

## Wellhead Closure Checklist

### COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure		Partially Buried Vault Closure
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Site Name & COGCC Facility Number: **UPRC 9-11E6**      Date: **9/9/21**      Remediation Project #: **19760**

Associated Wells:      Age of Site:      Number of Photos Attached: **8**

Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) **40,325320,-104.791580**      Estimated Facility Size (acres):

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)  
**Good Condition - no erosion, corrosion, waste or debris**

USCS Soil Type: **SW**      Estimated Depth to Groundwater: **4'**

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

#### Wellhead(s)

Well API	Age	Condition of surface around wellhead	PID Readings	Condition of subsurface (staining present)	PID Readings	Sample taken? Location/Sample ID#	Photo Number(s)
<b>05-123-17406</b>		<b>good condition</b>	<b>0.0-4.4</b>	<b>good condition</b>	<b>0.0-4.4</b>	<b>SEP below</b>	<b>1-8</b>

Other observations regarding wellheads: **One sample taken at each of 4 sidewells (SS01-SS04) at 2.5' depth, one base sample (FS01) at 3.5' and one flowline sample (FLO1-A) at 3'. One background sample (B601) taken at 2'.**

#### Summary

Was impacted soil identified? **(No)**      Yes - less than 10 cubic yards      Yes - more than 10 cubic yards

Total number of samples field screened: **7**      Total number of samples collected: **4**

Highest PID Reading: **4.4**      Total number of samples submitted to lab for analysis: **4**

If more than 10 cubic yards of impacted soil were observed:  
 Vertical extent:      Estimated spill volume:  
 Lateral extent:      Volume of soil removed:

Is additional investigation required?

Was groundwater encountered during the investigation? **(No)**      Yes - not impacted or in contact with impacted soils      Yes - groundwater impacted and/or in contact with impacted soils

Measured depth to groundwater:      Was remedial groundwater removal conducted?      Yes      No

Date Groundwater was encountered:      Commencement date of removal:

Sheen on groundwater?      Yes      No      Volume of groundwater removed prior to sampling:

Free product observed?      Yes      No      Volume of groundwater removed post sampling:

Total number of samples collected:      Total Volume of groundwater removed:

Total number of samples submitted to lab for analysis:

## Flowline Closure Checklist

### COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:	Tank Battery Closure	Wellhead Closure	Pit Closure	Partially Buried Vault Closure
Site Name & COGCC Facility Number: <b>UPRC 9-1126</b>		Date: <b>9/9/21</b>		Remediation Project #: <b>19760</b>
Associated Wells:		Age of Site:		Number of Photos Attached: <b>8</b>

Starting point: (GPS coordinates and descriptions) **46.325320, -104.741581**

End point: (GPS coordinates and descriptions)

USCS Soil Type: **SW** Estimated Depth to Groundwater: **4'**

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None Observed**

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None Observed**

#### Flowlines

Flowline type	oil/gas/water						
Depth	3'						
Age	—						
Length	180'						
Construction Material	Steel						
Were flowlines pulled?	Yes						
Visual Integrity of lines	good						
Visual impacts if trenched	NA						
PID Readings if trenched	NA						
Sample taken? Location Sample ID#	See below						
Photo Number(s)	6, 8						

Other observations regarding on location flowlines: One sample taken at wellhead (FL01-A) at 3' and one flowline sample taken at separator (FL01-B) at 3'.

#### Summary

Was impacted soil identified?		Yes - less than 10 cubic yards	Yes - more than 10 cubic yards
<b>No</b>			
Total number of samples field screened: <b>2</b>		Total number of samples collected: <b>2</b>	
Highest PID Reading: <b>4.4</b>		Total number of samples submitted to lab for analysis: <b>2</b>	
If more than 10 cubic yards of impacted soil were observed:			
Vertical extent:		Estimated spill volume:	
Lateral extent:		Volume of soil removed:	
Is additional investigation required?			
Was groundwater encountered during the investigation?		Yes - groundwater impacted and/or in contact with impacted soils	
<b>No</b>			
Measured depth to groundwater:		Was remedial groundwater removal conducted? Yes No	
Date Groundwater was encountered:		Commencement date of removal:	
Sheen on groundwater? Yes No		Volume of groundwater removed prior to sampling:	
Free product observed? Yes No		Volume of groundwater removed post sampling:	
Total number of samples collected:		Total Volume of groundwater removed:	
Total number of samples submitted to lab for analysis:			

**Photographic Log**

									
						<b>Equipment ID:</b> SS01		<b>Equipment Type:</b> Wellhead	
<b>Material:</b> Steel		<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel		<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> SS01@2.5' north sample location.					<b>Notes/Conditions:</b> SS02@2.5' east sample location.				

**Photographic Log**



<b>Equipment ID:</b> SS03		<b>Equipment Type:</b> Wellhead		<b>Equipment ID:</b> SS04		<b>Equipment Type:</b> Wellhead	
<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	<b>Volume:</b>	<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> SS03@2.5' south sample location.				<b>Notes/Conditions:</b> SS04@2.5' west sample location.			

**Photographic Log**



<b>Equipment ID:</b> FS01		<b>Equipment Type:</b> Wellhead		<b>Equipment ID:</b> FL01-A		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel		<b>Volume:</b>		<b>Contents:</b> Oil/Gas/Water		<b>Material:</b> Steel	
						<b>Volume:</b>	
						<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> FS01@3.5' base sample location.				<b>Notes/Conditions:</b> FL01-A@3' flowline sample location.			

