IS: <input checked="" type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 484'		
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD ADDITIVES - SPECIFY:						
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> 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 (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)
	FROM	TO					
	0	40	20"	ASTM A53 Sch 40 Steel 16" OD	None	15.5	.25
	0	799	14.75"	API Steel Grade J-55/K-55 10.75" OD	Thread & Collar	10.05	.35
	752	1,172	9.875"	Steel Casing 8 5/8" / 8.625" OD	Plain End	8.125	.25
			(420' Total) Bottom 378 Perforated				
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 yards	Top Pour	
	0	799'	14.75"	Float and Shoe Cemented to Surface 29 Barrels	325 Sacks Pumped	Circulated	

FOR OSE INTERNAL USE

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

FILE NO.	CP-1724	POD NO.	1	TRN NO.	028588
LOCATION	22S.34E.18.113			WELL TAG ID NO.	—


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	5	5	Sand	Y ✓ N	
	5	30	25	Caliche	Y ✓ N	
	30	80	50	Sand & Red Clay	Y ✓ N	
	80	450	370	Red Clay	Y ✓ N	
	450	510	60	Red Shale	Y ✓ N	
	510	580	70	Brown Shale	Y ✓ N	
	580	799	219	Brown & Red Shale	Y ✓ N	
	799	919	120	Sand Rock	✓ Y N	
	919	950	31	Red & Blue Shales Stringers of Sand	✓ Y N	75.00
	950	1,140	190	Sand Stone	✓ Y N	
	1,140	1,172	32	Red Shale	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:					TOTAL ESTIMATED WELL YIELD (gpm):	
<input type="checkbox"/> PUMP <input checked="" type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:					75.00	

5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	MISCELLANEOUS INFORMATION:  0' to 799' drilled with mud. 799' to 1,172' 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 30 DAYS AFTER COMPLETION OF WELL DRILLING:	
 SIGNATURE OF DRILLER / PRINT SIGNEE NAME	Corky Glenn	5/16/19 DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD &amp; LOG (Version 06/30/2017)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 2 OF 2



# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

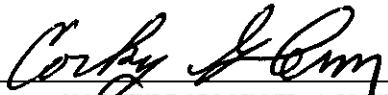
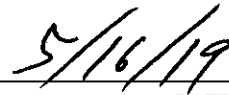
[www.ose.state.nm.us](http://www.ose.state.nm.us)

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) CP-1724-POD-1 OGS North		WELL TAG ID NO.		OSE FILE NO(S)			
	WELL OWNER NAME(S) Merchant Livestock Company/Glenn's Water Well Service, Inc.				PHONE (OPTIONAL) 575-398-2424			
	WELL OWNER MAILING ADDRESS PO Box 692				CITY Tatum	STATE NM	ZIP 88267	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 23	SECONDS 44.39 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE -103	31	1.34 W	* DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE SW1/4 NW1/4 NW1/4 Section 18, Township 22 South, Range 34 East on Merchant Livestock Company Land								
2. DRILLING & CASING INFORMATION	LICENSE NO. WD 421		NAME OF LICENSED DRILLER Corky Glenn			NAME OF WELL DRILLING COMPANY Glenn's Water Well Service, Inc.		
	DRILLING STARTED 04/16/19	DRILLING ENDED 04/20/19	DEPTH OF COMPLETED WELL (FT) 1,172'	BORE HOLE DEPTH (FT) 1,172'	DEPTH WATER FIRST ENCOUNTERED (FT) 800'			
	COMPLETED WELL IS: <input checked="" type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 484'			
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> 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 (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	40	20"	ASTM A53 Sch 40 Steel 16" OD	None	15.5	.25	---
	0	799	14.75"	API Steel Grade J-55/K-55 10.75" OD	Thread & Collar	10.05	.35	---
	752	1,172	9.875"	Steel Casing 8 5/8" / 8.625" OD	Plain End	8.125	.25	1/8"
			(420' Total) Bottom 378 Perforated					
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 yards	Top Pour		
	0	799'	14.75"	Float and Shoe Cemented to Surface 29 Barrels	325 Sacks Pumped	Circulated		

FOR OSE INTERNAL USE

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

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	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	5	5	Sand	Y ✓ N	
	5	30	25	Caliche	Y ✓ N	
	30	80	50	Sand & Red Clay	Y ✓ N	
	80	450	370	Red Clay	Y ✓ N	
	450	510	60	Red Shale	Y ✓ N	
	510	580	70	Brown Shale	Y ✓ N	
	580	799	219	Brown & Red Shale	Y ✓ N	
	799	919	120	Sand Rock	✓ Y N	
	919	950	31	Red & Blue Shales Stringers of Sand	✓ Y N	75.00
	950	1,140	190	Sand Stone	✓ Y N	
	1,140	1,172	32	Red Shale	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="checkbox"/> PUMP <input checked="" type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:					TOTAL ESTIMATED WELL YIELD (gpm): 75.00	
5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	MISCELLANEOUS INFORMATION:  0' to 799' drilled with mud. 799' to 1,172' 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 30 DAYS AFTER COMPLETION OF WELL DRILLING:  <div style="display: flex; justify-content: space-between;"> <div>             SIGNATURE OF DRILLER / PRINT SIGNEE NAME         </div> <div>           Corky Glenn            DATE         </div> <div>             DATE         </div> </div>					

FOR OSE INTERNAL USE

WR-20 WELL RECORD &amp; LOG (Version 06/30/2017)

