



# Tank Battery Closure Checklist


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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Loloff 2,3 B35-19		Date: 10/29/21						Remediation Project #: 20046
Associated Wells:		Age of Site:						Number of Photos Attached: 13
Location: (GPS coordinates of southeaster berm) 40.3632812, -104.5215614								Estimated Facility Size (acres):
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) <b>Genrally good condition</b>								
USCS Soil Type: <b>SM- Silty Sand</b>						Estimated Depth to Groundwater: <b>&gt;5'</b>		
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>None observed</b>								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <b>None observed</b>								
<b>Tanks</b>								
Tank Contents	Produced Water	Crude Oil	Produced Water					
Size (barrels)	100	300	100					
Age								
Construction Material	concrete	steel	concrete					
Tank type (AST/PBV, etc.)	PBV	AST	PBV					
Visual Integrity of Tank	Good	Good	Good					
Condition of tank Footprint	Good	Good	Good					
PID Readings								
Soil impacts present at valves or hatches?	No Stain/Odor	No Stain/Odor	No Stain/Odor					
PID Readings	0.2-1.6	0.6	0.2-6.8					
Sample taken? Location/ Sample ID#	See Below							
Photo Number(s)								
Other observations regarding tanks: Samples taken on all 4 sidewalls with 2 on the long sidealls and base of excavation (SS01-06@2.5', FS01&2@5') Sample taken at base of AST, AST01@0.5'.								
<b>Separators</b>								
Separator size								
Vertical or Horizontal	Horiz							
Age								
Soil impacts present at hatches?	No Stain/Odor							
PID Readings								
Sample taken? Location/ Sample ID#	See Below							
Photo Number(s)								
Other observations regarding separators Samples taken at Flowline and Dumpline ends of seperator (SEP01-FL@3' &SEP01-DL@3')								
<b>Third Party Equipment</b>								
Type	Meter House							
Age								

Third Party																	
Removal Date																	
Sample taken?	See Below																
PID Readings	0.2																
Photo Number(s)																	
<b>Other Facility Equipment</b>																	
Equipment type	Emission Control Device																
Equipment Condition																	
Age																	
Soil impacts observed during	No Stain/Odor																
PID Readings	0.0																
Sample taken?	See Below																
Photo Number(s)																	
Other observations regarding other facility or third party equipment:																	
Sample taken below meter house and flare. (MH01@0.5' & Flare01@0.5')																	
<b>Summary</b>																	
Was impacted soil identified?																	
<input checked="" type="checkbox"/> No		Yes - less than 10 cubic yards			Yes - more than 10 cubic yards												
Total number of samples field screened: 13					Total number of samples collected: 13												
Highest PID Reading: 6.8					Total number of samples submitted to lab for analysis: 7												
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:																	


## Photographic Log

							
<b>Equipment ID:</b> SS01		<b>Equipment Type:</b> Partially Buried Vault		<b>Equipment ID:</b> SS02		<b>Equipment Type:</b> Partially Buried Vault	
<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL		<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL	
		<b>Contents:</b> Produced Water				<b>Contents:</b> Produced Water	
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS01 @2.5'							

		
<b>Equipment ID:</b> SS02		<b>Equipment Type:</b> Partially Buried Vault
<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL
		<b>Contents:</b> Produced Water
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS02 @2.5'		





## Photographic Log

							
<b>Equipment ID:</b> SS03		<b>Equipment Type:</b> Partially Buried Vault		<b>Equipment ID:</b> SS04		<b>Equipment Type:</b> Partially Buried Vault	
<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL		<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL	
<b>Contents:</b> Produced Water				<b>Contents:</b> Produced Water			
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS03@2.5'				<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS04@2.5'			





## Photographic Log

							
<b>Equipment ID:</b> SS05		<b>Equipment Type:</b> Partially Buried Vault		<b>Equipment ID:</b> SS06		<b>Equipment Type:</b> Partially Buried Vault	
<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL		<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL	
<b>Contents:</b> Produced Water				<b>Contents:</b> Produced Water			
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS05@2.5'				<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SS06@2.5'			



## Photographic Log

							
<b>Equipment ID:</b> FS01		<b>Equipment Type:</b> Partially Buried Vault		<b>Equipment ID:</b> FS02		<b>Equipment Type:</b> Partially Buried Vault	
<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL		<b>Material:</b> Concrete		<b>Volume:</b> 100 BBL	
		<b>Contents:</b> Produced Water				<b>Contents:</b> Produced Water	
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of FS01@5'				<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of FS02@5'			



## Photographic Log

					
Equipment ID:MH01		Equipment Type:Meter House			
Material:Steel	Volume:NA	Contents:NA		Equipment ID:Flare01	
Notes/Conditions:Loloff 2, 3, B35-19, Photo of MH01 @0.5				Equipment Type:Emission Control Device	
				Material:Steel	
				Volume:NA	
				Contents:NA	
				Notes/Conditions:Loloff 2, 3, B35-19, Photo of Flare01 @0.5'	




## Photographic Log

							
<b>Equipment ID:</b> AST01		<b>Equipment Type:</b> Above Ground Storage Tank		<b>Equipment ID:</b> SEP01-FL		<b>Equipment Type:</b> Flowline	
<b>Material:</b> Steel		<b>Volume:</b> 300 BBL		<b>Material:</b> Steel		<b>Volume:</b> NA	
		<b>Contents:</b> Crude Oil				<b>Contents:</b> Oil/Gas/Water	
<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of AST01 @0.5'							
				<b>Notes/Conditions:</b> Loloff 2, 3, B35-19, Photo of SEP01-FL @3'			



## Photographic Log

									
						Equipment ID: SEP01-DL		Equipment Type: Dump Line	
						Material: Steel	Volume: NA	Contents: Oil/Gas/Water	
						Notes/Conditions: Loloff 2, 3, B35-19, Photo of SEP01-DL @ 3'			
			Equipment ID:			Equipment Type:			
			Material:		Volume:		Contents:		
			Notes/Conditions:						

**TABLE 1**  
**SOIL SAMPLE LOCATIONS**  
**NOBLE ENERGY, INC. - LOLOFF 2, 3, B35-19**

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude <sup>1</sup>	Longitude	PDOP
SS01@2.5'	10/29/21	1.8	No Staining	No Odor	Grab	40.36331150	-104.5220516	1.2
SS02@2.5'	10/29/21	2.7	No Staining	No Odor	Lab	40.36328300	-104.5220314	1.2
SS03@2.5'	10/29/21	1.2	No Staining	No Odor	Grab	40.36324843	-104.5220668	1.1
SS04@2.5'	10/29/21	0.6	No Staining	No Odor	Lab	40.36325027	-104.5221064	1.1
SS05@2.5'	10/29/21	0.2	No Staining	No Odor	Grab	40.36328331	-104.5221196	1.1
SS06@2.5'	10/29/21	0.3	No Staining	No Odor	Grab	40.36330848	-104.5220738	1.1
FS01@5'	10/29/21	6.8	No Staining	No Odor	Lab	40.36328506	-104.5220592	1.1
FS02@5'	10/29/21	1.6	No Staining	No Odor	Lab	40.36327668	-104.5220944	1.1
AST01@0.5'	10/29/21	0.6	No Staining	No Odor	Lab	40.36327334	-104.5221621	1.2
MH01@0.5'	10/29/21	0.2	No Staining	No Odor	Grab	40.36327526	-104.5217686	1.1
SEP01-FL@3'	10/29/21	0.1	No Staining	No Odor	Lab	40.36332845	-104.5217214	1.1
SEP01-DL@3'	10/29/21	0.1	No Staining	No Odor	Lab	40.36330074	-104.5217768	1.1
Flare01@0.5'	10/29/21	0.0	No Staining	No Odor	Lab	40.36337089	-104.5218142	1.1
BG01@3'	02/28/22	0.0	No Staining	No Odor	Lab	40.36332993	-104.5217828	NA
BG01@5'	02/28/22	0.0	No Staining	No Odor	Lab	40.36332993	-104.5217828	NA

