

Incident ID	nOY1809252064
District RP	1RP-5004
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?	≥ 55 _____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

### **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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 11/2/2023

email: msanjari@marathonoil.com Telephone: 575-988-8753

**OCD Only**

Received by: Shelly Wells Date: 11/2/2023

Incident ID	nOY1809252064
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## Closure

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

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

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

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

Printed Name: Melodie Sanjari Title: Environmental Professional  
Signature: Melodie Sanjari Date 11/2/2023  
email: msanjari@marathonoil.com Telephone: 575-988-8753

**OCD Only**

Received by: Shelly Wells Date: 11/2/2023

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

CARMONA RESOURCES



November 1, 2023

New Mexico Oil Conservation Division  
1220 South St, Francis Drive  
Santa Fe, NM 87505

**Re: Amendment to Closure Report  
Nighthawk State Com 3H  
Marathon Oil Corporation  
NOY1809252064 & NOY1816556237  
1RP-5004 & 1RP-5094  
Site Location: Unit O, S20, T18S, R35E  
(Lat 32.7266235°, Long -103.4785538°)  
Lea County, New Mexico**

To Whom It May Concern:

On behalf of Marathon Oil Corporation (Marathon), Carmona Resource, LLC has prepared this letter to document additional site activities for the Nighthawk State Com 3H. The site is located at the GPS 32.7266235°, -103.4785538° within Unit O, S20, T18S, R35E in Lea County, New Mexico.

### **1.0 Site Information and Background**

#### **1RP-5004 / NOY1809252064 & NOY1816556237/1RP-5094**

On May 26, 2023, and June 8, 2023, the New Mexico OCD denied the closure report for the following reason: "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. If evidence of depth to groundwater within a ½ mile radius of the site cannot be provided, impacted soils will need to meet Table 1 Closure Criteria for groundwater at a depth of 50 feet or less. A deferral cannot be granted on a release if the depth to water is <50' depth to groundwater. The point in question for NOY1816556237 (1RP-5094) is BH18-01 on the map (Figure 2). This point returned results above the most stringent closure standards/reclamation standards that drive horizontal delineation. Please submit a revised closure report by 9/6/2023."

On September 26, 2023, for incident number NOY1809252064 (1RP-5004) the New Mexico OCD denied the closure report for the following reason: "The report does not address the reason for rejection sent to the operator on 3/15/2023. When using the closure standards according to 19.15.29 NMAC the release must be laterally delineated to the most stringent closure criteria as discussed in 19.15.29.13 D. (1) NMAC." Horizontal delineation submitted was incomplete for BH15-03 and did not meet the requirements of 19.15.29.11 NMAC. The values for determination of horizontal impact are derived by either approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved

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Midland, Texas 79701  
432.813.1992





“background” values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation. Clarify whether BH18-02 was fully encompassed by the excavation. If it was not further horizontal delineation at BH18-02 will need to be completed. The February 2019 report written by Vertex states “The liner within the heater treater containment area was inspected for integrity and found to be ripped in two (2) places.” Pictures included in the report also show liner integrity was not intact. Per 19.15.29.11 A.(5)(b) If the responsible party is unable to demonstrate liner integrity or the release occurred outside of a lined containment area, the responsible party must delineate the release horizontally and vertically using Table I of 19.15.29.12 NMAC constituents or as required by Subparagraph (e) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC based on the type of release. Submit a complete report through the OCD Permitting website by 12/27/2023.”

On September 26, 2023, for incident number NOY1816556237 (1RP-5094), the New Mexico OCD denied the closure report for the following reason: “The rejection sent for this incident number on 6/8/2023 stated “The point in question for NOY1816556237 (1RP-5094) is BH18-01 on the map (Figure 2). This point returned results above the most stringent closure standards/reclamation standards that drive horizontal delineation.” BH18-01 was not addressed under this submission. Clarify that the samples listed in Table 5 correspond to the samples in Table 1 of the workplan that is uploaded to the Incident file of NOY1816556237. Include the samples on Table 5 on the scaled site map. There is a discrepancy between sample location names. There are 2 samples identified as BH18-01. One of these samples is illustrated on the map in the workplan and was collected on 7/7/2018. The other is located on the tables of the workplan and the closure report and was collected on 5/30/2018. The sample collected on 5/30/2018 is not in the same location as BH18-01 collected on 7/7/2018. This discrepancy will need to be address in the next submittal. The OCD cannot determine if horizontal delineation submitted was completed based on the information provided. The values for determination of horizontal impact are derived by either approved “background” values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved “background” values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation. Submit a complete report though the OCD Permitting website by 12/27/2023.”

## **2.0 Site Characterization and Groundwater**

The site is located within a low karst area. Based on a review of the New Mexico Office of State Engineers and USGS databases, two known water sources are within a 0.50-mile radius of the location. The nearest identified well is located approximately 0.45 miles North of the site in S20, T18S, R35E and was drilled in 1953. The well has a reported depth to groundwater of 78’ below ground surface (ft bgs). A copy of the associated Summary report is attached in Appendix D of the amended report. The nearest identified well is located approximately 0.45 miles North of the site in S20, T18S, R35E and was drilled in 1996. The well has a reported depth to groundwater of 82.10’ below ground surface (ft bgs). A copy of the associated Summary report is attached in Appendix D of the amended report. On August 15, 2023, Carmona Resources, LLC was onsite to drill a groundwater determination bore to 55’ below ground surface within a 0.50-mile radius of



the location. The groundwater determination bore is located approximately 0.04 miles southeast of the site at 32.726286°, -103.479090° in S20, T18S, and R35E. The bore was left open for 72 hours and tagged with a water level meter. The bore has shown no signs of water at a depth of 55' below the ground surface (bgs). A copy of the groundwater determination bore log is attached in Appendix D of the amended report. The location of the groundwater determination bore can be seen in Figure 3C.

### **3.0 NMAC Regulatory Criteria**

Per the NMOCD regulatory criteria established in 19.15.29.12 NMAC, the following criteria were utilized in assessing the site.

- Benzene: 10 milligrams per kilogram (mg/kg).
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg.
- TPH: 2,500 mg/kg (GRO + DRO + MRO).
- TPH: 1,000 mg/kg (GRO + DRO).
- Chloride: 10,000 mg/kg.

### **4.0 Site Assessment Activities**

On August 15, 2023, Carmona Resources, LLC performed site assessment activities to evaluate soil impacts stemming from the release. Two (2) sample points (BH-1 and BH-4) were advanced to a depth ranging from the surface to 4.0' bgs inside the release area at BH 18-01 (05/30/2018) and BH 18-05 (05/30/2018) to assess the vertical extent. See Figure 3A and Figure 3B for the sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Eurofins Laboratories in Midland, Texas. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 300.0. The laboratory reports, including analytical methods, results, and chain-of-custody documents, are attached in Appendix E of the amended report.

On October 4, 2023, Carmona Resources, LLC returned to the site and performed site assessment activities to evaluate soil impacts stemming from the release. Two (2) sample points (BH-2 and BH-5) were advanced to a depth ranging from the surface to 4.0' bgs outside the release area at BH 18-01 (07/07/2018) and BH 18-03 (05/30/2018) to assess the vertical extent. Additionally, twelve (12) horizontal samples (H-1 through H-12) were collected surrounding both releases to laterally delineate the extent of both incidents. See Figure 3A and Figure 3B for the sample locations. For chemical analysis, the soil samples were collected and placed directly into laboratory-provided sample containers, stored on ice, and transported under the proper chain-of-custody protocol to Eurofins Laboratories in Midland, Texas. The samples were analyzed for total petroleum hydrocarbons (TPH) by EPA method 8015, modified benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, and chloride by EPA method 300.0. The laboratory reports, including analytical methods, results, and chain-of-custody documents, are attached in Appendix E of the amended report. The text of the original report can be found in Appendix F of this report. Labs and photologs can be found in the original report.



In order to address all concerns stemming from the rejection on September 26, 2023, Carmona Resources has found the following:

- All horizontal samples collected on October 4, 2023 were below the most stringent closure criteria for both incidents.
- Horizontal and vertical delineation was achieved for BH 18-03 (5/30/2018) with the installation of BH-5 on October 4, 2023. The sample point of BH 18-03 has undergone natural attenuation from precipitation and weather events from the initial sampling conducted on May 30, 2018, to the present.
- The sample point BH 18-02 (05/30/2018) was encompassed by the excavation conducted on November 14, 2018. See Figure 3A.
- Liner integrity was restored at the time of remediation conducted November 14, 2018.
- The sample point BH 18-01 (07/07/2018) that was submitted under Vertex's work plan with incident number NOY1816556237 was encompassed by remediation activities conducted on November 14, 2018. See Figure 3B.
- The sample results in Table 5, on page 5 of the original report, are identical to the sample results that were submitted via work plan under incident number POY1816556459. See Figure 3B for sample locations that correspond to the samples in Table 1 of the work plan that was uploaded to Incident file NOY1816556237.
- All samples that were collected during the initial site assessment on May 30, 2018, with the exception of BH 18-01 (05/30/2018), were below the regulatory requirements for TPH, BTEX, and chloride. The sample point of BH 18-01 (05/30/2018) has undergone natural attenuation from precipitation and weather events from the initial sampling conducted on May 30, 2018, to the present day.
- All samples that were collected during remediation activities on November 14, 2018 (North Wall, South Wall, West Wall, and East Wall) in Figure 2 of the original closure report submitted by Vertex were below the regulatory requirements for TPH, BTEX, and chloride.
- All samples collected during the site reassessment on August 15, 2023, and October 4, 2023, were below the regulatory requirements for TPH, BTEX, and chloride. Refer to Table 1.

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### **5.0 Conclusions**

Based on the assessment results and the analytical data, no further actions are required at the site. The final C-141 is attached in Appendix A of the original request for closure. Marathon formally requests the closure of the spill. If you have any questions regarding this report or need additional information, please get in touch with us at 432-813-1992.

Sincerely,

**Carmona Resources, LLC**

Mike Carmona  
Environmental Manager

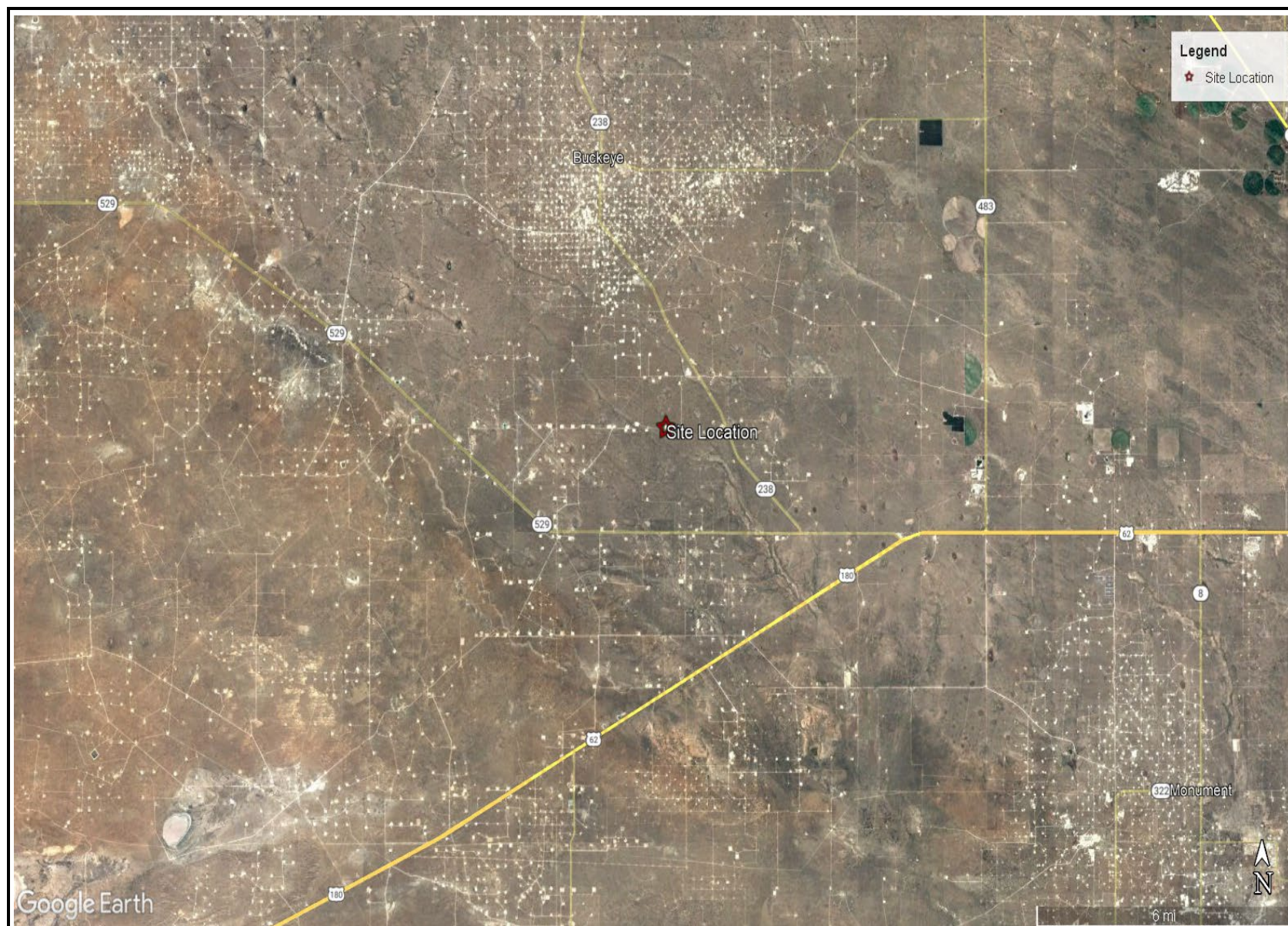
Clinton Merritt  
Sr. Project Manager

## FIGURES

CARMONA RESOURCES





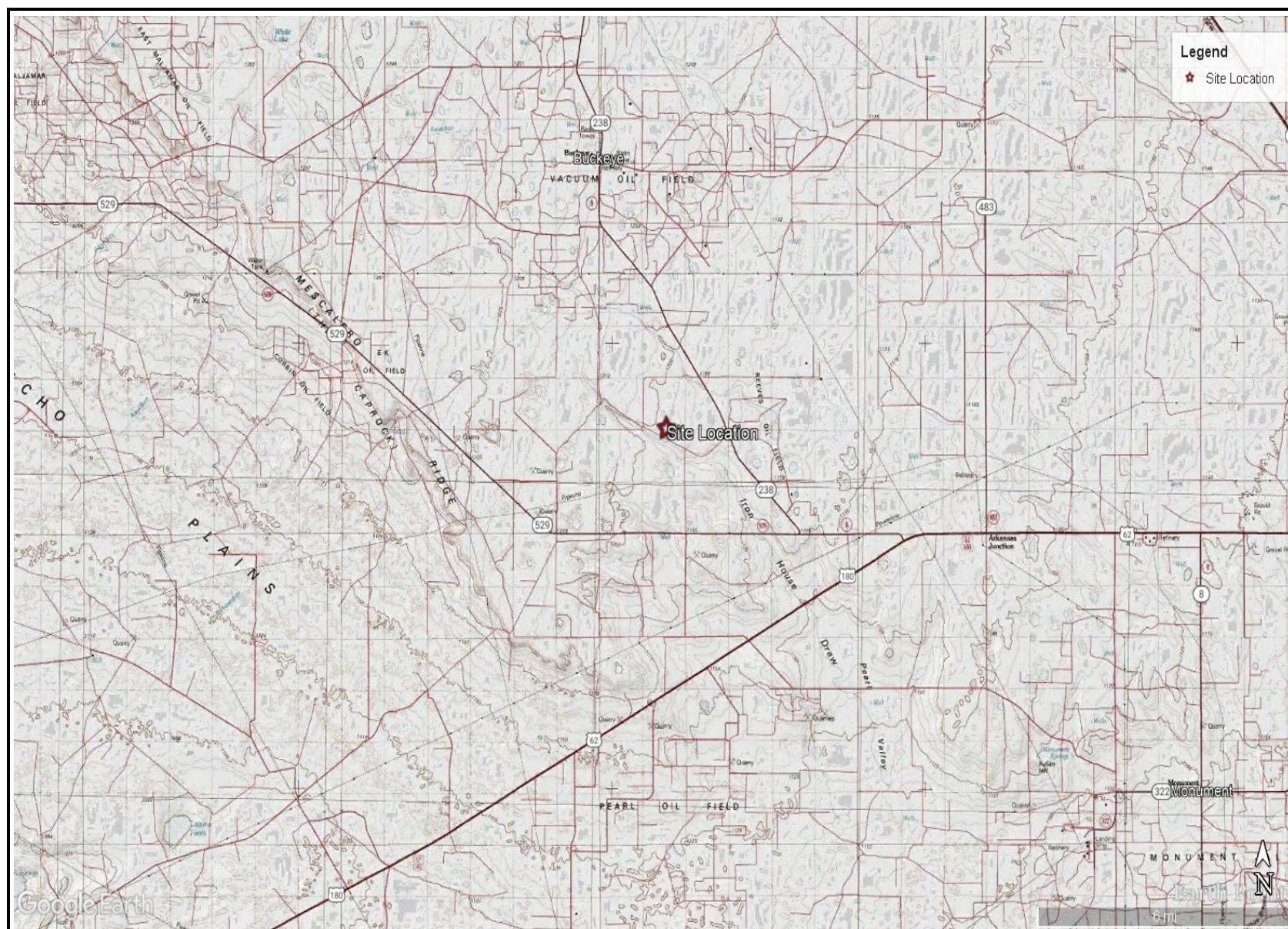


OVERVIEW MAP  
MARATHON OIL CORPORATION  
NIGHTHAWK STATE COM 3H  
LEA COUNTY, NEW MEXICO  
32.7266235°, -103.4785528°



FIGURE 1



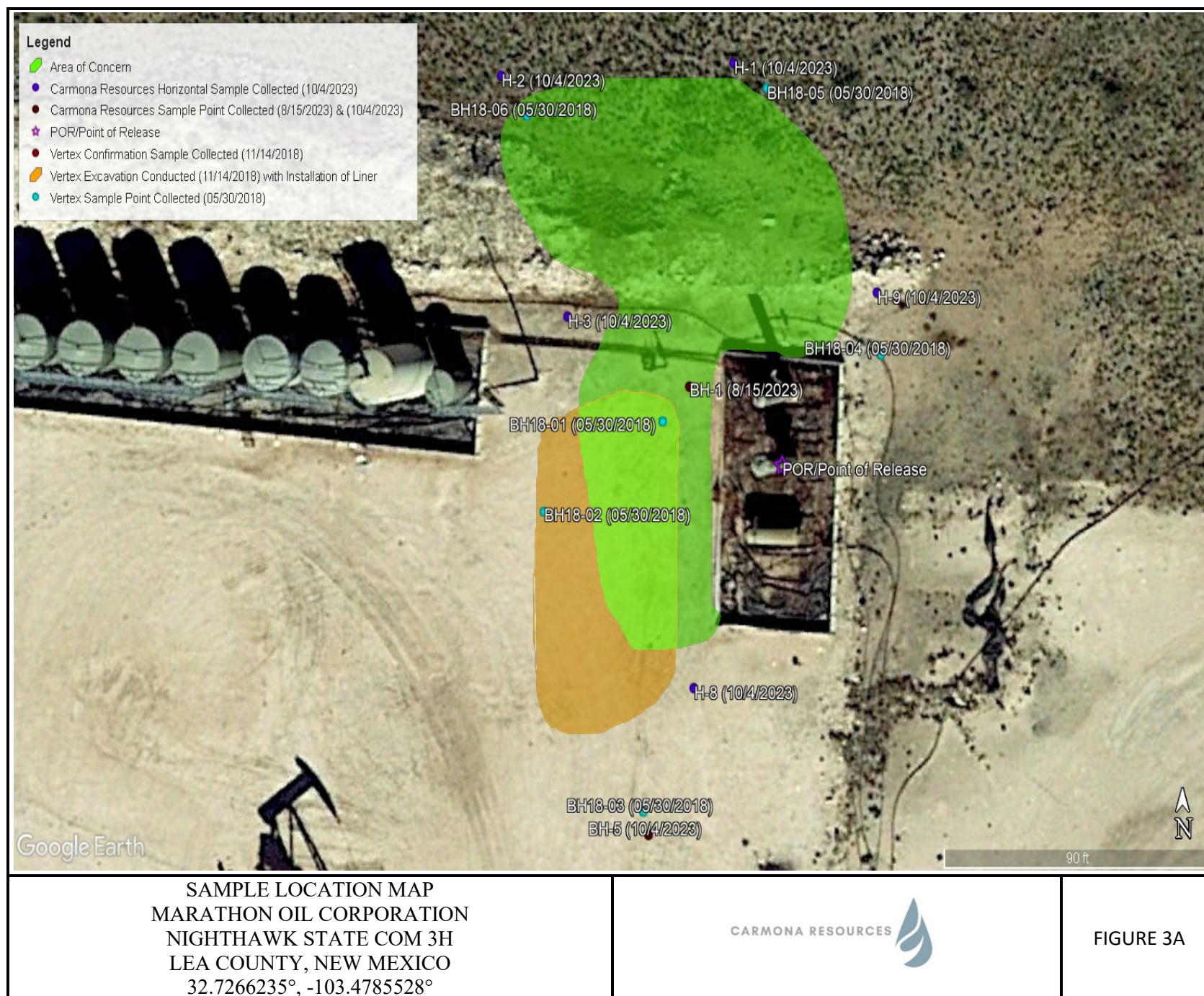


TOPOGRAPHIC MAP  
MARATHON OIL CORPORATION  
NIGHTHAWK STATE COM 3H  
LEA COUNTY, NEW MEXICO  
32.7266235°, -103.4785528°

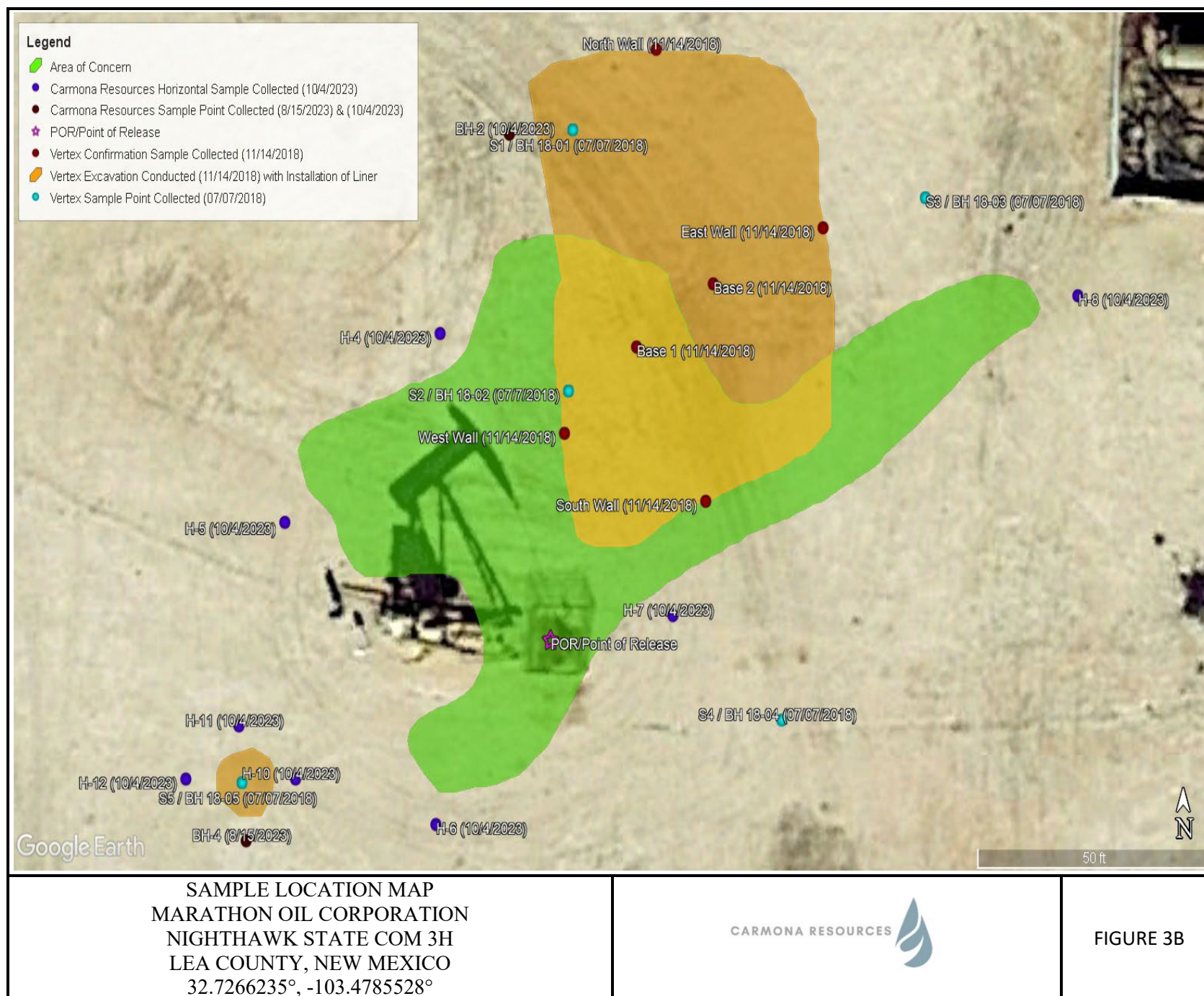


FIGURE 2













## APPENDIX B

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**Table 1**  
**Marathon Oil Corporation**  
**Night Hawk 3H**  
**Lea County, New Mexico**

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
<b>BH-1</b>	8/15/2023	0-1	<50.1	51.1	<50.1	51.1	<0.00201	0.00708	<0.00201	<0.00402	0.00708	8,880
	"	2	<50.2	<50.2	<50.2	<50.2	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	455
	"	4	<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	142
<b>*BH 18-01</b>	5/30/2023	0	-	-	-	<15.0	<0.00199	-	-	-	<0.00199	<b>23,900</b>
	"	2	-	-	-	<15.0	<0.00200	-	-	-	<0.00200	387
	"	4	-	-	-	-	-	-	-	-	-	2,480
<b>BH-2</b>	10/4/2023	0-1	<49.6	<49.6	<49.6	<49.6	<0.00200	<0.00200	<0.00200	<0.00400	<0.00400	206
	"	2	<50.3	<50.3	<50.3	<50.3	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	101
	"	4	<50.5	<50.5	<50.5	<50.5	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	106
<b>*BH 18-01</b>	7/7/2018	0	<15.0	68.9	<15.0	68.9	<0.00202	-	-	-	<0.00202	<b>5,910</b>
	"	2	<14.9	<14.9	<14.9	<14.9	<0.00201	-	-	-	<0.00201	1,700
	"	4	<15.0	40.2	<15.0	40.2	<0.00199	-	-	-	<0.00199	1,630
<b>BH-4</b>	8/15/2023	0-1	-	-	-	-	-	-	-	-	-	130
	"	2	-	-	-	-	-	-	-	-	-	75.5
	"	4	-	-	-	-	-	-	-	-	-	285
<b>*BH 18-05</b>	5/30/2023	0	-	-	-	-	<0.00201	-	-	-	<0.00201	89.0
	"	2	-	-	-	-	<0.00200	-	-	-	<0.00200	48.4
<b>BH-5</b>	10/4/2023	0-1	<49.6	<49.6	<49.6	<49.6	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	261
<b>*BH 18-03</b>	5/30/2023	0	-	-	-	-	<0.00199	-	-	-	<0.00199	4,360
	"	2	-	-	-	-	<0.00200	-	-	-	<0.00200	518
<b>Regulatory Criteria<sup>A</sup></b>			<b>1,000 mg/kg</b>			<b>2,500 mg/kg</b>	<b>10 mg/kg</b>				<b>50 mg/kg</b>	<b>10,000 mg/kg</b>

(-) Not Analyzed

<sup>A</sup> – Table 1 - 19.15.29 NMAC

mg/kg - milligram per kilogram

TPH- Total Petroleum Hydrocarbons

ft-feet

(BH) - Bore Hole

\*Sample Point Collected by Vertex

 Removed

Table 1  
Marathon Oil Corporation  
Night Hawk 3H  
Lea County, New Mexico

Sample ID	Date	Depth (ft)	TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total						
H-1	10/4/2023	0 - 0.5	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	136
H-2	10/4/2023	0 - 0.5	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	334
H-3	10/4/2023	0 - 0.5	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	246
H-4	10/4/2023	0 - 0.5	<50.5	<50.5	<50.5	<50.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	290
H-5	10/4/2023	0 - 0.5	<50.5	<50.5	<50.5	<50.5	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	287
H-6	10/4/2023	0 - 0.5	<50.3	<50.3	<50.3	<50.3	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	186
H-7	10/4/2023	0 - 0.5	<49.6	<49.6	<49.6	<49.6	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	174
H-8	10/4/2023	0 - 0.5	<49.7	<49.7	<49.7	<49.7	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	192
H-9	10/4/2023	0 - 0.5	<49.7	<49.7	<49.7	<49.7	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	111
H-10	10/4/2023	0 - 0.5	<50.5	<50.5	<50.5	<50.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	90.4
H-11	10/4/2023	0 - 0.5	<50.3	<50.3	<50.3	<50.3	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	218
H-12	10/4/2023	0 - 0.5	<50.3	<50.3	<50.3	<50.3	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	256
Regulatory Criteria <sup>A</sup>			1,000 mg/kg			2,500 mg/kg	10 mg/kg				50 mg/kg	10,000 mg/kg

(-) Not Analyzed  
<sup>A</sup> – Table 1 - 19.15.29 NMAC  
mg/kg - milligram per kilogram  
TPH- Total Petroleum Hydrocarbons  
ft-feet  
(H) Horizontals



## APPENDIX C

CARMONA RESOURCES



## PHOTOGRAPHIC LOG

## Marathon Oil Corporation

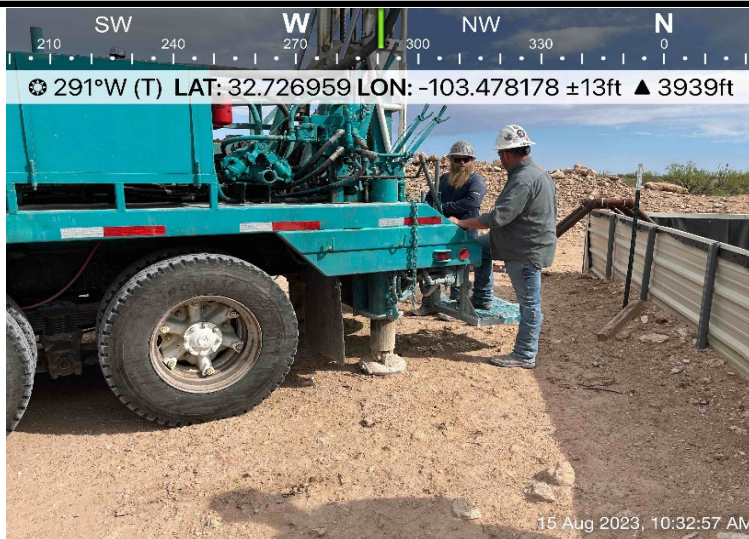
## Photograph No. 1

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View West of sample point BH-1.