**Photographic Log**

					
<b>Equipment ID:</b> BG01		<b>Equipment Type:</b>	<b>Equipment ID:</b>		<b>Equipment Type:</b>
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b> Background sample location north of site off pad.			<b>Notes/Conditions:</b>		

**Photographic Log**


<b>Equipment ID:</b> FL01-B		<b>Equipment Type:</b> Flowline		<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b> Steel		<b>Volume:</b>		<b>Contents:</b> Oil/Gas/Water		<b>Material:</b>	
<b>Volume:</b>		<b>Contents:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b> Flowline sample FL01-B@3' sample location at the separator. No hydrocarbon odor or staining.				<b>Notes/Conditions:</b>			

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - UPRC 09-1116**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
SS01@2.5'	09/09/21	3.8	Organic Content	Organic Odor	Lab	40.32533385	-104.7915965	0.9
SS02@2.5'	09/09/21	0.0	No Staining	No Odor	Grab	40.32533391	-104.7915758	0.9
SS03@2.5'	09/09/21	2.1	No Staining	No Odor	Grab	40.32531181	-104.7915928	0.9
SS04@2.5'	09/09/21	1.3	No Staining	No Odor	Grab	40.32531922	-104.7916179	0.9
FS01@3.5'	09/09/21	1.1	Organic Content	Organic Odor	Lab	40.32532489	-104.7916013	0.9
FL01-A@3'	09/09/21	4.4	No Staining	No Odor	Lab	40.32531873	-104.7915773	0.9
BG01@3'	09/09/21	0.0	No Staining	No Odor	Lab	40.32555456	-104.7916765	0.9
FL01-B@3'	10/11/21	0.9	No Staining	No Odor	Lab	40.32489409	-104.7917176	1.5

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

1.) Latitude and longitude coordinates will be provided in decimal degrees with an accuracy and precision of 5 decimals of a degree using the North American Datum ("NAD") of 1983

TABLE 2  
SOIL ANALYTICAL DATA  
NOBLE ENERGY, INC. - UPRC 09-1116

Soil Sample ID	Date	<sup>1</sup> Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1,2,4 - TMB (mg/kg)	1,3,5 - TMB (mg/kg)	Naphthalene (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)	
Residential SSL <sup>2</sup>		1.2	490	5.8	58	30	27	2		500		360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24	
Protection of Groundwater SSL <sup>2,3</sup>		0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038		500		0.55	6	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019	
FS01@3.5'	09/09/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00335	<0.200	56.3	156	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335	<0.00335
FL01-A@3'	09/09/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25	<100	<0.00067	<0.00067	<0.00067	0.000509 <sup>J</sup>	0.000655 <sup>J</sup>	0.000273 <sup>J</sup>	0.000512 <sup>J</sup>	0.000574 <sup>J</sup>	0.000813	0.000319 <sup>J</sup>	0.00081	0.00166	0.000337 <sup>J</sup>	0.000678	
FL01-B@3'	10/11/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25	<100	<0.00067	<0.00067	<0.00067	0.000315 <sup>J</sup>	0.000816	<0.00067	0.000315 <sup>J</sup>	<0.00067	0.000526 <sup>J</sup>	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
FS01@3.5'	09/09/21	7.45	1.60	1.36	0.199
FL01-A@3'	09/09/21	7.55	1.61	0.930	<b>3.35</b>
BG01@3'	09/09/21	NA	NA	NA	<0.200
FL01-B@3'	10/11/21	7.82	0.268	0.270	<0.199

Notes:

- Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

Definitions:

COGCC = Colorado Oil and Gas Conservation Commission  
 TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
 TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
 TPH-ORO = Total petroleum hydrocarbons - oil range organics  
 mg/kg = Milligrams per kilogram  
 SAR = Sodium Adsorption Ratio  
 EC = Electrical Conductivity  
 mmhos/cm = Millimhos per centimeter  
 mg/L = Milligrams per liter

1,2,4 - TMB = 1,2,4 Trimethylbenzene  
 1,3,5 - TMB = 1,3,5 Trimethylbenzene  
 Benzo(a) = Benzantracene  
 Benzo(b) = Benzofluoranthene  
 Benzo(k) = Benzofluoranthene  
 Benzo(a) = Benzopyrene  
 A,H = Dibenzanthracene  
 1,2,3-CD = Indenopyrene  
 1-M = 1-methylnaphthalene  
 2-M = 2-methylnaphthalene  
 NA = Not Analyzed.

< = Analytical result is less than the indicated laboratory reporting limit

**Highlighted results are equal to or exceed the COGCC Table 915-1 standard**

J = Estimated Value. Analyte below reported quantitation limit.



DATE: 09/09/2021

DESIGNED BY: JW

DRAWN BY: CA



**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
6855 W 119<sup>th</sup> Avenue  
Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
 UPRC 09-1116 Wellhead  
 NWSW, Section 9, Township 4 North, Range 66 West  
 Weld County, Colorado

Wellhead Closure & Soil  
 Analytical Results Map  
 (09/09/2021)

FIGURE  
1

**FL01-B@3'**  
 (10/11/2021)  
 PID = 0.9 ppm  
 Boron = 3.35 mg/L



**Legend**

⊕ Soil Sample Location – Lab Analyzed  
 (Collected via Trimble GPS)

**Notes**

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of COGCC Table 915-1 not shown.
- 4) Concentration in exceedance of COGCC table 915-1 soil standards indicated in **RED**.

GPS – Global Positioning System  
 mg/kg – Milligrams per kilogram  
 TPH – Total Petroleum Hydrocarbons

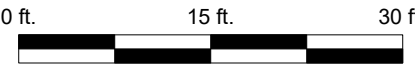


Image Source: Google Earth; Google 2020

DATE: 10/14/2021

DESIGNED BY: JW

DRAWN BY: AD



Tasman Geosciences, Inc.  
 6855 W 119<sup>th</sup> Avenue  
 Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
 UPRC 09-1116 Wellhead  
 NWSW, Section 9, Township 4 North, Range 66 West  
 Weld County, Colorado

Flowline Closure & Soil  
 Analytical Results Map  
 (10/11/2021)

FIGURE  
 2

September 21, 2021

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

**Project Name - Noble - UPRC 09-1116**

**Project Number - 422124202**

Attached are your analytical results for Noble - UPRC 09-1116 received by Origins Laboratory, Inc. September 09, 2021. This project is associated with Origins project number Y109183-02.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 422124202  
Project: Noble - UPRC 09-1116