Notes:

PID = Photo-ionization detector

ppm = parts per million

PDOP = Position dilution of precision

HC = Hydrocarbon

NA = Coordinate Georeferenced

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. - LOLOFF 2, 3, 835-19

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)	Benzo(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
SS02@2.5'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25.0	<100	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000346	0.000547	
SS04@2.5'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	25.6	<100	<0.00067	<0.00067	<0.00067	0.000207	0.00307	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.00031	<0.00067	<0.00067	
FS01@5'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	0.00256	<0.00200	<0.00067	<0.200	<25.0	<100	<0.00067	0.00129	0.00425	0.00453	0.0123	0.00549	0.0115	0.00147	0.0124	0.000364	0.00426	0.0109	0.000832	0.00141
FS02@5'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25.0	<100	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	
AST01@0.5'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25.0	<100	<0.00067	<0.00067	<0.00067	<0.00067	0.000424	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000618	
SEP01-FL@3'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25.0	<100	0.00718	0.0183	0.0329	0.0205	0.0253	0.00737	0.0278	0.00221	0.0874	0.00951	0.00955	0.0669	<0.00067	0.00064
SEP01-DL@3'	10/29/21	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00067	<0.200	<25.0	<100	<0.00067	<0.00067	<0.00067	<0.00067	0.000389	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.00062	

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL <sup>2</sup>		6 - 8.3	<6	<4mmhos/cm	2
SS02@2.5'	10/29/21	8.14	0.618	0.524	0.199
SS04@2.5'	10/29/21	7.91	0.334	0.659	<0.198
FS01@5'	10/29/21	8.39	1.05	0.471	<0.199
FS02@5'	10/29/21	8.52	3.43	0.559	0.318
AST01@0.5'	10/29/21	7.63	0.676	0.433	<0.198
SEP01-FL@3'	10/29/21	7.94	0.253	0.368	<0.200
SEP01-DL@3'	10/29/21	7.97	0.404	0.398	<0.199
BG01@3'	02/28/22	7.78	NA	NA	NA
BG01@5'	02/28/22	7.67	NA	NA	NA

Soil Sample ID	Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL <sup>2</sup>		0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater		0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
SEP01-FL@3'	10/29/21	1.43	56	0.0531	<1.03	4.4	5.89	5.21	0.283	0.0257	23
BG01@3'	02/28/22	1.3	53.9	<0.25	<0.505	4.35	4.25	4.81	0.298	<0.25	17.9

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

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

1,2,4 - TMB = 1,2,4 Trimethylbenzene

1,3,5 - TMB = 1,3,5 Trimethylbenzene

Benz(a) = Benzanthracene

Benzo(b) = Benzo(a)fluoranthene

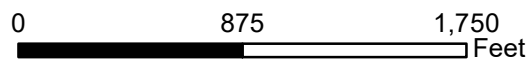
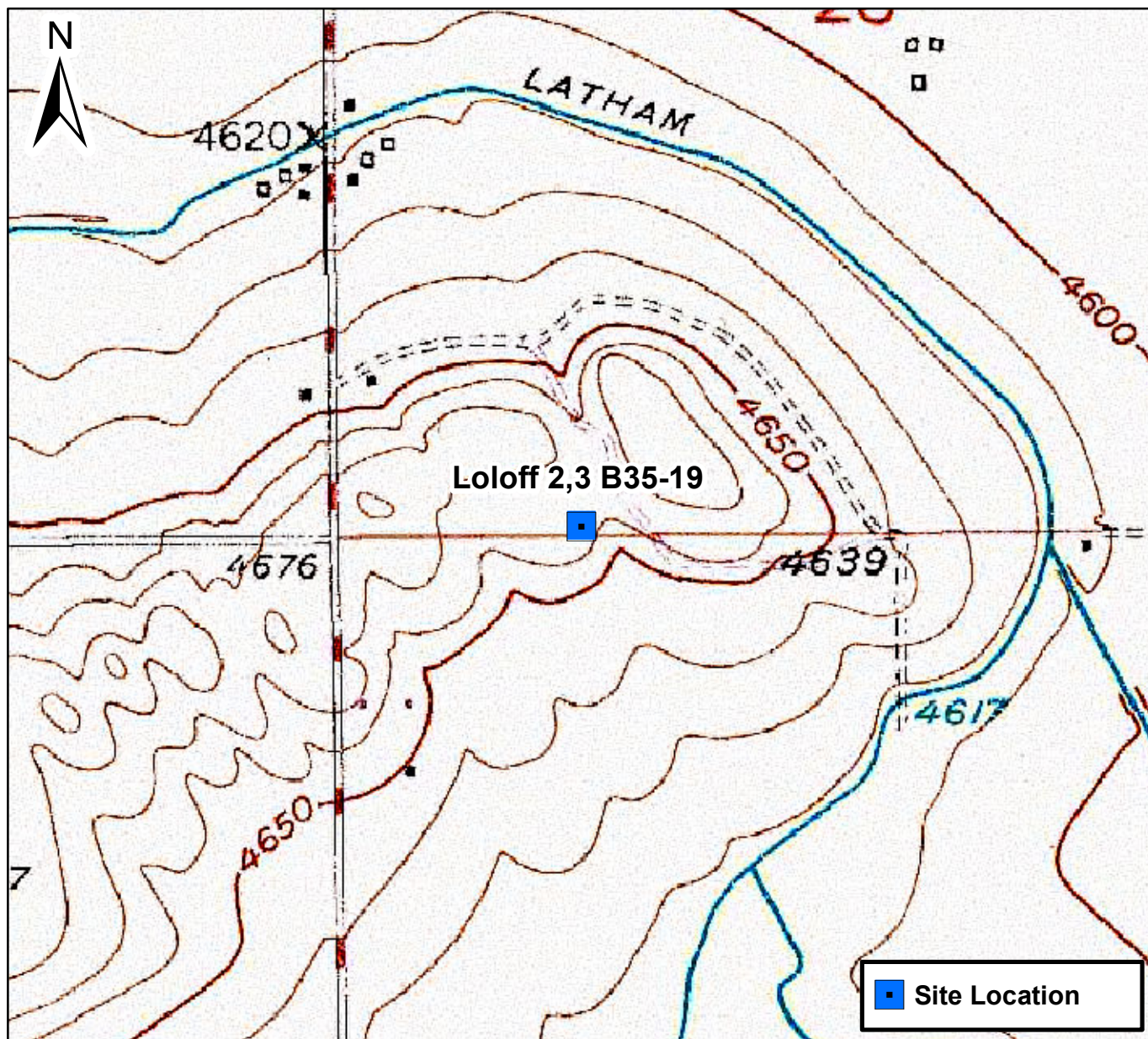
Benzo(k) = Benzo(a)pyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indeno(1,2,3-cd)pyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene



## Figure 1

Site Location Map  
 Loloff 2,3 B35-19  
 SWSW S26 T5N R64W  
 Weld County, Colorado







November 11, 2021

**Tasman Geosciences**

**Jake Whritenour**

**6855 West 119th Avenue**

**Broomfield CO 80020**

**Project Name - Noble - Loloff 2,3 B35-19**

**Project Number - 815901465**

Attached are your analytical results for Noble - Loloff 2,3 B35-19 received by Origins Laboratory, Inc. October 29, 2021. This project is associated with Origins project number Y111018-01.