## Photograph No. 2

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View South of the groundwater determination bore.



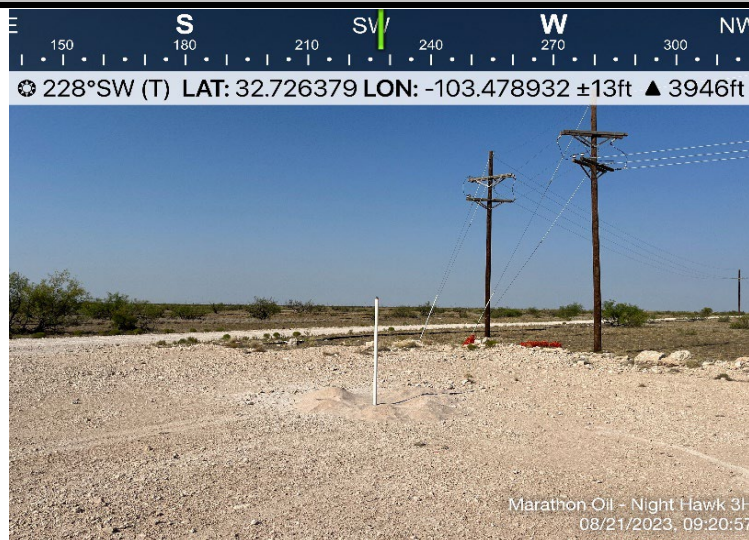
## Photograph No. 3

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View Southwest of the groundwater determination bore.





## PHOTOGRAPHIC LOG

## Marathon Oil Corporation

## Photograph No. 4

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View Southeast of lined facility at heater treaters.



## Photograph No. 5

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View South of lined facility at heater treaters.



## Photograph No. 6

Facility: Nighthawk State Com 3H

County: Lea County, New Mexico

## Description:

View Southeast of lined facility at heater treaters.





## APPENDIX D

CARMONA RESOURCES



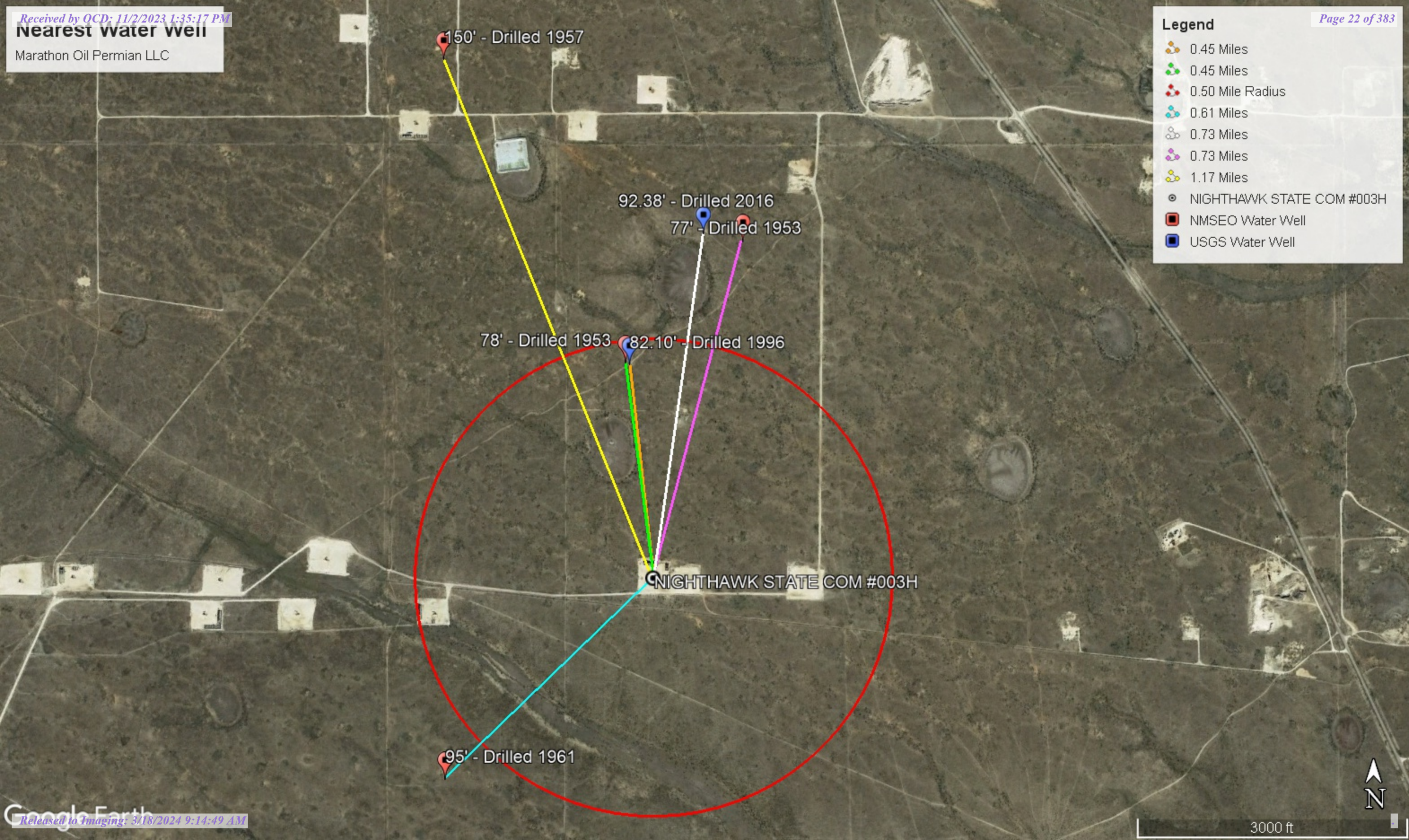


**Nearest water well**

Marathon Oil Permian LLC

**Legend**



- 0.45 Miles
- 0.45 Miles
- 0.50 Mile Radius
- 0.61 Miles
- 0.73 Miles
- 0.73 Miles
- 1.17 Miles
- NIGHTHAWK STATE COM #003H
- NMSEO Water Well
- USGS Water Well





**Low Karst**  
Marathon Oil Permian LLC

**Legend**

-  Low
-  NIGHTHAWK STATE COM #003H

NIGHTHAWK STATE COM #003H



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">L 02053</a>	L	LE					20	18S	35E	642464	3622723*	726	175	78	97
<a href="#">L 04562</a>	L	LE		3	1	29	18S	35E		641874	3621315*	979	156	95	61
<a href="#">L 02357</a>	L	LE		2	20	18S	35E			642855	3623137*	1168	170	77	93
<a href="#">L 03171</a>	L	LE		3	3	17	18S	35E		641835	3623734*	1879	170	150	20
<a href="#">L 02679</a>	L	LE		4	4	21	18S	35E		644680	3622151*	2115	200	68	132
<a href="#">L 02679</a>	R	L	LE	4	4	21	18S	35E		644680	3622151*	2115	200	68	132
<a href="#">L 07928</a>	L	LE		4	4	1	19	18S	35E	640639	3622915	2135	175		
<a href="#">L 02680</a>	L	LE		1	2	21	18S	35E		644257	3623357*	2162	190	59	131
<a href="#">L 09742</a>	L	LE		1	4	17	18S	35E		642474	3624312	2310	200		
<a href="#">L 02052</a>	L	LE				17	18S	35E		642438	3624337*	2336	190	72	118
<a href="#">L 09588</a>	L	LE		4	3	4	16	18S	35E	644349	3623659*	2429	155	84	71
<a href="#">L 03888</a>	L	LE		3	1	19	18S	35E		640253	3622912*	2488	107	70	37
<a href="#">L 03772</a>	L	LE		2	2	21	18S	35E		644659	3623361*	2491	130	60	70
<a href="#">L 03866</a>	L	LE		3	3	22	18S	35E		645082	3622155*	2516	127	65	62
<a href="#">L 04399</a>	L	LE		3	3	22	18S	35E		645082	3622155*	2516	90	75	15
<a href="#">L 05156</a>	L	LE		4	1	17	18S	35E		642224	3624545*	2564	150	90	60
<a href="#">L 12926 POD1</a>	L	LE		2	2	3	25	18S	34E	639839	3621631	2755	182	117	65
<a href="#">L 03721</a>	L	LE		3	3	18	18S	35E		640241	3623717*	2891	161	90	71
<a href="#">L 15235 POD1</a>	L	LE		2	4	1	31	18S	35E	640696	3619795	2896	162	75	87
<a href="#">L 05810</a>	L	LE		2	3	22	18S	35E		645479	3622564*	2962	145	95	50
<a href="#">L 05444</a>	L	LE		4	3	32	18S	35E		642319	3618899*	3115	80	58	22
<a href="#">L 09762</a>	L	LE		3	3	33	18S	35E		643526	3618913*	3235	160	80	80
<a href="#">L 03783</a>	L	LE				27	18S	35E		645710	3621138*	3257	115	65	50
<a href="#">L 02678</a>	L	LE		3	4	22	18S	35E		645890	3622166*	3323	200	58	142
<a href="#">L 02678</a>	R	L	LE	3	4	22	18S	35E		645890	3622166*	3323	200	58	142
<a href="#">L 02678 POD2</a>	R	L	LE	3	4	22	18S	35E		645890	3622166*	3323	185	58	127

\*UTM location was derived from PLSS - see Help

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">L 03963</a>	L	LE		1	2	27	18S	35E		645896	3621762*	3334	127	70	57
<a href="#">L 02678 POD3</a>	L	LE		3	4	22	18S	35E		645902	3622214	3338	190	154	36
<a href="#">L 14371 POD1</a>	L	LE		1	1	2	05	19S	35E	642616	3618661	3342	172	60	112
<a href="#">L 06047</a>	L	LE		2	2	1	16	18S	35E	643927	3625066*	3349	122	65	57
<a href="#">L 00493</a>	L	LE		1	2	1	05	19S	35E	642290	3618663	3352	100		
<a href="#">L 14200 POD1</a>	L	LE		2	2	2	05	19S	35E	642952	3618657	3368	180	60	120
<a href="#">L 02676</a>	L	LE		1	2	16	18S	35E		644231	3624972*	3401	175	60	115
<a href="#">L 02679 POD2</a>	L	LE		3	2	22	18S	35E		645876	3622973*	3445	187	65	122
<a href="#">L 14200 POD2</a>	L	LE		2	2	2	05	19S	35E	643291	3618631	3448	180	60	120
<a href="#">L 02350</a>	L	LE		4	1	3	08	18S	35E	641897	3625650*	3707	216	105	111
<a href="#">L 02677</a>	L	LE		3	4	15	18S	35E		645863	3623780*	3741	194	54	140
<a href="#">L 04794</a>	L	LE			4	07	18S	35E		641200	3625540*	3792	150	95	55
<a href="#">L 02349 POD3</a>	L	LE		4	1	4	07	18S	35E	641225	3625573	3814	220	142	78
<a href="#">L 02349 POD2</a>	L	LE		4	1	4	07	18S	35E	641091	3625641*	3926	214	85	129
<a href="#">L 02348</a>	L	LE		3	1	4	09	18S	35E	644116	3625679*	3986	215	105	110
<a href="#">L 10304</a>	L	LE		1	4	4	09	18S	35E	644526	3625479*	3987	170	72	98
<a href="#">L 05178</a>	L	LE		4	4	2	05	19S	35E	643185	3618063	3988	142	85	57

Average Depth to Water: **80 feet**

Minimum Depth: **54 feet**

Maximum Depth: **154 feet**

Record Count: 43

**UTM NAD83 Radius Search (in meters):**

**Easting (X):** 642570

**Northing (Y):** 3622004

**Radius:** 4000

\*UTM location was derived from PLSS - see Help

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

7/18/23 11:32 AM

Page 2 of 2

WATER COLUMN/ AVERAGE  
DEPTH TO WATER



# New Mexico Office of the State Engineer

## Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)							
		(quarters are smallest to largest)				(NAD83 UTM in meters)			
<b>Well Tag</b>	<b>POD Number</b>	<b>Q64</b>	<b>Q16</b>	<b>Q4</b>	<b>Sec</b>	<b>Tws</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
L	02053				20	18S	35E	642464	3622723*
<hr/>									
<b>Driller License:</b> 17		<b>Driller Company:</b>		A.M. BRININSTOOL					
<b>Driller Name:</b>		M.I. SIGNER							
<b>Drill Start Date:</b> 01/27/1953		<b>Drill Finish Date:</b>		02/13/1953		<b>Plug Date:</b>			
<b>Log File Date:</b> 02/24/1953		<b>PCW Rev Date:</b>				<b>Source:</b>		Shallow	
<b>Pump Type:</b>		<b>Pipe Discharge Size:</b>				<b>Estimated Yield:</b>			
<b>Casing Size:</b> 12.00		<b>Depth Well:</b>		175 feet		<b>Depth Water:</b>		78 feet	
<hr/>									
<b>Water Bearing Stratifications:</b>		<b>Top</b>	<b>Bottom</b>	<b>Description</b>					
		120	130	Sandstone/Gravel/Conglomerate					
<hr/>									
<b>Casing Perforations:</b>		<b>Top</b>	<b>Bottom</b>						
		107	172						
<hr/>									

\*UTM location was derived from PLSS - see Help


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

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POINT OF DIVERSION SUMMARY

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
				Groundwater	New Mexico	GO	

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- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs  
site\_no list =

- 324420103281501

Minimum number of levels = 1  
[Save file of selected sites](#) to local disk for future upload

USGS 324420103281501 18S.35E.20.41111

Lea County, New Mexico  
Latitude 32°43'59", Longitude 103°28'46" NAD27  
Land-surface elevation 3,937.00 feet above NGVD29  
The depth of the well is 175 feet below land surface.  
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.  
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source (measur
1953-09-11			D	62610	3861.18	NGVD29	1		Z	
1953-09-11			D	62611	3862.74	NAVD88	1		Z	
1953-09-11			D	72019	75.82		1		Z	
1953-10-07			D	62610	3861.23	NGVD29	1		Z	
1953-10-07			D	62611	3862.79	NAVD88	1		Z	
1953-10-07			D	72019	75.77		1		Z	
1953-11-20			D	62610	3861.24	NGVD29	1		Z	
1953-11-20			D	62611	3862.80	NAVD88	1		Z	
1953-11-20			D	72019	75.76		1		Z	
1954-01-11			D	62610	3861.23	NGVD29	1		Z	
1954-01-11			D	62611	3862.79	NAVD88	1		Z	
1954-01-11			D	72019	75.77		1		Z	
1954-03-02			D	62610	3861.15	NGVD29	1		Z	
1954-03-02			D	62611	3862.71	NAVD88	1		Z	



Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
1954-03-02	D	72019	75.85		1	Z	
1954-05-05	D	62610	3861.13	NGVD29	1	Z	
1954-05-05	D	62611	3862.69	NAVD88	1	Z	
1954-05-05	D	72019	75.87		1	Z	
1954-07-13	D	62610	3861.23	NGVD29	1	Z	
1954-07-13	D	62611	3862.79	NAVD88	1	Z	
1954-07-13	D	72019	75.77		1	Z	
1954-09-14	D	62610	3861.18	NGVD29	1	Z	
1954-09-14	D	62611	3862.74	NAVD88	1	Z	
1954-09-14	D	72019	75.82		1	Z	
1954-11-09	D	62610	3861.15	NGVD29	1	Z	
1954-11-09	D	62611	3862.71	NAVD88	1	Z	
1954-11-09	D	72019	75.85		1	Z	
1955-01-06	D	62610	3861.19	NGVD29	1	Z	
1955-01-06	D	62611	3862.75	NAVD88	1	Z	
1955-01-06	D	72019	75.81		1	Z	
1955-03-19	D	62610	3861.24	NGVD29	1	Z	
1955-03-19	D	62611	3862.80	NAVD88	1	Z	
1955-03-19	D	72019	75.76		1	Z	
1955-05-28	D	62610	3861.15	NGVD29	1	Z	
1955-05-28	D	62611	3862.71	NAVD88	1	Z	
1955-05-28	D	72019	75.85		1	Z	
1955-07-15	D	62610	3861.17	NGVD29	1	Z	
1955-07-15	D	62611	3862.73	NAVD88	1	Z	
1955-07-15	D	72019	75.83		1	Z	
1955-09-22	D	62610	3861.21	NGVD29	1	Z	
1955-09-22	D	62611	3862.77	NAVD88	1	Z	
1955-09-22	D	72019	75.79		1	Z	
1955-11-28	D	62610	3861.21	NGVD29	1	Z	
1955-11-28	D	62611	3862.77	NAVD88	1	Z	
1955-11-28	D	72019	75.79		1	Z	
1956-01-05	D	62610	3861.27	NGVD29	1	Z	
1956-01-05	D	62611	3862.83	NAVD88	1	Z	
1956-01-05	D	72019	75.73		1	Z	
1956-03-14	D	62610	3861.30	NGVD29	1	Z	
1956-03-14	D	62611	3862.86	NAVD88	1	Z	
1956-03-14	D	72019	75.70		1	Z	
1956-05-09	D	62610	3861.22	NGVD29	1	Z	
1956-05-09	D	62611	3862.78	NAVD88	1	Z	
1956-05-09	D	72019	75.78		1	Z	
1956-07-26	D	62610	3861.21	NGVD29	1	Z	
1956-07-26	D	62611	3862.77	NAVD88	1	Z	
1956-07-26	D	72019	75.79		1	Z	
1956-09-06	D	62610	3861.26	NGVD29	1	Z	
1956-09-06	D	62611	3862.82	NAVD88	1	Z	
1956-09-06	D	72019	75.74		1	Z	
1956-11-30	D	62610	3861.22	NGVD29	1	Z	
1956-11-30	D	62611	3862.78	NAVD88	1	Z	
1956-11-30	D	72019	75.78		1	Z	
1957-01-12	D	62610	3861.23	NGVD29	1	Z	



Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
1957-01-12	D	62611	3862.79	NAVD88	1	Z	
1957-01-12	D	72019	75.77		1	Z	
1958-01-14	D	62610	3861.15	NGVD29	1	Z	
1958-01-14	D	62611	3862.71	NAVD88	1	Z	
1958-01-14	D	72019	75.85		1	Z	
1960-01-15	D	62610	3861.20	NGVD29	1	Z	
1960-01-15	D	62611	3862.76	NAVD88	1	Z	
1960-01-15	D	72019	75.80		1	Z	
1961-01-17	D	62610	3861.30	NGVD29	1	Z	
1961-01-17	D	62611	3862.86	NAVD88	1	Z	
1961-01-17	D	72019	75.70		1	Z	
1962-01-16	D	62610	3861.14	NGVD29	1	Z	
1962-01-16	D	62611	3862.70	NAVD88	1	Z	
1962-01-16	D	72019	75.86		1	Z	
1967-09-20	D	62610	3860.81	NGVD29	1	Z	
1967-09-20	D	62611	3862.37	NAVD88	1	Z	
1967-09-20	D	72019	76.19		1	Z	
1971-01-20	D	62610	3860.51	NGVD29	1	Z	
1971-01-20	D	62611	3862.07	NAVD88	1	Z	
1971-01-20	D	72019	76.49		1	Z	
1976-02-12	D	62610	3860.15	NGVD29	1	Z	
1976-02-12	D	62611	3861.71	NAVD88	1	Z	
1976-02-12	D	72019	76.85		1	Z	
1981-03-13	D	62610	3859.10	NGVD29	1	Z	
1981-03-13	D	62611	3860.66	NAVD88	1	Z	
1981-03-13	D	72019	77.90		1	Z	
1986-04-02	D	62610	3857.65	NGVD29	1	Z	
1986-04-02	D	62611	3859.21	NAVD88	1	Z	
1986-04-02	D	72019	79.35		1	Z	
1991-03-15	D	62610	3857.80	NGVD29	1	Z	
1991-03-15	D	62611	3859.36	NAVD88	1	Z	
1991-03-15	D	72019	79.20		1	Z	
1996-01-12	D	62610	3854.90	NGVD29	1	S	
1996-01-12	D	62611	3856.46	NAVD88	1	S	
1996-01-12	D	72019	82.10		1	S	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	S	Steel-tape measurement.
Method of measurement	Z	Other.
Measuring agency		Not determined

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
------	------	-------------------------------------------	------------------------	-----------------------------------------------------	-------------------------------------------------------------------	---------------------------------	--------

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)  
**Title:** Groundwater for New Mexico: Water Levels  
**URL:** <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>




Page Contact Information: [New Mexico Water Data Maintainer](#)  
Page Last Modified: 2023-07-18 13:44:56 EDT  
0.3 0.27 nadww02



# New Mexico Office of the State Engineer

## Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)				(quarters are smallest to largest)				(NAD83 UTM in meters)			
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y				
L	04562	3	1	29	18S	35E	641874	3621315*					
x													
Driller License:		111		Driller Company:			BURKE, EDWARD B.						
Driller Name:													
Drill Start Date:		12/20/1960		Drill Finish Date:			12/21/1960		Plug Date:		01/17/1961		
Log File Date:		12/29/1960		PCW Rcv Date:					Source:		Shallow		
Pump Type:				Pipe Discharge Size:					Estimated Yield:				
Casing Size:		7.00		Depth Well:			156 feet		Depth Water:		95 feet		
x													
Water Bearing Stratifications:				Top	Bottom	Description							
				98	156	Sandstone/Gravel/Conglomerate							
x													
Casing Perforations:				Top	Bottom								
				110	154								
x													

\*UTM location was derived from PLSS - see Help

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



# New Mexico Office of the State Engineer

## Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	L 02357			2	20	18S	35E	642855	3623137*

x

Driller License: 30

Driller Company: BARRON, EMMETT

Driller Name: E. BARRON

Drill Start Date: 11/02/1953

Drill Finish Date: 12/02/1953

Plug Date:

Log File Date: 12/17/1953

PCW Rev Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield:

Casing Size: 12.00

Depth Well: 170 feet

Depth Water: 77 feet

x

Water Bearing Stratifications:	Top	Bottom	Description
	125	135	Sandstone/Gravel/Conglomerate

x

Casing Perforations:	Top	Bottom
	100	165


x

\*UTM location was derived from PLSS - see Help

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Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
				Groundwater	New Mexico	GO	

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- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

 Important: [Next Generation Monitoring Location Page](#)

## Search Results -- 1 sites found

Agency code = usgs

site\_no list =

- 324415103281501

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

## USGS 324415103281501 18S.35E.20.21434

Lea County, New Mexico

Latitude 32°44'13.3", Longitude 103°28'36.4" NAD83

Land-surface elevation 3,933.00 feet above NGVD29

The depth of the well is 170 feet below land surface.

This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.

This well is completed in the Ogallala Formation (121OGLL) local aquifer.

### Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source measur
1953-12-09			D 62610		3860.81	NGVD29	1		Z	
1953-12-09			D 62611		3862.36	NAVD88	1		Z	
1953-12-09			D 72019	72.19			1		Z	
1954-01-11			D 62610		3860.75	NGVD29	1		Z	
1954-01-11			D 62611		3862.30	NAVD88	1		Z	
1954-01-11			D 72019	72.25			1		Z	
1954-03-02			D 62610		3860.74	NGVD29	1		Z	
1954-03-02			D 62611		3862.29	NAVD88	1		Z	
1954-03-02			D 72019	72.26			1		Z	
1954-05-05			D 62610		3860.74	NGVD29	1		Z	
1954-05-05			D 62611		3862.29	NAVD88	1		Z	
1954-05-05			D 72019	72.26			1		Z	
1954-07-13			D 62610		3860.79	NGVD29	1		Z	
1954-07-13			D 62611		3862.34	NAVD88	1		Z	

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	?
1954-07-13	D	72019	72.21		1	Z	
1954-09-14	D	62610	3860.78	NGVD29	1	Z	
1954-09-14	D	62611	3862.33	NAVD88	1	Z	
1954-09-14	D	72019	72.22		1	Z	
1954-11-09	D	62610	3860.75	NGVD29	1	Z	
1954-11-09	D	62611	3862.30	NAVD88	1	Z	
1954-11-09	D	72019	72.25		1	Z	
1955-01-06	D	62610	3860.77	NGVD29	1	Z	
1955-01-06	D	62611	3862.32	NAVD88	1	Z	
1955-01-06	D	72019	72.23		1	Z	
1955-03-19	D	62610	3860.80	NGVD29	1	Z	
1955-03-19	D	62611	3862.35	NAVD88	1	Z	
1955-03-19	D	72019	72.20		1	Z	
1955-05-28	D	62610	3860.74	NGVD29	1	Z	
1955-05-28	D	62611	3862.29	NAVD88	1	Z	
1955-05-28	D	72019	72.26		1	Z	
1955-07-15	D	62610	3860.75	NGVD29	1	Z	
1955-07-15	D	62611	3862.30	NAVD88	1	Z	
1955-07-15	D	72019	72.25		1	Z	
1955-09-22	D	62610	3860.79	NGVD29	1	Z	
1955-09-22	D	62611	3862.34	NAVD88	1	Z	
1955-09-22	D	72019	72.21		1	Z	
1955-11-28	D	62610	3860.79	NGVD29	1	Z	
1955-11-28	D	62611	3862.34	NAVD88	1	Z	
1955-11-28	D	72019	72.21		1	Z	
1956-01-05	D	62610	3860.82	NGVD29	1	Z	
1956-01-05	D	62611	3862.37	NAVD88	1	Z	
1956-01-05	D	72019	72.18		1	Z	
1956-03-14	D	62610	3860.82	NGVD29	1	Z	
1956-03-14	D	62611	3862.37	NAVD88	1	Z	
1956-03-14	D	72019	72.18		1	Z	
1956-05-09	D	62610	3860.78	NGVD29	1	Z	
1956-05-09	D	62611	3862.33	NAVD88	1	Z	
1956-05-09	D	72019	72.22		1	Z	
1956-07-26	D	62610	3860.79	NGVD29	1	Z	
1956-07-26	D	62611	3862.34	NAVD88	1	Z	
1956-07-26	D	72019	72.21		1	Z	
1956-09-06	D	62610	3860.79	NGVD29	1	Z	
1956-09-06	D	62611	3862.34	NAVD88	1	Z	
1956-09-06	D	72019	72.21		1	Z	
1956-11-30	D	62610	3860.77	NGVD29	1	Z	
1956-11-30	D	62611	3862.32	NAVD88	1	Z	
1956-11-30	D	72019	72.23		1	Z	
1957-01-12	D	62610	3860.76	NGVD29	1	Z	
1957-01-12	D	62611	3862.31	NAVD88	1	Z	
1957-01-12	D	72019	72.24		1	Z	
1958-01-14	D	62610	3860.73	NGVD29	1	Z	
1958-01-14	D	62611	3862.28	NAVD88	1	Z	
1958-01-14	D	72019	72.27		1	Z	
1960-01-15	D	62610	3860.83	NGVD29	1	Z	

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	
1960-01-15	D	62611	3862.38	NAVD88	1	Z	
1960-01-15	D	72019	72.17		1	Z	
1961-01-17	D	62610	3860.84	NGVD29	1	Z	
1961-01-17	D	62611	3862.39	NAVD88	1	Z	
1961-01-17	D	72019	72.16		1	Z	
1962-01-16	D	62610	3860.74	NGVD29	1	Z	
1962-01-16	D	62611	3862.29	NAVD88	1	Z	
1962-01-16	D	72019	72.26		1	Z	
1963-02-18	D	62610	3860.84	NGVD29	1	Z	
1963-02-18	D	62611	3862.39	NAVD88	1	Z	
1963-02-18	D	72019	72.16		1	Z	
1964-02-10	D	62610	3860.71	NGVD29	1	Z	
1964-02-10	D	62611	3862.26	NAVD88	1	Z	
1964-02-10	D	72019	72.29		1	Z	
1965-02-10	D	62610	3860.61	NGVD29	1	Z	
1965-02-10	D	62611	3862.16	NAVD88	1	Z	
1965-02-10	D	72019	72.39		1	Z	
1966-02-07	D	62610	3860.51	NGVD29	1	Z	
1966-02-07	D	62611	3862.06	NAVD88	1	Z	
1966-02-07	D	72019	72.49		1	Z	
1967-01-03	D	62610	3860.42	NGVD29	1	Z	
1967-01-03	D	62611	3861.97	NAVD88	1	Z	
1967-01-03	D	72019	72.58		1	Z	
1968-01-02	D	62610	3860.24	NGVD29	1	Z	
1968-01-02	D	62611	3861.79	NAVD88	1	Z	
1968-01-02	D	72019	72.76		1	Z	
1969-01-14	D	62610	3860.00	NGVD29	1	Z	
1969-01-14	D	62611	3861.55	NAVD88	1	Z	
1969-01-14	D	72019	73.00		1	Z	
1970-01-05	D	62610	3859.73	NGVD29	1	Z	
1970-01-05	D	62611	3861.28	NAVD88	1	Z	
1970-01-05	D	72019	73.27		1	Z	
1971-01-12	D	62610	3859.69	NGVD29	1	Z	
1971-01-12	D	62611	3861.24	NAVD88	1	Z	
1971-01-12	D	72019	73.31		1	Z	
1971-01-20	D	62610	3859.70	NGVD29	1	Z	
1971-01-20	D	62611	3861.25	NAVD88	1	Z	
1971-01-20	D	72019	73.30		1	Z	
1972-01-12	D	62610	3859.55	NGVD29	1	Z	
1972-01-12	D	62611	3861.10	NAVD88	1	Z	
1972-01-12	D	72019	73.45		1	Z	
1973-01-09	D	62610	3859.42	NGVD29	1	Z	
1973-01-09	D	62611	3860.97	NAVD88	1	Z	
1973-01-09	D	72019	73.58		1	Z	
1974-01-08	D	62610	3859.27	NGVD29	1	Z	
1974-01-08	D	62611	3860.82	NAVD88	1	Z	
1974-01-08	D	72019	73.73		1	Z	
1975-01-08	D	62610	3859.64	NGVD29	1	Z	
1975-01-08	D	62611	3861.19	NAVD88	1	Z	
1975-01-08	D	72019	73.36		1	Z	

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	?
1976-01-13	D	62610	3859.32	NGVD29	1	Z	
1976-01-13	D	62611	3860.87	NAVD88	1	Z	
1976-01-13	D	72019	73.68		1	Z	
1976-02-12	D	62610	3859.27	NGVD29	1	Z	
1976-02-12	D	62611	3860.82	NAVD88	1	Z	
1976-02-12	D	72019	73.73		1	Z	
1977-01-08	D	62610	3859.13	NGVD29	1	Z	
1977-01-08	D	62611	3860.68	NAVD88	1	Z	
1977-01-08	D	72019	73.87		1	Z	
1981-01-06	D	62610	3857.88	NGVD29	1	Z	
1981-01-06	D	62611	3859.43	NAVD88	1	Z	
1981-01-06	D	72019	75.12		1	Z	
1982-01-06	D	62610	3857.57	NGVD29	1	Z	
1982-01-06	D	62611	3859.12	NAVD88	1	Z	
1982-01-06	D	72019	75.43		1	Z	
1983-01-04	D	62610	3857.09	NGVD29	1	Z	
1983-01-04	D	62611	3858.64	NAVD88	1	Z	
1983-01-04	D	72019	75.91		1	Z	
1984-01-05	D	62610	3856.62	NGVD29	1	Z	
1984-01-05	D	62611	3858.17	NAVD88	1	Z	
1984-01-05	D	72019	76.38		1	Z	
1985-01-08	D	62610	3856.22	NGVD29	1	Z	
1985-01-08	D	62611	3857.77	NAVD88	1	Z	
1985-01-08	D	72019	76.78		1	Z	
1986-01-08	D	62610	3855.93	NGVD29	1	Z	
1986-01-08	D	62611	3857.48	NAVD88	1	Z	
1986-01-08	D	72019	77.07		1	Z	
1987-01-06	D	62610	3855.72	NGVD29	1	Z	
1987-01-06	D	62611	3857.27	NAVD88	1	Z	
1987-01-06	D	72019	77.28		1	Z	
1988-01-07	D	62610	3855.49	NGVD29	1	Z	
1988-01-07	D	62611	3857.04	NAVD88	1	Z	
1988-01-07	D	72019	77.51		1	Z	
1989-01-07	D	62610	3855.18	NGVD29	1	Z	
1989-01-07	D	62611	3856.73	NAVD88	1	Z	
1989-01-07	D	72019	77.82		1	Z	
1990-01-02	D	62610	3855.20	NGVD29	1	Z	
1990-01-02	D	62611	3856.75	NAVD88	1	Z	
1990-01-02	D	72019	77.80		1	Z	
1991-01-02	D	62610	3854.48	NGVD29	1	Z	
1991-01-02	D	62611	3856.03	NAVD88	1	Z	
1991-01-02	D	72019	78.52		1	Z	
1991-03-15	D	62610	3854.69	NGVD29	1	Z	
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1992-01-06 18:18 UTC	m	62611	3855.98	NAVD88	1	Z	
1992-01-06 18:18 UTC	m	72019	78.57		1	Z	
1993-01-04	D	62610	3854.01	NGVD29	1	Z	
1993-01-04	D	62611	3855.56	NAVD88	1	Z	



Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	
1993-01-04	D	72019	78.99		1	Z	
1994-01-08	D	62610	3853.45	NGVD29	1	Z	
1994-01-08	D	62611	3855.00	NAVD88	1	Z	
1994-01-08	D	72019	79.55		1	Z	
1995-01-03	D	62610	3853.09	NGVD29	1	S	
1995-01-03	D	62611	3854.64	NAVD88	1	S	
1995-01-03	D	72019	79.91		1	S	
1996-01-12	D	62610	3852.53	NGVD29	1	S	
1996-01-12	D	62611	3854.08	NAVD88	1	S	
1996-01-12	D	72019	80.47		1	S	
2000-01-03	D	62610	3850.21	NGVD29	1	S	
2000-01-03	D	62611	3851.76	NAVD88	1	S	
2000-01-03	D	72019	82.79		1	S	
2001-01-03	D	62610	3849.70	NGVD29	1	S	USGS
2001-01-03	D	62611	3851.25	NAVD88	1	S	USGS
2001-01-03	D	72019	83.30		1	S	USGS
2002-01-03	D	62610	3849.13	NGVD29	1	S	USGS
2002-01-03	D	62611	3850.68	NAVD88	1	S	USGS
2002-01-03	D	72019	83.87		1	S	USGS
2003-01-05	D	62610	3848.52	NGVD29	1	S	USGS
2003-01-05	D	62611	3850.07	NAVD88	1	S	USGS
2003-01-05	D	72019	84.48		1	S	USGS
2004-01-08	D	62610	3847.83	NGVD29	1	S	USGS
2004-01-08	D	62611	3849.38	NAVD88	1	S	USGS
2004-01-08	D	72019	85.17		1	S	USGS
2005-01-04 17:48 UTC	m	62610	3847.43	NGVD29	1	S	USGS
2005-01-04 17:48 UTC	m	62611	3848.98	NAVD88	1	S	USGS
2005-01-04 17:48 UTC	m	72019	85.57		1	S	USGS
2006-01-09 17:40 UTC	m	62610	3847.09	NGVD29	1	S	USGS
2006-01-09 17:40 UTC	m	62611	3848.64	NAVD88	1	S	USGS
2006-01-09 17:40 UTC	m	72019	85.91		1	S	USGS
2007-12-17 21:25 UTC	m	62610	3846.50	NGVD29	P	S	USGS
2007-12-17 21:25 UTC	m	62611	3848.05	NAVD88	P	S	USGS
2007-12-17 21:25 UTC	m	72019	86.50		P	S	USGS
2008-12-16 17:40 UTC	m	62610	3845.97	NGVD29	1	S	USGS
2008-12-16 17:40 UTC	m	62611	3847.52	NAVD88	1	S	USGS
2008-12-16 17:40 UTC	m	72019	87.03		1	S	USGS
2011-12-20 23:00 UTC	m	62610	3844.63	NGVD29	1	S	USGS
2011-12-20 23:00 UTC	m	62611	3846.18	NAVD88	1	S	USGS
2011-12-20 23:00 UTC	m	72019	88.37		1	S	USGS
2013-12-12 16:30 UTC	m	62610	3834.66	NGVD29	1	S	USGS
2013-12-12 16:30 UTC	m	62611	3836.21	NAVD88	1	S	USGS
2013-12-12 16:30 UTC	m	72019	98.34		1	S	USGS
2015-01-07 17:50 UTC	m	62610	3834.48	NGVD29	1	S	USGS
2015-01-07 17:50 UTC	m	62611	3836.03	NAVD88	1	S	USGS
2015-01-07 17:50 UTC	m	72019	98.52		1	S	USGS
2016-01-08 17:48 UTC	m	62610	3840.62	NGVD29	1	V	USGS
2016-01-08 17:48 UTC	m	62611	3842.17	NAVD88	1	V	USGS
2016-01-08 17:48 UTC	m	72019	92.38		1	V	USGS

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? S
Parameter code		62610	Groundwater level above NGVD 1929, feet				
Parameter code		62611	Groundwater level above NAVD 1988, feet				
Parameter code		72019	Depth to water level, feet below land surface				
Referenced vertical datum		NAVD88	North American Vertical Datum of 1988				
Referenced vertical datum		NGVD29	National Geodetic Vertical Datum of 1929				
Status		1	Static				
Status		P	Pumping				
Method of measurement		S	Steel-tape measurement.				
Method of measurement		V	Calibrated electric-tape measurement.				
Method of measurement		Z	Other.				
Measuring agency			Not determined				
Measuring agency		USGS	U.S. Geological Survey				
Source of measurement			Not determined				
Source of measurement		S	Measured by personnel of reporting agency.				
Water-level approval status		A	Approved for publication -- Processing and review completed.				

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Page Last Modified: 2023-07-18 13:43:09 EDT

0.3 0.25 nadww02



# New Mexico Office of the State Engineer

## Point of Diversion Summary

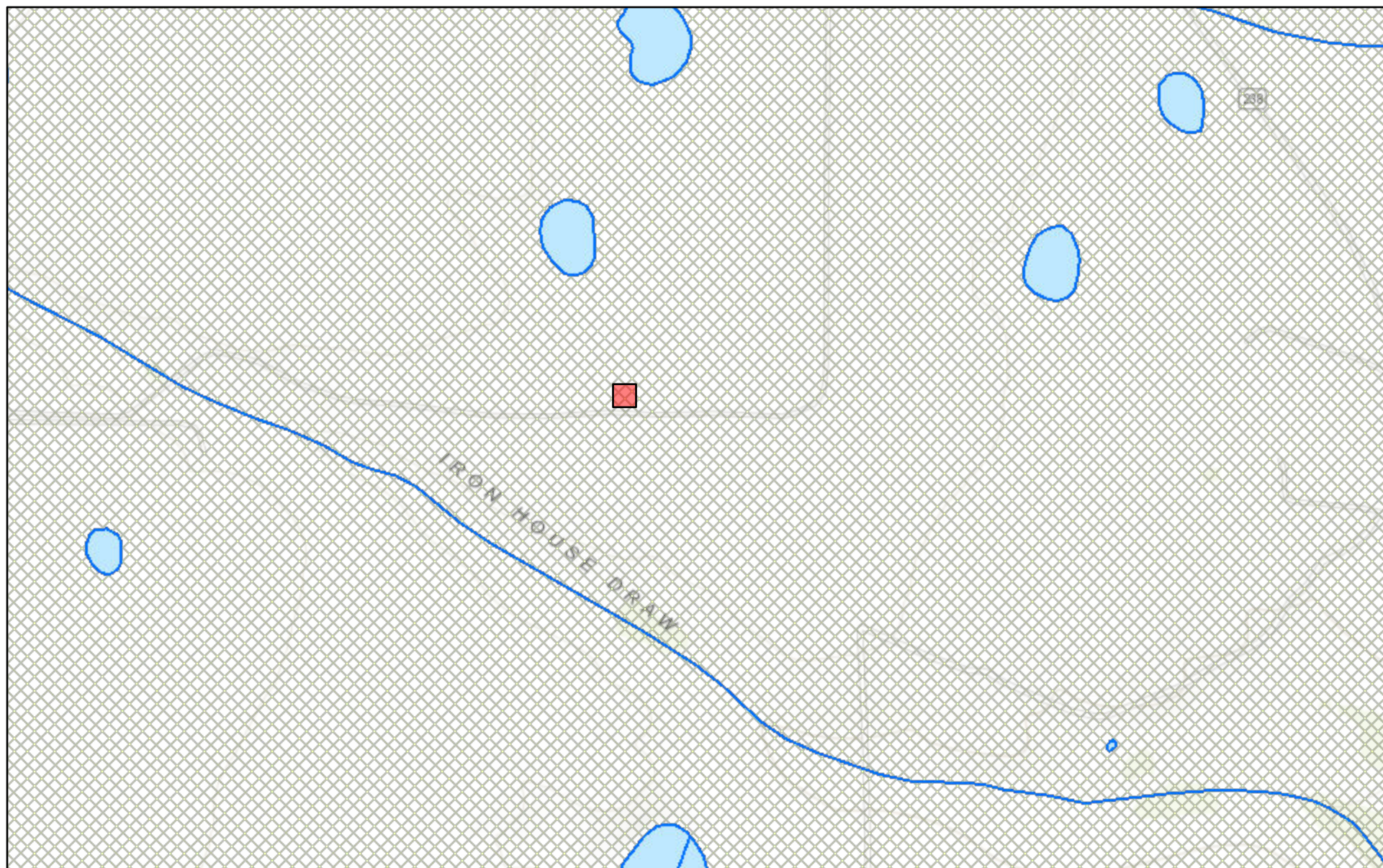
		(quarters are 1=NW 2=NE 3=SW 4=SE)				(quarters are smallest to largest)				(NAD83 UTM in meters)	
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y		
	L 03171		3	3	17	18S	35E	641835	3623734*		
x											
Driller License:		46	Driller Company:			ABBOTT BROTHERS COMPANY					
Driller Name:		ABBOTT, MURRELL									
Drill Start Date:		03/30/1956	Drill Finish Date:			03/30/1956		Plug Date:		04/30/1957	
Log File Date:		05/31/1956	PCW Rev Date:					Source:		Shallow	
Pump Type:		Pipe Discharge Size:					Estimated Yield:				
Casing Size:		7.00	Depth Well:			170 feet		Depth Water:		150 feet	
x											
Water Bearing Stratifications:				Top	Bottom	Description					
				150	170	Sandstone/Gravel/Conglomerate					
x											
Casing Perforations:				Top	Bottom						
				150	170						
x											

\*UTM location was derived from PLSS - see Help

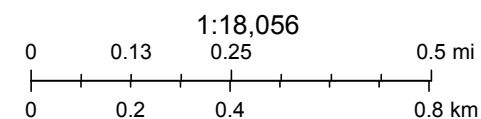
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/TSC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



# New Mexico NFHL Data



July 18, 2023



FEMA, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

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Project Name :	<u>Nighthawk State Com 3H</u>	Date :	<u>Tuesday, August 15, 2023</u>
Project No. :	<u>2090</u>	Sampler :	<u>Jim Hawley</u>
Location :	<u>Lea County, New Mexico</u>	Driller :	<u>H&amp;R Enterprises, LLC</u>
Coordinates :	<u>32.726286°, -103.479090°</u>	Method :	<u>Air Rotary</u>
Elevation (ft) :	<u>3,946</u>		

Depth (ft.)	WL	Soil Description	Lithology	Depth (ft.)	WL	Soil Description	Lithology
0		(0') - White medium to small well cemented angular gravel, with 50% fine, silty, soft loose sand. Dry, no odor, no organics (GM).		50		(50') - White medium to small well cemented angular gravel, with 75% fine, silty, loose, soft sand. Dry, no odor, no organics (GM).	
5		(5') - White fine silty soft loose sand. Dry, no odor, no organics (SM).		55			
10		(10') - White fine silty soft loose sand. Dry, no odor, no organics (SM).		60			
15		(15') - White small to medium well cemented angular gravel, with 50% fine, silty, soft loose sand. Dry, no odor, no organics (GM).		65			
20		(20') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		70			
25		(25') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		75			
30		(30') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		80			
35		(35') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		85			
40		(40') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		90			
45		(45') - White to light brown fine, silty, soft, loose sand. Dry, no odor, no organics (SM).		95			
50				105			

Comments : (8/15/23) Boring terminated at 55.0' with no presence of groundwater or moisture. (8/21/23) Bore measured at 55.0' using Heron Groundwater Meter, no detection of moisture inside bore.

## APPENDIX E

CARMONA RESOURCES







Environment Testing

1

2

3

4

5

6

7

8

9

10

11

12

13

14

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 8/25/2023 11:54:15 AM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County New Mexico

## JOB NUMBER

880-32290-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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8/25/2023 11:54:15 AM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-32290-1  
SDG: Lea County New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	9
QC Sample Results . . . . .	10
QC Association Summary . . . . .	14
Lab Chronicle . . . . .	16
Certification Summary . . . . .	17
Method Summary . . . . .	18
Sample Summary . . . . .	19
Chain of Custody . . . . .	20
Receipt Checklists . . . . .	21

1  
2  
3  
4  
5  
6  
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Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

**Job ID: 880-32290-1**

**Laboratory: Eurofins Midland**

**Narrative**

**Job Narrative  
880-32290-1**

**Receipt**

The samples were received on 8/18/2023 1:32 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -2.8°C

**GC VOA**

Method 8021B: Surrogate recovery for the following samples were outside control limits: (MB 880-60968/5-A) and (MB 880-61017/5-A). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following samples were outside control limits: (880-32121-A-1-D MS) and (880-32121-A-1-E MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-32121-A-1-F). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following samples were outside control limits: BH-1 (0-1') (880-32290-1) and BH-1 (2') (880-32290-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-61017 and analytical batch 880-60962 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-61009 and analytical batch 880-60956 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-60956/31) and (CCV 880-60956/47). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The continuing calibration verification (CCV) associated with batch 880-60956 recovered above the upper control limit for Diesel Range Organics (Over C10-C28). An acceptable CCV was ran within the 12 hour window, therefore the data has been qualified and reported. The associated sample is impacted: (CCV 880-60956/47).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Client Sample ID: BH-1 (0-1')

Lab Sample ID: 880-32290-1

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 05:11	1
<b>Toluene</b>	<b>0.00708</b>		0.00201		mg/Kg		08/24/23 13:56	08/25/23 05:11	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 05:11	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		08/24/23 13:56	08/25/23 05:11	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 05:11	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		08/24/23 13:56	08/25/23 05:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	132	S1+	70 - 130	08/24/23 13:56	08/25/23 05:11	1
1,4-Difluorobenzene (Surr)	93		70 - 130	08/24/23 13:56	08/25/23 05:11	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total BTEX</b>	<b>0.00708</b>		0.00402		mg/Kg			08/25/23 09:31	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total TPH</b>	<b>51.1</b>		50.1		mg/Kg			08/25/23 11:26	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.1	U	50.1		mg/Kg		08/24/23 12:53	08/24/23 23:21	1
<b>Diesel Range Organics (Over C10-C28)</b>	<b>51.1</b>		50.1		mg/Kg		08/24/23 12:53	08/24/23 23:21	1
Oil Range Organics (Over C28-C36)	<50.1	U	50.1		mg/Kg		08/24/23 12:53	08/24/23 23:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	08/24/23 12:53	08/24/23 23:21	1
o-Terphenyl	107		70 - 130	08/24/23 12:53	08/24/23 23:21	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8880</b>		50.1		mg/Kg			08/23/23 00:13	10

Client Sample ID: BH-1 (2')

Lab Sample ID: 880-32290-2

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		08/24/23 13:56	08/25/23 05:37	1
Toluene	<0.00202	U	0.00202		mg/Kg		08/24/23 13:56	08/25/23 05:37	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		08/24/23 13:56	08/25/23 05:37	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		08/24/23 13:56	08/25/23 05:37	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		08/24/23 13:56	08/25/23 05:37	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		08/24/23 13:56	08/25/23 05:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	146	S1+	70 - 130	08/24/23 13:56	08/25/23 05:37	1
1,4-Difluorobenzene (Surr)	99		70 - 130	08/24/23 13:56	08/25/23 05:37	1

Eurofins Midland



## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Client Sample ID: BH-1 (2')

Lab Sample ID: 880-32290-2

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			08/25/23 09:31	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2		mg/Kg			08/25/23 11:26	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	50.2		mg/Kg		08/24/23 12:53	08/24/23 23:42	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2		mg/Kg		08/24/23 12:53	08/24/23 23:42	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2		mg/Kg		08/24/23 12:53	08/24/23 23:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130				08/24/23 12:53	08/24/23 23:42	1
o-Terphenyl	109		70 - 130				08/24/23 12:53	08/24/23 23:42	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	455		5.00		mg/Kg			08/23/23 00:33	1

Client Sample ID: BH-1 (4')

Lab Sample ID: 880-32290-3

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
Toluene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		08/24/23 13:56	08/25/23 06:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130				08/24/23 13:56	08/25/23 06:02	1
1,4-Difluorobenzene (Surr)	92		70 - 130				08/24/23 13:56	08/25/23 06:02	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			08/25/23 09:31	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			08/25/23 11:26	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/24/23 12:53	08/25/23 00:04	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		08/24/23 12:53	08/25/23 00:04	1

Eurofins Midland

Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Client Sample ID: BH-1 (4')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32290-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/24/23 12:53	08/25/23 00:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	111		70 - 130				08/24/23 12:53	08/25/23 00:04	1
o-Terphenyl	116		70 - 130				08/24/23 12:53	08/25/23 00:04	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	142		5.00		mg/Kg			08/23/23 00:40	1

## Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-32121-A-1-D MS	Matrix Spike	141 S1+	109
880-32121-A-1-E MSD	Matrix Spike Duplicate	140 S1+	106
880-32290-1	BH-1 (0-1')	132 S1+	93
880-32290-2	BH-1 (2')	146 S1+	99
880-32290-3	BH-1 (4')	126	92
LCS 880-61017/1-A	Lab Control Sample	119	95
LCSD 880-61017/2-A	Lab Control Sample Dup	130	116
MB 880-60968/5-A	Method Blank	69 S1-	84
MB 880-61017/5-A	Method Blank	66 S1-	82
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-32290-1	BH-1 (0-1')	106	107
880-32290-2	BH-1 (2')	105	109
880-32290-3	BH-1 (4')	111	116
890-5084-A-1-D MS	Matrix Spike	108	98
890-5084-A-1-E MSD	Matrix Spike Duplicate	103	98
LCS 880-61009/2-A	Lab Control Sample	97	105
LCSD 880-61009/3-A	Lab Control Sample Dup	103	117
MB 880-61009/1-A	Method Blank	153 S1+	167 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-60968/5-A

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 60968

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/24/23 09:15	08/24/23 12:12	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/24/23 09:15	08/24/23 12:12	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/24/23 09:15	08/24/23 12:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/24/23 09:15	08/24/23 12:12	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/24/23 09:15	08/24/23 12:12	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/24/23 09:15	08/24/23 12:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69	S1-	70 - 130	08/24/23 09:15	08/24/23 12:12	1
1,4-Difluorobenzene (Surr)	84		70 - 130	08/24/23 09:15	08/24/23 12:12	1

Lab Sample ID: MB 880-61017/5-A

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 61017

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/24/23 13:56	08/25/23 02:14	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/24/23 13:56	08/25/23 02:14	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/24/23 13:56	08/25/23 02:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/24/23 13:56	08/25/23 02:14	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/24/23 13:56	08/25/23 02:14	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/24/23 13:56	08/25/23 02:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	66	S1-	70 - 130	08/24/23 13:56	08/25/23 02:14	1
1,4-Difluorobenzene (Surr)	82		70 - 130	08/24/23 13:56	08/25/23 02:14	1