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS01@3.5'	Y109183-02	Soil	September 9, 2021 13:25	09/09/2021 17:00
FL01-A@3'	Y109183-03	Soil	September 9, 2021 13:30	09/09/2021 17:00
BG01@3'	Y109183-04	Soil	September 9, 2021 13:35	09/09/2021 17:00

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

www.originslaboratory.com

4109183

page 1 of 1

**ORIGINS**  
 LABORATORY, INC

Client: Noble/Tasman Geosciences  
 Address: 6855 W 119th Ave  
 Telephone Number: 303-487-1228  
 Email Address: jwhritenour@tasman-geo.com

Project Manager: Jake Whritenour; Invoice: Jeff White  
 Project Name: UPRC 09-1116  
 Project Number: R#422124202 Job# R-17037  
 Samples Collected By: Hunter Merlo

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis					Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	TXC-415	TPH-415	PAH-415	Escola-HWS	SAR, EC, pH by Saturated Paste	
S501@2.5'	9/9/21	1305	2	X					X			X	X	X	X	HOLD
F501@3.5'	9/9/21	1325	2	X					X			X	X	X	X	
F101-A@3'	9/9/21	1330	2	X					X			X	V	V	X	
B601@3'	9/9/21	1335	2	X					X			X	X	X	X	HOLD
B601@3' taken off hold for analysis per Killian's email on 9/16/21																
Relinquished By: <i>W. Merlo</i>	Date: 9/9/21	Time: 1615	Time: 1615	Received By: <i>Hunter Merlo</i>	Date: 9/9/21	Time: 1615	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>									
Relinquished By: <i>Hunter Merlo</i>	Date: 9/9/21	Time: 1700	Time: 1700	Received By: <i>JH</i>	Date: 9/9/21	Time: 1700	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>									

Date Result Nearest

Origins Laboratory, Inc.

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 4109183

Client: Tasman

Client Project ID: UPRC 09-1116

Checklist Completed by: JP

Shipped Via: 4P

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 9/10/21

Airbill #: AAA

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 135.1 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		X		sampled same day
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	Y			
Was adequate sample volume provided <sup>(1)</sup> ?	Y			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?				
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	Y			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	Y			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/pH <2 for samples preserved with HNO <sub>3</sub> ; HCL; H <sub>2</sub> SO <sub>4</sub> / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			Y	
Additional Comments (if any):				

<sup>(1)</sup>if NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) JP

Date/Time Reviewed 9/13/21

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FS01@3.5'**

**9/9/2021 1:25:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y109183-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.199	0.199	mg/L	1	B111302	KAP	09/13/2021	09/13/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	56.3	25.0	mg/kg	1	B111008	kdk	09/10/2021	09/11/2021	
Residual Range Organics (C28-C40)	156	100	"	"	"	kdk	"	"	

Surrogate: o-Terphenyl	77.8 %	50-150			"	"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B111004	KDK	09/10/2021	09/14/2021	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	124 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	84.2 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130			"	"	"	"	

**Metals by Saturated Paste**

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FS01@3.5'**

**9/9/2021 1:25:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y109183-02 (Soil)**

**Metals by Saturated Paste**

Calcium	4.34	0.499	meq/L	10	[CALC]	KAP	09/15/2021	09/15/2021	
Magnesium	1.41	0.823	"	"	"	KAP	"	"	
Sodium	2.72	0.435	"	"	"	KAP	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00335	mg/Kg	5	L573955		09/14/2021	09/14/2021	
2-Methylnaphthalene	ND	0.00335	"	"	"		"	"	
Acenaphthene	ND	0.00335	"	"	"		"	"	
Anthracene	ND	0.00335	"	"	"		"	"	
Benzo(a)anthracene	ND	0.00335	"	"	"		"	"	
Benzo(a)pyrene	ND	0.00335	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00335	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00335	"	"	"		"	"	
Chrysene	ND	0.00335	"	"	"		"	"	
Dibenz(a,h)anthracene	ND	0.00335	"	"	"		"	"	
Fluoranthene	ND	0.00335	"	"	"		"	"	
Fluorene	ND	0.00335	"	"	"		"	"	
Indeno(1,2,3-cd)pyrene	ND	0.00335	"	"	"		"	"	
Naphthalene	ND	0.00335	"	"	"		"	"	
Pyrene	ND	0.00335	"	"	"		"	"	

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FS01@3.5'**

**9/9/2021 1:25:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y109183-02 (Soil)**

**PAH by 8270D SIM**

Surrogate: 2-Fluorobiphenyl	160 %	33-115			L5739 55		09/14/2021	09/14/2021	
Surrogate: 4-Terphenyl-d14	175 %	33-122			"	"	"	" *	
Surrogate: Nitrobenzene-d5	159 %	29-110			"	"	"	" *	

**pH in Soil by 9045D**

pH	7.45		pH Units	1	B111517	JSM	09/15/2021	09/15/2021	
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**SAR by 20B Saturated Paste**

SAR	1.60		SAR	1	B111524	KAP	09/15/2021	09/15/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	1.36	0.00500	mmhos/cm	1	B111504	JSM	09/15/2021	09/15/2021	
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Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-A@3'**

**9/9/2021 1:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y109183-03 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	3.35	0.198	mg/L	1	B111302	KAP	09/13/2021	09/13/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B111008	kdk	09/10/2021	09/11/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	kdk	"	"	U

Surrogate: *o*-Terphenyl 72.1 % 50-150 " " "

**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B111004	KDK	09/10/2021	09/14/2021	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4 126 % 70-130 " " "  
 Surrogate: Toluene-d8 84.0 % 70-130 " " "  
 Surrogate: 4-Bromofluorobenzene 99.0 % 70-130 " " "

**Metals by Saturated Paste**

Origins Laboratory, Inc.