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





Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02@2.5'	Y111018-01	Soil	October 29, 2021 12:55	10/29/2021 17:00
SS04@2.5'	Y111018-02	Soil	October 29, 2021 13:05	10/29/2021 17:00
FS01@5'	Y111018-03	Soil	October 29, 2021 13:20	10/29/2021 17:00
FS02@5'	Y111018-04	Soil	October 29, 2021 13:25	10/29/2021 17:00
ASf01@0.5'	Y111018-05	Soil	October 29, 2021 13:45	10/29/2021 17:00
SEP01-FL@3'	Y111018-06	Soil	October 29, 2021 14:40	10/29/2021 17:00
SEP01-DL@3'	Y111018-07	Soil	October 29, 2021 14:50	10/29/2021 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: 815901465  
Project: Noble - Loloff 2,3 B35-19

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11014

**ORIGINS**  
LABORATORY, INC

Client: Noble/Tasman Geosciences  
Address: 6855 W 119th Ave  
Telephone Number: 303-827-1511  
Email Address: jwhritenour@tasman-geo.com

Project Manager: Jake Whritenour, Invoice: L&H  
Project Name: Loloff 2,3 B35-19  
Project Number: 22-4244-815901465  
Samples Collected By: Daniel Quin, Hunter Merlo

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative	Matrix	Analysis	Sample Instructions
SS0202.5'	10/20/10	1255	2	Unpreserved	Soil	VOC-q15 PAH-q15 SAR, EC, pH Boron-plus Hol D	SAR, EC, pH by saturated paste
SS0402.5'		1305					
F50102.5'		1320					915 metals
F50202.5'		1325					added to
AST0100.5'		1345					SEP01-FL05 p8c4
SEP01-FL03'		1440					Kilian's email
SEP01-DL03'		1450					6N 1/10
SS0102.5'		1250					
SS0302.5'		1300					Hold All Analytes
SS0502.5'		1310					
Relinquished By: [Signature]	Date: 10/20/10	Time: 1700		Received By: [Signature]	Date: 10/20/10	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"/>
Relinquished By: [Signature]	Date: 10/20/10	Time: 1700		Received By: [Signature]	Date: 10/20/10	Time: 1700	

Origins Laboratory, Inc.

*Jordan A. Merrill*

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.



Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

<b>ORIGINS</b>	<b>LABORATORY, INC</b>	<b>www.originslaboratory.com</b>
<b>Client:</b>	Noble/Tasman Geosciences	<b>Project Manager:</b> Jake Whittenour; Invoice: Wede
<b>Address:</b>	6855 W 119th Ave	<b>Project Name:</b> Loeff 23 B35-19
<b>Telephone Number:</b>	303-827-1511	<b>Project Number:</b> EC: 815901465 Task: 247037
<b>Email Address:</b>	jwhittenour@tasman-geo.com	<b>Samples Collected By:</b> Daniel Qua, Hunter Merlo

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Fax: 303.265.9645

[illegible]

Origins Laboratory, Inc.

Men

*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: 815901465  
Project: Noble - Loloff 2,3 B35-19

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: Y111018

Client: Tasman

Client/Project ID: Loloff 2-3 B35-19

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 11/11/12

Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid

☐ Water

☐ Other:

Cooler Number/Temperature: 1, 16.6 °C

1 °C 1 °C 1 °C (Describe)

Thermometer ID: T003

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 Day</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 (> 1/4 inch bubble) present? If yes, contact client and note in narrative.			<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 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)			<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 in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) JM

11-2-21  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jordan A. Merrill*

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: 815901465  
Project: Noble - Loloff 2,3 B35-19

SS02@2.5'

10/29/2021 12:55:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.199	mg/L	1	B1K0110	11/01/2021	11/02/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	39.9 %	50-150			"	"	"
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	109 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SS02@2.5'

10/29/2021 12:55:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-01 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	97.9 %	70-130	B1K02 20	11/02/2021	11/05/2021
Surrogate: 4-Bromofluorobenzene	100 %	70-130	"	"	"

**Metals by Saturated Paste**

Calcium	3.28	0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021
Magnesium	1.13	0.823	"	"	"	"	"
Sodium	0.918	0.435	"	"	"	"	"

**PAH by 8270D SIM**

1-Methylnaphthalene	0.000346	0.00033	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021	J
2-Methylnaphthalene	0.000547	0.00039	0.00067	"	"	"	"	"	J
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	ND	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00021	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00013	0.00067	"	"	"	"	"	
Chrysene	ND	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.00039	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.

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6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## SS02@2.5'

10/29/2021 12:55:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc.

Y111018-01 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.00029	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021
Indeno(1,2,3-cd)pyrene	ND	0.00029	0.00067	"	"	"	"	"
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"
Pyrene	ND	0.00059	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	39.5 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	47.4 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	31.6 %		29-110			"	"	"

### pH in Soil by 9045D

pH	8.14			pH Units	1	B1K0121	11/01/2021	11/02/2021
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### SAR by 20B Saturated Paste

SAR	0.618			SAR	1	B1K0113	11/01/2021	11/02/2021
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.524		0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SS04@2.5'

10/29/2021 1:05:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.198	mg/L	1	B1K0110	11/01/2021	11/02/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	25.6	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	39.7 %	50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	108 %	70-130			"	"	"	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SS04@2.5'

10/29/2021 1:05:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-02 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	98.1 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	98.4 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	3.99		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	1.40		0.823	"	"	"	"	"	
Sodium	0.548		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00033	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021	
2-Methylnaphthalene	ND	0.00039	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	ND	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	0.000207	0.00014	0.00067	"	"	"	"	"	J
Benzo(b)fluoranthene	0.000307	0.00021	0.00067	"	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.00013	0.00067	"	"	"	"	"	
Chrysene	ND	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.00039	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## SS04@2.5'

10/29/2021 1:05:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Waypoint Analytical, Inc.

Y111018-02 (Soil)

### PAH by 8270D SIM

Fluorene	ND	0.00029	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021	
Indeno(1,2,3-cd)pyrene	0.00031	0.00029	0.00067	"	"	"	"	"	J
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"	
Pyrene	ND	0.00059	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	40.4 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	45 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	30.7 %		29-110			"	"	"	

### pH in Soil by 9045D

pH	7.91			pH Units	1	B1K0121	11/01/2021	11/02/2021	
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### SAR by 20B Saturated Paste

SAR	0.334			SAR	1	B1K0113	11/01/2021	11/02/2021	
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### Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.659		0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS01@5'

10/29/2021 1:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-03 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.199	mg/L	1	B1K0207	11/02/2021	11/03/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	57.9 %	50-150			"	"	"
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	0.00256	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	
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	110 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS01@5'

10/29/2021 1:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-03 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	98.0 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	99.6 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	2.17		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	0.987		0.823	"	"	"	"	"	
Sodium	1.31		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	0.000832	0.00033	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021	
2-Methylnaphthalene	0.00141	0.00039	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	0.00129	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	0.00425	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	0.00453	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.0123	0.00021	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	0.00549	0.00013	0.00067	"	"	"	"	"	
Chrysene	0.0115	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	0.00147	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	0.0124	0.00039	0.00067	"	"	"	"	"	
Fluorene	0.000364	0.00029	0.00067	"	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	0.00426	0.00029	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS01@5'

10/29/2021 1:20:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y111018-03 (Soil)**

**PAH by 8270D SIM**

Naphthalene	ND	0.000467	0.00067	mg/Kg	1	L582591	11/03/2021	11/03/2021	
Pyrene	0.0109	0.00059	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	37.2 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	46.3 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	30.3 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	8.39			pH Units	1	B1K0121	11/01/2021	11/02/2021	
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**SAR by 20B Saturated Paste**