Lab Sample ID: LCS 880-61017/1-A

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61017

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08221		mg/Kg		82	70 - 130
Toluene	0.100	0.08060		mg/Kg		81	70 - 130
Ethylbenzene	0.100	0.08072		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	0.200	0.1578		mg/Kg		79	70 - 130
o-Xylene	0.100	0.08364		mg/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-61017/2-A

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61017

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09448		mg/Kg		94	70 - 130	14	35

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-61017/2-A

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61017

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08469		mg/Kg		85	70 - 130	5	35
Ethylbenzene	0.100	0.09550		mg/Kg		95	70 - 130	17	35
m-Xylene & p-Xylene	0.200	0.1798		mg/Kg		90	70 - 130	13	35
o-Xylene	0.100	0.09758		mg/Kg		98	70 - 130	15	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	130		70 - 130
1,4-Difluorobenzene (Surr)	116		70 - 130

Lab Sample ID: 880-32121-A-1-D MS

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 61017

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0996	0.09056		mg/Kg		91	70 - 130
Toluene	<0.00199	U	0.0996	0.08150		mg/Kg		82	70 - 130
Ethylbenzene	<0.00199	U	0.0996	0.08046		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1390		mg/Kg		70	70 - 130
o-Xylene	<0.00199	U F1	0.0996	0.06482	F1	mg/Kg		65	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	141	S1+	70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: 880-32121-A-1-E MSD

Matrix: Solid

Analysis Batch: 60962

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 61017

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1005		mg/Kg		100	70 - 130	10	35
Toluene	<0.00199	U	0.101	0.08550		mg/Kg		85	70 - 130	5	35
Ethylbenzene	<0.00199	U	0.101	0.08450		mg/Kg		84	70 - 130	5	35
m-Xylene & p-Xylene	<0.00398	U	0.202	0.1473		mg/Kg		73	70 - 130	6	35
o-Xylene	<0.00199	U F1	0.101	0.07031		mg/Kg		70	70 - 130	8	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	140	S1+	70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-61009/1-A

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 61009

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/24/23 12:51	08/24/23 19:47	1

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-61009/1-A

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 61009

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/24/23 12:51	08/24/23 19:47	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/24/23 12:51	08/24/23 19:47	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1-Chlorooctane	153	S1+	70 - 130				08/24/23 12:51	08/24/23 19:47	1
o-Terphenyl	167	S1+	70 - 130				08/24/23 12:51	08/24/23 19:47	1

Lab Sample ID: LCS 880-61009/2-A

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	924.4		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	850.1		mg/Kg		85	70 - 130
Surrogate		LCS	LCS				Limits
		%Recovery	Qualifier				
1-Chlorooctane		97					70 - 130
o-Terphenyl		105					70 - 130

Lab Sample ID: LCSD 880-61009/3-A

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61009

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	969.2		mg/Kg		97	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	861.8		mg/Kg		86	70 - 130	1	20
Surrogate		LCSD	LCSD				Limits		
		%Recovery	Qualifier						
1-Chlorooctane		103					70 - 130		
o-Terphenyl		117					70 - 130		

Lab Sample ID: 890-5084-A-1-D MS

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 61009

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	1010	1303		mg/Kg		127	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	1010	978.3		mg/Kg		95	70 - 130
Surrogate	MS	MS	Limits						
	%Recovery	Qualifier							
1-Chlorooctane	108		70 - 130						
o-Terphenyl	98		70 - 130						

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-5084-A-1-E MSD

Matrix: Solid

Analysis Batch: 60956

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 61009

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	1010	1245		mg/Kg		121	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	<50.0	U	1010	959.7		mg/Kg		93	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	103		70 - 130								
o-Terphenyl	98		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-60752/1-A

Matrix: Solid

Analysis Batch: 60836

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/22/23 22:20	1

Lab Sample ID: LCS 880-60752/2-A

Matrix: Solid

Analysis Batch: 60836

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	255.9		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-60752/3-A

Matrix: Solid

Analysis Batch: 60836

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	258.6		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 880-32290-1 MS

Matrix: Solid

Analysis Batch: 60836

Client Sample ID: BH-1 (0-1')

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8880		2510	11600		mg/Kg		109	90 - 110

Lab Sample ID: 880-32290-1 MSD

Matrix: Solid

Analysis Batch: 60836

Client Sample ID: BH-1 (0-1')

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8880		2510	11610		mg/Kg		109	90 - 110	0	20

Eurofins Midland

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## GC VOA

## Analysis Batch: 60962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	8021B	61017
880-32290-2	BH-1 (2')	Total/NA	Solid	8021B	61017
880-32290-3	BH-1 (4')	Total/NA	Solid	8021B	61017
MB 880-60968/5-A	Method Blank	Total/NA	Solid	8021B	60968
MB 880-61017/5-A	Method Blank	Total/NA	Solid	8021B	61017
LCS 880-61017/1-A	Lab Control Sample	Total/NA	Solid	8021B	61017
LCSD 880-61017/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	61017
880-32121-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	61017
880-32121-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	61017

## Prep Batch: 60968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-60968/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 61017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	5035	
880-32290-2	BH-1 (2')	Total/NA	Solid	5035	
880-32290-3	BH-1 (4')	Total/NA	Solid	5035	
MB 880-61017/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-61017/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-61017/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-32121-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
880-32121-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 61103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	Total BTEX	
880-32290-2	BH-1 (2')	Total/NA	Solid	Total BTEX	
880-32290-3	BH-1 (4')	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 60956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	8015B NM	61009
880-32290-2	BH-1 (2')	Total/NA	Solid	8015B NM	61009
880-32290-3	BH-1 (4')	Total/NA	Solid	8015B NM	61009
MB 880-61009/1-A	Method Blank	Total/NA	Solid	8015B NM	61009
LCS 880-61009/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	61009
LCSD 880-61009/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	61009
890-5084-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B NM	61009
890-5084-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	61009

## Prep Batch: 61009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	8015NM Prep	
880-32290-2	BH-1 (2')	Total/NA	Solid	8015NM Prep	
880-32290-3	BH-1 (4')	Total/NA	Solid	8015NM Prep	
MB 880-61009/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-61009/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

## GC Semi VOA (Continued)

## Prep Batch: 61009 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-61009/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5084-A-1-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5084-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 61131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Total/NA	Solid	8015 NM	
880-32290-2	BH-1 (2')	Total/NA	Solid	8015 NM	
880-32290-3	BH-1 (4')	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 60752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Soluble	Solid	DI Leach	
880-32290-2	BH-1 (2')	Soluble	Solid	DI Leach	
880-32290-3	BH-1 (4')	Soluble	Solid	DI Leach	
MB 880-60752/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-60752/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-60752/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-32290-1 MS	BH-1 (0-1')	Soluble	Solid	DI Leach	
880-32290-1 MSD	BH-1 (0-1')	Soluble	Solid	DI Leach	

## Analysis Batch: 60836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32290-1	BH-1 (0-1')	Soluble	Solid	300.0	60752
880-32290-2	BH-1 (2')	Soluble	Solid	300.0	60752
880-32290-3	BH-1 (4')	Soluble	Solid	300.0	60752
MB 880-60752/1-A	Method Blank	Soluble	Solid	300.0	60752
LCS 880-60752/2-A	Lab Control Sample	Soluble	Solid	300.0	60752
LCSD 880-60752/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	60752
880-32290-1 MS	BH-1 (0-1')	Soluble	Solid	300.0	60752
880-32290-1 MSD	BH-1 (0-1')	Soluble	Solid	300.0	60752

## Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Client Sample ID: BH-1 (0-1')

Lab Sample ID: 880-32290-1

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	61017	08/24/23 13:56	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	60962	08/25/23 05:11	SM	EET MID
Total/NA	Analysis	Total BTEX		1			61103	08/25/23 09:31	SM	EET MID
Total/NA	Analysis	8015 NM		1			61131	08/25/23 11:26	SM	EET MID
Total/NA	Prep	8015NM Prep			9.98 g	10 mL	61009	08/24/23 12:53	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	60956	08/24/23 23:21	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	60752	08/21/23 15:17	SMC	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	60836	08/23/23 00:13	CH	EET MID

Client Sample ID: BH-1 (2')

Lab Sample ID: 880-32290-2

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	61017	08/24/23 13:56	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	60962	08/25/23 05:37	SM	EET MID
Total/NA	Analysis	Total BTEX		1			61103	08/25/23 09:31	SM	EET MID
Total/NA	Analysis	8015 NM		1			61131	08/25/23 11:26	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	61009	08/24/23 12:53	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	60956	08/24/23 23:42	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	60752	08/21/23 15:17	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	60836	08/23/23 00:33	CH	EET MID

Client Sample ID: BH-1 (4')

Lab Sample ID: 880-32290-3

Date Collected: 08/15/23 00:00

Matrix: Solid

Date Received: 08/18/23 13:32

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	61017	08/24/23 13:56	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	60962	08/25/23 06:02	SM	EET MID
Total/NA	Analysis	Total BTEX		1			61103	08/25/23 09:31	SM	EET MID
Total/NA	Analysis	8015 NM		1			61131	08/25/23 11:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	61009	08/24/23 12:53	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	60956	08/25/23 00:04	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	60752	08/21/23 15:17	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	60836	08/23/23 00:40	CH	EET MID

## Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Midland

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

- EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32290-1  
SDG: Lea County New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-32290-1	BH-1 (0-1')	Solid	08/15/23 00:00	08/18/23 13:32
880-32290-2	BH-1 (2')	Solid	08/15/23 00:00	08/18/23 13:32
880-32290-3	BH-1 (4')	Solid	08/15/23 00:00	08/18/23 13:32

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Project Manager:	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name:	Carmona Resources	Company Name:	Marathon Oil Corporation
Address:	310 W Wall St Ste 500	Address:	990 Town and Country Blvd
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Houston, TX 77024
Phone:		Email:	msanjari@marathonoil.com

Work Order Comments	
Program: UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	







**880-32290 Chain of Custody**

8/25/2023

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
			
	8-18-23		8/18/23
			1/3/22

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-32290-1

SDG Number: Lea County New Mexico

Login Number: 32290

List Number: 1

Creator: Kramer, Jessica

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 8/22/2023 12:44:07 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County New Mexico

## JOB NUMBER

880-32291-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701



# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
8/22/2023 12:44:07 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-32291-1  
SDG: Lea County New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
QC Sample Results . . . . .	7
QC Association Summary . . . . .	8
Lab Chronicle . . . . .	9
Certification Summary . . . . .	10
Method Summary . . . . .	11
Sample Summary . . . . .	12
Chain of Custody . . . . .	13
Receipt Checklists . . . . .	14



## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

## Qualifiers

## HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Job ID: 880-32291-1

Laboratory: Eurofins Midland

Narrative	
	Job Narrative 880-32291-1

Receipt

The samples were received on 8/18/2023 1:32 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -2.8°C

HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-60624 and analytical batch 880-60770 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Client Sample ID: BH-4 (0-1')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-1  
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		5.02		mg/Kg			08/22/23 06:14	1

Client Sample ID: BH-4 (2')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-2  
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	75.5		4.95		mg/Kg			08/22/23 06:21	1

Client Sample ID: BH-4 (4')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-3  
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	285		5.01		mg/Kg			08/22/23 06:29	1



## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-60624/1-A

Matrix: Solid

Analysis Batch: 60770

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/22/23 03:02	1

Lab Sample ID: LCS 880-60624/2-A

Matrix: Solid

Analysis Batch: 60770

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	249.2		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-60624/3-A

Matrix: Solid

Analysis Batch: 60770

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	249.9		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 880-32288-A-4-B MS

Matrix: Solid

Analysis Batch: 60770

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	809	F1	248	1026	F1	mg/Kg		87	90 - 110

Lab Sample ID: 880-32288-A-4-C MSD

Matrix: Solid

Analysis Batch: 60770

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	809	F1	248	1030	F1	mg/Kg		89	90 - 110	0	20

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

HPLC/IC

Leach Batch: 60624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32291-1	BH-4 (0-1')	Soluble	Solid	DI Leach	
880-32291-2	BH-4 (2')	Soluble	Solid	DI Leach	
880-32291-3	BH-4 (4')	Soluble	Solid	DI Leach	
MB 880-60624/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-60624/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-60624/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-32288-A-4-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-32288-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 60770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-32291-1	BH-4 (0-1')	Soluble	Solid	300.0	60624
880-32291-2	BH-4 (2')	Soluble	Solid	300.0	60624
880-32291-3	BH-4 (4')	Soluble	Solid	300.0	60624
MB 880-60624/1-A	Method Blank	Soluble	Solid	300.0	60624
LCS 880-60624/2-A	Lab Control Sample	Soluble	Solid	300.0	60624
LCSD 880-60624/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	60624
880-32288-A-4-B MS	Matrix Spike	Soluble	Solid	300.0	60624
880-32288-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	60624

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Client Sample ID: BH-4 (0-1')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	60624	08/19/23 11:24	CH	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	60770	08/22/23 06:14	CH	EET MID

Client Sample ID: BH-4 (2')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-2  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	60624	08/19/23 11:24	CH	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	60770	08/22/23 06:21	CH	EET MID

Client Sample ID: BH-4 (4')  
Date Collected: 08/15/23 00:00  
Date Received: 08/18/23 13:32

Lab Sample ID: 880-32291-3  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	60624	08/19/23 11:24	CH	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	60770	08/22/23 06:29	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Laboratory: Eurofins Midland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

- 1
- 2
- 3
- 4
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- 10
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- 12
- 13

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency

Laboratory References:

- EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

1
2
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Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-32291-1  
SDG: Lea County New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-32291-1	BH-4 (0-1')	Solid	08/15/23 00:00	08/18/23 13:32
880-32291-2	BH-4 (2')	Solid	08/15/23 00:00	08/18/23 13:32
880-32291-3	BH-4 (4')	Solid	08/15/23 00:00	08/18/23 13:32

1
2
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## Chain of Custody

Project Manager:	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name:	Carmona Resources	Company Name:	Marathon Oil Corporation
Address:	310 W Wall St Ste 500	Address:	990 Town and Country Blvd
City, State ZIP:	Midland, TX 79701	City, State ZIP:	Houston, TX 77024
Phone:		Email:	msanjari@marathonoil.com

Work Order Comments									
Program:	UST/ST	<input type="checkbox"/> PRP	<input type="checkbox"/> Brownfields	<input type="checkbox"/> RC	<input type="checkbox"/> perfund	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State of Project:									
Reporting Level II	<input type="checkbox"/>	Level III	<input type="checkbox"/>	ST/UST	<input type="checkbox"/>	RRP	<input type="checkbox"/>	Level IV	<input type="checkbox"/>
Deliverables:	EDD	<input type="checkbox"/>	ADAPT	<input type="checkbox"/>	Other:				

[illegible]

880-32291 Chain of Custody



8/22/2023

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Date/Time

8-18-23

8/13/23

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-32291-1

SDG Number: Lea County New Mexico

Login Number: 32291

List Number: 1

Creator: Kramer, Jessica

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

- 1
- 2
- 3
- 4
- 5
- 6
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- 10
- 11
- 12
- 13
- 14

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:05:41 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34209-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:05:41 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440



Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34209-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	9
QC Sample Results . . . . .	10
QC Association Summary . . . . .	13
Lab Chronicle . . . . .	15
Certification Summary . . . . .	16
Method Summary . . . . .	17
Sample Summary . . . . .	18
Chain of Custody . . . . .	19
Receipt Checklists . . . . .	20

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

**Job ID: 880-34209-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34209-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The samples were received on 10/9/2023 4:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: BH-2 (0-1') (880-34209-1), BH-2 (2') (880-34209-2), BH-2 (4') (880-34209-3) and BH-2 (5') (880-34209-4).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: BH-2 (0-1') (880-34209-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-2 (0-1')

Lab Sample ID: 880-34209-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 18:39	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 18:39	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 18:39	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 18:39	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 18:39	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	10/10/23 10:38	10/11/23 18:39	1
1,4-Difluorobenzene (Surr)	110		70 - 130	10/10/23 10:38	10/11/23 18:39	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/11/23 18:39	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6		mg/Kg			10/10/23 23:57	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 23:57	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 23:57	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 23:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	133	S1+	70 - 130	10/10/23 09:30	10/10/23 23:57	1
o-Terphenyl	138	S1+	70 - 130	10/10/23 09:30	10/10/23 23:57	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	206		5.02		mg/Kg			10/11/23 21:00	1

Client Sample ID: BH-2 (2')

Lab Sample ID: 880-34209-2

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 19:00	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 19:00	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 19:00	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/10/23 10:38	10/11/23 19:00	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 19:00	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/10/23 10:38	10/11/23 19:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	10/10/23 10:38	10/11/23 19:00	1
1,4-Difluorobenzene (Surr)	106		70 - 130	10/10/23 10:38	10/11/23 19:00	1

Eurofins Midland

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-2 (2')

Lab Sample ID: 880-34209-2

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/11/23 19:00	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3		mg/Kg			10/11/23 00:19	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:19	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:19	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130				10/10/23 09:30	10/11/23 00:19	1
o-Terphenyl	129		70 - 130				10/10/23 09:30	10/11/23 00:19	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	101		5.00		mg/Kg			10/11/23 21:06	1

Client Sample ID: BH-2 (4')

Lab Sample ID: 880-34209-3

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/10/23 10:38	10/11/23 19:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130				10/10/23 10:38	10/11/23 19:20	1
1,4-Difluorobenzene (Surr)	109		70 - 130				10/10/23 10:38	10/11/23 19:20	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			10/11/23 19:20	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5		mg/Kg			10/11/23 00:41	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 00:41	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 00:41	1

Eurofins Midland



Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-2 (4')  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34209-3  
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Oil Range Organics (Over C28-C36)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 00:41	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1-Chlorooctane	115		70 - 130				10/10/23 09:30	10/11/23 00:41	1	
o-Terphenyl	115		70 - 130				10/10/23 09:30	10/11/23 00:41	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	106		4.97		mg/Kg			10/11/23 21:12	1	

## Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34209-1	BH-2 (0-1')	95	110
880-34209-2	BH-2 (2')	93	106
880-34209-3	BH-2 (4')	97	109
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34209-1	BH-2 (0-1')	133 S1+	138 S1+
880-34209-2	BH-2 (2')	126	129
880-34209-3	BH-2 (4')	115	115
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34204-A-1-D MS							Client Sample ID: Matrix Spike				
Matrix: Solid							Prep Type: Soluble				
Analysis Batch: 64500											
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	290		248	540.9		mg/Kg		101	90 - 110		

Lab Sample ID: 880-34204-A-1-E MSD							Client Sample ID: Matrix Spike Duplicate				
Matrix: Solid							Prep Type: Soluble				
Analysis Batch: 64500											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	5035	
880-34209-2	BH-2 (2')	Total/NA	Solid	5035	
880-34209-3	BH-2 (4')	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	8021B	64332
880-34209-2	BH-2 (2')	Total/NA	Solid	8021B	64332
880-34209-3	BH-2 (4')	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	Total BTEX	
880-34209-2	BH-2 (2')	Total/NA	Solid	Total BTEX	
880-34209-3	BH-2 (4')	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	8015B NM	64329
880-34209-2	BH-2 (2')	Total/NA	Solid	8015B NM	64329
880-34209-3	BH-2 (4')	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	8015NM Prep	
880-34209-2	BH-2 (2')	Total/NA	Solid	8015NM Prep	
880-34209-3	BH-2 (4')	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Total/NA	Solid	8015 NM	
880-34209-2	BH-2 (2')	Total/NA	Solid	8015 NM	
880-34209-3	BH-2 (4')	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Soluble	Solid	DI Leach	
880-34209-2	BH-2 (2')	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 64405 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-3	BH-2 (4')	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34209-1	BH-2 (0-1')	Soluble	Solid	300.0	64405
880-34209-2	BH-2 (2')	Soluble	Solid	300.0	64405
880-34209-3	BH-2 (4')	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-2 (0-1')  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34209-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 18:39	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64594	10/11/23 18:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			64471	10/10/23 23:57	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 23:57	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 21:00	CH	EET MID

Client Sample ID: BH-2 (2')  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34209-2  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 19:00	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64594	10/11/23 19:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			64471	10/11/23 00:19	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/11/23 00:19	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 21:06	CH	EET MID

Client Sample ID: BH-2 (4')  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34209-3  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 19:20	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64594	10/11/23 19:20	SM	EET MID
Total/NA	Analysis	8015 NM		1			64471	10/11/23 00:41	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/11/23 00:41	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 21:12	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34209-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34209-1	BH-2 (0-1')	Solid	10/04/23 00:00	10/09/23 16:20
880-34209-2	BH-2 (2')	Solid	10/04/23 00:00	10/09/23 16:20
880-34209-3	BH-2 (4')	Solid	10/04/23 00:00	10/09/23 16:20

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- 9
- 10
- 11
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Chain of Custody



880-34209 Chain of Custody

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjan
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and Country Blvd
City, State ZIP	Midland TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjan@marathonoil.com

Work Order Comments	
Program UST/PRP	PRP
State of Project	PRP
Reporting Level II	Level III
Deliverables EDD	ADAPT
	Other

Project Name.		Nighthawk 3H			Turn Around			ANALYSIS REQUEST												Preservative Codes								
Project Number		2090			<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush				Pres. Code														None NO					
Project Location		Lea County, New Mexico			Due Date		5 day																Cool Cool					
Sampler's Name		CCM																					DI Water H <sub>2</sub> O					
PO #.																							Cool Cool					
SAMPLE RECEIPT		Temp Blank.		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Wet Ice		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																HCL HC				
Received Intact:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Thermometer ID																				H <sub>2</sub> SO <sub>4</sub> H <sub>2</sub>				
Cooler Custody Seals		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Correction Factor																				H <sub>3</sub> PO <sub>4</sub> HP				
Sample Custody Seals		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Temperature Reading																				NaHSO <sub>4</sub> NABIS				
Total Containers.		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Corrected Temperature																				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> NaSO <sub>3</sub>				
Sample Identification		Date		Time		Soil		Water		Grab/Comp		# of Cont														Zn Acetate+NaOH Zn		
BH-2 (0-1')		10/4/2023				X				G		1														NaOH+Ascorbic Acid SAPC		
BH-2 (2)		10/4/2023				X				G		1																
BH-2 (4)		10/4/2023				X				G		1																
BH-2 (5)		10/4/2023				X				G		1														X		

Comments Email results to Mike Carmona mcarmona@carmonaresources.com, Conner Moehring cmoehring@carmonaresources.com, Clint Merritt merrittc@carmonaresources.com

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	10-9-23 1620	<i>[Signature]</i>	



## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34209-1

SDG Number: Lea County, New Mexico

Login Number: 34209

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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- 2
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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:04:28 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34208-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:04:28 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34208-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	12
Lab Chronicle . . . . .	14
Certification Summary . . . . .	15
Method Summary . . . . .	16
Sample Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	19

1

2

3

4

5

6

7

8

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12

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14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

**Job ID: 880-34208-1**

**Laboratory: Eurofins Midland**

**Narrative****Job Narrative  
880-34208-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: BH-5 (0-1') (880-34208-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH-5 (0-1') (880-34208-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-64404 and analytical batch 880-64423 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: BH-5 (0-1') (880-34208-1), (CCV 880-64423/5), (LCS 880-64404/2-A), (LCSD 880-64404/3-A), (880-34208-A-1-D MS) and (880-34208-A-1-E MSD). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: (CCV 880-64423/30). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The laboratory control sample (LCS) associated with preparation batch 880-64404 and analytical batch 880-64423 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-5 (0-1')

Lab Sample ID: 880-34208-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 18:19	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 18:19	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 18:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 18:19	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 18:19	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 18:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	369	S1+	70 - 130	10/10/23 10:38	10/11/23 18:19	1
1,4-Difluorobenzene (Surr)	146	S1+	70 - 130	10/10/23 10:38	10/11/23 18:19	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/11/23 18:19	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6		mg/Kg			10/11/23 12:09	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6		mg/Kg		10/10/23 15:31	10/11/23 12:09	1
Diesel Range Organics (Over C10-C28)	<49.6	U *+ *1	49.6		mg/Kg		10/10/23 15:31	10/11/23 12:09	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6		mg/Kg		10/10/23 15:31	10/11/23 12:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	145	S1+	70 - 130	10/10/23 15:31	10/11/23 12:09	1
o-Terphenyl	135	S1+	70 - 130	10/10/23 15:31	10/11/23 12:09	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	261		5.01		mg/Kg			10/11/23 20:54	1

Eurofins Midland

## Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34208-1	BH-5 (0-1')	369 S1+	146 S1+
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34208-1	BH-5 (0-1')	145 S1+	135 S1+
880-34208-1 MS	BH-5 (0-1')	170 S1+	138 S1+
880-34208-1 MSD	BH-5 (0-1')	171 S1+	138 S1+
LCS 880-64404/2-A	Lab Control Sample	137 S1+	148 S1+
LCSD 880-64404/3-A	Lab Control Sample Dup	151 S1+	144 S1+
MB 880-64404/1-A	Method Blank	200 S1+	196 S1+
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-64404/1-A

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64404

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/10/23 15:30	10/11/23 09:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/10/23 15:30	10/11/23 09:15	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/23 15:30	10/11/23 09:15	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	200	S1+	70 - 130				10/10/23 15:30	10/11/23 09:15	1
o-Terphenyl	196	S1+	70 - 130				10/10/23 15:30	10/11/23 09:15	1

Lab Sample ID: LCS 880-64404/2-A

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64404

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	922.1		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1019		mg/Kg		102	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-64404/2-A

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64404

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	137	S1+	70 - 130
o-Terphenyl	148	S1+	70 - 130

Lab Sample ID: LCSD 880-64404/3-A

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64404

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	997.7		mg/Kg		100	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	1000	1371	*+ *1	mg/Kg		137	70 - 130	29	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	151	S1+	70 - 130
o-Terphenyl	144	S1+	70 - 130

Lab Sample ID: 880-34208-1 MS

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: BH-5 (0-1')

Prep Type: Total/NA

Prep Batch: 64404

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	999	953.8		mg/Kg		94	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.6	U *+ *1	999	1308		mg/Kg		129	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	170	S1+	70 - 130
o-Terphenyl	138	S1+	70 - 130

Lab Sample ID: 880-34208-1 MSD

Matrix: Solid

Analysis Batch: 64423

Client Sample ID: BH-5 (0-1')

Prep Type: Total/NA

Prep Batch: 64404

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	999	942.2		mg/Kg		92	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<49.6	U *+ *1	999	1307		mg/Kg		129	70 - 130	0	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	171	S1+	70 - 130
o-Terphenyl	138	S1+	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34204-A-1-D MS

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	290		248	540.9		mg/Kg		101	90 - 110

Lab Sample ID: 880-34204-A-1-E MSD

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20



## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 64404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	8015NM Prep	
MB 880-64404/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64404/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64404/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-34208-1 MS	BH-5 (0-1')	Total/NA	Solid	8015NM Prep	
880-34208-1 MSD	BH-5 (0-1')	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	8015B NM	64404
MB 880-64404/1-A	Method Blank	Total/NA	Solid	8015B NM	64404
LCS 880-64404/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64404
LCSD 880-64404/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64404
880-34208-1 MS	BH-5 (0-1')	Total/NA	Solid	8015B NM	64404
880-34208-1 MSD	BH-5 (0-1')	Total/NA	Solid	8015B NM	64404

## Analysis Batch: 64525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 64405 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34208-1	BH-5 (0-1')	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Client Sample ID: BH-5 (0-1')  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34208-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 18:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64593	10/11/23 18:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			64525	10/11/23 12:09	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	64404	10/10/23 15:31	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64423	10/11/23 12:09	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:54	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 9
- 10
- 11
- 12
- 13
- 14

## Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34208-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34208-1	BH-5 (0-1')	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
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- 5
- 6
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- 12
- 13
- 14



# Year of 'Stories'



880-34208 Chain of Custody

Page 1 of 1

Project Manager	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name	Carmoma Resources	Company Name	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address	990 Town and Country Blvd
City State ZIP	Midland TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjari@marathonoil.com

Work Order Comments	
Program UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> brownfields <input type="checkbox"/> RC <input type="checkbox"/> perfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> level IV <input type="checkbox"/>	
Deliverables EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other	

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Myrna Mors</i>	10-4-23 1020	<i>[Signature]</i>	

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34208-1  
SDG Number: Lea County, New Mexico

Login Number: 34208

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/13/2023 2:33:56 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34207-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/13/2023 2:33:56 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34207-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

**Job ID: 880-34207-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34207-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-1 (0-6") (880-34207-1).