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Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-A@3'**

**9/9/2021 1:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y109183-03 (Soil)**

**Metals by Saturated Paste**

Calcium	4.32	0.499	meq/L	10	[CALC]	KAP	09/15/2021	09/15/2021	
Magnesium	1.41	0.823	"	"	"	KAP	"	"	
Sodium	2.73	0.435	"	"	"	KAP	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	0.000337	0.00067	mg/Kg	1	L573955		09/14/2021	09/14/2021	J
2-Methylnaphthalene	0.000678	0.00067	"	"	"		"	"	
Acenaphthene	ND	0.00067	"	"	"		"	"	
Anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)pyrene	0.000509	0.00067	"	"	"		"	"	J
Benzo(b)fluoranthene	0.000655	0.00067	"	"	"		"	"	J
Benzo(k)fluoranthene	0.000273	0.00067	"	"	"		"	"	J
Chrysene	0.000512	0.00067	"	"	"		"	"	J
Dibenz(a,h)anthracene	0.000574	0.00067	"	"	"		"	"	J
Fluoranthene	0.000813	0.00067	"	"	"		"	"	
Fluorene	0.000319	0.00067	"	"	"		"	"	J
Indeno(1,2,3-cd)pyrene	0.00081	0.00067	"	"	"		"	"	
Naphthalene	ND	0.00067	"	"	"		"	"	
Pyrene	0.00166	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl 83.4 % 33-115 " " "

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-A@3'**

**9/9/2021 1:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y109183-03 (Soil)**

**PAH by 8270D SIM**

Surrogate: 4-Terphenyl-d14	92.8 %	33-122			L5739 55		09/14/2021	09/14/2021	
Surrogate: Nitrobenzene-d5	91 %	29-110			"	"	"	"	

**pH in Soil by 9045D**

pH	7.55		pH Units	1	B111517	JSM	09/15/2021	09/15/2021	
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**SAR by 20B Saturated Paste**

SAR	1.61		SAR	1	B111524	KAP	09/15/2021	09/15/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.930	0.00500	mmhos/cm	1	B111504	JSM	09/15/2021	09/15/2021	
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6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 422124202  
Project: Noble - UPRC 09-1116

**BG01@3'**

**9/9/2021 1:35:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y109183-04 (Soil)

**Boron (DTPA Sorbitol)**

Boron	ND	0.200	mg/L	1	B111708	KAP	09/17/2021	09/17/2021	
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Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B111004 - EPA 5030 (soil)</b>										
<b>Blank (B111004-BLK1)</b>										
					Prepared: 09/10/2021 Analyzed: 09/10/2021					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
Naphthalene	ND	0.00380	"							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Toluene	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Xylenes, total	ND	0.00200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.3	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

Origins Laboratory, Inc.



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Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111004 - EPA 5030 (soil)**

**LCS (B111004-BS1)**

Prepared: 09/10/2021 Analyzed: 09/10/2021

1,2,4-Trimethylbenzene	0.0602	0.00200	mg/kg	0.0500		120	70-130			
Naphthalene	0.0621	0.0100	"	0.0500		124	70-130			
1,3,5-Trimethylbenzene	0.0484	0.00200	"	0.0500		96.7	70-130			
Benzene	0.0617	0.00200	"	0.0500		123	70-130			
Ethylbenzene	0.0520	0.00200	"	0.0500		104	70-130			
m,p-Xylene	0.108	0.00400	"	0.100		108	70-130			
o-Xylene	0.0545	0.00200	"	0.0500		109	70-130			
Toluene	0.0577	0.00200	"	0.0500		115	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

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Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111004 - EPA 5030 (soil)**

<b>Matrix Spike (B111004-MS1)</b>	<b>Source: Y109171-07</b>			<b>Prepared: 09/10/2021 Analyzed: 09/14/2021</b>						
1,2,4-Trimethylbenzene	0.0633	0.00200	mg/kg	0.0500		127	70-130			
Naphthalene	0.0497	0.0100	"	0.0500		99.4	70-130			
1,3,5-Trimethylbenzene	0.0641	0.00200	"	0.0500		128	70-130			
Benzene	0.0539	0.00200	"	0.0500		108	70-130			
Ethylbenzene	0.0603	0.00200	"	0.0500		121	70-130			
m,p-Xylene	0.129	0.00400	"	0.100		129	70-130			
o-Xylene	0.0639	0.00200	"	0.0500		128	70-130			
Toluene	0.0563	0.00200	"	0.0500		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.5	70-130			

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Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111004 - EPA 5030 (soil)**

Matrix Spike Dup (B111004-MSD1)	Source: Y109171-07			Prepared: 09/10/2021 Analyzed: 09/14/2021						
1,2,4-Trimethylbenzene	0.0488	0.00200	mg/kg	0.0500	97.7	70-130	25.7	20	QR-03	
Naphthalene	0.0463	0.0100	"	0.0500	92.7	70-130	6.96	20		
1,3,5-Trimethylbenzene	0.0488	0.00200	"	0.0500	97.6	70-130	27.1	20	QR-03	
Benzene	0.0466	0.00200	"	0.0500	93.2	70-130	14.6	20		
Ethylbenzene	0.0465	0.00200	"	0.0500	93.1	70-130	25.7	20	QR-03	
m,p-Xylene	0.0990	0.00400	"	0.100	99.0	70-130	25.9	20	QR-03	
o-Xylene	0.0486	0.00200	"	0.0500	97.1	70-130	27.2	20	QR-03	
Toluene	0.0458	0.00200	"	0.0500	91.5	70-130	20.7	20	QR-03	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125	108	70-130				
Surrogate: Toluene-d8	0.12		"	0.125	99.9	70-130				
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	101	70-130				

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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B111008 - EPA 3550B</b>										
<b>Blank (B111008-BLK1)</b>										
					Prepared: 09/10/2021 Analyzed: 09/11/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	19		"	25.0		76.4	50-150			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111008 - EPA 3550B**

**LCS (B111008-BS1)**

Prepared: 09/10/2021 Analyzed: 09/11/2021

Diesel (C10-C28)	773	50.0	mg/kg	1000		77.3	70-130			
Residual Range Organics (C28-C40)	810	200	"	1000		81.0	70-130			
Surrogate: o-Terphenyl	40		"	50.0		80.6	50-150			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B111008 - EPA 3550B