SAR	1.05			SAR	1	B1K0113	11/01/2021	11/02/2021	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.471		0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS02@5'

10/29/2021 1:25:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-04 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.318	0.199	mg/L	1	B1K0207	11/02/2021	11/03/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	38.6 %	50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	108 %	70-130			"	"	"	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS02@5'

10/29/2021 1:25:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-04 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	98.1 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	99.9 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	0.559		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	1.56		0.823	"	"	"	"	"	
Sodium	3.54		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00033	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021	
2-Methylnaphthalene	ND	0.00039	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	ND	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00021	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00013	0.00067	"	"	"	"	"	
Chrysene	ND	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.00039	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

FS02@5'

10/29/2021 1:25:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y111018-04 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.00029	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021
Indeno(1,2,3-cd)pyrene	ND	0.00029	0.00067	"	"	"	"	"
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"
Pyrene	ND	0.00059	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	49.5 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	60.1 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	37.8 %	29-110	"	"	"

**pH in Soil by 9045D**

pH	8.52	pH Units	1	B1K0121	11/01/2021	11/02/2021
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**SAR by 20B Saturated Paste**

SAR	3.43	SAR	1	B1K0113	11/01/2021	11/02/2021
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.559	0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

AST01@0.5'

10/29/2021 1:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-05 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.198	mg/L	1	B1K0207	11/02/2021	11/03/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/04/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	36.3 %	50-150	"	"	"
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	109 %	70-130	"	"	"
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

AS101@0.5'

10/29/2021 1:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-05 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	97.0 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	99.3 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	2.25		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	0.813		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00033	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021	
2-Methylnaphthalene	0.000618	0.00039	0.00067	"	"	"	"	"	J
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	ND	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.000424	0.00021	0.00067	"	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.00013	0.00067	"	"	"	"	"	
Chrysene	ND	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.00039	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

AST01@0.5'

10/29/2021 1:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y111018-05 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.00029	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021
Indeno(1,2,3-cd)pyrene	ND	0.00029	0.00067	"	"	"	"	"
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"
Pyrene	ND	0.00059	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	54.5 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	67.6 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	44.8 %	29-110	"	"	"

**pH in Soil by 9045D**

pH	7.63	pH Units	1	B1K0121	11/01/2021	11/02/2021
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**SAR by 20B Saturated Paste**

SAR	0.676	SAR	1	B1K0113	11/01/2021	11/02/2021
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.433	0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-FL@3'

10/29/2021 2:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-06 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.200	mg/L	1	B1K0207	11/02/2021	11/03/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	38.6 %	50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	107 %	70-130			"	"	"	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-FL@3'

10/29/2021 2:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-06 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	98.0 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	99.6 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	2.36		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00033	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021	
2-Methylnaphthalene	0.00064	0.00039	0.00067	"	"	"	"	"	J
Acenaphthene	0.00718	0.0003	0.00067	"	"	"	"	"	
Anthracene	0.0183	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	0.0329	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	0.0205	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.0253	0.00021	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	0.00737	0.00013	0.00067	"	"	"	"	"	
Chrysene	0.0278	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	0.00221	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	0.0874	0.00039	0.00067	"	"	"	"	"	
Fluorene	0.00951	0.00029	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-FL@3'

10/29/2021 2:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.  
Y111018-06 (Soil)

## PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	0.00955	0.00029	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021
Naphthalene	0.000842	0.000467	0.00067	"	"	"	"	"
Pyrene	0.0669	0.00059	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	54.2 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	64.6 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	44.3 %		29-110			"	"	"

## pH in Soil by 9045D

pH	7.94			pH Units	1	B1K0121	11/01/2021	11/02/2021
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## SAR by 20B Saturated Paste

SAR	0.253			SAR	1	B1K0113	11/01/2021	11/02/2021
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## Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.368		0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021
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## Total Metals by 6020B

Arsenic	1.43	0.0855	0.25	mg/Kg	5	L583871	11/10/2021	11/10/2021
Barium	56	0.042	0.25	"	"	"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-FL@3'

10/29/2021 2:40:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y111018-06 (Soil)**

**Total Metals by 6020B**

Cadmium	0.0531	0.0259	0.25	mg/Kg	5	L583871	11/10/2021	11/10/2021	J
Copper	4.4	0.0806	0.25	"	"	"	"	"	
Lead	5.89	0.031	0.25	"	"	"	"	"	
Nickel	5.21	0.0633	0.25	"	"	"	"	"	
Selenium	0.283	0.103	0.25	"	"	"	"	"	
Silver	0.0257	0.0067	0.25	"	"	"	"	"	J
Zinc	23	0.534	2.5	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.502	1.03	mg/Kg	2	L583964	10/29/2021	11/10/2021	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-DL@3'

10/29/2021 2:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-07 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND	0.199	mg/L	1	B1K0207	11/02/2021	11/03/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1K0219	11/02/2021	11/06/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	39.7 %	50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1K0220	11/02/2021	11/05/2021	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	107 %	70-130			"	"	"	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-DL@3'

10/29/2021 2:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y111018-07 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	97.2 %		70-130			B1K02 20	11/02/2021	11/05/2021	
Surrogate: 4-Bromofluorobenzene	100 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	2.31		0.499	meq/L	10	[CALC]	11/01/2021	11/02/2021	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	0.500		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00033	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021	
2-Methylnaphthalene	0.000622	0.00039	0.00067	"	"	"	"	"	J
Acenaphthene	ND	0.0003	0.00067	"	"	"	"	"	
Anthracene	ND	0.00033	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00041	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00014	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.000389	0.00021	0.00067	"	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.00013	0.00067	"	"	"	"	"	
Chrysene	ND	0.00027	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00036	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.00039	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

SEP01-DL@3'

10/29/2021 2:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y111018-07 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.00029	0.00067	mg/Kg	1	L582760	11/03/2021	11/03/2021
Indeno(1,2,3-cd)pyrene	ND	0.00029	0.00067	"	"	"	"	"
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"
Pyrene	ND	0.00059	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	49.4 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	64.6 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	39.3 %	29-110	"	"	"

**pH in Soil by 9045D**

pH	7.97	pH Units	1	B1K0121	11/01/2021	11/02/2021
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**SAR by 20B Saturated Paste**

SAR	0.404	SAR	1	B1K0113	11/01/2021	11/02/2021
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.398	0.00500	mmhos/cm	1	B1K0313	11/03/2021	11/04/2021
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Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## 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
<b>Batch B1K0219 - EPA 3550B</b>										
<b>Blank (B1K0219-BLK1)</b>					Prepared: 11/02/2021 Analyzed: 11/09/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	23		"	24.9		92.4	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## 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 B1K0219 - EPA 3550B

### LCS (B1K0219-BS1)

Prepared: 11/02/2021 Analyzed: 11/09/2021

Diesel (C10-C28)	795	50.0	mg/kg	1000		79.5	70-130			
Residual Range Organics (C28-C40)	832	200	"	1000		83.2	70-130			
Surrogate: o-Terphenyl	46		"	49.8		93.1	50-150			

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

**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 B1K0219 - EPA 3550B**

Matrix Spike (B1K0219-MS1)		Source: Y111058-01			Prepared: 11/02/2021 Analyzed: 11/09/2021					
Diesel (C10-C28)	812	50.0	mg/kg	1000	ND	81.2	70-130			
Residual Range Organics (C28-C40)	854	200	"	1000	ND	85.4	70-130			
Surrogate: o-Terphenyl	45		"	49.8		91.2	50-150			