**GC VOA**

Method 8021B: Surrogate recovery for the following samples were outside control limits: H-1 (0-6") (880-34207-1) and (880-34311-A-1-C). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: H-1 (0-6") (880-34207-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Client Sample ID: H-1 (0-6")

Lab Sample ID: 880-34207-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/11/23 15:04	10/12/23 18:57	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/23 15:04	10/12/23 18:57	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/23 15:04	10/12/23 18:57	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/11/23 15:04	10/12/23 18:57	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/23 15:04	10/12/23 18:57	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/11/23 15:04	10/12/23 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69	S1-	70 - 130	10/11/23 15:04	10/12/23 18:57	1
1,4-Difluorobenzene (Surr)	103		70 - 130	10/11/23 15:04	10/12/23 18:57	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403		mg/Kg			10/12/23 18:57	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/10/23 23:35	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:35	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:35	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	138	S1+	70 - 130	10/10/23 09:30	10/10/23 23:35	1
o-Terphenyl	142	S1+	70 - 130	10/10/23 09:30	10/10/23 23:35	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	136		5.04		mg/Kg			10/11/23 20:48	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34207-1	H-1 (0-6")	69 S1-	103
880-34311-A-1-A MS	Matrix Spike	122	100
880-34311-A-1-B MSD	Matrix Spike Duplicate	115	104
LCS 880-64502/1-A	Lab Control Sample	128	109
LCSD 880-64502/2-A	Lab Control Sample Dup	128	101
MB 880-64502/5-A	Method Blank	80	91
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34207-1	H-1 (0-6")	138 S1+	142 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64502/5-A

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/23 15:04	10/12/23 11:23	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/23 15:04	10/12/23 11:23	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/23 15:04	10/12/23 11:23	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/23 15:04	10/12/23 11:23	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/23 15:04	10/12/23 11:23	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/23 15:04	10/12/23 11:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		70 - 130	10/11/23 15:04	10/12/23 11:23	1
1,4-Difluorobenzene (Surr)	91		70 - 130	10/11/23 15:04	10/12/23 11:23	1

Lab Sample ID: LCS 880-64502/1-A

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07857		mg/Kg		79	70 - 130
Toluene	0.100	0.07926		mg/Kg		79	70 - 130
Ethylbenzene	0.100	0.09043		mg/Kg		90	70 - 130
m-Xylene & p-Xylene	0.200	0.1946		mg/Kg		97	70 - 130
o-Xylene	0.100	0.09961		mg/Kg		100	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	128		70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: LCSD 880-64502/2-A

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64502

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08430		mg/Kg		84	70 - 130	7	35
Toluene	0.100	0.07828		mg/Kg		78	70 - 130	1	35
Ethylbenzene	0.100	0.08874		mg/Kg		89	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1787		mg/Kg		89	70 - 130	9	35
o-Xylene	0.100	0.1040		mg/Kg		104	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	128		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34311-A-1-A MS

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0996	0.09524		mg/Kg		96	70 - 130
Toluene	<0.00200	U	0.0996	0.09387		mg/Kg		94	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34311-A-1-A MS

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0996	0.1043		mg/Kg		105	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.199	0.2282		mg/Kg		115	70 - 130
o-Xylene	<0.00200	U	0.0996	0.1141		mg/Kg		115	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	122		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 880-34311-A-1-B MSD

Matrix: Solid

Analysis Batch: 64523

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0990	0.08499		mg/Kg		86	70 - 130	11	35
Toluene	<0.00200	U	0.0990	0.08138		mg/Kg		82	70 - 130	14	35
Ethylbenzene	<0.00200	U	0.0990	0.08808		mg/Kg		89	70 - 130	17	35
m-Xylene & p-Xylene	<0.00401	U	0.198	0.1873		mg/Kg		95	70 - 130	20	35
o-Xylene	<0.00200	U	0.0990	0.09482		mg/Kg		96	70 - 130	18	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34204-A-1-D MS						Client Sample ID: Matrix Spike					
Matrix: Solid						Prep Type: Soluble					
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	290		248	540.9		mg/Kg		101	90 - 110		

Lab Sample ID: 880-34204-A-1-E MSD						Client Sample ID: Matrix Spike Duplicate					
Matrix: Solid						Prep Type: Soluble					
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20



## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	5035	
MB 880-64502/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64502/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64502/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34311-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-34311-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	8021B	64502
MB 880-64502/5-A	Method Blank	Total/NA	Solid	8021B	64502
LCS 880-64502/1-A	Lab Control Sample	Total/NA	Solid	8021B	64502
LCSD 880-64502/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64502
880-34311-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	64502
880-34311-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64502

## Analysis Batch: 64681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34207-1	H-1 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	64405

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

- 1
- 2
- 3
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- 5
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- 13
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Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Client Sample ID: H-1 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34207-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	64502	10/11/23 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64523	10/12/23 18:57	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64681	10/12/23 18:57	SM	EET MID
Total/NA	Analysis	8015 NM		1			64470	10/10/23 23:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 23:35	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:48	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34207-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34207-1	H-1 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
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# Customer



**880-34207 Chain of Custody**

Page 1 of 1

[illegible]



## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34207-1

SDG Number: Lea County, New Mexico

Login Number: 34207

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 10:49:43 AM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34206-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 10:49:43 AM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34206-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

**Job ID: 880-34206-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34206-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-2 (0-6") (880-34206-1).

**GC VOA**

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-64287 and analytical batch 880-64327 was outside the upper control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: H-2 (0-6") (880-34206-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Client Sample ID: H-2 (0-6")

Lab Sample ID: 880-34206-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 01:59	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 01:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 01:59	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/10/23 10:47	10/11/23 01:59	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 01:59	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/10/23 10:47	10/11/23 01:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	10/10/23 10:47	10/11/23 01:59	1
1,4-Difluorobenzene (Surr)	102		70 - 130	10/10/23 10:47	10/11/23 01:59	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			10/11/23 01:59	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/10/23 23:13	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:13	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:13	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/10/23 09:30	10/10/23 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	135	S1+	70 - 130	10/10/23 09:30	10/10/23 23:13	1
o-Terphenyl	143	S1+	70 - 130	10/10/23 09:30	10/10/23 23:13	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	334		4.98		mg/Kg			10/11/23 20:31	1

Eurofins Midland



Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34206-1	H-2 (0-6")	109	102
880-34210-A-1-B MS	Matrix Spike	109	95
880-34210-A-1-C MSD	Matrix Spike Duplicate	119	97
LCS 880-64334/1-A	Lab Control Sample	102	105
LCSD 880-64334/2-A	Lab Control Sample Dup	111	102
MB 880-64287/5-A	Method Blank	118	142 S1+
MB 880-64334/5-A	Method Blank	109	123
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34206-1	H-2 (0-6")	135 S1+	143 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64287/5-A

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/09/23 15:21	10/10/23 12:31	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/09/23 15:21	10/10/23 12:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/09/23 15:21	10/10/23 12:31	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/09/23 15:21	10/10/23 12:31	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/09/23 15:21	10/10/23 12:31	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/09/23 15:21	10/10/23 12:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130	10/09/23 15:21	10/10/23 12:31	1
1,4-Difluorobenzene (Surr)	142	S1+	70 - 130	10/09/23 15:21	10/10/23 12:31	1

Lab Sample ID: MB 880-64334/5-A

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64334

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 00:08	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 00:08	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 00:08	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:47	10/11/23 00:08	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:47	10/11/23 00:08	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:47	10/11/23 00:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	10/10/23 10:47	10/11/23 00:08	1
1,4-Difluorobenzene (Surr)	123		70 - 130	10/10/23 10:47	10/11/23 00:08	1

Lab Sample ID: LCS 880-64334/1-A

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64334

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1095		mg/Kg		110	70 - 130
Toluene	0.100	0.09213		mg/Kg		92	70 - 130
Ethylbenzene	0.100	0.09514		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1886		mg/Kg		94	70 - 130
o-Xylene	0.100	0.08073		mg/Kg		81	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: LCSD 880-64334/2-A

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64334

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1124		mg/Kg		112	70 - 130	3	35

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-64334/2-A

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64334

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.09389		mg/Kg		94	70 - 130	2	35
Ethylbenzene	0.100	0.09160		mg/Kg		92	70 - 130	4	35
m-Xylene & p-Xylene	0.200	0.1845		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.1001		mg/Kg		100	70 - 130	21	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 880-34210-A-1-B MS

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64334

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00198	U	0.0998	0.09460		mg/Kg		95	70 - 130
Toluene	<0.00198	U	0.0998	0.07870		mg/Kg		79	70 - 130
Ethylbenzene	<0.00198	U	0.0998	0.08754		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	<0.00396	U	0.200	0.1751		mg/Kg		88	70 - 130
o-Xylene	<0.00198	U	0.0998	0.08501		mg/Kg		85	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 880-34210-A-1-C MSD

Matrix: Solid

Analysis Batch: 64327

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64334

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00198	U	0.100	0.1009		mg/Kg		101	70 - 130	6	35
Toluene	<0.00198	U	0.100	0.07927		mg/Kg		79	70 - 130	1	35
Ethylbenzene	<0.00198	U	0.100	0.08967		mg/Kg		89	70 - 130	2	35
m-Xylene & p-Xylene	<0.00396	U	0.200	0.1926		mg/Kg		96	70 - 130	10	35
o-Xylene	<0.00198	U	0.100	0.08782		mg/Kg		88	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-64405/2-A				Client Sample ID: Lab Control Sample							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 64500											
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	251.4		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-64405/3-A				Client Sample ID: Lab Control Sample Dup							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 64500											
Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	251.8		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34204-A-1-D MS				Client Sample ID: Matrix Spike							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	290		248	540.9		mg/Kg		101	90 - 110		

Lab Sample ID: 880-34204-A-1-E MSD				Client Sample ID: Matrix Spike Duplicate							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-64287/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 64327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	8021B	64334
MB 880-64287/5-A	Method Blank	Total/NA	Solid	8021B	64287
MB 880-64334/5-A	Method Blank	Total/NA	Solid	8021B	64334
LCS 880-64334/1-A	Lab Control Sample	Total/NA	Solid	8021B	64334
LCSD 880-64334/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64334
880-34210-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64334
880-34210-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64334

## Prep Batch: 64334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	5035	
MB 880-64334/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64334/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64334/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34210-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34210-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

HPLC/IC

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34206-1	H-2 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Client Sample ID: H-2 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34206-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	64334	10/10/23 10:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64327	10/11/23 01:59	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64496	10/11/23 01:59	SM	EET MID
Total/NA	Analysis	8015 NM		1			64469	10/10/23 23:13	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 23:13	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:31	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34206-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34206-1	H-2 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
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- 7
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- 9
- 10
- 11
- 12
- 13
- 14

### Chas. of Story

W/O



880-34206 Chain of Custody




Page 1 of 1

Project Manager	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address.	990 Town and County Blvd
City, State ZIP	Midland, TX 79701	City, State ZIP	Houston, TX 77024
Phone		Email	msanjari@marathonoil.com

<b>Work Order Comments</b>					
<b>Program</b>	UST/PST	<input type="checkbox"/> PRP	<input checked="" type="checkbox"/> Brownfields	<input type="checkbox"/> RRC	<input type="checkbox"/> Superfund
<b>State of Project:</b>					
<b>Reporting Level</b>	II <input type="checkbox"/>	Level III <input type="checkbox"/>	ST/UST	<input type="checkbox"/> RRP	<input type="checkbox"/> Level IV <input type="checkbox"/>
<b>Deliverables.</b>	EDD <input type="checkbox"/>	ADAPT <input type="checkbox"/>	Other _____		

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-9-13		
	11-9-13		

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34206-1  
SDG Number: Lea County, New Mexico

Login Number: 34206

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:17:06 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34205-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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10/12/2023 9:17:06 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440



Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34205-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
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14

## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

**Job ID: 880-34205-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34205-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-3 (0-6") (880-34205-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Client Sample ID: H-3 (0-6")

Lab Sample ID: 880-34205-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 16:08	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 16:08	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 16:08	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 16:08	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 16:08	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130	10/10/23 10:38	10/11/23 16:08	1
1,4-Difluorobenzene (Surr)	104		70 - 130	10/10/23 10:38	10/11/23 16:08	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/11/23 16:08	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/23 22:51	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 22:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 22:51	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 22:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	10/10/23 09:30	10/10/23 22:51	1
o-Terphenyl	112		70 - 130	10/10/23 09:30	10/10/23 22:51	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	246		4.99		mg/Kg			10/11/23 20:25	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34205-1	H-3 (0-6")	119	104
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34205-1	H-3 (0-6")	106	112
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130		
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130		
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130		

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Eurofins Midland



QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34204-A-1-D MS							Client Sample ID: Matrix Spike				
Matrix: Solid							Prep Type: Soluble				
Analysis Batch: 64500											
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	290		248	540.9		mg/Kg		101	90 - 110		

Lab Sample ID: 880-34204-A-1-E MSD							Client Sample ID: Matrix Spike Duplicate				
Matrix: Solid							Prep Type: Soluble				
Analysis Batch: 64500											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34205-1	H-3 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-A-1-D MS	Matrix Spike	Soluble	Solid	300.0	64405

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-A-1-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

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Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Client Sample ID: H-3 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34205-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 16:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64591	10/11/23 16:08	SM	EET MID
Total/NA	Analysis	8015 NM		1			64468	10/10/23 22:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 22:51	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:25	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34205-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34205-1	H-3 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

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- 3
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- 5
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WVC



880-34205 Chain of Custody



Page 1 of 1

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and County Blvd
City State ZIP	Midland TX 79701	City State ZIP	Houston, TX 77024
Phone		Email	msanjari@marathonoil.com

<b>Work Order Comments</b>	
<b>Program</b> UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input checked="" type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/> <b>State of Project:</b> Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other	

[illegible]

Comments Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-9-23 11:20		

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34205-1  
SDG Number: Lea County, New Mexico

Login Number: 34205

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:17:06 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34204-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:17:06 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34204-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

**Job ID: 880-34204-1**

**Laboratory: Eurofins Midland**

**Narrative**

**Job Narrative  
880-34204-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-4 (0-6") (880-34204-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: H-4 (0-6") (880-34204-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Client Sample ID: H-4 (0-6")

Lab Sample ID: 880-34204-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 15:47	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 15:47	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 15:47	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 15:47	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 15:47	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	10/10/23 10:38	10/11/23 15:47	1
1,4-Difluorobenzene (Surr)	111		70 - 130	10/10/23 10:38	10/11/23 15:47	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/11/23 15:47	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5		mg/Kg			10/10/23 22:28	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:28	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:28	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	160	S1+	70 - 130	10/10/23 09:30	10/10/23 22:28	1
o-Terphenyl	167	S1+	70 - 130	10/10/23 09:30	10/10/23 22:28	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	290		4.96		mg/Kg			10/11/23 20:07	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34204-1	H-4 (0-6")	111	111
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34204-1	H-4 (0-6")	160 S1+	167 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Eurofins Midland

QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34204-1 MS											Client Sample ID: H-4 (0-6")	
Matrix: Solid											Prep Type: Soluble	
Analysis Batch: 64500												
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits			
Chloride	290		248	540.9		mg/Kg		101	90 - 110			

Lab Sample ID: 880-34204-1 MSD											Client Sample ID: H-4 (0-6")	
Matrix: Solid											Prep Type: Soluble	
Analysis Batch: 64500												
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
Chloride	290		248	541.5		mg/Kg		101	90 - 110	0	20	

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34204-1 MS	H-4 (0-6")	Soluble	Solid	DI Leach	
880-34204-1 MSD	H-4 (0-6")	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1	H-4 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34204-1 MS	H-4 (0-6")	Soluble	Solid	300.0	64405

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34204-1 MSD	H-4 (0-6")	Soluble	Solid	300.0	64405

- 1
- 2
- 3
- 4
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- 12
- 13
- 14

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Client Sample ID: H-4 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34204-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 15:47	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64590	10/11/23 15:47	SM	EET MID
Total/NA	Analysis	8015 NM		1			64467	10/10/23 22:28	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 22:28	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:07	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34204-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34204-1	H-4 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

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CSO

Wol



880-34204 Chain of Custody



Page 1 of 1

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjar
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and Country Blvd
City State ZIP	Midland TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjar@marathonoil.com

<b>Work Order Comments</b>			
Program	UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Rowfields <input type="checkbox"/> RC <input type="checkbox"/> Pertund <input type="checkbox"/>	State of Project:	
Reporting Level I	<input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>		
Deliverables	EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other		

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-9-23 10:20		

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34204-1

SDG Number: Lea County, New Mexico

Login Number: 34204

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:17:06 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34203-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:17:06 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34203-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1

2

3

4

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6

7

8

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12

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14



## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

**Job ID: 880-34203-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34203-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-5 (0-6") (880-34203-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: H-5 (0-6") (880-34203-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Client Sample ID: H-5 (0-6")

Lab Sample ID: 880-34203-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 15:27	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 15:27	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 15:27	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/10/23 10:38	10/11/23 15:27	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 15:27	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/10/23 10:38	10/11/23 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	10/10/23 10:38	10/11/23 15:27	1
1,4-Difluorobenzene (Surr)	105		70 - 130	10/10/23 10:38	10/11/23 15:27	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			10/11/23 15:27	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5		mg/Kg			10/10/23 22:06	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:06	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:06	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/10/23 22:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	149	S1+	70 - 130	10/10/23 09:30	10/10/23 22:06	1
o-Terphenyl	157	S1+	70 - 130	10/10/23 09:30	10/10/23 22:06	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	287		5.05		mg/Kg			10/11/23 20:02	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34203-1	H-5 (0-6")	106	105
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34203-1	H-5 (0-6")	149 S1+	157 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Eurofins Midland

QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34195-A-1-C MS										Client Sample ID: Matrix Spike			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	116		253	380.1		mg/Kg		105	90 - 110				

Lab Sample ID: 880-34195-A-1-D MSD										Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20		

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34203-1	H-5 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405

Eurofins Midland



QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

- 1
- 2
- 3
- 4
- 5
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- 7
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- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Client Sample ID: H-5 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34203-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 15:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64589	10/11/23 15:27	SM	EET MID
Total/NA	Analysis	8015 NM		1			64466	10/10/23 22:06	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 22:06	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 20:02	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

1
2
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Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34203-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34203-1	H-5 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
- 4
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# Glossary

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address.	990 Town and County Blvd
City State ZIP	Midland, TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjari@marathonoil.com

Work Order Comments									
Program	UST/PST	PRP	Brownfields	IRC	Spfund				
State of Project:									
Reporting Level II	<input type="checkbox"/>	Level III	<input type="checkbox"/>	ST/UST	RRP	Level IV	<input type="checkbox"/>		
Deliverables	EDD	<input type="checkbox"/>	Adapt	<input type="checkbox"/>	Other				

[illegible]

Comments Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-24-23		
	10-20		



**880-34203 Chain of Custody**

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34203-1

SDG Number: Lea County, New Mexico

Login Number: 34203

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:13:39 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34202-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701



# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:13:39 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34202-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1

2

3

4

5

6

7

8

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11

12

13

14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

**Job ID: 880-34202-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34202-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-6 (0-6") (880-34202-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Client Sample ID: H-6 (0-6")

Lab Sample ID: 880-34202-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 15:06	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 15:06	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 15:06	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/10/23 10:38	10/11/23 15:06	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 15:06	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/10/23 10:38	10/11/23 15:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	10/10/23 10:38	10/11/23 15:06	1
1,4-Difluorobenzene (Surr)	107		70 - 130	10/10/23 10:38	10/11/23 15:06	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/11/23 15:06	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3		mg/Kg			10/10/23 21:44	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/10/23 21:44	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/10/23 21:44	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/10/23 21:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	121		70 - 130	10/10/23 09:30	10/10/23 21:44	1
o-Terphenyl	128		70 - 130	10/10/23 09:30	10/10/23 21:44	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	186		5.04		mg/Kg			10/11/23 19:56	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	BFB1	DFBZ1				
		(70-130)	(70-130)				
880-34196-A-1-B MS	Matrix Spike	102	102				
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102				
880-34202-1	H-6 (0-6")	104	107				
LCS 880-64332/1-A	Lab Control Sample	111	104				
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101				
MB 880-64332/5-A	Method Blank	108	122				
Surrogate Legend							
BFB = 4-Bromofluorobenzene (Surr)							
DFBZ = 1,4-Difluorobenzene (Surr)							

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	1CO1	OTPH1				
		(70-130)	(70-130)				
880-34202-1	H-6 (0-6")	121	128				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130		
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130		
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130		

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34195-A-1-C MS										Client Sample ID: Matrix Spike			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	116		253	380.1		mg/Kg		105	90 - 110				

Lab Sample ID: 880-34195-A-1-D MSD										Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20		

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34202-1	H-6 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

- 1
- 2
- 3
- 4
- 5
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- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Client Sample ID: H-6 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34202-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 15:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64588	10/11/23 15:06	SM	EET MID
Total/NA	Analysis	8015 NM		1			64465	10/10/23 21:44	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 21:44	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:56	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
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Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34202-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34202-1	H-6 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
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- 14

[illegible]



880-34202 Chain of Custody

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and County Blvd
City, State ZIP	Midland TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjar@marathonoil.com

<b>Work Order Comments</b>			
<b>Program</b> UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/> <b>State of Project:</b> Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other <input type="checkbox"/>			

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-9-23 1020		



## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34202-1

SDG Number: Lea County, New Mexico

Login Number: 34202

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:13:14 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34201-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:13:14 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34201-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

**Job ID: 880-34201-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34201-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-7 (0-6") (880-34201-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Client Sample ID: H-7 (0-6")

Lab Sample ID: 880-34201-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 14:46	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 14:46	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 14:46	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/10/23 10:38	10/11/23 14:46	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 14:46	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/10/23 10:38	10/11/23 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	10/10/23 10:38	10/11/23 14:46	1
1,4-Difluorobenzene (Surr)	103		70 - 130	10/10/23 10:38	10/11/23 14:46	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			10/11/23 14:46	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.6	U	49.6		mg/Kg			10/10/23 21:22	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 21:22	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 21:22	1
Oil Range Organics (Over C28-C36)	<49.6	U	49.6		mg/Kg		10/10/23 09:30	10/10/23 21:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	10/10/23 09:30	10/10/23 21:22	1
o-Terphenyl	119		70 - 130	10/10/23 09:30	10/10/23 21:22	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	174		4.96		mg/Kg			10/11/23 19:50	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34201-1	H-7 (0-6")	112	103
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34201-1	H-7 (0-6")	114	119
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			



## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Eurofins Midland

QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34195-A-1-C MS						Client Sample ID: Matrix Spike					
Matrix: Solid						Prep Type: Soluble					
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	116		253	380.1		mg/Kg		105	90 - 110		

Lab Sample ID: 880-34195-A-1-D MSD						Client Sample ID: Matrix Spike Duplicate					
Matrix: Solid						Prep Type: Soluble					
Analysis Batch: 64500											
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34201-1	H-7 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

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Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Client Sample ID: H-7 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34201-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 14:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64587	10/11/23 14:46	SM	EET MID
Total/NA	Analysis	8015 NM		1			64464	10/10/23 21:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 21:22	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:50	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

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- 2
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Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34201-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34201-1	H-7 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

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## Order of Custody

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sarjani
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address.	990 Town and Country Blvd
City, State ZIP	Midland, TX 79701	City, State ZIP	Houston, TX 77024
Phone		Email	msanjani@marathonoil.com

Page 1 of 1

**Work Order Comments**

Program UST/ST ☐ RRP ☐ brownfields ☐ RC ☐ superfund ☐



State of Project:

Reporting Level II ☐ Level III ☐ ST/UST ☐ RRP ☐ Level IV ☐

Deliverables, EDD ☐ ADAPT ☐ Other ☐

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-9-23 1020		



880-34201 Chain of Custody

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34201-1

SDG Number: Lea County, New Mexico

Login Number: 34201

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:12:23 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34200-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:12:23 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34200-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
SQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

**Job ID: 880-34200-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34200-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-8 (0-6") (880-34200-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Client Sample ID: H-8 (0-6")

Lab Sample ID: 880-34200-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 14:25	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 14:25	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 14:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 14:25	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 14:25	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 14:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	10/10/23 10:38	10/11/23 14:25	1
1,4-Difluorobenzene (Surr)	103		70 - 130	10/10/23 10:38	10/11/23 14:25	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/11/23 14:25	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7		mg/Kg			10/10/23 21:00	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 21:00	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 21:00	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 21:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130	10/10/23 09:30	10/10/23 21:00	1
o-Terphenyl	127		70 - 130	10/10/23 09:30	10/10/23 21:00	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	192		4.98		mg/Kg			10/11/23 19:44	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34200-1	H-8 (0-6")	103	103
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34200-1	H-8 (0-6")	126	127
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130		
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130		
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130		
				</							

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34195-A-1-C MS										Client Sample ID: Matrix Spike			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	116		253	380.1		mg/Kg		105	90 - 110				

Lab Sample ID: 880-34195-A-1-D MSD										Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20		

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34200-1	H-8 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

- 1
- 2
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Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Client Sample ID: H-8 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34200-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 14:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64586	10/11/23 14:25	SM	EET MID
Total/NA	Analysis	8015 NM		1			64463	10/10/23 21:00	SM	EET MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 21:00	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:44	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34200-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34200-1	H-8 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

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# Cost of



880-34200 Chain of Custody



Page 1 of 1

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjar
Company Name	Carmona Resources	Company Name.	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address	990 Town and Country Blvd
City, State ZIP	Midland TX 79701	City, State ZIP	Houston TX 77024
Phone.		Email	msanjar@marathonoil.com

<p align="center"><b>Work Order Comments</b></p> <p>           Program UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Rowfields <input type="checkbox"/> RC <input type="checkbox"/> perfund <input type="checkbox"/>            State of Project: _____            Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>            Deliverables EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other _____         </p>									
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--

[illegible]

Comments Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-9-23 1020		

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34200-1

SDG Number: Lea County, New Mexico

Login Number: 34200

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:11:26 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34199-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:11:26 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34199-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	11
Lab Chronicle . . . . .	13
Certification Summary . . . . .	14
Method Summary . . . . .	15
Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

1

2

3

4

5

6

7

8

9

10

11

12

13

14



## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

**Job ID: 880-34199-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34199-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-9 (0-6") (880-34199-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: Surrogate recovery for the following sample was outside control limits: H-9 (0-6") (880-34199-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Client Sample ID: H-9 (0-6")