Matrix Spike (B111008-MS1)	Source: Y109190-01			Prepared: 09/10/2021 Analyzed: 09/11/2021						
Diesel (C10-C28)	792	50.0	mg/kg	1000	ND	79.2	70-130			
Residual Range Organics (C28-C40)	829	200	"	1000	ND	82.9	70-130			
Surrogate: o-Terphenyl	40		"	50.0		79.6	50-150			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111008 - EPA 3550B**

<b>Matrix Spike Dup (B111008-MSD1)</b>	<b>Source: Y109190-01</b>			<b>Prepared: 09/10/2021 Analyzed: 09/11/2021</b>						
Diesel (C10-C28)	752	50.0	mg/kg	1000	ND	75.2	70-130	5.21	35	
Residual Range Organics (C28-C40)	802	200	"	1000	ND	80.2	70-130	3.36	35	
Surrogate: o-Terphenyl	40		"	50.0		80.9	50-150			

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B111504 - NO PREP**

**Blank (B111504-BLK1)**

Prepared: 09/15/2021 Analyzed: 09/15/2021

Specific Conductance (EC) 0.00320 0.00500 mmhos/cm

**Duplicate (B111504-DUP1)**

**Source: Y109167-06**

Prepared: 09/15/2021 Analyzed: 09/15/2021

Specific Conductance (EC) 0.302 0.00500 mmhos/cm 0.296 2.04 25

**Batch B111517 - NO PREP**

**Duplicate (B111517-DUP1)**

**Source: Y109183-02**

Prepared: 09/15/2021 Analyzed: 09/15/2021

pH 7.55 pH Units 7.45 1.33 25

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L573955 - 3550B**

<b>MSD (L 87003-MSD-L573955)</b>		<b>Source: 87003</b>			Prepared: 09/14/2021 Analyzed: 09/14/2021					
Benzo(k)fluoranthene	0.0585	0.00013	mg/Kg	0.167	<0.000130	35	30-130	44.4	30	
1-Methylnaphthalene	0.0729	0.00033	"	0.167	0.00101	43	30-130	35.1	30	
2-Methylnaphthalene	0.0717	0.00039	"	0.167	0.00152	42	30-130	35.8	30	
Acenaphthene	0.0776	0.0003	"	0.167	<0.000300	46.4	30-130	35.4	30	
Anthracene	0.0794	0.00033	"	0.167	<0.000330	47.5	30-130	34.9	30	
Benzo(a)anthracene	0.0936	0.00041	"	0.167	<0.000410	56	30-130	33.3	30	
Pyrene	0.0806	0.00059	"	0.167	<0.000590	48.2	30-130	35.1	30	
Naphthalene	0.0674	0.000467	"	0.167	<0.000467	40.3	30-130	35.3	30	
Indeno(1,2,3-cd)pyrene	0.0705	0.00029	"	0.167	0.000803	41.7	30-130	39.3	30	
Fluorene	0.079	0.00029	"	0.167	<0.000290	47.3	30-130	35.4	30	
Fluoranthene	0.0913	0.00039	"	0.167	<0.000390	54.6	30-130	33.4	30	
Dibenz(a,h)anthracene	0.0942	0.00036	"	0.167	<0.000360	56.4	30-130	28.1	30	
Chrysene	0.0745	0.00027	"	0.167	<0.000270	44.6	30-130	36.7	30	
Benzo(a)pyrene	0.0893	0.00014	"	0.167	<0.000140	53.4	30-130	33.3	30	
Benzo(b)fluoranthene	0.0684	0.00021	"	0.167	<0.000210	40.9	30-130	42.2	30	
Surrogate: 2-Fluorobiphenyl	71.1		"	0.333	237	71.1	33-115			
Surrogate: 4-Terphenyl-d14	83.1		"	0.333	264	83.1	33-122			
Surrogate: Nitrobenzene-d5	77.1		"	0.333	252	77.1	29-110			

<b>MS (L 87003-MS-L573955)</b>		<b>Source: 87003</b>			Prepared: 09/14/2021 Analyzed: 09/14/2021					
Benzo(a)pyrene	0.125	0.00014	mg/Kg	0.167	<0.000140	74.8	30-130			
Chrysene	0.108	0.00027	"	0.167	<0.000270	64.6	30-130			
Pyrene	0.115	0.00059	"	0.167	<0.000590	68.8	30-130			
Naphthalene	0.0963	0.000467	"	0.167	<0.000467	57.6	30-130			
Indeno(1,2,3-cd)pyrene	0.105	0.00029	"	0.167	0.000803	62.3	30-130			
Fluorene	0.113	0.00029	"	0.167	<0.000290	67.6	30-130			
Fluoranthene	0.128	0.00039	"	0.167	<0.000390	76.6	30-130			

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L573955 - 3550B**

MS (L 87003-MS-L573955)	Source: 87003			Prepared: 09/14/2021 Analyzed: 09/14/2021						
Dibenz(a,h)anthracene	0.125	0.00036	mg/Kg	0.167	<0.000360	74.8	30-130			
Benzo(b)fluoranthene	0.105	0.00021	"	0.167	<0.000210	62.8	30-130			
Benzo(a)anthracene	0.131	0.00041	"	0.167	<0.000410	78.4	30-130			
Anthracene	0.113	0.00033	"	0.167	<0.000330	67.6	30-130			
Acenaphthene	0.111	0.0003	"	0.167	<0.000300	66.4	30-130			
2-Methylnaphthalene	0.103	0.00039	"	0.167	0.00152	60.7	30-130			
Benzo(k)fluoranthene	0.0919	0.00013	"	0.167	<0.000130	55	30-130			
1-Methylnaphthalene	0.104	0.00033	"	0.167	0.00101	61.6	30-130			
Surrogate: Nitrobenzene-d5	75.9		"	0.333	252	75.9	29-110			
Surrogate: 2-Fluorobiphenyl	69.6		"	0.333	237	69.6	33-115			
Surrogate: 4-Terphenyl-d14	86.1		"	0.333	264	86.1	33-122			