FILE NO. CP-124	POD NO. 1	TRN NO. 628588
LOCATION	WELL TAG ID NO.	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 NO. (WELL NO.) POD1 (TW-1)		WELL TAG ID NO.		OSE FILE NO(S). CP-1899		
	WELL OWNER NAME(S) Marathon Oil				PHONE (OPTIONAL)		
	WELL OWNER MAILING ADDRESS 4111 S Tidwell Rd.				CITY Carlsbad	STATE NM	
					ZIP 88220		
WELL LOCATION (FROM GPS)	DEGREES 32		MINUTES 23	SECONDS 59.07	N		
	LONGITUDE 103		35	16.17	W		
* ACCURACY REQUIRED: ONE TENTH OF A SECOND							
* DATUM REQUIRED: WGS 84							
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE SE SE SE Sec. 09 T22S R33E, NMPM							
2. DRILLING & CASING INFORMATION	LICENSE NO. 1249		NAME OF LICENSED DRILLER Jackie D. Atkins		NAME OF WELL DRILLING COMPANY Atkins Engineering Associates, Inc.		
	DRILLING STARTED 2/9/2022	DRILLING ENDED 2/24/2022	DEPTH OF COMPLETED WELL (FT) temporary casing		BORE HOLE DEPTH (FT) ±101	DEPTH WATER FIRST ENCOUNTERED (FT) n/a	
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) n/a	DATE STATIC MEASURED 2/24/22, 3/8/2022	
	DRILLING FLUID: <input type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:						
	DRILLING METHOD: <input type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input checked="" type="checkbox"/> OTHER - SPECIFY: Hollow Stem Auger					CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>	
	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)
	0 101		±8.5	Boring	--	--	--
3. ANNULAR MATERIAL	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT	

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO.	CP-1899	POD NO.	POD1	TRN NO.	717713
LOCATION	SESESE	8 22S	33E	WELL TAG ID NO.	NA
					PAGE 1 OF 2

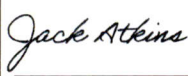


4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	FROM	TO				
	0	9	9	Sand, Fine-grained, poorly graded with caliche, Brown	Y ✓ N	
	9	19	10	Sand, Fine-grained, poorly graded with caliche, Tan	Y ✓ N	
	19	34	15	Sand, Fine-grained, poorly graded with sub-angular gravel, Tan	Y ✓ N	
	34	44	10	Sand, Fine-grained, poorly graded, Tan	Y ✓ N	
	44	49	5	Sand, Fine-grained, poorly graded with sub-angular gravel, Brown	Y ✓ N	
	49	101	52	Clay, with sand ,Dry, Brown	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER – SPECIFY:					TOTAL ESTIMATED WELL YIELD (gpm): 0.00	

5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	MISCELLANEOUS INFORMATION: Temporary well materials removed and he soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips ten feet below ground surface to surface.	
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Shane Eldridge, Cameron Pruitt	

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 30 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER / PRINT SIGNEE NAME	Jackie D. Atkins 3/10/2022 DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD &amp; LOG (Version 01/28/2022)

FILE NO. CP-1899	POD NO. 2001	TRN NO. 717713
LOCATION S E S E S E	8 225 33E	WELL TAG ID NO. NA

PAGE 2 OF 2

Mike A. Hamman, P.E.  
State Engineer



Roswell Office  
1900 WEST SECOND STREET  
ROSWELL, NM 88201

**STATE OF NEW MEXICO**  
**OFFICE OF THE STATE ENGINEER**

Trn Nbr: 717713  
File Nbr: CP 01899  
Well File Nbr: CP 01899 POD1

Mar. 22, 2022

MELODIE SANJARI  
MARATHON OIL  
4111 S TIDWELL RD  
CARLSBAD, NM 88220

Greetings:


The above numbered permit was issued in your name on 01/31/2022.

The Well Record was received in this office on 03/11/2022, stating that it had been completed on 02/24/2022, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 01/31/2023.

If you have any questions, please feel free to contact us.

Sincerely,



Megen Telles  
(575) 622-6521

drywell



# APPENDIX C

## VSP SAMPLING PROTOCOL

## VSP Sample Design Report for Calculating a Two-Sided Confidence Interval for the Population Mean Using Systematic Grid Sampling

### Summary

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

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

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Construct a Confidence Interval on the True Mean
Type of Sampling Design	Parametric
Sample Placement (Location) in the Field	Systematic sampling with a random start location
Formula for calculating number of sampling locations	Confidence Limits using Student's t-distribution
Calculated total number of samples	4
Number of samples on map <sup>a</sup>	4
Number of selected sample areas <sup>b</sup>	1
Specified sampling area <sup>c</sup>	9812.89 ft <sup>2</sup>
Size of grid / Area of grid cell <sup>d</sup>	49.53 feet / 2453.22 ft <sup>2</sup>
Grid pattern	Square
Total cost of sampling <sup>e</sup>	\$7,840.00