Lab Sample ID: 880-34199-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		10/10/23 10:38	10/11/23 14:05	1
Toluene	<0.00198	U	0.00198		mg/Kg		10/10/23 10:38	10/11/23 14:05	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		10/10/23 10:38	10/11/23 14:05	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		10/10/23 10:38	10/11/23 14:05	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		10/10/23 10:38	10/11/23 14:05	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		10/10/23 10:38	10/11/23 14:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	10/10/23 10:38	10/11/23 14:05	1
1,4-Difluorobenzene (Surr)	102		70 - 130	10/10/23 10:38	10/11/23 14:05	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396		mg/Kg			10/11/23 14:05	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7		mg/Kg			10/10/23 20:38	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		10/10/23 09:30	10/10/23 20:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	154	S1+	70 - 130	10/10/23 09:30	10/10/23 20:38	1
o-Terphenyl	159	S1+	70 - 130	10/10/23 09:30	10/10/23 20:38	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	111		5.03		mg/Kg			10/11/23 19:38	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34199-1	H-9 (0-6")	97	102
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34199-1	H-9 (0-6")	154 S1+	159 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MS	MS			%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130	
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130	
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							
4-Bromofluorobenzene (Surr)	102		70 - 130							
1,4-Difluorobenzene (Surr)	102		70 - 130							

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Eurofins Midland

QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-34195-A-1-C MS										Client Sample ID: Matrix Spike			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits				
Chloride	116		253	380.1		mg/Kg		105	90 - 110				

Lab Sample ID: 880-34195-A-1-D MSD										Client Sample ID: Matrix Spike Duplicate			
Matrix: Solid										Prep Type: Soluble			
Analysis Batch: 64500													
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20		

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34199-1	H-9 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405

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QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Analysis Batch: 64500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

- 1
- 2
- 3
- 4
- 5
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- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Client Sample ID: H-9 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34199-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 14:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64585	10/11/23 14:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			64462	10/10/23 20:38	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64320	10/10/23 20:38	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:38	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34199-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34199-1	H-9 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
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- 3
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# Case Studies



**880-34199 Chain of Custody**



Page 1 of 7

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and County Blvd
City State ZIP	Midland TX 79701	City, State ZIP	Houston, TX 77024
Phone		Email	msanjari@marathonoil.com

<b>Work Order Comments</b>			
Program	UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	State of Project:	
Reporting Level	II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>		
Deliverables	EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other <input type="checkbox"/>		

[illegible]

Comments: Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10/23/20		

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34199-1

SDG Number: Lea County, New Mexico

Login Number: 34199

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:10:11 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34198-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701



# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34198-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	12
Lab Chronicle . . . . .	14
Certification Summary . . . . .	15
Method Summary . . . . .	16
Sample Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	19

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

**Job ID: 880-34198-1**

**Laboratory: Eurofins Midland**

**Narrative**

**Job Narrative  
880-34198-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-10 (0-6") (880-34198-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-64329 and analytical batch 880-64318 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: H-10 (0-6") (880-34198-1), (880-34170-A-21-B), (880-34170-A-21-C MS) and (880-34170-A-21-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-64318/31), (CCV 880-64318/45) and (LCS 880-64329/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The matrix spike (MS) recoveries for preparation batch 880-64329 and analytical batch 880-64318 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Client Sample ID: H-10 (0-6")

Lab Sample ID: 880-34198-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 13:45	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 13:45	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 13:45	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 13:45	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/23 10:38	10/11/23 13:45	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/23 10:38	10/11/23 13:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	10/10/23 10:38	10/11/23 13:45	1
1,4-Difluorobenzene (Surr)	106		70 - 130	10/10/23 10:38	10/11/23 13:45	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/11/23 13:45	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5		mg/Kg			10/11/23 01:03	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 01:03	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 01:03	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5		mg/Kg		10/10/23 09:30	10/11/23 01:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	171	S1+	70 - 130	10/10/23 09:30	10/11/23 01:03	1
o-Terphenyl	146	S1+	70 - 130	10/10/23 09:30	10/11/23 01:03	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	90.4		5.02		mg/Kg			10/11/23 19:21	1

Eurofins Midland

Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34198-1	H-10 (0-6")	102	106
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34170-A-21-C MS	Matrix Spike	179 S1+	139 S1+
880-34170-A-21-D MSD	Matrix Spike Duplicate	161 S1+	125
880-34198-1	H-10 (0-6")	171 S1+	146 S1+
LCS 880-64329/2-A	Lab Control Sample	132 S1+	141 S1+
LCSD 880-64329/3-A	Lab Control Sample Dup	113	111
MB 880-64329/1-A	Method Blank	181 S1+	162 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-64329/1-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	181	S1+	70 - 130				10/10/23 09:30	10/10/23 20:38	1
o-Terphenyl	162	S1+	70 - 130				10/10/23 09:30	10/10/23 20:38	1

Lab Sample ID: LCS 880-64329/2-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	932.8		mg/Kg		93	70 - 130
Diesel Range Organics (Over C10-C28)	1000	950.5		mg/Kg		95	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-64329/2-A  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 64329

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	132	S1+	70 - 130
o-Terphenyl	141	S1+	70 - 130

Lab Sample ID: LCSD 880-64329/3-A  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 64329

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	980.8		mg/Kg		98	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	1021		mg/Kg		102	70 - 130	7	20
Surrogate		LCSD %Recovery	LCSD Qualifier	Limits					
1-Chlorooctane		113		70 - 130					
o-Terphenyl		111		70 - 130					

Lab Sample ID: 880-34170-A-21-C MS  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 64329

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	994	1054		mg/Kg		106	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U F1	994	1372	F1	mg/Kg		136	70 - 130		
Surrogate		MS %Recovery	MS Qualifier	Limits							
1-Chlorooctane		179	S1+	70 - 130							
o-Terphenyl		139	S1+	70 - 130							

Lab Sample ID: 880-34170-A-21-D MSD  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 64329

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	994	951.5		mg/Kg		96	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	<49.8	U F1	994	1244		mg/Kg		123	70 - 130	10	20
Surrogate		MSD %Recovery	MSD Qualifier	Limits							
1-Chlorooctane		161	S1+	70 - 130							
o-Terphenyl		125		70 - 130							

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34195-A-1-C MS

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	116		253	380.1		mg/Kg		105	90 - 110

Lab Sample ID: 880-34195-A-1-D MSD

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	8015B NM	64329
MB 880-64329/1-A	Method Blank	Total/NA	Solid	8015B NM	64329
LCS 880-64329/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64329
LCSD 880-64329/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64329
880-34170-A-21-C MS	Matrix Spike	Total/NA	Solid	8015B NM	64329
880-34170-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	8015NM Prep	
MB 880-64329/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64329/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64329/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-34170-A-21-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-34170-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 64405 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34198-1	H-10 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Client Sample ID: H-10 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34198-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 13:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64584	10/11/23 13:45	SM	EET MID
Total/NA	Analysis	8015 NM		1			64461	10/11/23 01:03	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64318	10/11/23 01:03	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:21	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34198-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34198-1	H-10 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14





### Chain of Custody

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name.	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address.	990 Town and Country Blvd
City State ZIP	Midland, TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjari@marathonoil.com

Work Order Comments	
Program UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other	

[illegible]

Comments. Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Comments. Email results to Mike Carmona mcarmona@cammonaresources.com, Conner McEhring cmoehring@cammonaresources.com, Clint Merritt merrittc@cammonaresources.com			
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
			
	10-9-23		
	1420		



880-34198 Chain of Custody

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34198-1

SDG Number: Lea County, New Mexico

Login Number: 34198

List Source: Eurofins Midland

List Number: 1

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:08:59 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34197-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:08:59 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34197-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	12
Lab Chronicle . . . . .	14
Certification Summary . . . . .	15
Method Summary . . . . .	16
Sample Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	19

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

**Job ID: 880-34197-1**

**Laboratory: Eurofins Midland**

**Narrative**

**Job Narrative  
880-34197-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-11 (0-6") (880-34197-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-64329 and analytical batch 880-64318 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: H-11 (0-6") (880-34197-1), (880-34170-A-21-B), (880-34170-A-21-C MS) and (880-34170-A-21-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-64318/31), (CCV 880-64318/45) and (LCS 880-64329/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD\_NM: The matrix spike (MS) recoveries for preparation batch 880-64329 and analytical batch 880-64318 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Client Sample ID: H-11 (0-6")

Lab Sample ID: 880-34197-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 13:24	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 13:24	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 13:24	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/10/23 10:38	10/11/23 13:24	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/10/23 10:38	10/11/23 13:24	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/10/23 10:38	10/11/23 13:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	10/10/23 10:38	10/11/23 13:24	1
1,4-Difluorobenzene (Surr)	100		70 - 130	10/10/23 10:38	10/11/23 13:24	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			10/11/23 13:24	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3		mg/Kg			10/11/23 00:41	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:41	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:41	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3		mg/Kg		10/10/23 09:30	10/11/23 00:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	145	S1+	70 - 130	10/10/23 09:30	10/11/23 00:41	1
o-Terphenyl	123		70 - 130	10/10/23 09:30	10/11/23 00:41	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	218		5.00		mg/Kg			10/11/23 19:15	1

Eurofins Midland



Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-A-1-B MS	Matrix Spike	102	102
880-34196-A-1-C MSD	Matrix Spike Duplicate	112	102
880-34197-1	H-11 (0-6")	97	100
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34170-A-21-C MS	Matrix Spike	179 S1+	139 S1+
880-34170-A-21-D MSD	Matrix Spike Duplicate	161 S1+	125
880-34197-1	H-11 (0-6")	145 S1+	123
LCS 880-64329/2-A	Lab Control Sample	132 S1+	141 S1+
LCSD 880-64329/3-A	Lab Control Sample Dup	113	111
MB 880-64329/1-A	Method Blank	181 S1+	162 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-A-1-B MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-A-1-C MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-64329/1-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64329

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/23 09:30	10/10/23 20:38	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	181	S1+	70 - 130				10/10/23 09:30	10/10/23 20:38	1
o-Terphenyl	162	S1+	70 - 130				10/10/23 09:30	10/10/23 20:38	1

Lab Sample ID: LCS 880-64329/2-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	932.8		mg/Kg		93	70 - 130
Diesel Range Organics (Over C10-C28)	1000	950.5		mg/Kg		95	70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-64329/2-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64329

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	132	S1+	70 - 130
o-Terphenyl	141	S1+	70 - 130

Lab Sample ID: LCSD 880-64329/3-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64329

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	980.8		mg/Kg		98	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	1021		mg/Kg		102	70 - 130	7	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	113		70 - 130
o-Terphenyl	111		70 - 130

Lab Sample ID: 880-34170-A-21-C MS

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 64329

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	994	1054		mg/Kg		106	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U F1	994	1372	F1	mg/Kg		136	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	179	S1+	70 - 130
o-Terphenyl	139	S1+	70 - 130

Lab Sample ID: 880-34170-A-21-D MSD

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 64329

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	994	951.5		mg/Kg		96	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	<49.8	U F1	994	1244		mg/Kg		123	70 - 130	10	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	161	S1+	70 - 130
o-Terphenyl	125		70 - 130

Eurofins Midland

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34195-A-1-C MS

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	116		253	380.1		mg/Kg		105	90 - 110

Lab Sample ID: 880-34195-A-1-D MSD

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20

## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	64332
880-34196-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	64332

## Analysis Batch: 64583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Analysis Batch: 64318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	8015B NM	64329
MB 880-64329/1-A	Method Blank	Total/NA	Solid	8015B NM	64329
LCS 880-64329/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64329
LCSD 880-64329/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64329
880-34170-A-21-C MS	Matrix Spike	Total/NA	Solid	8015B NM	64329
880-34170-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	64329

## Prep Batch: 64329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	8015NM Prep	
MB 880-64329/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64329/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64329/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-34170-A-21-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-34170-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 64405 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34197-1	H-11 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Client Sample ID: H-11 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34197-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 13:24	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64583	10/11/23 13:24	SM	EET MID
Total/NA	Analysis	8015 NM		1			64460	10/11/23 00:41	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	64329	10/10/23 09:30	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64318	10/11/23 00:41	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:15	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34197-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34197-1	H-11 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

SECRET



880-34197 Chain of Custody

Project Manager	Clinton Merritt	Bill to: (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address	310 W Wall St Ste 500	Address	990 Town and Country Blvd
City, State ZIP	Midland TX 79701	City State ZIP	Houston TX 77024
Phone		Email	msanjari@marathonoil.com

Work Order Comments				
Program: UST/PT	<input type="checkbox"/> PRP	<input type="checkbox"/> Brownfields	<input type="checkbox"/> RC	<input type="checkbox"/> Superfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> ST/UST	<input type="checkbox"/> RRP	<input type="checkbox"/> Level IV
Deliverables	EDD <input type="checkbox"/>	ADAPT <input type="checkbox"/>	Other	

[illegible]

Comments. Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

[illegible]

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34197-1

SDG Number: Lea County, New Mexico

Login Number: 34197

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Clint Merritt  
Carmona Resources  
310 W Wall St  
Ste 500  
Midland, Texas 79701

Generated 10/12/2023 9:08:59 PM

## JOB DESCRIPTION

Nighthawk 3H  
SDG NUMBER Lea County, New Mexico

## JOB NUMBER

880-34196-1

Eurofins Midland  
1211 W. Florida Ave  
Midland TX 79701

# Eurofins Midland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
10/12/2023 9:08:59 PM

Authorized for release by  
Jessica Kramer, Project Manager  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)  
(432)704-5440

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Laboratory Job ID: 880-34196-1  
SDG: Lea County, New Mexico

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Client Sample Results . . . . .	6
Surrogate Summary . . . . .	7
QC Sample Results . . . . .	8
QC Association Summary . . . . .	12
Lab Chronicle . . . . .	14
Certification Summary . . . . .	15
Method Summary . . . . .	16
Sample Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	19

1

2

3

4

5

6

7

8

9

10

11

12

13

14



## Definitions/Glossary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

**Job ID: 880-34196-1****Laboratory: Eurofins Midland****Narrative****Job Narrative  
880-34196-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**

The sample was received on 10/9/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

**Receipt Exceptions**

The following sample was received and analyzed from an unpreserved bulk soil jar: H-12 (0-6") (880-34196-1).

**GC VOA**

Method 8021B: The matrix spike (MS) recoveries for preparation batch 880-64332 and analytical batch 880-64432 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method 8015MOD\_NM: The surrogate recovery for the blank associated with preparation batch 880-64312 and analytical batch 880-64318 was outside the upper control limits.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: H-12 (0-6") (880-34196-1), (890-5415-A-4-D MS) and (890-5415-A-4-E MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD\_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-64318/20), (CCV 880-64318/31), (CCV 880-64318/5) and (LCS 880-64312/2-A). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Client Sample ID: H-12 (0-6")

Lab Sample ID: 880-34196-1

Date Collected: 10/04/23 00:00

Matrix: Solid

Date Received: 10/09/23 16:20

## Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 13:04	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/10/23 10:38	10/11/23 13:04	1
Ethylbenzene	<0.00201	U F1	0.00201		mg/Kg		10/10/23 10:38	10/11/23 13:04	1
m-Xylene & p-Xylene	<0.00402	U F1	0.00402		mg/Kg		10/10/23 10:38	10/11/23 13:04	1
o-Xylene	<0.00201	U F1	0.00201		mg/Kg		10/10/23 10:38	10/11/23 13:04	1
Xylenes, Total	<0.00402	U F1	0.00402		mg/Kg		10/10/23 10:38	10/11/23 13:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	10/10/23 10:38	10/11/23 13:04	1
1,4-Difluorobenzene (Surr)	96		70 - 130	10/10/23 10:38	10/11/23 13:04	1

## Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/11/23 13:04	1

## Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3		mg/Kg			10/10/23 17:20	1

## Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.3	U	50.3		mg/Kg		10/10/23 08:39	10/10/23 17:20	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3		mg/Kg		10/10/23 08:39	10/10/23 17:20	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3		mg/Kg		10/10/23 08:39	10/10/23 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	154	S1+	70 - 130	10/10/23 08:39	10/10/23 17:20	1
o-Terphenyl	132	S1+	70 - 130	10/10/23 08:39	10/10/23 17:20	1

## Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	256		5.00		mg/Kg			10/11/23 19:09	1

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Surrogate Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Method: 8021B - Volatile Organic Compounds (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-34196-1	H-12 (0-6")	92	96
880-34196-1 MS	H-12 (0-6")	102	102
880-34196-1 MSD	H-12 (0-6")	112	102
LCS 880-64332/1-A	Lab Control Sample	111	104
LCSD 880-64332/2-A	Lab Control Sample Dup	99	101
MB 880-64332/5-A	Method Blank	108	122
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)  
Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-34196-1	H-12 (0-6")	154 S1+	132 S1+
890-5415-A-4-D MS	Matrix Spike	161 S1+	128
890-5415-A-4-E MSD	Matrix Spike Duplicate	167 S1+	130
LCS 880-64312/2-A	Lab Control Sample	126	135 S1+
LCSD 880-64312/3-A	Lab Control Sample Dup	97	97
MB 880-64312/1-A	Method Blank	189 S1+	176 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64332/5-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64332

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/23 10:38	10/11/23 12:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/23 10:38	10/11/23 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/10/23 10:38	10/11/23 12:35	1
1,4-Difluorobenzene (Surr)	122		70 - 130	10/10/23 10:38	10/11/23 12:35	1

Lab Sample ID: LCS 880-64332/1-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1166		mg/Kg		117	70 - 130
Toluene	0.100	0.09644		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.09544		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1878		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09012		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-64332/2-A

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1117		mg/Kg		112	70 - 130	4	35
Toluene	0.100	0.09300		mg/Kg		93	70 - 130	4	35
Ethylbenzene	0.100	0.09384		mg/Kg		94	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1837		mg/Kg		92	70 - 130	2	35
o-Xylene	0.100	0.08378		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-34196-1 MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: H-12 (0-6")

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.101	0.09018		mg/Kg		89	70 - 130
Toluene	<0.00201	U	0.101	0.07128		mg/Kg		71	70 - 130

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## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34196-1 MS

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: H-12 (0-6")

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1	0.101	0.06697	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1	0.202	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00201	U F1	0.101	0.06838	F1	mg/Kg		67	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	102		70 - 130						
1,4-Difluorobenzene (Surr)	102		70 - 130						

Lab Sample ID: 880-34196-1 MSD

Matrix: Solid

Analysis Batch: 64432

Client Sample ID: H-12 (0-6")

Prep Type: Total/NA

Prep Batch: 64332

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09951		mg/Kg		100	70 - 130	10	35
Toluene	<0.00201	U	0.0996	0.08277		mg/Kg		83	70 - 130	15	35
Ethylbenzene	<0.00201	U F1	0.0996	0.08667		mg/Kg		87	70 - 130	26	35
m-Xylene & p-Xylene	<0.00402	U F1	0.199	0.1785		mg/Kg		89	70 - 130	28	35
o-Xylene	<0.00201	U F1	0.0996	0.08121		mg/Kg		81	70 - 130	17	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	102		70 - 130								

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-64312/1-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 64312

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/09/23 17:24	10/10/23 09:17	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/09/23 17:24	10/10/23 09:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/09/23 17:24	10/10/23 09:17	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	189	S1+	70 - 130				10/09/23 17:24	10/10/23 09:17	1
o-Terphenyl	176	S1+	70 - 130				10/09/23 17:24	10/10/23 09:17	1

Lab Sample ID: LCS 880-64312/2-A

Matrix: Solid

Analysis Batch: 64318

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 64312

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	916.1		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	879.0		mg/Kg		88	70 - 130

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QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-64312/2-A  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 64312

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	126		70 - 130
o-Terphenyl	135	S1+	70 - 130

Lab Sample ID: LCSD 880-64312/3-A  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 64312

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	895.5		mg/Kg		90	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	807.7		mg/Kg		81	70 - 130	8	20
Surrogate	LCSD	LCSD									
	%Recovery	Qualifier									
1-Chlorooctane	97										
o-Terphenyl	97										

Lab Sample ID: 890-5415-A-4-D MS  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 64312

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1010	954.9		mg/Kg		93	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	1010	1261		mg/Kg		123	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier									
1-Chlorooctane	161	S1+									
o-Terphenyl	128										

Lab Sample ID: 890-5415-A-4-E MSD  
Matrix: Solid  
Analysis Batch: 64318

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 64312

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1010	1023		mg/Kg		100	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	<49.9	U	1010	1302		mg/Kg		127	70 - 130	3	20
Surrogate	MSD	MSD									
	%Recovery	Qualifier									
1-Chlorooctane	167	S1+									
o-Terphenyl	130										

## QC Sample Results

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64405/1-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/23 18:28	1

Lab Sample ID: LCS 880-64405/2-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	251.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-64405/3-A

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	251.8		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 880-34195-A-1-C MS

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	116		253	380.1		mg/Kg		105	90 - 110

Lab Sample ID: 880-34195-A-1-D MSD

Matrix: Solid

Analysis Batch: 64500

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	116		253	380.4		mg/Kg		105	90 - 110	0	20



## QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

## GC VOA

## Prep Batch: 64332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	5035	
MB 880-64332/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-34196-1 MS	H-12 (0-6")	Total/NA	Solid	5035	
880-34196-1 MSD	H-12 (0-6")	Total/NA	Solid	5035	

## Analysis Batch: 64432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	8021B	64332
MB 880-64332/5-A	Method Blank	Total/NA	Solid	8021B	64332
LCS 880-64332/1-A	Lab Control Sample	Total/NA	Solid	8021B	64332
LCSD 880-64332/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64332
880-34196-1 MS	H-12 (0-6")	Total/NA	Solid	8021B	64332
880-34196-1 MSD	H-12 (0-6")	Total/NA	Solid	8021B	64332

## Analysis Batch: 64582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 64312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	8015NM Prep	
MB 880-64312/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64312/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64312/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5415-A-4-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5415-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 64318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	8015B NM	64312
MB 880-64312/1-A	Method Blank	Total/NA	Solid	8015B NM	64312
LCS 880-64312/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64312
LCSD 880-64312/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64312
890-5415-A-4-D MS	Matrix Spike	Total/NA	Solid	8015B NM	64312
890-5415-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	64312

## Analysis Batch: 64457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 64405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Soluble	Solid	DI Leach	
MB 880-64405/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Eurofins Midland

QC Association Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

HPLC/IC (Continued)

Leach Batch: 64405 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 64500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34196-1	H-12 (0-6")	Soluble	Solid	300.0	64405
MB 880-64405/1-A	Method Blank	Soluble	Solid	300.0	64405
LCS 880-64405/2-A	Lab Control Sample	Soluble	Solid	300.0	64405
LCSD 880-64405/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64405
880-34195-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	64405
880-34195-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	64405

Lab Chronicle

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Client Sample ID: H-12 (0-6")  
Date Collected: 10/04/23 00:00  
Date Received: 10/09/23 16:20

Lab Sample ID: 880-34196-1  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	64332	10/10/23 10:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64432	10/11/23 13:04	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64582	10/11/23 13:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			64457	10/10/23 17:20	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	64312	10/10/23 08:39	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64318	10/10/23 17:20	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	64405	10/10/23 15:31	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64500	10/11/23 19:09	CH	EET MID

Laboratory References:  
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

**Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Carmona Resources  
Project/Site: Nighthawk 3H

Job ID: 880-34196-1  
SDG: Lea County, New Mexico

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34196-1	H-12 (0-6")	Solid	10/04/23 00:00	10/09/23 16:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



# Cost of Quality

Project Manager	Clinton Merritt	Bill to (if different)	Melodie Sanjari
Company Name	Carmona Resources	Company Name	Marathon Oil Corporation
Address.	310 W Wall St Ste 500	Address.	990 Town and Country Blvd
City, State ZIP	Midland TX 79701	City, State ZIP	Houston TX 77024
Phone		Email	msanjari@marathonoil.com

Work Order Comments	
Program: UST/ST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> JRC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other	

[illegible]

Comments Email results to Mike Carmona [mcarmona@carmonaresources.com](mailto:mcarmona@carmonaresources.com), Conner Moehring [cmoehring@carmonaresources.com](mailto:cmoehring@carmonaresources.com), Clint Merritt [MerrittC@carmonaresources.com](mailto:MerrittC@carmonaresources.com)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
			
	10-9-85		
	11-20		



880-34196 Chain of Custody

## Login Sample Receipt Checklist

Client: Carmona Resources

Job Number: 880-34196-1

SDG Number: Lea County, New Mexico

Login Number: 34196

List Number: 1

List Source: Eurofins Midland

Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



## APPENDIX F

CARMONA RESOURCES



Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: Melodie SANjari \_\_\_\_\_ Title: \_\_\_\_\_

Signature: Melodie Sanjari **Melodie Sanjari** Date: 5/25/2023 **5/25/2023**

email: msanjari@marathonoil.com Telephone: 575-988-8753

### OCD Only

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

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

*Originally submitted via NM OCD Centerstack. Included in Marathon's ACO with the Division - Resubmission Via the Portal was Requested.*

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: Melodie Sanjari Title: \_\_\_\_\_

Signature: Callie Karrigan Melodie Sanjari Date: 5/25/2023

email: msanjari@marathooil.com Telephone: 5/25/2023

### OCD Only

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

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

*Originally submitted via NM OCD Centerstack. Included in Marathon's ACO with the Division - Resubmission Via the Portal was Requested.*



February 22, 2019

**Spill Closure Report:** Nighthawk Sate Com 3H (Section 20, T18S, R35E)  
API: 30-025-41950  
Incident Number: 1RP-5004 & 1RP-5094

**Prepared For:** **Marathon Oil Permian LLC.**  
2423 Bonita Street  
Carlsbad, New Mexico 88220

**NMOCD District 1**  
1625 North French Drive  
Hobbs, New Mexico 88240

Ms. Olivia Yu,

Marathon Oil Permian LLC., retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment and Remediation Plan for two releases that occurred at the Nighthawk State Com 3H, API: 30-025-41950 production pad. The first release occurred on March 14, 2018 at approximately 10:15 am and the second released occurred on May 30, 2018 at approximately 9:00 am. Remediation was completed for both spills simultaneously as the releases occurred in the same vicinity on the pad. This letter provides a description of the Spill Assessment, Remediation Plan and includes this request for Spill Closure of both incidences.

## Site Information

The site is located approximately 50 miles east of Carlsbad, New Mexico. The legal land description for the site is Section 20, Township 18 South and Range 35 East in Lea County, New Mexico (approximately 32° 43' 35.7888"N 103° 28' 41.16"W). The affected property is leased from the State of New Mexico. An aerial photograph and site schematic are included in Attachment 1.

*The Geological Map of New Mexico* (New Mexico Bureau of Geology and Mineral Resources, 2014-2017) indicates the site's surface geology is Ogallala Formation (lower Pliocene to middle Miocene) – Alluvial and eolian deposits, and petro calcic soils of the southern High Plains. The United States Department of Agriculture, Natural Resource Conservation Services, identifies the local soils as Kimbrough-Lea complex, dry, 0 to 3 percent slopes. This complex is approximately 50 percent Kimbrough gravelly loam, gently sloping, on the tops and sides of low ridges and 25 percent of Lea loam, which is nearly level and is in swales between ridges. These soils are used as range, wildlife habitat, and recreational areas. These descriptions are consistent with observations during the site visit. Site photographs obtained during the Spill Assessment are included in Attachment 2.