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Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## 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
<b>Batch B1K0219 - EPA 3550B</b>										
<b>Matrix Spike Dup (B1K0219-MSD1)</b>	<b>Source: Y111058-01</b>				Prepared: 11/02/2021 Analyzed: 11/02/2021					
Diesel (C10-C28)	794	50.0	mg/kg	1000	ND	79.4	70-130	2.26	35	
Residual Range Organics (C28-C40)	882	200	"	1000	ND	88.2	70-130	3.20	35	
Surrogate: o-Terphenyl	23		"	49.8		45.7	50-150			QM-07

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Project: Noble - Loloff 2,3 B35-19

## 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
<b>Batch B1K0220 - EPA 5030 (soil)</b>										
<b>Blank (B1K0220-BLK1)</b>					Prepared: 11/02/2021 Analyzed: 11/05/2021					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
Naphthalene	ND	0.0100	"							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	0.12		"	0.125		97.2	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.8	70-130			

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Project: Noble - Loloff 2,3 B35-19

**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 B1K0220 - EPA 5030 (soil)**

**LCS (B1K0220-BS1)**

Prepared: 11/02/2021 Analyzed: 11/05/2021

1,2,4-Trimethylbenzene	0.106	0.00200	mg/kg	0.100		106	70-130			
Naphthalene	0.0855	0.0100	"	0.100		85.5	70-130			
1,3,5-Trimethylbenzene	0.109	0.00200	"	0.100		109	70-130			
Benzene	0.110	0.00200	"	0.100		110	70-130			
Ethylbenzene	0.107	0.00200	"	0.100		107	70-130			
m,p-Xylene	0.214	0.00400	"	0.200		107	70-130			
o-Xylene	0.107	0.00200	"	0.100		107	70-130			
Toluene	0.108	0.00200	"	0.100		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		94.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.9	70-130			

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**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 B1K0220 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B1K0220-MS1)</b>		<b>Source: Y111058-01</b>			Prepared: 11/02/2021 Analyzed: 11/05/2021					
1,2,4-Trimethylbenzene	0.0714	0.00200	mg/kg	0.100	ND	71.4	70-130			
Naphthalene	0.0728	0.0100	"	0.100	0.00354	69.3	70-130			QM-07
1,3,5-Trimethylbenzene	0.0743	0.00200	"	0.100	ND	74.3	70-130			
Benzene	0.0849	0.00200	"	0.100	ND	84.9	70-130			
Ethylbenzene	0.0747	0.00200	"	0.100	ND	74.7	70-130			
m,p-Xylene	0.148	0.00400	"	0.200	ND	73.9	70-130			
o-Xylene	0.0785	0.00200	"	0.100	ND	78.5	70-130			
Toluene	0.0783	0.00200	"	0.100	ND	78.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.7	70-130			

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Project: Noble - Loloff 2,3 B35-19

**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 B1K0220 - EPA 5030 (soil)</b>										
<b>Matrix Spike Dup (B1K0220-MSD1)</b>		<b>Source: Y111058-01</b>			Prepared: 11/02/2021 Analyzed: 11/05/2021					
1,2,4-Trimethylbenzene	0.0831	0.00200	mg/kg	0.100	ND	83.1	70-130	15.2	20	
Naphthalene	0.0761	0.0100	"	0.100	0.00354	72.6	70-130	4.43	20	
1,3,5-Trimethylbenzene	0.0878	0.00200	"	0.100	ND	87.8	70-130	16.7	20	
Benzene	0.101	0.00200	"	0.100	ND	101	70-130	17.8	20	
Ethylbenzene	0.0897	0.00200	"	0.100	ND	89.7	70-130	18.3	20	
m,p-Xylene	0.176	0.00400	"	0.200	ND	88.1	70-130	17.5	20	
o-Xylene	0.0904	0.00200	"	0.100	ND	90.4	70-130	14.2	20	
Toluene	0.0949	0.00200	"	0.100	ND	94.9	70-130	19.1	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.4	70-130			

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Project: Noble - Loloff 2,3 B35-19

**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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**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 B1K0121 - NO PREP**

**Duplicate (B1K0121-DUP1)**

**Source: Y111012-01**

Prepared: 11/01/2021 Analyzed: 11/02/2021

pH	7.61		pH Units	7.78		2.21	25
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**Batch B1K0313 - NO PREP**

**Blank (B1K0313-BLK1)**

Prepared: 11/03/2021 Analyzed: 11/04/2021

Specific Conductance (EC)	0.00100	0.00500	mmhos/cm
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**Duplicate (B1K0313-DUP1)**

**Source: Y111018-01**

Prepared: 11/03/2021 Analyzed: 11/04/2021

Specific Conductance (EC)	0.514	0.00500	mmhos/cm	0.524		1.91	25
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Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L583871 - 3050B</b>										
<b>MSD (L 95758-MSD-L583871)</b>			<b>Source: 95758</b>		Prepared: 11/10/2021 Analyzed: 11/10/2021					
Copper	4.66	0.0806	mg/Kg	2.45	2.28	97	75-125	15	80	
Arsenic	3.89	0.0855	"	2.45	2.01	77	75-125	47.8	80	
Cadmium	0.457	0.0259	"	0.49	<0.0259	93	75-125	0.6	80	
Lead	5.93	0.031	"	2.45	3.51	99	75-125	11.4	80	
Nickel	5.32	0.0633	"	2.45	2.89	99	75-125	7.4	80	
Selenium	4.34	0.103	"	4.9	0.198	89	75-125	11.7	80	
Silver	0.491	0.0067	"	0.49	0.00904	100	75-125	7.3	80	
Zinc	36.7	0.534	"	24.5	12.1	100	75-125	2.4	80	
Barium	49.6	0.042	"	4.9	50.9	NR	75-125	0.4	80	*
<b>MS (L 95758-MS-L583871)</b>			<b>Source: 95758</b>		Prepared: 11/10/2021 Analyzed: 11/11/2021					
Arsenic	6.34	0.0855	mg/Kg	2.37	2.01	183	75-125			*
Zinc	37.6	0.534	"	23.7	12.1	108	75-125			
Silver	0.456	0.0067	"	0.473	0.00904	96	75-125			
Selenium	3.86	0.103	"	4.73	0.198	82	75-125			
Nickel	5.73	0.0633	"	2.37	2.89	120	75-125			
Lead	6.65	0.031	"	2.37	3.51	133	75-125			*
Copper	5.42	0.0806	"	2.37	2.28	133	75-125			*
Barium	49.8	0.042	"	4.73	50.9	NR	75-125			*
Cadmium	0.46	0.0259	"	0.473	<0.0259	97	75-125			
<b>LCS (LCS-L583871)</b>			Prepared: 11/10/2021 Analyzed: 11/10/2021							
Barium	4.75	0.042	mg/Kg	5		95	80-120			
Nickel	2.36	0.0633	"	2.5		94	80-120			
Selenium	4.66	0.103	"	5		93	80-120			
Silver	0.473	0.0067	"	0.5		95	80-120			
Lead	2.48	0.031	"	2.5		99	80-120			

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Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

## Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch L583871 - 3050B

#### LCS (LCS-L583871)

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

Zinc	22.6	0.534	mg/Kg	25		90	80-120			
Arsenic	2.47	0.0855	"	2.5		99	80-120			
Copper	2.38	0.0806	"	2.5		95	80-120			
Cadmium	0.483	0.0259	"	0.5		97	80-120			

#### LRB (LRB-L583871)

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

Lead	0.263	0.25	mg/Kg				-			*
Zinc	ND	2.5	"				-			
Silver	ND	0.25	"				-			
Nickel	ND	0.25	"				-			
Copper	ND	0.25	"				-			
Cadmium	ND	0.25	"				-			
Arsenic	ND	0.25	"				-			
Barium	0.14	0.25	"				-			J
Selenium	ND	0.25	"				-			