LCS (LCS-L573955)	Prepared: 09/14/2021 Analyzed: 09/14/2021									
Dibenz(a,h)anthracene	0.111	0.00036	mg/Kg	0.167		66.4	30-130			
Fluoranthene	0.121	0.00039	"	0.167		72.4	30-130			
Pyrene	0.109	0.00059	"	0.167		65.2	30-130			
Fluorene	0.109	0.00029	"	0.167		65.2	30-130			
Indeno(1,2,3-cd)pyrene	0.0892	0.00029	"	0.167		53.4	30-130			
Chrysene	0.101	0.00027	"	0.167		60.4	30-130			
Naphthalene	0.0949	0.000467	"	0.167		56.8	30-130			
Benzo(b)fluoranthene	0.0992	0.00021	"	0.167		59.4	30-130			
Benzo(a)pyrene	0.12	0.00014	"	0.167		71.8	30-130			
Benzo(a)anthracene	0.124	0.00041	"	0.167		74.2	30-130			
Acenaphthene	0.108	0.0003	"	0.167		64.6	30-130			
2-Methylnaphthalene	0.1	0.00039	"	0.167		59.8	30-130			
1-Methylnaphthalene	0.101	0.00033	"	0.167		60.4	30-130			
Anthracene	0.108	0.00033	"	0.167		64.6	30-130			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L573955 - 3550B**

**LCS (LCS-L573955)**

Prepared: 09/14/2021 Analyzed: 09/14/2021

Benzo(k)fluoranthene	0.083	0.00013	mg/Kg	0.167		49.7	30-130			
Surrogate: Nitrobenzene-d5	85.5		"	0.333		85.5	29-110			
Surrogate: 4-Terphenyl-d14	90.3		"	0.333		90.3	33-122			
Surrogate: 2-Fluorobiphenyl	78.9		"	0.333		78.9	33-115			

**LRB (LRB-L573955)**

Prepared: 09/14/2021 Analyzed: 09/14/2021

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	73.5		"	0.333		73.5	29-110			
Surrogate: 4-Terphenyl-d14	79.2		"	0.333		79.2	33-122			
Surrogate: 2-Fluorobiphenyl	67.2		"	0.333		67.2	33-115			

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6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 422124202  
Project: Noble - UPRC 09-1116

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### Notes and Definitions

U Sample is Non-Detect.

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

J Estimated Value. Analyte below reported quantitation limit.

\* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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October 18, 2021

**Tasman Geosciences**

**Jake Whritenour**

**6855 West 119th Avenue**

**Broomfield CO 80020**

**Project Name - Noble - UPRC 09-1116**

**Project Number - 422124202**

Attached are your analytical results for Noble - UPRC 09-1116 received by Origins Laboratory, Inc. October 11, 2021. This project is associated with Origins project number Y110221-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 422124202  
Project: Noble - UPRC 09-1116

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-B@3'	Y110221-01	Soil	October 11, 2021 12:00	10/11/2021 13:50

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 4110221

Client: Tasman

Client Project ID: UPCR 09-1116

Checklist Completed by: KH

Shipped Via: FD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/11/12

Airbill #: NA

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 10-10 °C 1 °C 1 °C (Describe) °C

Thermometer ID: TU03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>same doc</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: JM (Project Manager)

10-12-21  
 Date/Time Reviewed

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-B@3'**  
**10/11/2021 12:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110221-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.199	mg/L	1	B1J1116	KAP	10/11/2021	10/12/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1J1103	EPC	10/11/2021	10/11/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	EPC	"	"	U

Surrogate: <i>o</i> -Terphenyl	69.8 %	50-150			"	"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1J1101	KDK	10/11/2021	10/12/2021	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.1 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.5 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-B@3'**  
**10/11/2021 12:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y110221-01 (Soil)**

**Metals by Saturated Paste**

Calcium	1.49	0.499	meq/L	10	[CALC]	KAP	10/11/2021	10/12/2021	
Magnesium	ND	0.823	"	"	"	KAP	"	"	
Sodium	ND	0.435	"	"	"	KAP	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00067	mg/Kg	1	L579160		10/14/2021	10/14/2021	
2-Methylnaphthalene	ND	0.00067	"	"	"		"	"	
Acenaphthene	ND	0.00067	"	"	"		"	"	
Anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)pyrene	0.000315	0.00067	"	"	"		"	"	J
Benzo(b)fluoranthene	0.000816	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	0.000315	0.00067	"	"	"		"	"	J
Dibenz(a,h)anthracene	ND	0.00067	"	"	"		"	"	
Fluoranthene	0.000526	0.00067	"	"	"		"	"	J
Fluorene	ND	0.00067	"	"	"		"	"	
Indeno(1,2,3-cd)pyrene	ND	0.00067	"	"	"		"	"	
Naphthalene	ND	0.00067	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**FL01-B@3'**  
**10/11/2021 12:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y110221-01 (Soil)**

**PAH by 8270D SIM**

Surrogate: 2-Fluorobiphenyl	86.3 %	33-115			L5791 60		10/14/2021	10/14/2021	
Surrogate: 4-Terphenyl-d14	78.4 %	33-122			"	"	"	"	
Surrogate: Nitrobenzene-d5	68.9 %	29-110			"	"	"	"	

**pH in Soil by 9045D**

pH	7.82		pH Units	1	B1J1123	AHK	10/11/2021	10/12/2021	
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**SAR by 20B Saturated Paste**

SAR	0.268		SAR	1	B1J1117	KAP	10/11/2021	10/12/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.270	0.00500	mmhos/cm	1	B1J1122	AHK	10/12/2021	10/12/2021	
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 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B1J1101 - EPA 5030 (soil)</b>										
<b>Blank (B1J1101-BLK1)</b>										
					Prepared: 10/11/2021 Analyzed: 10/11/2021					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
Naphthalene	ND	0.00380	"							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125	90.0		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	103		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	93.3		70-130			

Origins Laboratory, Inc.