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Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

## Site Assessment / Characterization Requirements

### Water, Residential/Public Buildings, Mines and Unstable Areas

Wetlands and surface waters were researched at United States Fish and Wildlife Service, National Wetlands Inventory <https://www.fws.gov/wetlands/data/mapper.html>; there is no wetland or surface waters within 500 feet of the site. (Attachment 4)

The nearest occupied permanent resident, school, hospital, institution or church are located greater than 300 feet from the site. (Google Earth, 2019) (Attachment 5)

According to the United States Geological Survey, *Inventory of Springs in the State of New Mexico* (1992), there are no springs located within 1,000 feet of the site. (Attachment 6)

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2018). *Well Log/Meter Information Report* indicated that there are no wells within 1,000 feet of the spill site. (Attachment 7)

New Mexico Energy, Mineral and Natural Resources Department was researched to identify potential active and abandoned mines near the spill. No mines were found in or around the vicinity of the spill site. (Attachment 8)

The United States Department of Homeland Security, Federal Emergency Management Agency (FEMA) Flood Map Service Center, <https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor>, was reviewed and Flood Map Number 35015C1300D, effective on December 16, 2008, indicated that the site located in Zone D shaded. "The Zone D designation is used for areas where there are possible but undermined flood hazards, as no analysis of flood hazards have been conducted." (Attachment 9)

The New Mexico State Engineer website (New Mexico Water Rights Reporting System – Water Column Report) indicates that the nearest groundwater data available for Section 20, T18S, R35E and is approximately 3,780 feet north from the site. The groundwater in the area is reported to be at an average depth of 76 feet below ground surface (BGS). The referenced groundwater data are presented in Attachment 10.

The New Mexico State Engineer website (New Mexico Water Rights Reporting System – Active & Inactive Points of Diversion) indicates that the nearest Point of Diversion is located approximately 3,780 feet north of the site, in Section 20, T18S, R35E (Attachment 11).

According to the Karst Map published by the Bureau of Land Management, the site is located within the low ranking of the Karst Potential. Attached in Attachment 12 is the figure depicting the site location and Karst Potential.

The Remediation Plan was written and approved in accordance with the Energy, Minerals and Natural Resource Department, New Mexico Oil Conservation Division, *Guidelines for Remediation of Leaks, Spills and Releases* (August 13, 1993).

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

Ranking Criteria for NMOCD Aug 13, 1993	Distance	Ranking
Depth to Groundwater	76 ft.	10
Wellhead Protection Area	> 1,000 ft. from a water source	0
Distance to Surface Water Body	200- 1,000 ft.	10
<b>Total Ranking</b>		<b>20</b>

The following are recommended remediation action levels initially used for final closure efforts.

Recommended Remediation Action Level 19.15.29 NMAC Aug 14, 2018	
Benzene (ppm)	10
BTEX (ppm)	50
TPH (ppm)	100
Chlorides (ppm)	600

Based on a change in regulation during the final remediation, the updated closure criteria effective August 14, 2018 was utilized. As such, this Closure Report has been written in accordance with the New Mexico Administrative Code - *Natural Resources and Wildlife, Oil and Gas Releases* (July 24, 2018).

Closure Criteria for Soils Impacted by a Release		
Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
51 feet – 100 feet	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

According to the Closure Criteria for Soils Impacted by a Release in the Natural Resources and Wildlife, Oil and Gas Release, 19.15.26 New Mexico Administrative Code (NMAC), August 14, 2018, the location falls in the "51 feet to 100 feet to groundwater" closure criteria category as per Table 1, 19.15.29.12 NMAC.

## MARCH 14, 2018, INCIDENT NUMBER: 1RP-5004

### Incident Description

The spill, reported March 14, 2018, involved the release of production water, in the form of mist/spray into secondary containment, onto the well pad surface, and spraying approximately 20 feet off the pad to the north. The release was caused by the failure of a gasket at the heater treater. The well was shut-in, and the damaged gasket was replaced. The mist/spray from the heater treater released a total of 10 barrels (bbls) of production water; approximately 6 bbls within the containment and 4 bbls outside of containment. The mist also traveled approximately 20 feet off the pad. A vacuum truck was immediately dispatched to remove any standing liquids. The liner integrity was assessed to confirm it will continue to contain liquids if another release occurs. A backhoe was additionally dispatched to remove any saturated soils. The initial C-141 Report is included in Attachment 3.

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Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

## Remedial Actions Taken

The initial site visit was completed on May 24, 2018, aimed to identify evidence of the spill specified in the initial C-141 Report, the area of contamination, area of the spray on and off site, and initial sampling points.

On May 30, 2018 initial samples were collected from the site. A total of six (6) test pits were advanced to delineate the vertical and horizontal impacts of the spill. Five (5) test pits were advanced along or outside the boundaries of the spill area to determine the vertical depth and volume of impacts. One (1) test pit was advanced to delineate vertical impacts within the spill area. Soil samples taken during delineation activities were submitted to the lab and analyzed for hydrocarbon (volatile and extractable) and chlorides. The lab results are presented in Table 1 and can be found in Attachment 14.

The lab results from May 30, 2018, showed there was high concentrations of chlorides, which required remediation to below the remediation action levels. On July 15, 2018, after the excavation and removal of soils from the site, three confirmatory samples were collected and submitted to the lab. The collected samples were analyzed for hydrocarbon (volatile and extractable) and chlorides. The lab results are presented in Table 2 and can be found in Attachment 14. The lab results from July 15, 2018, showed high concentrations of chlorides under the prior regulations.

A Remediation Plan was developed on October 31, 2018, approved by the OCD, and executed on November 12, 2018. The plan is presented in Attachment 15.

Remediation included the excavation of impacted soils, transportation by a licensed waste hauler and disposal at an approved waste management facility. The remedial activities began on November 12, 2018 and finished on November 13, 2018. Refusal was reached at 2 to 2.5 feet west of the heater treater. Excavation continued west of the heater treater, reaching a continuous "hard pan" refusal at 2 to 2.5 feet. Soils were removed as close to existing infrastructure as possible in compliance with safety guidance. In total, approximately 470 cubic yards of contaminated soil was excavated and disposed of. Field screening for chlorides was completed during the excavation using the standardized saturated paste method, and Quantabs, and is documented in Table 3, along with lab analysis results. Composite confirmatory samples were collected on November 14, 2018 and submitted for lab analysis. Lab analysis included hydrocarbon (volatile and extractable) and chlorides. Remediation activity can be viewed in Figure 1, Attachment 1, and site photos, documenting the remedial activities in Attachment 2. Daily Field Reports of the excavation and sampling can be found in Attachment 13. The lab results are presented in Table 3 and can be found in Attachment 14.

The confirmatory sample results collected on November 14, 2018 identified areas on the north wall, south wall, and east wall 1 were above closure criteria chloride concentrations. The limits of the excavation area were constrained by refusal due to "hard pan", caliche and existing infrastructure (flow lines, containment area and buried electrical lines). During excavation, caliche was encountered throughout the excavation at 2 to 2.5 feet. A variance was requested to install a 30 Mil liner immediately adjacent to the hard pan layer. This request was approved on December 19, 2019 by Bradley Billings and is included as Attachment 16. The liner was installed on December 20, 2018 at 2 to 2.5 feet below the ground surface, to address those areas on the base of the excavation exceeding the 600-ppm chloride concentration (Attachment 15). The liner was sized to fit the base of the excavation and backfilled with local caliche. Pictures of the liner installation can be found in Attachment 2. The liner within the heater treater containment area was inspected for integrity and

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Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

found to be ripped in two (2) places. Due to proximity to existing infrastructure, sampling from beneath the liner could not be completed in accordance with safety practices. It is requested that any residual impacts under the heater treater liner be deferred for remediation until which time the facility is decommissioned.

Table 1. Delineation Soil Characterization Results Heater Treater – May 30, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Inorganic	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		Extractable	Chloride
					Benzene	BTEX (Total)	TPH	
					(mg/kg)	(mg/kg)	(mg/kg)	
BH18-01	0	5/30/2018	-	-	<0.00199	<0.00199	<15.0	23,900
BH18-01	2	5/30/2018	-	-	<0.00200	<0.00200	<15.0	387
BH18-01	4	5/30/2018	-	-	-	-	-	2,480
BH18-02	0	5/30/2018	-	-	<0.00200	<0.00200	<15.0	1,050
BH18-02	2	5/30/2018	-	-	<0.00202	<0.00202	<15.0	411
BH18-03	0	5/30/2018	-	-	<0.00199	<0.00199	48.9	4,360
BH18-03	2	5/30/2018	-	-	<0.00200	<0.00200	<14.9	518
BH18-04	0	5/30/2018	-	-	<0.00201	0.336	53.1	109
BH18-04	2	5/30/2018	-	-	<0.00199	<0.00199	<15.0	33.9
BH18-04	4	5/30/2018	-	-	-	-	-	21.3
BH18-05	0	5/30/2018	-	-	<0.00201	<0.00201	<15.0	89
BH18-05	2	5/30/2018	-	-	<0.00200	<0.00200	<15.0	48.4
BH18-06	0	5/30/2018	-	-	0.00202	0.00578	65.7	26.4
BH18-06	2	5/30/2018	-	-	<0.00201	<0.00201	<15.0	12.9



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Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

Table 2. Remediation Soil Characterization Results Heater Treater – July 15, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Inorganic	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		Extractable	
					Benzene	BTEX (Total)	TPH	Chloride
					(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH18-01		7/15/2018	-	-	<0.00201	<0.00201	<15.0	2,830
BH18-02		7/15/2018	-	-	<0.00202	<0.00202	<15.0	2,240
BH18-03		7/15/2018	-	-	<0.00200	<0.00200	<15.0	2,160

Table 3. Final Confirmatory Soil Characterization Results Heater Treater – November 14, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Inorganic	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		Extractable	
					Benzene	BTEX (Total)	TPH	Chloride
					(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
West Wall 1	2	11/14/2018	-	62	<0.0192	<0.0192	<15.0	107
West Wall 2	2	11/14/2018	-	74	<0.0182	<0.0182	<15.0	102
East Wall 1	2	11/14/2018	-	760	<0.0189	<0.0189	<15.0	888
East Wall 2	2	11/14/2018	-	74	<0.0193	<0.0193	<15.0	132
South Wall	1	11/14/2018	-	390	<0.0188	<0.0188	<15.0	695
North Wall	2	11/14/2018	-	802	<0.0198	<0.0198	<14.9	1,130
Base 1	2	11/14/2018	-	128	<0.0171	<0.0171	<15.0	167
Base 2	3	11/14/2018	-	98	<0.0183	0.336	53.1	109

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February 2019

## MAY 30, 2018, INCIDENT NUMBER: 1RP-5094

### Incident Description

The spill, reported May 30, 2018, involved the release of oil, leaking on the well pad surface. The release was caused by a rupture in the flowline at the wellhead. The well was shut-in and found the poly line had a 1" hole. The leak from the poly line released approximately of 22 barrels (bbls) of oil. A vacuum truck was immediately dispatched and removed approximately 16 bbls of standing liquids. A backhoe was dispatched to remove saturated soils near the source of the rupture, which were transported to a licensed waste handling facility. The initial C-141 Report is included in Attachment 3.

### Remedial Actions Taken

The initial site visit was completed on May 30, 2018, which aimed to identify the area of contamination and clean up the spill specified in the initial C-141 Report. One (1) sample was collected to characterize potential contaminants and their corresponding concentration levels. The soil sample taken during the initial site visit was submitted to the lab and analyzed for hydrocarbon (volatile and extractable) and chlorides. The lab results are presented in Table 4 and can be found in Attachment 14.

The lab results from May 30, 2018, BH18-01, showed high concentrations of hydrocarbon and chlorides. Delineation samples were then collected on July 7, 2018. A total of five (5) test pits were advanced to delineate the vertical and horizontal impacts of the spill. Four (4) test pits were advanced outside the boundaries of the spill area to determine the vertical depth and volume of impacts. One (1) test pit was advanced to delineate vertical and horizontal impacts within the spill area. Soil samples taken during the delineation activity were submitted to the lab and analyzed for hydrocarbon (volatile and extractable) and chlorides. The lab results are presented in Table 5 and can be found in Attachment 14.

The lab results from July 7, 2018, showed there was high concentrations of chlorides, requiring remediation to below the remediation action levels. The Remediation Plan was developed on October 31, 2018, and executed on November 14, 2018. The plan is presented in Attachment 15.

Remediation included the excavation of impacted soils, transportation by a licensed waste hauler and disposal at an approved waste management facility. These activities began on November 14, 2018 and finished on November 15, 2018. Excavation of soils began south of the tank containment area, south to the wellhead and south of the well head. Refusal was reached at 1.5 to 2 feet south of the tank containment area. Excavation continued in the area reaching a continuous refusal at 1.5 to 2 feet. Soils were removed as close to infrastructure as possible in compliance with safety guidance. Approximately 200 cubic yards of contaminated soil was excavated and disposed of. Field screening for chlorides was completed during the excavation using the standardized saturated paste method with Quantabs and is documented in Table 6, along with the lab screening results. Discreet confirmatory samples were collected on November 14, 2018 and submitted for lab analysis. Lab analysis included hydrocarbon (volatile and extractable) and chlorides. Remediation activities can be viewed in Figure 2, Attachment 1, and site photos, documenting the remedial activities in Attachment 2. Daily Field Reports of the excavation and sampling can be found in Attachment 13. The lab results are presented in Table 6 and can be found in Attachment 14.

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Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

The confirmatory sample results collected on November 14, 2018 identified areas on the south wall, and the two (2) base points were above closure criteria chloride concentrations. The limits of the excavation area were constrained by refusal "hard pan", caliche and existing infrastructure (flow lines, containment area and buried electrical lines). During excavation, caliche was hit at 1.5 to 2 feet. A variance was requested to install a 30 Mil liner. This request was approved on December 19, 2018 by Bradley Billings and is included as Attachment 16. The liner was installed on December 20, 2018 at 1.5 to 2 feet below the ground surface, to address those areas on the base of the excavation exceeding the 600-ppm chloride concentration. The liner was sized to fit the base of the excavation and backfilled with local caliche. Pictures of the liner installation can be found in Attachment 2.

Table 4. Initial Soil Characterization Results Wellhead – May 30, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Inorganic	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		Extractable	
					Benzene	BTEX (Total)	TPH	Chloride
			(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH18-01	0	5/30/2018	-	-	56.4	592	21,300	2,970

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

Table 5. Delineation Soil Characterization Results Wellhead – July 7, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Inorganic	
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		Extractable	Chloride
					Benzene	BTEX (Total)	TPH	
					(mg/kg)	(mg/kg)	(mg/kg)	
S1	0	7/7/2018	-	-	<0.00201	<0.00202	68.9	5,910
S1	2	7/7/2018	-	-	<0.00202	<0.00201	<15.0	1,700
S1	4	7/7/2018	-	-	<0.00199	<0.00199	40.2	1,630
S2	0	7/7/2018			<0.00198	<0.00198	18.5	408
S2	2	7/7/2018			<0.00202	<0.00201	129	2,310
S2	4	7/7/2018			<0.00202	<0.00202	181	1,450
S3	0	7/7/2018			<0.00200	<0.00200	<15.0	3,160
S3	2	7/7/2018			<0.00201	<0.00201	<15.0	2,460
S3	4	7/7/2018			<0.00201	<0.00201	<15.0	1,610
S4	0	7/7/2018			<0.00200	<0.00200	<15.0	310
S4	2	7/7/2018			<0.00199	<0.00199	64.4	419
S4	4	7/7/2018			<0.00200	<0.00200	53.0	552
S5	0	7/7/2018			<0.00201	<0.00201	<15.0	1,250
S5	2	7/7/2018			<0.00202	<0.00202	<15.0	1,060
S5	4	7/7/2018			<0.00200	<0.00200	<15.0	890

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

Table 6. Final Confirmatory Soil Characterization Results Wellhead – November 14, 2018								
Sample Description			Field Screening		Petroleum Hydrocarbons		Extractable	Inorganic
Sample ID	Depth (ft.)	Date	Volatile Organic Compounds	Quantab Result (High/Low)	Volatile		TPH	Chloride
			(ppm)	(+/-)	Benzene	BTEX (Total)		
					(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
West Wall	2	11/14/2018	-	High	<0.0199	<0.0199	<15.0	209
East Wall	2	11/14/2018	-	650	<0.0181	<0.0181	<15.0	70.7
South Wall	2	11/14/2018	-	976	<0.0196	<0.0196	<14.9	1,890
North Wall	2	11/14/2018		2450	<0.0184	<0.0184	<15.0	226
Base 1	2	11/14/2018		802	<0.0188	<0.0188	<15.0	522
Base 2	2	11/14/2018		1170	<0.0193	<0.0193	<15.0	2,540
05 East Wall	2	11/14/2018		High	<0.0191	<0.0191	<15.0	374
05 Base	2	11/14/2018		650	<0.0173	<0.0173	<15.0	1,120
05 South Wall	2	11/14/2018		High	<0.0191	<0.0191	<15.0	660
05 North Wall		11/14/2018		High	<0.0189	<0.0189	<14.9	115

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

## Closure Request

Initial response addressed concerns that were readily accessible around existing infrastructure on the operating site. Two spills occurred at the site. The first spill occurred on and off site from the heater treater. The second spill occurred on the well pad and was contained within the boundary of the lease in close proximity to the wellhead. The initial samples collected at the site identified, through lab analysis of hydrocarbon and chlorides, there were high concentrations of chlorides which required remediation through excavation. A Remediation Plan was submitted and approved by the NMOCD. During excavation, caliche hindered further excavation. A variance to line the excavated area with a 30 Mil liner was requested and approved. Complete laboratory results are included in Attachment 14.

Remedial efforts have been completed to address the delineated chloride concentrations above 19.15.29 NMAC Closure Criteria for Soils Impacted by a Release. A 30 Mil liner has been installed on the base of the excavation to address any residual impacts at or below 1.5 ft. bgs. The excavation was backfilled with local caliche soils. Given that the impact associated to both spills has been remediated with the approved variance from NMOCD, Marathon Oil Permian LLC. requests that these spills be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 832.588.0674 or dhanton@vertex.ca.

Sincerely,



Dhugal Hanton  
VICE PRESIDENT – US OPERATIONS

vertex.ca

7223 Empire Central Drive, Houston, Texas 77040, USA | P 832.588.0674

**Marathon Oil Permian LLC.**  
Nighthawk State Com 3H

**2019 Spill Assessment and Remediation Closure**  
February 2019

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## **Attachments**

- Attachment 1. Aerial Photograph
- Attachment 2. Site Photographs
- Attachment 3. Form C-141 Release Notification and Corrective Action
- Attachment 4. U.S. Fish and Wildlife Service, National Wetlands Inventory
- Attachment 5. Permanent resident, School, Church etc. Map
- Attachment 6. Inventory of Springs in Lea County
- Attachment 7. Wells with Well Log Information
- Attachment 8. Active Mines in New Mexico
- Attachment 9. National Flood Hazard Layer Firmette Map
- Attachment 10. Water Column / Average Depth to Water
- Attachment 11. Active & Inactive Points of Diversion Report
- Attachment 12. Karst Potential Map
- Attachment 13. Daily Field Reports and Field Sampling Reports
- Attachment 14. Laboratory Results
- Attachment 15. Remediation Plan
- Attachment 16. Liner Variance Email Communication

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

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## References

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- New Mexico Bureau of Geology and Mineral Resources. (2019). *Interactive Geologic Map*. Retrieved from <http://geoinfo.nmt.edu>
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- United States Geological Survey. (1992). *Inventory of Springs in the State of New Mexico*. Albuquerque, New Mexico. Retrieved from <https://pubs.usgs.gov/of/1992/0118/report.pdf>, 87 – 88 p.
- New Mexico Bureau of Geology and Mineral Resources. (2014-2017). *Interactive Geologic Map*. Retrieved from <http://geoinfo.nmt.edu>

vertex.ca

7223 Empire Central Drive, Houston, Texas 77040, USA | P 832.588.0674



Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

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USDA Soil Conservation Service. (1974) *Soil Survey, Lea County, New Mexico*. Retrieved from <https://books.google.com/books?id=PqzWLHGb8RcC&pg=PA23&lpg=PA23&dq=Kimbroug-lea+complex&source=bl&ots=EFLMj9FetO&sig=0kBLDeEzL8MVAfWRppmeGpOSFF4&hl=en&sa=X&ved=2ahUKEwik65vjzJ3eAhU1FzQIHUNQAbQQ6AEwAXoECAkQAQ#v=onepage&q=Kimbroug-lea%20complex&f=false>

Marathon Oil Permian LLC.  
Nighthawk State Com 3H

2019 Spill Assessment and Remediation Closure  
February 2019

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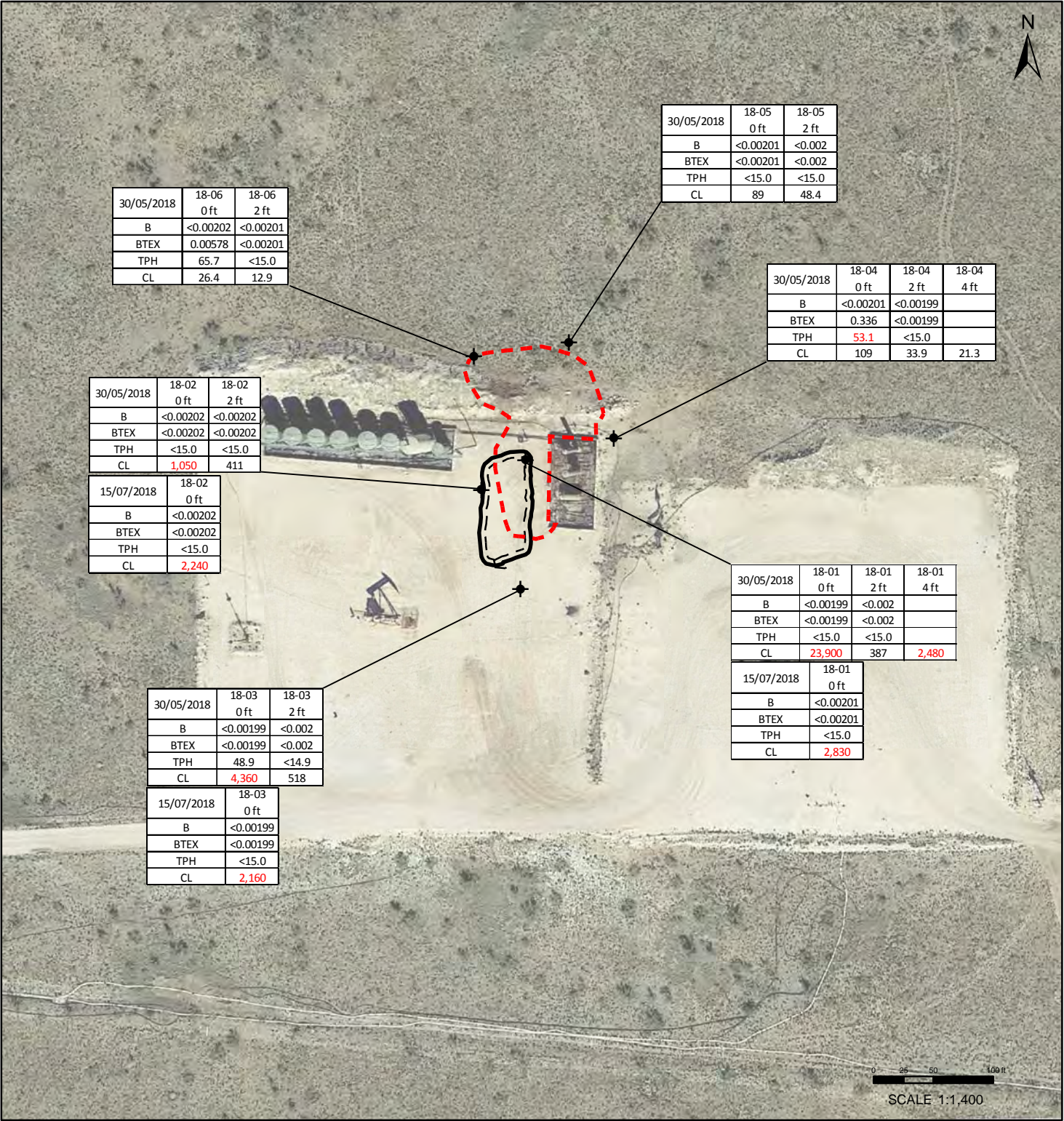
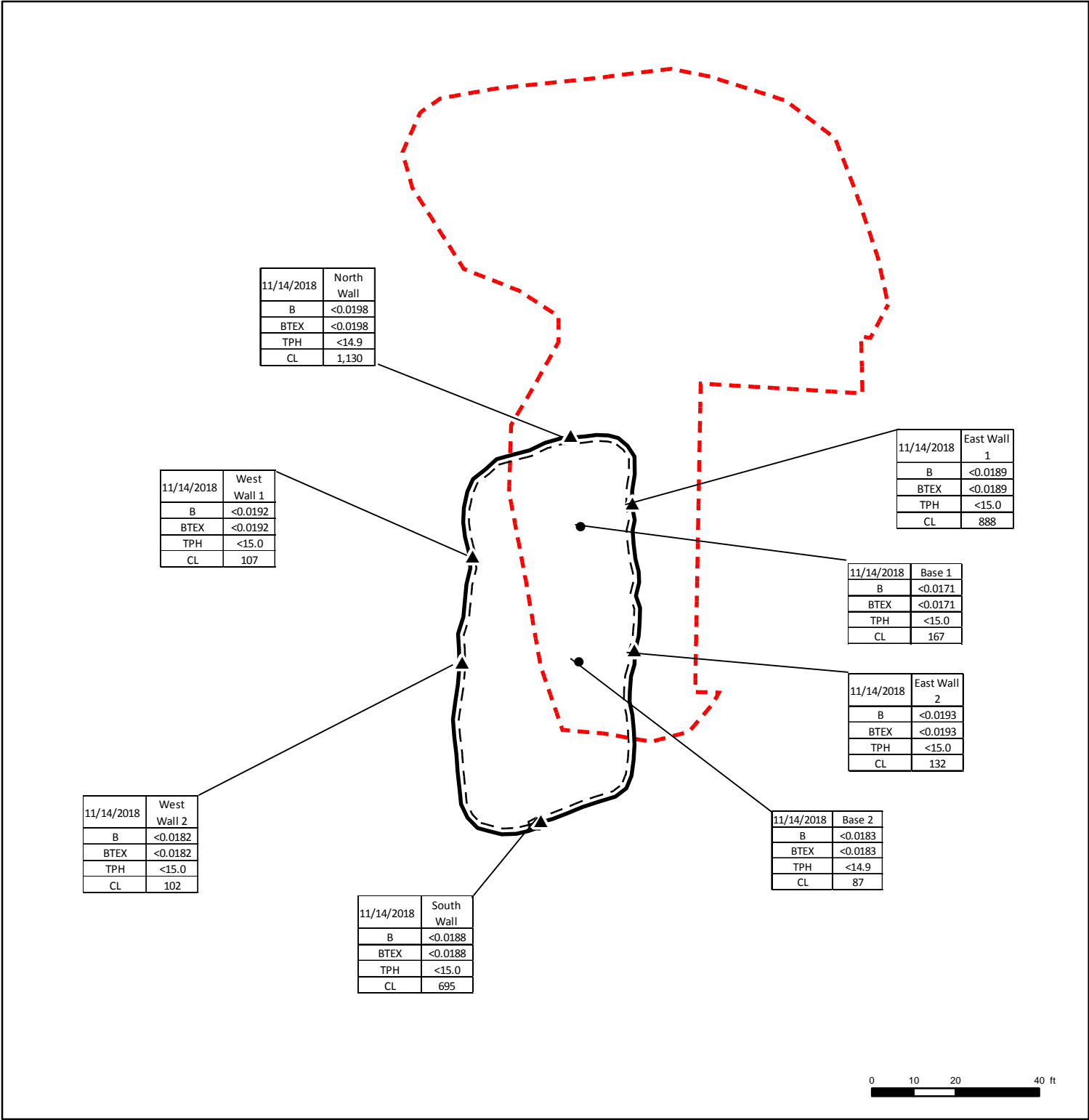
## Limitations

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

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

## **ATTACHMENT 1**





Legend

- ◆ Borehole
- Base Soil Sample
- ▲ Wall Soil Sample
- Excavation
- Spill Area

Recommended Remediation Action Level (ppm)			
Benzene	BTEX	TPH	Chlorides
10	50	100	600