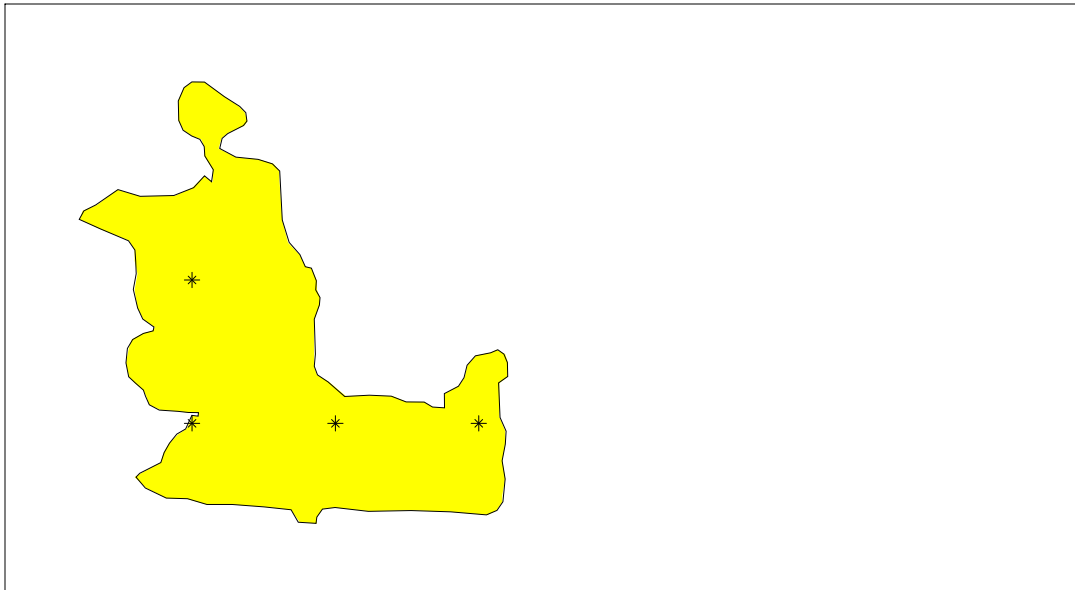
<sup>a</sup> This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.

<sup>b</sup> The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

<sup>c</sup> The sampling area is the total surface area of the selected colored sample areas on the map of the site.

<sup>d</sup> Size of grid / Area of grid cell gives the linear and square dimensions of the grid used to systematically place samples.

<sup>e</sup> Including measurement analyses and fixed overhead costs. See the Cost of Sampling section for an explanation of the costs presented here.



Area: Ogopogo						
X Coord	Y Coord	Label	Value	Type	Historical	Sample Area
-11527786.1788	3816448.0692			Systematic		
-11527736.6487	3816448.0692			Systematic		
-11527687.1187	3816448.0692			Systematic		
-11527786.1788	3816497.5992			Systematic		

### Primary Sampling Objective

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

### Selected Sampling Approach

A parametric design was used to determine the number of samples. A parametric formula was chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that parametric assumptions are true. These assumptions will be examined in post-sampling data analysis.

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

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

### Number of Total Samples: Calculation Equation and Inputs

The equation used to calculate the number of samples is based on a confidence interval calculation using the Student's t-distribution. The formula used to calculate the number of samples is:

$$n = \left( \frac{t_{1-\alpha/2, df}}{d} \right)^2 \left( S_{sample}^2 + \frac{S_{analytical}^2}{r} \right)$$

where

$n$  is the recommended minimum sample size for the study area,

$S_{sample}$  is the estimated standard deviation due to the inherent variability in the sampling process when analytical error is zero,

$S_{analytical}$  is the estimated standard deviation due to the inherent variability in the analysis process alone,

$r$  is the number of times an individual sample is analyzed,

$\alpha$  is the maximum acceptable probability that the true mean will not lie in the confidence interval (the confidence level is  $1-\alpha$ ),

$d$  is the half-width of the confidence interval,

$t_{1-\alpha/2, df}$  is the value of the Student's t-distribution with  $df=n-1$  degrees of freedom such that the proportion of the distribution less than  $t_{1-\alpha/2}$  is  $1-\alpha/2$ .

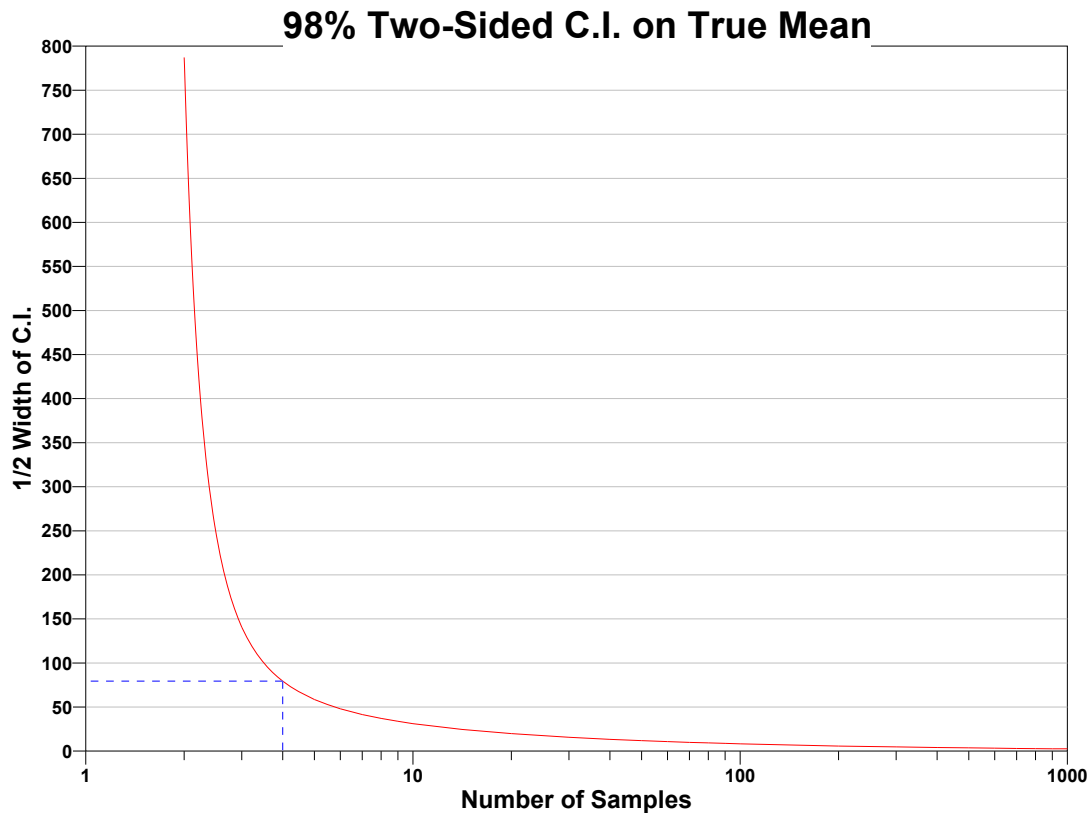
Because  $n$  appears on both sides of the equation (on the right side it appears in the degrees of freedom of the t-statistic), the equation must be solved iteratively. VSP does this automatically using the iteration scheme in Gilbert (1987, pg. 32).