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 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1101 - EPA 5030 (soil)**

**LCS (B1J1101-BS1)**

Prepared: 10/11/2021 Analyzed: 10/11/2021

1,2,4-Trimethylbenzene	0.0545	0.00200	mg/kg	0.0500		109	70-130			
Naphthalene	0.0550	0.0100	"	0.0500		110	70-130			
1,3,5-Trimethylbenzene	0.0526	0.00200	"	0.0500		105	70-130			
Benzene	0.0507	0.00200	"	0.0500		101	70-130			
Ethylbenzene	0.0512	0.00200	"	0.0500		102	70-130			
m,p-Xylene	0.106	0.00400	"	0.100		106	70-130			
o-Xylene	0.0526	0.00200	"	0.0500		105	70-130			
Toluene	0.0558	0.00200	"	0.0500		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		92.2	70-130			

Origins Laboratory, Inc.



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 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1101 - EPA 5030 (soil)**

Matrix Spike (B1J1101-MS1)	Source: Y110214-01			Prepared: 10/11/2021 Analyzed: 10/11/2021						
1,2,4-Trimethylbenzene	0.0462	0.00200	mg/kg	0.0500	0.000800	90.7	70-130			
Naphthalene	0.0410	0.0100	"	0.0500	0.00178	78.4	70-130			
1,3,5-Trimethylbenzene	0.0452	0.00200	"	0.0500	ND	90.3	70-130			
Benzene	0.0459	0.00200	"	0.0500	ND	91.9	70-130			
Ethylbenzene	0.0466	0.00200	"	0.0500	ND	93.2	70-130			
m,p-Xylene	0.0957	0.00400	"	0.100	0.00124	94.4	70-130			
o-Xylene	0.0479	0.00200	"	0.0500	ND	95.7	70-130			
Toluene	0.0477	0.00200	"	0.0500	ND	95.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.5	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.0	70-130			

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Jake Whritenour  
 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1101 - EPA 5030 (soil)**

Matrix Spike Dup (B1J1101-MSD1)	Source: Y110214-01			Prepared: 10/11/2021 Analyzed: 10/11/2021						
1,2,4-Trimethylbenzene	0.0492	0.00200	mg/kg	0.0500	0.000800	96.8	70-130	6.34	20	
Naphthalene	0.0455	0.0100	"	0.0500	0.00178	87.4	70-130	10.5	20	
1,3,5-Trimethylbenzene	0.0484	0.00200	"	0.0500	ND	96.8	70-130	6.88	20	
Benzene	0.0500	0.00200	"	0.0500	ND	99.9	70-130	8.38	20	
Ethylbenzene	0.0500	0.00200	"	0.0500	ND	99.9	70-130	7.00	20	
m,p-Xylene	0.103	0.00400	"	0.100	0.00124	101	70-130	6.94	20	
o-Xylene	0.0517	0.00200	"	0.0500	ND	103	70-130	7.79	20	
Toluene	0.0514	0.00200	"	0.0500	ND	103	70-130	7.46	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.3	70-130			

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 Project Number: 422124202  
 Project: Noble - UPRC 09-1116

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B1J1103 - EPA 3550B</b>										
<b>Blank (B1J1103-BLK1)</b>										
					Prepared: 10/11/2021 Analyzed: 10/11/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	18		"	25.0		71.2	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1103 - EPA 3550B**

**LCS (B1J1103-BS1)**

Prepared: 10/11/2021 Analyzed: 10/11/2021

Diesel (C10-C28)	710	50.0	mg/kg	1000		71.0	70-130			
Residual Range Organics (C28-C40)	854	200	"	1000		85.4	70-130			
Surrogate: o-Terphenyl	34		"	50.0		68.1	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1103 - EPA 3550B**

<b>Matrix Spike (B1J1103-MS1)</b>	<b>Source: Y110214-01</b>			Prepared: 10/11/2021 Analyzed: 10/11/2021						
Diesel (C10-C28)	717	50.0	mg/kg	1000	ND	71.7	70-130			
Residual Range Organics (C28-C40)	892	200	"	1000	65.1	82.7	70-130			
Surrogate: o-Terphenyl	35		"	50.0		69.1	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1103 - EPA 3550B**

<b>Matrix Spike Dup (B1J1103-MSD1)</b>	<b>Source: Y110214-01</b>		<b>Prepared: 10/11/2021 Analyzed: 10/11/2021</b>							
Diesel (C10-C28)	709	50.0	mg/kg	1000	ND	70.9	70-130	1.13	35	
Residual Range Organics (C28-C40)	871	200	"	1000	65.1	80.6	70-130	2.35	35	
Surrogate: o-Terphenyl	35		"	50.0		71.0	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B1J1122 - NO PREP**

**Blank (B1J1122-BLK1)**

Prepared: 10/12/2021 Analyzed: 10/12/2021

Specific Conductance (EC) 0.00180 0.00500 mmhos/cm

**Duplicate (B1J1122-DUP1)**

**Source: Y110230-10**

Prepared: 10/12/2021 Analyzed: 10/12/2021

Specific Conductance (EC) 1.06 0.00500 mmhos/cm 0.870 20.0 25

**Batch B1J1123 - NO PREP**

**Duplicate (B1J1123-DUP1)**

**Source: Y110230-10**

Prepared: 10/11/2021 Analyzed: 10/12/2021

pH 7.52 pH Units 7.56 0.531 25

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**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L579160 - 3550B**