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## Total Metals by 7196A - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L583964 -</b>										
<b>DUP (L 91479-DUP)</b>		<b>Source: Y111018-06</b>			Prepared: Analyzed: 11/10/2021					
Chromium, Hexavalent	ND	0.488	mg/Kg		<1.00	-		0	20	
<b>MS (L 91479-MS)</b>		<b>Source: Y111018-06</b>			Prepared: Analyzed: 11/10/2021					
Chromium, Hexavalent	5.91	0.488	mg/Kg	8.03	<0.488	74	75-125			*
<b>LCS (LCS)</b>					Prepared: Analyzed: 11/10/2021					
Chromium, Hexavalent	6.03	0.244	mg/Kg	8		75	75-125			
<b>LRB (LRB)</b>					Prepared: Analyzed: 11/10/2021					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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Project: Noble - Loloff 2,3 B35-19

**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 L582760 - 3550B**

MSD (L 91477-MSD-L582760)		Source: Y111018-04			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Dibenz(a,h)anthracene	0.109	0.00036	mg/Kg	0.163	<0.000360	66.8	30-130	6.2	30	
Fluoranthene	0.114	0.00039	"	0.163	<0.000390	69.9	30-130	2.6	30	
Fluorene	0.109	0.00029	"	0.163	<0.000290	66.8	30-130	0.9	30	
Indeno(1,2,3-cd)pyrene	0.0935	0.00029	"	0.163	<0.000290	57.3	30-130	7.7	30	
Pyrene	0.113	0.00059	"	0.163	<0.000590	69.3	30-130	1.7	30	
Chrysene	0.11	0.00027	"	0.163	<0.000270	67.4	30-130	0	30	
2-Methylnaphthalene	0.0961	0.00039	"	0.163	<0.000390	58.9	30-130	0.6	30	
Naphthalene	0.0913	0.000467	"	0.163	<0.000467	56	30-130	2.7	30	
Benzo(k)fluoranthene	0.0837	0.00013	"	0.163	<0.000130	51.3	30-130	6.1	30	
Benzo(b)fluoranthene	0.0889	0.00021	"	0.163	<0.000210	54.5	30-130	2.2	30	
Benzo(a)pyrene	0.12	0.00014	"	0.163	<0.000140	73.6	30-130	1.6	30	
Benzo(a)anthracene	0.124	0.00041	"	0.163	<0.000410	76	30-130	2.4	30	
Anthracene	0.107	0.00033	"	0.163	<0.000330	65.6	30-130	0	30	
1-Methylnaphthalene	0.0948	0.00033	"	0.163	<0.000330	58.1	30-130	2	30	
Acenaphthene	0.107	0.0003	"	0.163	<0.000300	65.6	30-130	1.8	30	
Surrogate: Nitrobenzene-d5	36		"	0.327	125	36	29-110			
Surrogate: 4-Terphenyl-d14	61.4		"	0.327	199	61.4	33-122			
Surrogate: 2-Fluorobiphenyl	47.7		"	0.327	164	47.7	33-115			

MS (L 91477-MS-L582760)		Source: Y111018-04			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Anthracene	0.107	0.00033	mg/Kg	0.165	<0.000330	64.8	30-130			
1-Methylnaphthalene	0.0968	0.00033	"	0.165	<0.000330	58.6	30-130			
2-Methylnaphthalene	0.0967	0.00039	"	0.165	<0.000390	58.6	30-130			
Indeno(1,2,3-cd)pyrene	0.101	0.00029	"	0.165	<0.000290	61.2	30-130			
Pyrene	0.111	0.00059	"	0.165	<0.000590	67.2	30-130			
Naphthalene	0.0938	0.000467	"	0.165	<0.000467	56.8	30-130			
Acenaphthene	0.109	0.0003	"	0.165	<0.000300	66	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 L582760 - 3550B**

MS (L 91477-MS-L582760)		Source: Y111018-04			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Fluorene	0.108	0.00029	mg/Kg	0.165	<0.000290	65.4	30-130			
Fluoranthene	0.111	0.00039	"	0.165	<0.000390	67.2	30-130			
Dibenz(a,h)anthracene	0.116	0.00036	"	0.165	<0.000360	70.3	30-130			
Chrysene	0.11	0.00027	"	0.165	<0.000270	66.6	30-130			
Benzo(k)fluoranthene	0.089	0.00013	"	0.165	<0.000130	53.9	30-130			
Benzo(b)fluoranthene	0.0909	0.00021	"	0.165	<0.000210	55	30-130			
Benzo(a)pyrene	0.118	0.00014	"	0.165	<0.000140	71.5	30-130			
Benzo(a)anthracene	0.121	0.00041	"	0.165	<0.000410	73.3	30-130			
Surrogate: 2-Fluorobiphenyl	48.1		"	0.33	164	48.1	33-115			
Surrogate: 4-Terphenyl-d14	60.6		"	0.33	199	60.6	33-122			
Surrogate: Nitrobenzene-d5	36.6		"	0.33	125	36.6	29-110			

LCS (LCS-L582760)		Prepared: 11/03/2021 Analyzed: 11/03/2021								
Benzo(b)fluoranthene	0.0997	0.00021	mg/Kg	0.167		59.7	30-130			
Naphthalene	0.0965	0.000467	"	0.167		57.7	30-130			
1-Methylnaphthalene	0.0996	0.00033	"	0.167		59.6	30-130			
Fluorene	0.112	0.00029	"	0.167		67	30-130			
Fluoranthene	0.115	0.00039	"	0.167		68.8	30-130			
Dibenz(a,h)anthracene	0.138	0.00036	"	0.167		82.6	30-130			
Chrysene	0.116	0.00027	"	0.167		69.4	30-130			
Benzo(k)fluoranthene	0.0963	0.00013	"	0.167		57.6	30-130			
Benzo(a)pyrene	0.13	0.00014	"	0.167		77.8	30-130			
Benzo(a)anthracene	0.126	0.00041	"	0.167		75.4	30-130			
Anthracene	0.11	0.00033	"	0.167		65.8	30-130			
Acenaphthene	0.11	0.0003	"	0.167		65.8	30-130			
Pyrene	0.114	0.00059	"	0.167		68.2	30-130			
2-Methylnaphthalene	0.1	0.00039	"	0.167		59.8	30-130			

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: 815901465  
Project: Noble - Loloff 2,3 B35-19

**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 L582760 - 3550B**

**LCS (LCS-L582760)**

Prepared: 11/03/2021 Analyzed: 11/03/2021

Indeno(1,2,3-cd)pyrene	0.117	0.00029	mg/Kg	0.167		70	30-130			
Surrogate: 4-Terphenyl-d14	68.4		"	0.333		68.4	33-122			
Surrogate: 2-Fluorobiphenyl	54.3		"	0.333		54.3	33-115			
Surrogate: Nitrobenzene-d5	40.2		"	0.333		40.2	29-110			

**LRB (LRB-L582760)**

Prepared: 11/03/2021 Analyzed: 11/03/2021

Benzo(a)pyrene	ND	0.00067	mg/Kg				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	45.3		"	0.333		45.3	29-110			
Surrogate: 4-Terphenyl-d14	66.3		"	0.333		66.3	33-122			
Surrogate: 2-Fluorobiphenyl	58.2		"	0.333		58.2	33-115			

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: 815901465  
Project: Noble - Loloff 2,3 B35-19