The values of these inputs that result in the calculated number of sampling locations are:

Analyte	n	Parameter					
		$S_{sample}$	$S_{analytical}$	$r$	$d$	$\alpha$	$t_{1-\alpha/2, df}$
Analyte 1	4	18	30	1	600	2%	-1e+12 <sup>a</sup>

<sup>a</sup> This value is automatically calculated by VSP based upon the user defined value of  $\alpha$ .

The following figure is a graph representing the relationship between the half-width of the confidence interval and the number of samples. The blue dashed line illustrates the specified maximum desirable confidence interval half-width. Where this dashed line intersects the red curve is the number of samples calculated by VSP.



### Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the sample mean is normally distributed,
2. the population values are not spatially or temporally correlated, and
3. the sampling locations will be selected probabilistically.

The first two assumptions will be assessed in a post data collection analysis. The last assumption is valid because the gridded sample locations were selected based on a random start.

### Sensitivity Analysis

The sensitivity of the calculation of number of samples was explored by varying the analytical standard deviation, confidence level ( $1-\alpha$ ) (%), width of confidence interval and sampling standard deviation. The following table shows the results of this analysis.

Number of Samples					
		$s_{\text{sample}}=36$		$s_{\text{sample}}=18$	
		$s_{\text{analytical}}=36$	$s_{\text{analytical}}=18$	$s_{\text{analytical}}=36$	$s_{\text{analytical}}=18$
CL=99	d=300	3	2	2	1
	d=600	1	1	1	1
	d=900	1	1	1	4
CL=97	d=300	1	1	1	4
	d=600	4	3	3	1
	d=900	2	1	1	1
CL=95	d=300	1	3	3	2
	d=600	2	1	1	1
	d=900	1	1	1	1

<b>CL=93</b>	<b>d=300</b>	3	2	2	1
	<b>d=600</b>	1	1	1	1
	<b>d=900</b>	1	1	1	1
<b>CL=91</b>	<b>d=300</b>	2	1	1	1
	<b>d=600</b>	1	1	1	1
	<b>d=900</b>	1	1	1	1

$s_{\text{analytical}}$  = Analytical Standard Deviation

CL = Confidence Level  $(1-\alpha)$  (%)

d = Width of Confidence Interval

$s_{\text{sample}}$  = Sampling Standard Deviation

### Cost of Sampling

The total cost of the completed sampling program depends on several cost inputs, some of which are fixed, and others that are based on the number of samples collected and measured. Based on the numbers of samples determined above, the estimated total cost of sampling and analysis at this site is \$7,840.00, which averages out to a per sample cost of \$1,960.00. The following table summarizes the inputs and resulting cost estimates.

<b>COST INFORMATION</b>			
<b>Cost Details</b>	<b>Per Analysis</b>	<b>Per Sample</b>	<b>4 Samples</b>
Field collection costs		\$35.00	\$140.00
Analytical costs (Analyte 1)	\$675.00	\$675.00	\$2,700.00
<b>Sum of Field &amp; Analytical costs</b>		<b>\$710.00</b>	<b>\$2,840.00</b>
Fixed planning and validation costs			\$5,000.00
<b>Total cost</b>			<b>\$7,840.00</b>

### Recommended Data Analysis Activities

Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment (EPA, 2000). The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

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

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This design was last modified 12/30/2022 1:14:57 PM.

Software and documentation available at <https://www.pnnl.gov/projects/visual-sample-plan>

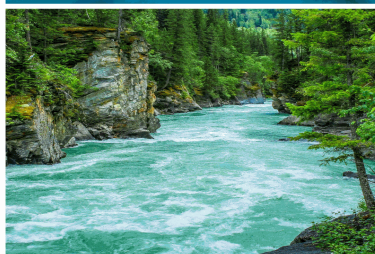
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\* - The report contents may have been modified or reformatted by end-user of software.

# APPENDIX D

## LABORATORY ANALYTICAL REPORTS

Report to:  
Austin Weyant



5796 U.S. Hwy 64  
Farmington, NM 87401

Phone: (505) 632-1881  
Envirotech-inc.com



# envirotech

*Practical Solutions for a Better Tomorrow*

## Analytical Report

Atkins Engineering Associates Inc.

Project Name: OGO POGO

Work Order: E301103

Job Number: 20071-0001

Received: 1/20/2023

Revision: 1

Report Reviewed By:

Walter Hinchman  
Laboratory Director  
1/24/23

Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.  
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.  
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.  
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.  
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.  
Envirotech Inc. holds the NM SDWA certification for data reported. (Lab #NM00979)



Date Reported: 1/24/23

Austin Weyant  
2904 W. 2nd  
Roswell, NM 88201



Project Name: OGO POGO  
Workorder: E301103  
Date Received: 1/20/2023 7:00:00AM

Austin Weyant,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 1/20/2023 7:00:00AM, under the Project Name: OGO POGO.