Notes: Aerial Image from Google Earth, 2017



**Nighthawk Heater  
Treater Spill  
1RP-5004  
March 14, 2018**



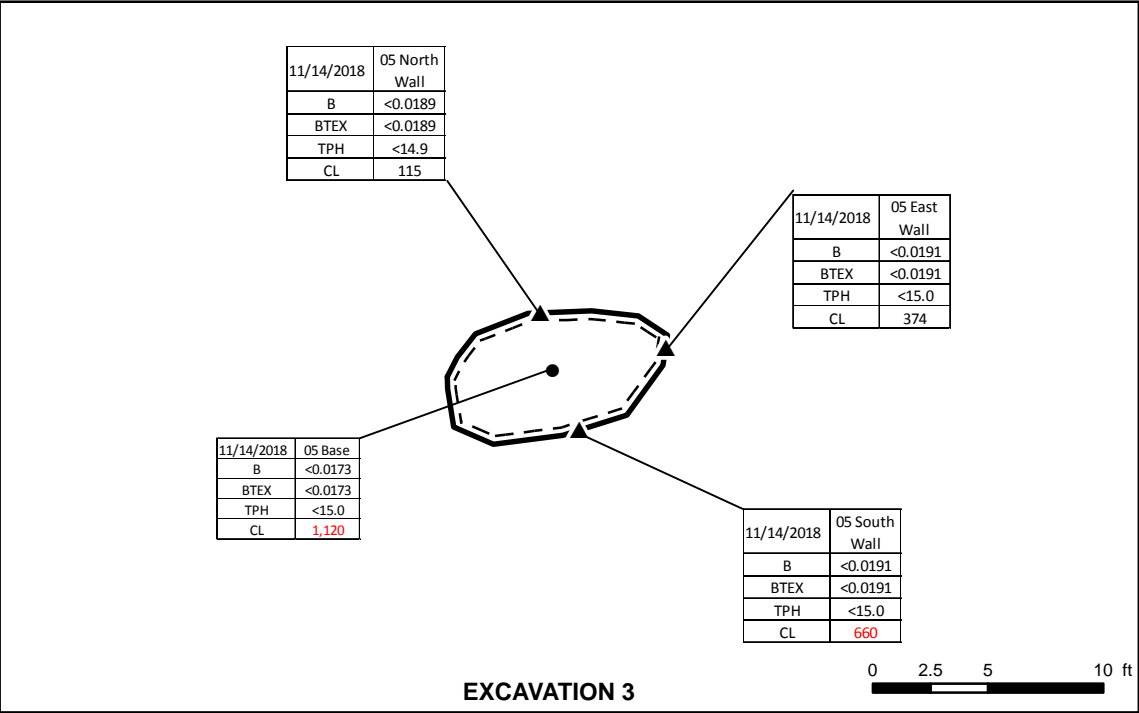
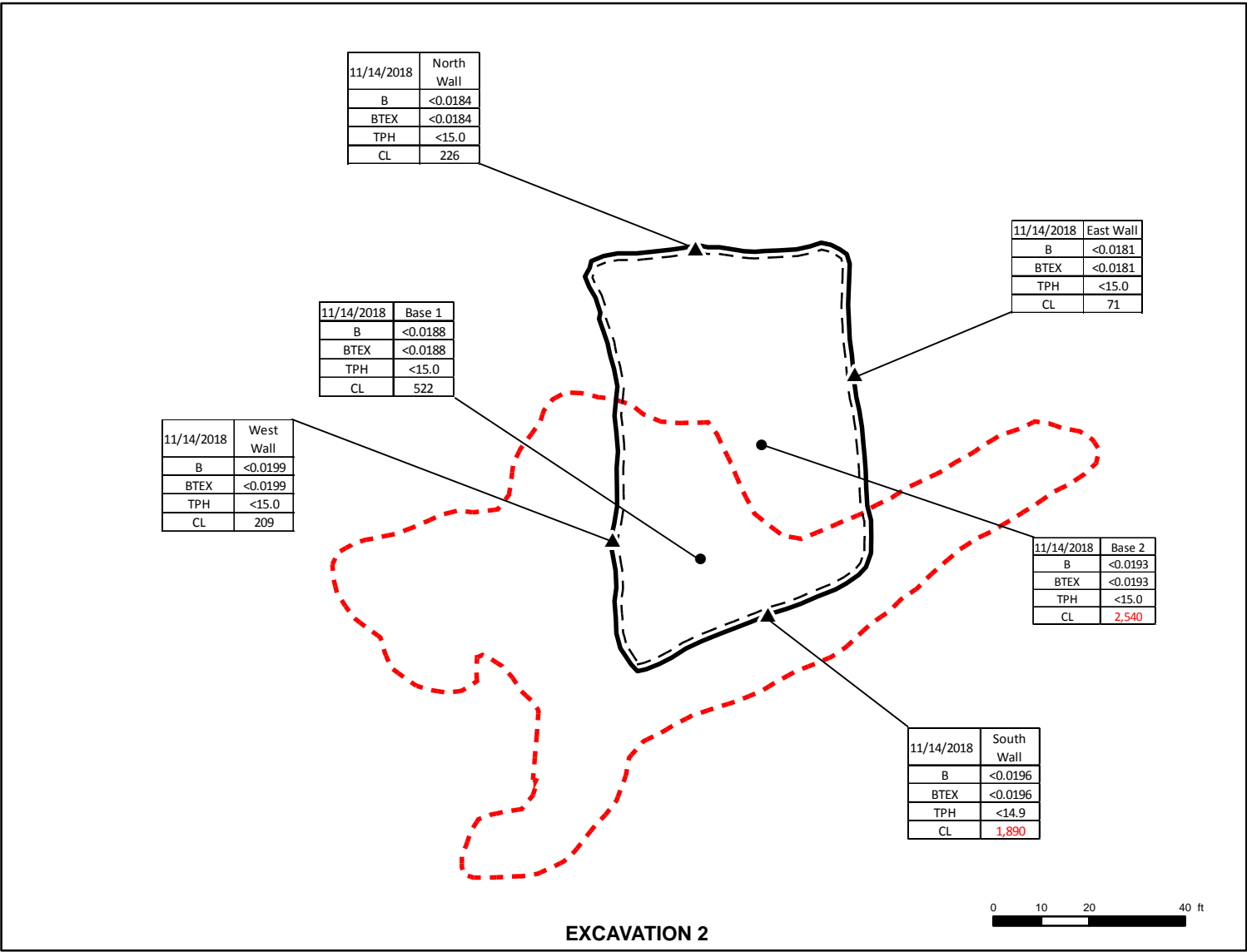
DRAWN: PS

APPROVED: DH

DATE: FEB 12/19

FIGURE:  
**1**





Legend

- ◆ Borehole
- Base Soil Sample
- ▲ Wall Soil Sample
- ▭ Excavation
- ▭ Spill Area

Recommended Remediation Action Level (ppm)			
Benzene	BTEX	TPH	Chlorides
10	50	100	600

Notes: Aerial Image from Google Earth, 2017



Nighthawk  
Wellhead Spill  
1RP-5094  
May 30, 2018



DRAWN: PS  
APPROVED: DH  
DATE: FEB 12/19

FIGURE:  
2



## **ATTACHMENT 2**

Incident ID	1RP-5004
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>76</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input 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.

Incident ID	1RP-5004
District RP	
Facility ID	
Application ID	

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

Printed Name: Callie Karrington Title: HES Professional

Signature: Callie Karrigan Date: 3/26/19

email: cnkarrigan@marathonoil.com Telephone: 405.202.1028

**OCD Only**

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



Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: Callie Kerrigan Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

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

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

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

Form C-141  
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Permian LLC	Contact: Callie Karrigan
Address: 2423 Bonita St, Carlsbad, NM 88220	Telephone No. 405-202-1028 (cell) 575-297-0956 (office)
Facility Name: Nighthawk State Com 3H	Facility Type: oil well
Surface Owner: State	Mineral Owner: State
API No 30-025-41950	


### LOCATION OF RELEASE

Unit Letter O	Section 20	Township 18S	Range 35E	Feet from the 240	North/South Line South	Feet from the 2310	East/West Line East	County Lea
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Latitude 32.72660771 Longitude -103.47803946 NAD83

### NATURE OF RELEASE

Type of Release: produced water	Volume of Release: 10 bbl	Volume Recovered: 6 bbl
Source of Release: heater treater	Date and Hour of Occurrence unknown	Date and Hour of Discovery 3/14/18 10:15 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Olivia Yu – Lea County	
By Whom? Callie Karrigan	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	
If a Watercourse was Impacted, Describe Fully.* N/A	<div style="border: 2px solid blue; padding: 10px; text-align: center;"> <b>RECEIVED</b>  <b>By Olivia Yu at 2:21 pm, Apr 02, 2018</b> </div>	
Describe Cause of Problem and Remedial Action Taken.* Operator arrived onsite for daily rounds and observed a gasket leak from the treater. A mist from the treater released approximately 10 bbls of produced water in secondary containment. Approximately 6 barrels was contained in containment and an additional 4 barrels was released outside of containment due to heavy misting and spray. The mist traveled approximately 20 feet off the pad.		
Describe Area Affected and Cleanup Action Taken.* A vac truck was dispatched to recover standing fluids in and outside of containment. The well was shut-in pending gasket repairs by a 3 <sup>rd</sup> party. Facility containment was then power washed and used absorbent materials to recover remaining liquids. The liner integrity was also assessed to confirm the liner will continue to contain liquids if another release occurs. Offsite release will be assessed by a 3 <sup>rd</sup> party and a clean-up plan will be submitted.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.		

Signature: <i>Callie Karrigan</i>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Callie Karrigan		Approved by Environmental Specialist: 	
Title: HES Professional	Approval Date: <b>4/2/2018</b>	Expiration Date:	
E-mail Address: <a href="mailto:cnkarrigan@marathonoil.com">cnkarrigan@marathonoil.com</a>	Conditions of Approval:		Attached <input checked="" type="checkbox"/>
Date: 3/28/18	Phone: 405-202-1028	<div style="border: 2px solid red; padding: 5px; color: red;"> <b>See attached directive. Photo documentation post-cleanup of lined facility requested.</b> </div>	

\* Attach Additional Sheets If Necessary

**nOY1809252064**

**1RP-5004**

**pOY1809252900**









Operator/Responsible Party,

The OCD has received the form C-141 you provided on 3/28/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-5004 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 4/2/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505-476-3465  
jim.griswold@state.nm.us

Incident ID	1RP-5094
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>76</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input 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.

Incident ID	1RP-5094
District RP	
Facility ID	
Application ID	

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

Printed Name: Callie Karrington Title: HES Professional

Signature: Callie Karrigan Date: 3/26/19

email: cnkarrigan@marathonoil.com Telephone: 405.202.1028

**OCD Only**

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



Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: Callie Karrigan Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

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

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

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

Form C-141  
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Marathon Oil Permian LLC	Contact: Callie Karrigan	
Address: 2423 Bonita St, Carlsbad, NM 88220	Telephone No. 405-202-1028 (cell) 575-297-0956 (office)	
Facility Name: Nighthawk State Com 3H	Facility Type: oil well	
Surface Owner: State	Mineral Owner: State	API No 30-025-41950

### LOCATION OF RELEASE

Unit Letter O	Section 20	Township 18S	Range 35E	Feet from the 240	North/South Line South	Feet from the 2310	East/West Line East	County Lea
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Latitude 32.72660771 Longitude -103.47803946 NAD83

### NATURE OF RELEASE

Type of Release: crude oil	Volume of Release: 22 bbl	Volume Recovered: 16 bbl
Source of Release: poly flowline at wellhead	Date and Hour of Occurrence unknown	Date and Hour of Discovery 5/30/2018 09:00 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Olivia Yu – Lea County, Ryann Mann – SLO	
By Whom? Callie Karrigan	Date and Hour: 5/30/2018 11:18 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*  
N/A

**RECEIVED**

**By Olivia Yu at 3:35 pm, Jun 14, 2018**

Describe Cause of Problem and Remedial Action Taken.\*

Operator arrived onsite for daily rounds and observed the flowline had ruptured and released approximately 22 barrels of oil. The well was immediately shut-in. Upon further investigation, the poly line had about a 1" hole and the release surfaced immediately.

Describe Area Affected and Cleanup Action Taken.\*

A vac truck recovered standing fluids. The polyline was removed from service and will be replaced. Saturated soils near the source of the rupture were removed and taken for disposal. The release area is currently being assessed, initial soil samples taken and a work plan will be submitted for remaining clean-up.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: <i>Callie Karrigan</i>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Callie Karrigan		Approved by Environmental Specialist: <i>my</i>	
Title: HES Professional	Approval Date: <b>6/14/2018</b>	Expiration Date:	
E-mail Address: <a href="mailto:cnkarrigan@marathonoil.com">cnkarrigan@marathonoil.com</a>	Conditions of Approval: <b>see attached directive</b>	Attached <input checked="" type="checkbox"/>	
Date: 6/13/18	Phone: 405-202-1028		

\* Attach Additional Sheets If Necessary

1RP-5094

nOY1816556237

pOY1816556459



Operator/Responsible Party,

The OCD has received the form C-141 you provided on \_6/13/2018\_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number \_1RP-5094\_ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District \_1\_ office in \_\_Hobbs\_\_ on or before \_7/14/2018\_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505-476-3465  
jim.griswold@state.nm.us

## **ATTACHMENT 3**



In the interests of resolving **1RP-5094**, NMOCD approves the proposed remediation plan as outlined on September 17, 2018 with the following conditions : Provide both bottom and sidewall confirmation samples at no greater than 50 ft. intervals. Please be advised to excavate further at BH18-01 until permissible chloride levels are reached or submit a variance requesting to utilize a liner. Submit dated photo documentation of the remedial activities, including placement of liner if one is used. Submit scaled map with the confirmation sample locations in relation to the delineation sample points and indicate location of release point.

August 24, 2018

**Spill Remediation Plan:** Nighthawk State Com 3H (Section 20 T18S R33E)  
API: 30-025-41950

**Prepared For:** **Marathon Oil Permian LLC.**  
2423 Bonita Street  
Carlsbad, NM 88220

**NMOCD District 1**  
1625 North French Drive  
Hobbs, New Mexico 88240

Ms. Olivia Yu,

Marathon Oil Permian LLC., requested that Vertex Resource Services Inc. (Vertex) conduct a Spill Assessment and Remediation for a release at Nighthawk State Com 3H, API: 30-025-41950 (hereafter referred to as "site"). The Initial C-141 Report is included in Attachment 1 and the Site Schematic can be found in Attachment 2 as per the lab results. This letter provides a description of the remediation plan to achieve spill closure at the site.

## General Information

Client:	<u>Marathon Oil Permian LLC.</u>	Site Location:	<u>Nighthawk State Com 3H</u>
Date:	<u>August 20, 2018</u>	Project #:	<u>18E-02112</u>
Client Contact:	<u>Callie Karrigan</u>	Phone #:	<u>405-202-1028</u>
Vertex PM:	<u>Dhugal Hanton</u>	Phone #:	<u>832-588-0674</u>
Field Personnel:	<u>Robyn Fisher</u>	Phone #:	<u>575-361-7290</u>
Field Personnel:	<u>Jason Crabtree</u>	Phone #:	<u>432-250-3456</u>
Contractor:	<u>Wescom - Kevin Waliezer</u>	Phone #:	<u>701-580-7614</u>

## Objective

The objective is to conduct an excavation of material and meet the 600 mg/kg total chlorides requirement. Based on existing results, it is assumed that most of the excavation extent will be at a depth of 4 feet. Vertex will conduct sampling at 4 feet and if the excavation base fails for chloride, a 30 mil liner will be installed. Vertex will source local caliche and backfill for the excavation.

Marathon Oil Permian LLC.  
Nighthawk State Com 3H API: 30-025-41950

2018 Remediation Plan  
August 2018

### Groundwater, Point of Diversion and Site Ranking

The New Mexico State Engineer website (New Mexico Water Rights Reporting System – Water Column Report) indicates that the nearest groundwater data available for Section 11, T17S, R36E is approximately 1,000 feet from the site. The ground water in the area is reported to be at an average depth of 78 feet below ground surface (BGS). The referenced groundwater data are presented in Attachment 3.

The New Mexico State Engineer website (New Mexico Water Rights Reporting System – Active & Inactive Points of Diversion) indicates that there no diversions within 1,000 feet. (Attachment 4).

The Ranking Criteria for Depth to Ground Water at the site is ranked 10 based on the *Guidelines for Remediation of Leaks, Spills and Releases* (New Mexico Oil Conservation Division (NMOCD), August 13, 1993) and the specific site information listed below:

Ranking Criteria	Distance	Ranking
Depth to Groundwater	78 ft.	10
Wellhead Protection Area	> 1,000 ft. from a water source	0
Distance to Surface Water Body	>1,000 ft.	0
Total Ranking		10

The following are recommended remediation action levels used for final closure efforts.

Recommended Remediation Action Level	
Benzene (ppm)	10
BTEX (ppm)	50
TPH (ppm)	1000
Chlorides (ppm)	600



Marathon Oil Permian LLC.  
Nighthawk State Com 3H API: 30-025-41950

2018 Remediation Plan  
August 2018

### Initial Site Assessment

The initial spill assessment was conducted on May 30, 2018. Six surface samples were taken to investigate and characterize the soil conditions. Chloride, Benzene and Total Petroleum Hydrocarbons results of the initial investigation are presented below in Table 1. A secondary surface scraping samples of the area were taken on July 15, 2018, these samples were sent to the lab to assess the current soil conditions. Results of the secondary sampling are presented below in Table 1. The lab results are included in Attachment 5.

Table 1. Soil Characterization - July 7, 2018 and July 15, 2018									
Sample Description			Petroleum Hydrocarbons						Inorganic Chloride
Sample ID	Depth (ft.)	Date	Volatile		Extractable				
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Oil Range Organics (ORO)	Total Petroleum Hydrocarbons (TPH)	
BH18-01	0	5/30/2018	ND	ND	ND	ND	ND	ND	23900
BH18-01	2	5/30/2018	ND	ND	ND	ND	ND	ND	387
BH18-01	4	5/30/2018	–	–	–	–	–	–	2480
BH18-02	0	5/30/2018	ND	ND	ND	ND	ND	ND	1050
BH18-02	2	5/30/2018	ND	ND	ND	ND	ND	ND	411
BH18-03	0	5/30/2018	ND	ND	ND	48.9	ND	48.9	4360
BH18-03	2	5/30/2018	ND	ND	ND	ND	ND	ND	518
BH18-04	0	5/30/2018	ND	0.336	29.8	23.3	ND	53.1	109
BH18-04	2	5/30/2018	ND	ND	ND	ND	ND	ND	33.9
BH18-04	4	5/30/2018	–	–	–	–	–	–	21.3
BH18-05	0	5/30/2018	ND	ND	ND	ND	ND	ND	89
BH18-05	2	5/30/2018	ND	ND	ND	ND	ND	ND	48.4
BH18-06	0	5/30/2018	0.00202	0.00578	22.6	43.1	ND	65.7	26.4
BH18-06	2	5/30/2018	ND	ND	ND	ND	ND	ND	12.9
BH18-01	4	7/15/2018	ND	ND	ND	ND	ND	ND	2830
BH18-02	1	7/15/2018	ND	ND	ND	ND	ND	ND	2240
BH18-03	1	7/15/2018	ND	ND	ND	ND	ND	ND	2160

**Marathon Oil Permian LLC.**  
Nighthawk State Com 3H API: 30-025-41950

**2018 Remediation Plan**  
August 2018

### **Excavation**

The excavation will include removing impacted soils with a backhoe and sampling the soil at 4 feet. The soil sampling protocol is designed and implemented to identify and determine changes in soil condition within the vertical and lateral profiles. Soils will be classified utilizing the Unified Soil Classification system as described in *American Society for Testing and Materials D2488* (Standard Practice of Description and Identification of Soils (Visual-Manual Procedure) 2000). Laboratory analysis on select samples will be performed according the following methods:

- Chloride (Method 300)

As benzene and TPH are below NMOCD Recommended Remedial Action Levels, Vertex will be sampling only for chlorides.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 832.588.0674 or [dhanton@vertex.ca](mailto:dhanton@vertex.ca).

Sincerely,



Dhugal Hanton, B.Sc., P.Ag., SR/WA, P.Biol.  
VICE PRESIDENT – US OPERATIONS

### **Attachments**

- Attachment 1. Initial C-141 Report
- Attachment 2. Figure
- Attachment 3. Groundwater Information
- Attachment 4. Diversion Information
- Attachment 5. Laboratory Results

[vertex.ca](http://vertex.ca)

7223 Empire Central Drive, Houston, Texas 77040, USA | P 281-977-7886

**Marathon Oil Permian LLC.**  
Nighthawk State Com 3H API: 30-025-41950

**2018 Remediation Plan**  
August 2018

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## Limitations

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

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

## Kathlene Meadows

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**From:** Dhugal Hanton  
**Sent:** January-11-19 10:57 AM  
**To:** Dennis Williams; Kathlene Meadows  
**Subject:** FW: Remediation Approval Variance - 1RP-5094 & 1RP-5004

**Dhugal Hanton** B.Sc., P.Ag., SR/WA, P.Biol.  
Vice President,  
US Operations

Vertex Resource Services Inc.  
7223 Empire Central Drive,  
Houston, TX  
77040

O 281-977-7886  
C 832-588-0674



---

**From:** Dhugal Hanton  
**Sent:** December 19, 2018 3:56 PM  
**To:** Callie Karrigan (cnkarrigan@marathonoil.com) <cnkarrigan@marathonoil.com>; Castro, Isaac (MRO) <icastro@marathonoil.com>  
**Cc:** Kathlene Meadows (kmeadows@vertex.ca) <kmeadows@vertex.ca>; Dennis Williams <DWilliams@vertex.ca>  
**Subject:** FW: Remediation Approval Variance - 1RP-5094 & 1RP-5004

FYI

**Dhugal Hanton** B.Sc., P.Ag., SR/WA, P.Biol.  
Vice President,  
US Operations

Vertex Resource Services Inc.  
7223 Empire Central Drive,  
Houston, TX  
77040

O 281-977-7886  
C 832-588-0674



---

**From:** Billings, Bradford, EMNRD [<mailto:Bradford.Billings@state.nm.us>]  
**Sent:** December 19, 2018 2:18 PM  
**To:** Dhugal Hanton <[DHanton@vertex.ca](mailto:DHanton@vertex.ca)>  
**Subject:** RE: Remediation Approval Variance - 1RP-5094 & 1RP-5004

Hi,

Way busy. Did you/will you get pictures before backfill as per new Rule? And notification of when you will backfill to District office? Assume you have approvals for work and moving to new data requirements if you are going to use new rule? Thanks.

Brad

---

**From:** Dhugal Hanton <[DHanton@vertex.ca](mailto:DHanton@vertex.ca)>

**Sent:** Wednesday, December 19, 2018 10:08 AM

**To:** Billings, Bradford, EMNRD <[Bradford.Billings@state.nm.us](mailto:Bradford.Billings@state.nm.us)>

**Cc:** Karrigan, Callie N. (MRO) <[cnkarrigan@marathonoil.com](mailto:cnkarrigan@marathonoil.com)>; Kathlene Meadows <[KMeadows@vertex.ca](mailto:KMeadows@vertex.ca)>; Castro, Isaac (MRO) <[icastro@marathonoil.com](mailto:icastro@marathonoil.com)>

**Subject:** [EXT] RE: Remediation Approval Variance - 1RP-5094 & 1RP-5004

**Importance:** High

Good Morning Mr. Billings,

This is a follow-up email to the one below. Currently, the site has open excavations that are impeding operational activities on the site and could cause a potential safety hazard. As a variance for the use of a liner was approved, Vertex has lined the base of both of the excavations with 30mil liner and is going to backfill with clean, native caliche. I apologize for the urgency related to the site but wanted to keep you informed. Please let me know if you have any concerns with this course of action. A closure request will follow the successful completion of the backfill.

Cheers,  
Dhugal

**Dhugal Hanton** B.Sc., P.Ag., SR/WA, P.Biol.  
Vice President,  
US Operations

Vertex Resource Services Inc.  
7223 Empire Central Drive,  
Houston, TX  
77040

O 281-977-7886

C 832-588-0674

 [LinkedIn profile](#)

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**From:** Dhugal Hanton

**Sent:** November 26, 2018 2:51 PM

**To:** 'bradford.billings@state.nm.us' <[bradford.billings@state.nm.us](mailto:bradford.billings@state.nm.us)>

**Cc:** 'Karrigan, Callie N. (MRO)' <[cnkarrigan@marathonoil.com](mailto:cnkarrigan@marathonoil.com)>; Kathlene Meadows ([kmeadows@vertex.ca](mailto:kmeadows@vertex.ca)) <[kmeadows@vertex.ca](mailto:kmeadows@vertex.ca)>; Isaac Castro <[icastro@marathonoil.com](mailto:icastro@marathonoil.com)>

**Subject:** Remediation Approval Variance - 1RP-5094 &

Good Afternoon Mr. Billings,

Please find enclosed the approved remediation plans for the above mentioned site including the conditions noted in the email correspondence. Currently, Vertex has excavated both of the spill areas noted, found the horizontal extent of the impacts and completed final confirmatory sampling. With respect to the vertical depth, Vertex excavated to the extent possible before hitting the caliche layer in both spill areas. The caliche layer was found at between 1' to 2' in both of the spill areas. Although original delineation sampling was completed to below 4', currently, a caliche layer is preventing further excavation to remove those impacts. Vertex proposes either of the two options:

1. A 30 mil liner is installed on the base of the excavation just above the caliche layer to prevent upward migration of the chlorides. Vertex would submit a closure request based on the liner being in place and the horizontal confirmatory sampling being below closure criteria.
2. Based on the current NMAC regulation, the impacts present on the site could be left in place as the site falls under the 51 ft. to 100 ft. closure criteria. If approved, Vertex would backfill the excavations with clean locally sourced caliche and submit the site under the new regulations for closure.

Please let me know if you would like to discuss by phone or what your thoughts are to move the site toward closure.

Cheers,  
Dhugal

**Dhugal Hanton** B.Sc., P.Ag., SR/WA, P.Biol.  
Vice President,  
US Operations

Vertex Resource Services Inc.  
7223 Empire Central Drive,  
Houston, TX  
77040

O 281-977-7886  
C 832-588-0674



## Kathlene Meadows

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**From:** Dhugal Hanton  
**Sent:** December-19-18 3:01 PM  
**To:** Hernandez, Christina, EMNRD (Christina.Hernandez@state.nm.us);  
bradford.billings@state.nm.us  
**Cc:** Callie Karrigan (cnkarrigan@marathonoil.com); Castro, Isaac (MRO); Dennis Williams;  
Kathlene Meadows  
**Subject:** 1RP-5094 & 1RP-5004 - Marathon Oil - Nighthawk #3 - Excavation Backfill

Good Afternoon,

As per a discussion with Brad Billings, please accept this notification that the excavations on the above noted location is going to be backfilled starting December 20, 2018. As per the approved remediation plans, a liner was installed due to excavation activity finding a shallow caliche layer. Remediation activity was also hindered by existing infrastructure rendering it a safety risk to proceed any closer to the underground facilities. A closure request will be sent including documentation of the remediation performed in the New Year.

Thank you and Merry Christmas,  
Dhugal

**Dhugal Hanton** B.Sc., P.Ag., SR/WA, P.Biol.  
Vice President,  
US Operations

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**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 282221

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 282221
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation approved.	3/18/2024
amaxwell	<ul style="list-style-type: none"><li>The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.</li></ul>	3/18/2024