**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 L582591 - 3550B**

MSD (L 91816-MSD-L582591)		Source: 91816			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Benzo(k)fluoranthene	0.08	0.00013	mg/Kg	0.165	<0.000130	48.4	30-130	5.8	30	
Naphthalene	0.0638	0.000467	"	0.165	<0.000467	38.6	30-130	14.5	30	
Indeno(1,2,3-cd)pyrene	0.0677	0.00029	"	0.165	<0.000290	41	30-130	12.3	30	
Fluorene	0.073	0.00029	"	0.165	<0.000290	44.2	30-130	16.8	30	
Fluoranthene	0.0877	0.00039	"	0.165	<0.000390	53.1	30-130	7.9	30	
Dibenz(a,h)anthracene	0.0699	0.00036	"	0.165	<0.000360	42.3	30-130	5.1	30	
Chrysene	0.0833	0.00027	"	0.165	<0.000270	50.4	30-130	7.1	30	
Pyrene	0.0878	0.00059	"	0.165	<0.000590	53.2	30-130	7	30	
Benzo(b)fluoranthene	0.0735	0.00021	"	0.165	<0.000210	44.5	30-130	2.8	30	
Benzo(a)pyrene	0.0854	0.00014	"	0.165	<0.000140	51.7	30-130	5.9	30	
Benzo(a)anthracene	0.0811	0.00041	"	0.165	<0.000410	49.1	30-130	7.8	30	
Anthracene	0.0812	0.00033	"	0.165	<0.000330	49.2	30-130	10.8	30	
Acenaphthene	0.0707	0.0003	"	0.165	<0.000300	42.8	30-130	16.7	30	
2-Methylnaphthalene	0.0654	0.00039	"	0.165	<0.000390	39.6	30-130	14.2	30	
1-Methylnaphthalene	0.0701	0.00033	"	0.165	<0.000330	42.4	30-130	6.6	30	
Surrogate: Nitrobenzene-d5	25.1		"	0.33	107	25.1	29-110			*
Surrogate: 2-Fluorobiphenyl	33		"	0.33	133	33	33-115			
Surrogate: 4-Terphenyl-d14	42.7		"	0.33	161	42.7	33-122			

MS (L 91816-MS-L582591)		Source: 91816			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Chrysene	0.0895	0.00027	mg/Kg	0.166	<0.000270	53.9	30-130			
Benzo(b)fluoranthene	0.0756	0.00021	"	0.166	<0.000210	45.5	30-130			
1-Methylnaphthalene	0.0749	0.00033	"	0.166	<0.000330	45.1	30-130			
2-Methylnaphthalene	0.0754	0.00039	"	0.166	<0.000390	45.4	30-130			
Acenaphthene	0.0836	0.0003	"	0.166	<0.000300	50.3	30-130			
Anthracene	0.0905	0.00033	"	0.166	<0.000330	54.5	30-130			
Fluoranthene	0.095	0.00039	"	0.166	<0.000390	57.2	30-130			

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: 815901465  
Project: Noble - Loloff 2,3 B35-19

**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 L582591 - 3550B**

MS (L 91816-MS-L582591)		Source: 91816			Prepared: 11/03/2021 Analyzed: 11/03/2021					
Benzo(a)pyrene	0.0906	0.00014	mg/Kg	0.166	<0.000140	54.5	30-130			
Pyrene	0.0942	0.00059	"	0.166	<0.000590	56.7	30-130			
Benzo(k)fluoranthene	0.0848	0.00013	"	0.166	<0.000130	51	30-130			
Dibenz(a,h)anthracene	0.0736	0.00036	"	0.166	<0.000360	44.3	30-130			
Fluorene	0.0864	0.00029	"	0.166	<0.000290	52	30-130			
Indeno(1,2,3-cd)pyrene	0.0766	0.00029	"	0.166	<0.000290	46.1	30-130			
Naphthalene	0.0738	0.000467	"	0.166	<0.000467	44.4	30-130			
Benzo(a)anthracene	0.0877	0.00041	"	0.166	<0.000410	52.8	30-130			
Surrogate: 2-Fluorobiphenyl	46.5		"	0.331	133	46.5	33-115			
Surrogate: 4-Terphenyl-d14	54.6		"	0.331	161	54.6	33-122			
Surrogate: Nitrobenzene-d5	35.6		"	0.331	107	35.6	29-110			

LCS (LCS-L582591)		Prepared: 11/03/2021 Analyzed: 11/03/2021								
Chrysene	0.0833	0.00027	mg/Kg	0.167		49.8	30-130			
Benzo(a)anthracene	0.082	0.00041	"	0.167		49.1	30-130			
Naphthalene	0.0664	0.000467	"	0.167		39.7	30-130			
Indeno(1,2,3-cd)pyrene	0.0655	0.00029	"	0.167		39.2	30-130			
Fluorene	0.0743	0.00029	"	0.167		44.4	30-130			
Dibenz(a,h)anthracene	0.0668	0.00036	"	0.167		40	30-130			
Benzo(k)fluoranthene	0.0793	0.00013	"	0.167		47.4	30-130			
Fluoranthene	0.0859	0.00039	"	0.167		51.4	30-130			
Benzo(a)pyrene	0.0824	0.00014	"	0.167		49.3	30-130			
Pyrene	0.0859	0.00059	"	0.167		51.4	30-130			
Anthracene	0.0809	0.00033	"	0.167		48.4	30-130			
Acenaphthene	0.0734	0.0003	"	0.167		43.9	30-130			
2-Methylnaphthalene	0.0675	0.00039	"	0.167		40.4	30-130			
1-Methylnaphthalene	0.0724	0.00033	"	0.167		43.3	30-130			

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: 815901465  
Project: Noble - Loloff 2,3 B35-19

**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 L582591 - 3550B**

**LCS (LCS-L582591)**

Prepared: 11/03/2021 Analyzed: 11/03/2021

Benzo(b)fluoranthene	0.0756	0.00021	mg/Kg	0.167		45.2	30-130			
Surrogate: Nitrobenzene-d5	33		"	0.333		33	29-110			
Surrogate: 4-Terphenyl-d14	52.2		"	0.333		52.2	33-122			
Surrogate: 2-Fluorobiphenyl	43.8		"	0.333		43.8	33-115			

**LRB (LRB-L582591)**

Prepared: 11/03/2021 Analyzed: 11/03/2021

Chrysene	ND	0.00067	mg/Kg				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Surrogate: 4-Terphenyl-d14	50.1		"	0.333		50.1	33-122			
Surrogate: Nitrobenzene-d5	34.8		"	0.333		34.8	29-110			
Surrogate: 2-Fluorobiphenyl	45.3		"	0.333		45.3	33-115			

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: 815901465  
Project: Noble - Loloff 2,3 B35-19

### Notes and Definitions

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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 on a wet weight basis.

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.*



March 10, 2022

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

**Project Name - Noble - Loloff 2,3 B35-19**

**Project Number - [none]**

Attached are your analytical results for Noble - Loloff 2,3 B35-19 received by Origins Laboratory, Inc. February 28, 2022. This project is associated with Origins project number Y203003-01.

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: [none]  
Project: Noble - Loloff 2,3 B35-19

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG01@3'	Y203003-01	Soil	February 28, 2022 11:35	02/28/2022 16:30
BG01@5'	Y203003-02	Soil	February 28, 2022 11:40	02/28/2022 16:30

Origins Laboratory, Inc.