The analytical test results summarized in this report with the Project Name: OGO POGO apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

**Walter Hinchman**  
Laboratory Director  
Office: 505-632-1881  
Cell: 775-287-1762  
[whinchman@envirotech-inc.com](mailto:whinchman@envirotech-inc.com)

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Technical Representative  
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## Sample Summary

Atkins Engineering Associates Inc. 2904 W. 2nd Roswell NM, 88201	Project Name: OGO POGO Project Number: 20071-0001 Project Manager: Austin Weyant	Reported: 01/24/23 12:01
--	--	-----------------------------

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
SB1 - (0 - 1.5)	E301103-01A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB1 - 2	E301103-02A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB1 - 3	E301103-03A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB2 - (0 - 1 1/2)	E301103-04A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB2 - 2	E301103-05A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB2 - 3	E301103-06A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB3 - (0 - 1.5)	E301103-07A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB3 - 2'	E301103-08A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB3 - 3	E301103-09A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB4 - (0 - 1.5)	E301103-10A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB4 - 3'	E301103-11A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW1	E301103-12A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW2	E301103-13A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW3	E301103-14A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW4	E301103-15A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW5	E301103-16A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW6	E301103-17A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW7	E301103-18A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW8	E301103-19A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW9	E301103-20A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SW10	E301103-21A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.
SB4 - 4'	E301103-22A	Soil	01/17/23	01/20/23	Glass Jar, 2 oz.



## Sample Data

Atkins Engineering Associates Inc. 2904 W. 2nd Roswell NM, 88201	Project Name: OGO POGO Project Number: 20071-0001 Project Manager: Austin Weyant	Reported: 1/24/2023 12:01:48PM
--	--	-----------------------------------

## SB1 - (0 - 1.5)

## E301103-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.8 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.8 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	99.9 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	2340	40.0	2	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB1 - 2

## E301103-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.6 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.6 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	103 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	84.1	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB1 - 3

## E301103-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	93.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	93.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	98.2 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	63.9	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB2 - (0 - 1 1/2)

## E301103-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.2 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.2 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	93.1 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	5280	200	10	01/20/23	01/20/23	





## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB2 - 2

## E301103-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.1 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.1 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	102 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	782	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB2 - 3

## E301103-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	101 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.2 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	101 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.2 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	101 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	96.0	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB3 - (0 - 1.5)

## E301103-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.9 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.5 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.9 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.5 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	101 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	1650	200	10	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB3 - 2'

## E301103-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	102 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	112	40.0	2	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB3 - 3

## E301103-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.0 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.4 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.0 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.4 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	99.7 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	78.2	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SB4 - (0 - 1.5)

## E301103-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	101 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	101 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	101 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	2220	40.0	2	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

SB4 - 3'

E301103-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.4 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.4 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	96.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	80.5	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	256	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	65.5 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	461	20.0	1	01/20/23	01/20/23	





## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW1

## E301103-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	94.8 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.9 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	94.8 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	96.9 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/21/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/21/23	
Surrogate: n-Nonane	105 %	50-200		01/20/23	01/21/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	138	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW2

## E301103-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.6 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.1 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	96.6 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.7 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.1 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	48.2	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	105 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	20.4	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW3

## E301103-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.4 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.6 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.4 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.6 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	95.9 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	20.4	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW4

## E301103-15

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	99.5 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	99.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	99.5 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.0 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
Surrogate: n-Nonane	106 %	50-200		01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	80.7	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW5

## E301103-16

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.2 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	98.6 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	634	25.0	1	01/20/23	01/21/23	
Oil Range Organics (C28-C36)	2240	50.0	1	01/20/23	01/21/23	
Surrogate: n-Nonane	102 %	50-200		01/20/23	01/21/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	710	20.0	1	01/20/23	01/20/23	





## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW6

## E301103-17

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	100 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.1 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	100 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	99.8 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	160	25.0	1	01/20/23	01/23/23	
Oil Range Organics (C28-C36)	347	50.0	1	01/20/23	01/23/23	
Surrogate: n-Nonane	108 %	50-200		01/20/23	01/23/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	156	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

SW7

E301103-18

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.5 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.5 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	95.7 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.5 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.5 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	95.7 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	306	25.0	1	01/20/23	01/23/23	
Oil Range Organics (C28-C36)	257	50.0	1	01/20/23	01/23/23	
Surrogate: n-Nonane	108 %	50-200		01/20/23	01/23/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	243	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW8

## E301103-19

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.9 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	98.3 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	97.9 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.4 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	1280	500	20	01/20/23	01/23/23	
Oil Range Organics (C28-C36)	2270	1000	20	01/20/23	01/23/23	
Surrogate: n-Nonane	97.7 %	50-200		01/20/23	01/23/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	198	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW9

## E301103-20

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organic Compounds by EPA 8260B</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.8 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.7 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: IY		Batch: 2303068
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
Surrogate: Bromofluorobenzene	97.8 %	70-130		01/20/23	01/20/23	
Surrogate: 1,2-Dichloroethane-d4	98.3 %	70-130		01/20/23	01/20/23	
Surrogate: Toluene-d8	97.7 %	70-130		01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303061
Diesel Range Organics (C10-C28)	1440	250	10	01/20/23	01/23/23	
Oil Range Organics (C28-C36)	2290	500	10	01/20/23	01/23/23	
Surrogate: n-Nonane	108 %	50-200		01/20/23	01/23/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303075
Chloride	632	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