<b>MSD (L 98926-MSD-L579160)</b>		<b>Source: 98926</b>			Prepared: 10/14/2021 Analyzed: 10/14/2021					
Chrysene	0.124	0.00027	mg/Kg dry	0.166	0.00118	73.9	30-130	2.4	30	
1-Methylnaphthalene	0.115	0.00033	"	0.166	<0.000330	69.2	30-130	3.4	30	
2-Methylnaphthalene	0.111	0.00039	"	0.166	<0.000390	66.8	30-130	3.5	30	
Acenaphthene	0.117	0.0003	"	0.166	<0.000300	70.4	30-130	4.1	30	
Anthracene	0.121	0.00033	"	0.166	<0.000330	72.8	30-130	3.2	30	
Benzo(a)anthracene	0.119	0.00041	"	0.166	0.000416	71.6	30-130	2.4	30	
Pyrene	0.113	0.00059	"	0.166	<0.000590	68	30-130	3.4	30	
Benzo(b)fluoranthene	0.0939	0.00021	"	0.166	0.00282	54.8	30-130	3.1	30	
Naphthalene	0.109	0.000467	"	0.166	<0.000467	65.6	30-130	3.6	30	
Indeno(1,2,3-cd)pyrene	0.133	0.00029	"	0.166	0.000729	79.6	30-130	1.5	30	
Fluorene	0.121	0.00029	"	0.166	<0.000290	72.8	30-130	4.8	30	
Fluoranthene	0.116	0.00039	"	0.166	0.000797	69.3	30-130	2.5	30	
Dibenz(a,h)anthracene	0.165	0.00036	"	0.166	<0.000360	99.3	30-130	7.5	30	
Benzo(k)fluoranthene	0.084	0.00013	"	0.166	0.000793	50.1	30-130	10.7	30	
Benzo(a)pyrene	0.154	0.00014	"	0.166	0.0016	91.8	30-130	8.1	30	
Surrogate: 2-Fluorobiphenyl	89.7		"	0.331	270	89.7	33-115			
Surrogate: 4-Terphenyl-d14	73.4		"	0.331	243	73.4	33-122			
Surrogate: Nitrobenzene-d5	70.9		"	0.331	224	70.9	29-110			

<b>MS (L 98926-MS-L579160)</b>		<b>Source: 98926</b>			Prepared: 10/14/2021 Analyzed: 10/14/2021					
Benzo(b)fluoranthene	0.091	0.00021	mg/Kg dry	0.166	0.00282	53.1	30-130			
Dibenz(a,h)anthracene	0.153	0.00036	"	0.166	<0.000360	92.1	30-130			
Pyrene	0.117	0.00059	"	0.166	<0.000590	70.4	30-130			
Naphthalene	0.113	0.000467	"	0.166	<0.000467	68	30-130			
Indeno(1,2,3-cd)pyrene	0.131	0.00029	"	0.166	0.000729	78.4	30-130			
Fluorene	0.127	0.00029	"	0.166	<0.000290	76.5	30-130			
Fluoranthene	0.119	0.00039	"	0.166	0.000797	71.2	30-130			

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 Project: Noble - UPRC 09-1116

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L579160 - 3550B**

MS (L 98926-MS-L579160)	Source: 98926			Prepared: 10/14/2021 Analyzed: 10/14/2021						
2-Methylnaphthalene	0.115	0.00039	mg/Kg dry	0.166	<0.000390	69.2	30-130			
Benzo(a)pyrene	0.142	0.00014	"	0.166	0.0016	84.5	30-130			
Benzo(a)anthracene	0.122	0.00041	"	0.166	0.000416	73.4	30-130			
Anthracene	0.125	0.00033	"	0.166	<0.000330	75.3	30-130			
Acenaphthene	0.122	0.0003	"	0.166	<0.000300	73.4	30-130			
Benzo(k)fluoranthene	0.0935	0.00013	"	0.166	0.000793	55.8	30-130			
1-Methylnaphthalene	0.119	0.00033	"	0.166	<0.000330	71.6	30-130			
Chrysene	0.121	0.00027	"	0.166	0.00118	72.1	30-130			
Surrogate: Nitrobenzene-d5	74		"	0.332	224	74	29-110			
Surrogate: 4-Terphenyl-d14	74.3		"	0.332	243	74.3	33-122			
Surrogate: 2-Fluorobiphenyl	91.5		"	0.332	270	91.5	33-115			

LCS (LCS-L579160)	Prepared: 10/14/2021 Analyzed: 10/14/2021									
Dibenz(a,h)anthracene	0.142	0.00036	mg/Kg	0.167		85	30-130			
Fluoranthene	0.133	0.00039	"	0.167		79.6	30-130			
Fluorene	0.132	0.00029	"	0.167		79	30-130			
Indeno(1,2,3-cd)pyrene	0.12	0.00029	"	0.167		71.8	30-130			
Naphthalene	0.117	0.000467	"	0.167		70	30-130			
Pyrene	0.131	0.00059	"	0.167		78.4	30-130			
Acenaphthene	0.128	0.0003	"	0.167		76.6	30-130			
Chrysene	0.133	0.00027	"	0.167		79.6	30-130			
Benzo(b)fluoranthene	0.117	0.00021	"	0.167		70	30-130			
Benzo(a)pyrene	0.16	0.00014	"	0.167		95.8	30-130			
Anthracene	0.132	0.00033	"	0.167		79	30-130			
2-Methylnaphthalene	0.119	0.00039	"	0.167		71.2	30-130			
1-Methylnaphthalene	0.122	0.00033	"	0.167		73	30-130			
Benzo(a)anthracene	0.133	0.00041	"	0.167		79.6	30-130			

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**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L579160 - 3550B**

**LCS (LCS-L579160)**

Prepared: 10/14/2021 Analyzed: 10/14/2021

Benzo(k)fluoranthene	0.107	0.00013	mg/Kg	0.167		64	30-130			
Surrogate: Nitrobenzene-d5	78.9		"	0.333		78.9	29-110			
Surrogate: 4-Terphenyl-d14	82.5		"	0.333		82.5	33-122			
Surrogate: 2-Fluorobiphenyl	96.6		"	0.333		96.6	33-115			

**LRB (LRB-L579160)**

Prepared: 10/14/2021 Analyzed: 10/14/2021

Pyrene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	79.2		"	0.333		79.2	29-110			
Surrogate: 4-Terphenyl-d14	78.3		"	0.333		78.3	33-122			
Surrogate: 2-Fluorobiphenyl	81		"	0.333		81	33-115			

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**Notes and Definitions**

- U Sample is Non-Detect.
- J Estimated Value. Analyte below reported quantitation limit.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- All soil results are reported at a wet weight basis.

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