Jen Pellegrini For Noelle Doyle Mathis, President

*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: [none]  
Project: Noble - Loloff 2,3 B35-19

**ORIGINS**  
LABORATORY, INC

www.originslaboratory.com

page 1 of 1

1/20/2003

Client: Noble / Tasman

Address: 6855 W. 119th Ave

Telephone Number: 303-887-1511

Email Address: JakeWhritenour@tasman-geo.com

Project Manager: Jake Whritenour

Project Name: Loloff 2,3 B35-19

Project Number: \_\_\_\_\_

Samples Collected By: Harley Marks

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 Canister #			Other
B601031	2/28/22	1135	2	X					X			1	
B601051	2/28/22	1146	2	X					X			2	
												3	
												4	
												5	
												6	
												7	
												8	
												9	
												10	

Relinquished By: [Signature]

Relinquished By: \_\_\_\_\_

Date: 2/28/22

Date: \_\_\_\_\_

Time: 1130

Time: \_\_\_\_\_

Received By: [Signature]

Received By: \_\_\_\_\_

Date: 2/28/22

Date: \_\_\_\_\_

Time: 1630

Time: \_\_\_\_\_

Turnaround Time: ☒ Standard

Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr

Origins Laboratory, Inc.

*Jefe Pellegrini*

Jen Pellegrini For Noelle Doyle Mathis, President

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: [none]  
Project: Noble - Loloff 2,3 B35-19

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: Y203003

Client: Tasman

Client Project ID: Loloff 2,3 B35-19

Checklist Completed by: SG

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

Date/time completed: 3/1/22

Airbill #: NTA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid

☐ Water

☐ Other:

Cooler Number/Temperature: 1, 13.3 °C

(Describe) °C

Thermometer ID: T003

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 Day</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? If yes, contact client and note in narrative.			<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 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)			<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 (Project Manager) JP

Date/Time Reviewed 3/2/22

Origins Laboratory, Inc.

*Jefe Pellegrini*

Jen Pellegrini For Noelle Doyle Mathis, President

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: [none]  
Project: Noble - Loloff 2,3 B35-19

BG01@3'

2/28/2022 11:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203003-01 (Soil)

## pH in Soil by 9045D

pH	7.78			pH Units	1	B2C0204	03/02/2022	03/03/2022
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## Total Metals by 6020B

Arsenic	1.3	0.0855	0.25	mg/Kg	5	L602557	03/02/2022	03/07/2022
Barium	53.9	0.042	0.25	"	"	"	"	"
Cadmium	ND	0.0259	0.25	"	"	"	"	"
Copper	4.35	0.0806	0.25	"	"	"	"	"
Lead	4.25	0.031	0.25	"	"	"	"	"
Nickel	4.81	0.0633	0.25	"	"	"	"	"
Selenium	0.298	0.103	0.25	"	"	"	"	"
Silver	ND	0.0067	0.25	"	"	"	"	"
Zinc	17.9	0.534	2.5	"	"	"	"	"

## Total Metals by 7196A

Chromium, Hexavalent	ND	0.246	0.505	mg/Kg	1	L603495	02/28/2022	03/08/2022
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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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

BG01@5'

2/28/2022 11:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203003-02 (Soil)

## pH in Soil by 9045D

pH	7.67		pH Units	1	B2C0204	03/02/2022	03/03/2022
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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.

Jen Pellegrini For Noelle Doyle Mathis, President



Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

**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 B2C0204 - NO PREP

Duplicate (B2C0204-DUP1)

Source: Y202612-09

Prepared: 03/02/2022 Analyzed: 03/03/2022

pH	9.02		pH Units		9.10			0.883	25	
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Origins Laboratory, Inc.



Jen Pellegrini For Noelle Doyle Mathis, President

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

## Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L602557 - 3050B</b>										
<b>MSD (L 99871-MSD-L602557)</b>			<b>Source: 99871</b>		Prepared: 03/02/2022 Analyzed: 03/07/2022					
Zinc	61	0.534	mg/Kg	23.7	39.3	92	75-125	200	80	
Arsenic	4.96	0.0855	"	2.37	2.93	86	75-125	200	80	
Barium	93.1	0.042	"	4.73	112	NR	75-125	200	80	*
Cadmium	0.567	0.0259	"	0.473	0.122	94	75-125	200	80	
Copper	9.65	0.0806	"	2.37	7.72	82	75-125	1.5	80	
Lead	10.6	0.031	"	2.37	8.49	89	75-125	200	80	
Nickel	12.1	0.0633	"	2.37	10.1	84	75-125	4.8	80	
Selenium	3.85	0.103	"	4.73	0.281	75	75-125	200	80	
Silver	0.52	0.0067	"	0.473	0.0456	100	75-125	200	80	
<b>MS (L 99871-MS-L602557)</b>			<b>Source: 99871</b>		Prepared: 03/02/2022 Analyzed: 03/09/2022					
Zinc	60.6	0.534	mg/Kg	24.7	37.7	93	75-125			
Silver	0.516	0.0067	"	0.495	0.0436	96	75-125			
Selenium	3.87	0.103	"	4.95	0.325	72	75-125			*
Nickel	12.7	0.0633	"	2.47	10.1	105	75-125			
Lead	10.9	0.031	"	2.47	8.52	96	75-125			
Copper	9.8	0.0806	"	2.47	7.72	84	75-125			
Cadmium	0.609	0.0259	"	0.495	0.131	97	75-125			
Arsenic	5.03	0.0855	"	2.47	3.19	74	75-125			*
Barium	116	0.042	"	4.95	114	40	75-125			*
<b>LCS (LCS-L602557)</b>			Prepared: 03/02/2022 Analyzed: 03/07/2022							
Cadmium	0.513	0.0259	mg/Kg	0.5		103	80-120			
Copper	2.56	0.0806	"	2.5		102	80-120			
Lead	2.46	0.031	"	2.5		98	80-120			
Nickel	2.66	0.0633	"	2.5		106	80-120			
Selenium	5.04	0.103	"	5		101	80-120			

Origins Laboratory, Inc.



Jen Pellegrini For Noelle Doyle Mathis, President

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

## Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch L602557 - 3050B

#### LCS (LCS-L602557)

Prepared: 03/02/2022 Analyzed: 03/07/2022

Silver	0.515	0.0067	mg/Kg	0.5		103	80-120			
Zinc	24.5	0.534	"	25		98	80-120			
Barium	5.14	0.042	"	5		103	80-120			
Arsenic	2.46	0.0855	"	2.5		98	80-120			

#### LRB (LRB-L602557)

Prepared: 03/02/2022 Analyzed: 03/07/2022

Barium	0.0611	0.25	mg/Kg				-			J
Zinc	ND	2.5	"				-			
Silver	ND	0.25	"				-			
Selenium	ND	0.25	"				-			
Nickel	ND	0.25	"				-			
Lead	ND	0.25	"				-			
Cadmium	ND	0.25	"				-			
Arsenic	ND	0.25	"				-			
Copper	ND	0.25	"				-			

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

## Total Metals by 7196A - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L603495 -</b>										
<b>DUP (L 99333-DUP)</b>		<b>Source: 99333</b>			Prepared: Analyzed: 03/08/2022					
Chromium, Hexavalent	ND	0.244	mg/Kg		99333	-		0	20	
<b>MS (L 99333-MS)</b>		<b>Source: 99333</b>			Prepared: Analyzed: 03/08/2022					
Chromium, Hexavalent	7.26	0.25	mg/Kg	8.22	99333	88	75-125			
<b>LCS (LCS)</b>					Prepared: Analyzed: 03/08/2022					
Chromium, Hexavalent	7.31	0.244	mg/Kg	8		91	75-125			
<b>LRB (LRB)</b>					Prepared: Analyzed: 03/08/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg							

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Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Jake Whritenour  
Project Number: [none]  
Project: Noble - Loloff 2,3 B35-19

### Notes and Definitions

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 on a wet weight basis.

Origins Laboratory, Inc.



Jen Pellegrini For Noelle Doyle Mathis, President

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