## SW10

## E301103-21

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg		Analyst: SL		Batch: 2303066
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		104 %	70-130	01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: SL		Batch: 2303066
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		97.4 %	70-130	01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2303065
Diesel Range Organics (C10-C28)	138	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	89.3	50.0	1	01/20/23	01/20/23	
<i>Surrogate: n-Nonane</i>						
		92.9 %	50-200	01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2303072
Chloride	823	20.0	1	01/20/23	01/20/23	



## Sample Data

Atkins Engineering Associates Inc.  
2904 W. 2nd  
Roswell NM, 88201

Project Name: OGO POGO  
Project Number: 20071-0001  
Project Manager: Austin Weyant

**Reported:**  
1/24/2023 12:01:48PM

SB4 - 4'

E301103-22

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg	Analyst: SL		Batch: 2303066	
Benzene	ND	0.0250	1	01/20/23	01/20/23	
Ethylbenzene	ND	0.0250	1	01/20/23	01/20/23	
Toluene	ND	0.0250	1	01/20/23	01/20/23	
o-Xylene	ND	0.0250	1	01/20/23	01/20/23	
p,m-Xylene	ND	0.0500	1	01/20/23	01/20/23	
Total Xylenes	ND	0.0250	1	01/20/23	01/20/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		104 %	70-130	01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg	Analyst: SL		Batch: 2303066	
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/20/23	01/20/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		99.4 %	70-130	01/20/23	01/20/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg	Analyst: KM		Batch: 2303065	
Diesel Range Organics (C10-C28)	ND	25.0	1	01/20/23	01/20/23	
Oil Range Organics (C28-C36)	ND	50.0	1	01/20/23	01/20/23	
<i>Surrogate: n-Nonane</i>						
		85.8 %	50-200	01/20/23	01/20/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg	Analyst: BA		Batch: 2303072	
Chloride	ND	20.0	1	01/20/23	01/20/23	





## QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	Reported:
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

## Volatile Organic Compounds by EPA 8260B

Analyst: IY

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

## Blank (2303068-BLK1)

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	0.488		0.500		97.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.495		0.500		98.9	70-130			
Surrogate: Toluene-d8	0.487		0.500		97.3	70-130			

## LCS (2303068-BS1)

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	2.45	0.0250	2.50		98.1	70-130			
Ethylbenzene	2.20	0.0250	2.50		87.9	70-130			
Toluene	2.22	0.0250	2.50		88.8	70-130			
o-Xylene	2.30	0.0250	2.50		92.0	70-130			
p,m-Xylene	4.42	0.0500	5.00		88.5	70-130			
Total Xylenes	6.72	0.0250	7.50		89.6	70-130			
Surrogate: Bromofluorobenzene	0.507		0.500		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.486		0.500		97.2	70-130			
Surrogate: Toluene-d8	0.485		0.500		97.0	70-130			

## Matrix Spike (2303068-MS1)

Source: E301103-01

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	2.93	0.0250	2.50	ND	117	48-131			
Ethylbenzene	2.63	0.0250	2.50	ND	105	45-135			
Toluene	2.66	0.0250	2.50	ND	106	48-130			
o-Xylene	2.73	0.0250	2.50	ND	109	43-135			
p,m-Xylene	5.27	0.0500	5.00	ND	105	43-135			
Total Xylenes	7.99	0.0250	7.50	ND	107	43-135			
Surrogate: Bromofluorobenzene	0.499		0.500		99.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.489		0.500		97.8	70-130			
Surrogate: Toluene-d8	0.485		0.500		97.0	70-130			

## Matrix Spike Dup (2303068-MSD1)

Source: E301103-01

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	2.83	0.0250	2.50	ND	113	48-131	3.31	23	
Ethylbenzene	2.55	0.0250	2.50	ND	102	45-135	2.86	27	
Toluene	2.57	0.0250	2.50	ND	103	48-130	3.50	24	
o-Xylene	2.66	0.0250	2.50	ND	107	43-135	2.39	27	
p,m-Xylene	5.13	0.0500	5.00	ND	103	43-135	2.67	27	
Total Xylenes	7.79	0.0250	7.50	ND	104	43-135	2.57	27	
Surrogate: Bromofluorobenzene	0.497		0.500		99.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.484		0.500		96.7	70-130			
Surrogate: Toluene-d8	0.481		0.500		96.1	70-130			



## QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	<b>Reported:</b>
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

## Volatile Organics by EPA 8021B

Analyst: SL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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## Blank (2303066-BLK1)

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	8.22		8.00		103	70-130			

## LCS (2303066-BS1)

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	5.20	0.0250	5.00		104	70-130			
Ethylbenzene	5.59	0.0250	5.00		112	70-130			
Toluene	5.62	0.0250	5.00		112	70-130			
o-Xylene	5.74	0.0250	5.00		115	70-130			
p,m-Xylene	11.3	0.0500	10.0		113	70-130			
Total Xylenes	17.1	0.0250	15.0		114	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.20		8.00		102	70-130			

## LCS Dup (2303066-BSD1)

Prepared: 01/20/23 Analyzed: 01/20/23

Benzene	4.92	0.0250	5.00		98.4	70-130	5.44	20	
Ethylbenzene	5.29	0.0250	5.00		106	70-130	5.58	20	
Toluene	5.33	0.0250	5.00		107	70-130	5.43	20	
o-Xylene	5.43	0.0250	5.00		109	70-130	5.55	20	
p,m-Xylene	10.7	0.0500	10.0		107	70-130	5.54	20	
Total Xylenes	16.2	0.0250	15.0		108	70-130	5.54	20	
Surrogate: 4-Bromochlorobenzene-PID	8.22		8.00		103	70-130			



QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	Reported:
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: SL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2303066-BLK1) Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.95		8.00		99.4	70-130			

LCS (2303066-BS2) Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	51.6	20.0	50.0		103	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.95		8.00		99.4	70-130			

LCS Dup (2303066-BSD2) Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	57.8	20.0	50.0		116	70-130	11.3	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.03		8.00		100	70-130			



## QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	<b>Reported:</b>
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

## Nonhalogenated Organics by EPA 8015D - GRO

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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## Blank (2303068-BLK1)

Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.488		0.500		97.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.495		0.500		98.9	70-130			
Surrogate: Toluene-d8	0.487		0.500		97.3	70-130			

## LCS (2303068-BS2)

Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	53.1	20.0	50.0		106	70-130			
Surrogate: Bromofluorobenzene	0.489		0.500		97.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.484		0.500		96.7	70-130			
Surrogate: Toluene-d8	0.483		0.500		96.6	70-130			

## Matrix Spike (2303068-MS2)

Source: E301103-01

Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	62.5	20.0	50.0	ND	125	70-130			
Surrogate: Bromofluorobenzene	0.496		0.500		99.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.491		0.500		98.1	70-130			
Surrogate: Toluene-d8	0.488		0.500		97.5	70-130			

## Matrix Spike Dup (2303068-MSD2)

Source: E301103-01

Prepared: 01/20/23 Analyzed: 01/20/23

Gasoline Range Organics (C6-C10)	60.4	20.0	50.0	ND	121	70-130	3.40	20	
Surrogate: Bromofluorobenzene	0.497		0.500		99.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.505		0.500		101	70-130			
Surrogate: Toluene-d8	0.482		0.500		96.4	70-130			



QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	Reported:
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2303061-BLK1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	51.5		50.0		103	50-200			

LCS (2303061-BS1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Diesel Range Organics (C10-C28)	251	25.0	250		100	38-132			
Surrogate: n-Nonane	51.4		50.0		103	50-200			

Matrix Spike (2303061-MS1)				Source: E301103-01		Prepared: 01/20/23 Analyzed: 01/20/23			
Diesel Range Organics (C10-C28)	260	25.0	250	ND	104	38-132			
Surrogate: n-Nonane	49.2		50.0		98.4	50-200			

Matrix Spike Dup (2303061-MSD1)				Source: E301103-01		Prepared: 01/20/23 Analyzed: 01/20/23			
Diesel Range Organics (C10-C28)	259	25.0	250	ND	103	38-132	0.527	20	
Surrogate: n-Nonane	47.8		50.0		95.7	50-200			



## QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	<b>Reported:</b>
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

## Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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## Blank (2303065-BLK1)

Prepared: 01/20/23 Analyzed: 01/20/23

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	54.2		50.0		108	50-200			

## LCS (2303065-BS1)

Prepared: 01/20/23 Analyzed: 01/20/23

Diesel Range Organics (C10-C28)	251	25.0	250		101	38-132			
Surrogate: n-Nonane	48.3		50.0		96.5	50-200			

## Matrix Spike (2303065-MS1)

Source: E301105-02

Prepared: 01/20/23 Analyzed: 01/20/23

Diesel Range Organics (C10-C28)	273	25.0	250	ND	109	38-132			
Surrogate: n-Nonane	40.2		50.0		80.5	50-200			

## Matrix Spike Dup (2303065-MSD1)

Source: E301105-02

Prepared: 01/20/23 Analyzed: 01/20/23

Diesel Range Organics (C10-C28)	263	25.0	250	ND	105	38-132	3.70	20	
Surrogate: n-Nonane	33.5		50.0		67.0	50-200			



QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	Reported:
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

Anions by EPA 300.0/9056A

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2303072-BLK1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Chloride	ND	20.0							
LCS (2303072-BS1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Chloride	252	20.0	250		101	90-110			
LCS Dup (2303072-BSD1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Chloride	253	20.0	250		101	90-110	0.209	20	





QC Summary Data

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	Reported:
2904 W. 2nd	Project Number:	20071-0001	
Roswell NM, 88201	Project Manager:	Austin Weyant	1/24/2023 12:01:48PM

Anions by EPA 300.0/9056A

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2303075-BLK1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Chloride	ND	20.0							
LCS (2303075-BS1)					Prepared: 01/20/23 Analyzed: 01/20/23				
Chloride	259	20.0	250		103	90-110			
Matrix Spike (2303075-MS1)					Source: E301103-01		Prepared: 01/20/23 Analyzed: 01/20/23		
Chloride	2600	40.0	250	2340	106	80-120			
Matrix Spike Dup (2303075-MSD1)					Source: E301103-01		Prepared: 01/20/23 Analyzed: 01/20/23		
Chloride	2760	40.0	250	2340	168	80-120	5.74	20	M4

QC Summary Report Comment:  
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.  
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Atkins Engineering Associates Inc.	Project Name:	OGO POGO	
2904 W. 2nd	Project Number:	20071-0001	Reported:
Roswell NM, 88201	Project Manager:	Austin Weyant	01/24/23 12:01

- M4 Matrix spike recovery value is suspect since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite

Note (1): Methods marked with \*\* are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



## Project Information

## Chain of Custody

Client: ATKINS ENG	Bill To	Lab Use Only		TAT			EPA Program	
Project: DGOPOGO	Attention: ATKINS	Lab WO#	Job Number	1D	2D	3D	Standard	CWA
Project Manager: AUSTIN WEFMANT	Address:	E301103	20071-0001				X	SDWA
Address: 213 W MERMONT	City, State, Zip	Analysis and Method						
City, State, Zip: CHASBRO	Phone:	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	RCRA
Phone: @austin@ 5156263943	Email:	State						
Email: atkinsey.com		NM CO UT AZ TX						
Report due by:		Remarks						

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC	1D	2D	3D	Standard	Remarks
11:13	1/17/23	S	1202	SB1 - (0-1.5)	1							X					
11:23				SB1 - 2	2							X					
11:34				SB1 - 3	3							X					
11:58				SB2 - (0-1.5)	4							X					
11:58				SB2 - 2	5							X					
12:12				SB2 - 3	6							X					
12:33				SB3 - (0-1.5)	7							X					
12:33				SB3 - 2'	8							X					
12:33				SB3 - 3	9							X					
13:05				SB4 - (0-1.5)	10							X					

## Additional Instructions:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action.						Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.					
Sampled by:						Lab Use Only					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Received on ice: Y/N					
J. Austin Wefmant	1/18/23	9:43	Miguel Cerezo	1-18-23	9:43						
Miguel Cerezo	1-19-23	17:15	Rolando	1-19-23	17:30	T1 T2 T3					
Rolando	1-19-23	23:00	Carla Chito	1/20/23	7:00	AVG Temp °C 4					
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other						Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA					
Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.											



Client: <u>ATKINS ENG</u>					Bill To					Lab Use Only					TAT				EPA Program															
Project: <u>AUSTIN WEYANT</u>					Attention:					Lab WO# <u>E 301103</u>					Job Number <u>20071-0001</u>				1D	2D	3D	Standard	CWA	SDWA										
Project Manager: <u>AUSTIN WEYANT</u>					Address:					Analysis and Method																								
Address: <u>213 W MEADOW</u>					City, State, Zip																													
City, State, Zip <u>CARSBAR</u>					Phone:					DRO/ORO by 8015													State											
Phone: <u>515 626 3943</u>					Email:																		NM					CO					UT	
Email: <u>atkinseng.com</u>					Report due by:					GRO/DRO by 8015													Remarks											
																							BTEX by 8021					VOC by 8260					Metals 6010	
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number																													
13:05	1/17/23	S	1	SB4 - 3'	11																													
14:09				SW1	12																													
14:10				SW2	13																													
14:06				SW3	14																													
14:09				SW4	15																													
14:13				SW5	16																													
14:10				SW6	17																													
14:28				SW7	18																													
14:25				SW8	19																													
14:36				SW9	20																													

**Additional Instructions:**

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Relinquished by: (Signature) [Signature] Date 1/18/23 Time 9:43

Relinquished by: (Signature) Michelle Cuyb Date 1-18-23 Time 9:43

Relinquished by: (Signature) Lorena Lei Date 1-19-23 Time 1:50

Relinquished by: (Signature) Lorena Lei Date 1-19-23 Time 2300

Received by: (Signature) [Signature] Date 1-18-23 Time 9:43

Received by: (Signature) Lorena Lei Date 1-19-23 Time 1:50

Received by: (Signature) Carla Chut Date 1/20/23 Time 7:00

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.



## Project Information

## Chain of Custody

Page 3 of 3

Client: <u>ATKINS ENG</u>		Bill To		Lab Use Only		TAT				EPA Program			
Project: <u>AUSTIN WEYANT</u>		Attention:		Lab WO# <u>E301103</u>		Job Number <u>20071-0001</u>		1D	2D	3D	Standard	CWA	SDWA
Project Manager: <u>AUSTIN WEYANT</u>		Address:		Analysis and Method									
Address: <u>213 W MEADOW</u>		City, State, Zip											
City, State, Zip <u>CANSBAS</u>		Phone:											
Phone: <u>515 620 3943</u>		Email:											
Email: <u>atkinseng.com</u>													
Report due by:													

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC	1D	2D	3D	Standard	Remarks
14:45	1/17/23	S	1 (202)	SW10	21												
13:05	↓	↓	↓	SB4-41	22												

## Additional Instructions:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature) <u>[Signature]</u>	Date <u>1/18/23</u>	Time <u>9:43</u>	Received by: (Signature) <u>[Signature]</u>	Date <u>1-18-23</u>	Time <u>9:43</u>	Lab Use Only Received on ice: <u>Y</u> / N T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4</u>
Relinquished by: (Signature) <u>[Signature]</u>	Date <u>1-19-23</u>	Time <u>1715</u>	Received by: (Signature) <u>[Signature]</u>	Date <u>1-19-23</u>	Time <u>1730</u>	
Relinquished by: (Signature) <u>[Signature]</u>	Date <u>1-19-23</u>	Time <u>2302</u>	Received by: (Signature) <u>[Signature]</u>	Date <u>1/20/23</u>	Time <u>7:00</u>	

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

## Envirotech Analytical Laboratory

Printed: 1/20/2023 8:39:09AM

## Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Atkins Engineering Associates Inc.	Date Received:	01/20/23 07:00	Work Order ID:	E301103
Phone:	(575) 626-3993	Date Logged In:	01/19/23 15:23	Logged In By:	Caitlin Christian
Email:	austin@atkinseng.com	Due Date:	01/25/23 17:00 (3 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: CourierComments/ResolutionSample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
  - Sample ID? Yes
  - Date/Time Collected? Yes
  - Collectors name? No

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: na

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.





**District I**

1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**

811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 186369

**CONDITIONS**

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID: 4323
	Action Number: 186369
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved with Conditions. The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater. Composite confirmation samples will be collected from the bottom and sidewalls of the excavation from areas representing no more than four hundred (400) square feet. Lateral delineation was not achieved at sample points SW4 through SW10. Sidewall samples should be delineated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Delineation is based on laboratory analysis.	2/27/2023