

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: HSR-Laurice 6-1		Date: 3/03/2023, 3/06/2023, 3/07/2023						Remediation Project #: 26425
Associated Wells:		Age of Site:						Number of Photos Attached: 18
Starting point: (GPS coordinates and descriptions) 40.255829, -104.613604								
End point: (GPS coordinates and descriptions) 40.254798, -104.620393								
USCS Soil Type: Poorly Graded Sand - SP					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/Water/Gas							
Depth	4'							
Age								
Length	2016'							
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#	Yes, see below							
Photo Number(s)	1 - 18							
Other observations regarding on location flowlines: Flowline sampled along Flowline path (FL01-C@3' through FL01-S@3') Starting at FL01-A@3' (Wellhead) Separator was sampled during Facility decommissioning SEP01-FL@4'. FLOWline was abandoned in place from FL01-N@3' to FL01-M@3' and FL01-O@3' to FL01-P@3'								
Summary								
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 18					Total number of samples collected: 18			
Highest PID Reading: 1.9					Total number of samples submitted to lab for analysis: 6			
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

							
Equipment ID: FL01-A@3'		Equipment Type: Flowline		Equipment ID: FL01-C@3'		Equipment Type: Flowline	
Material: Steel		Volume:		Material: Steel		Volume:	
		Contents: Oil/Gas/Water				Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions: Flowline intrenched with other lines			

Photographic Log

											
Equipment ID: FL01-D@3'			Equipment Type: Flowline			Equipment ID: FL01-E@3'			Equipment Type: Flowline		
Material: Steel		Volume:		Contents: Oil/Gas/Water		Material: Steel		Volume:		Contents: Oil/Gas/Water	
Notes/Conditions:						Notes/Conditions:					

Photographic Log

					
Equipment ID: FL01-F@3'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions:					
					
Equipment ID: FL01-G@4'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions:					

Photographic Log

							
Equipment ID: FL01-H@3'		Equipment Type: Flowline		Equipment ID: FL01-I@3'		Equipment Type: Flowline	
Material: Steel		Volume:		Material: Steel		Volume:	
		Contents: Oil/Gas/Water				Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			

Photographic Log

							
Equipment ID: FL01-J@3'		Equipment Type: Flowline		Equipment ID: FL01-K@3'		Equipment Type: Flowline	
Material: Steel		Volume:		Material: Steel		Volume:	
		Contents: Oil/Gas/Water				Contents: Oil/Gas/Water	
Notes/Conditions:				Notes/Conditions:			

Photographic Log

									
						Equipment ID: FL01-L@3'		Equipment Type: Flowline	
						Material: Steel	Volume:	Contents: Oil/Gas/Water	
						Notes/Conditions:			
									
Equipment ID: FL01-M@4'		Equipment Type: Flowline							
Material: Steel	Volume:	Contents: Oil/Gas/Water							
Notes/Conditions:			Notes/Conditions: Abandonment starts here						

Photographic Log

					
Equipment ID: FL01-N@4'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Abandonment ends here					
Equipment ID: FL01-O@3'			Equipment Type: Flowline		
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Abandonment starts here.					

Photographic Log

					
Equipment ID: FL01-P@3'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Abandonment ends here. Flowline intrenched with other lines					
					
Equipment ID: FL01-Q@3'		Equipment Type: Flowline			
Material: Steel	Volume:	Contents: Oil/Gas/Water			
Notes/Conditions: Flowline intrenched with other lines					

Photographic Log



Equipment ID: FL01-R@3'

Equipment Type: Flowline

Material: Steel

Volume:

Contents: Oil/Gas/Water

Notes/Conditions: Flowline intrenched with other lines



Equipment ID: FL01-S@3'

Equipment Type: Flowline

Material: Steel

Volume:

Contents: Oil/Gas/Water

Notes/Conditions: Flowline intrenched with other lines

TABLE 1
SOIL SAMPLE LOCATIONS
NOBLE ENERGY, INC. - HSR-LAURICE 6-1

Soil Sample ID	Date	PID (ppm)	Visual	Olfactory	Sample Type (Grab/Lab)	Latitude ¹	Longitude	PDOP
FL01-A@3'	03/03/23	0.0	No Staining	No Odor	Lab	40.25583901	-104.61362901	1.1
FL01-C@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25529952	-104.61947130	1.1
FL01-D@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25589593	-104.61525159	0.9
FL01-E@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25590045	-104.61494124	0.9
FL01-F@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25590169	-104.61446627	1.0
FL01-G@4'	03/03/23	0.0	No Staining	No Odor	Grab	40.25590082	-104.61398673	1.1
FL01-H@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25578166	-104.61810110	1.0
FL01-I@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25579393	-104.61777333	1.1
FL01-J@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25581956	-104.61722898	1.1
FL01-K@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25583828	-104.61687635	1.1
FL01-L@3'	03/03/23	0.0	No Staining	No Odor	Grab	40.25586240	-104.61643424	1.1
FL01-M@4'	03/06/23	0.0	No Staining	No Odor	Lab	40.25588685	-104.61587410	0.9
FL01-N@4'	03/06/23	0.0	No Staining	No Odor	Lab	40.25587747	-104.61605932	1.0
FL01-O@3'	03/06/23	0.0	No Staining	No Odor	Lab	40.25583945	-104.61831650	1.1
FL01-P@4'	03/06/23	1.9	No Staining	No Odor	Lab	40.25585533	-104.61851392	1.0
FL01-Q@3'	03/06/23	0.0	No Staining	No Odor	Lab	40.25580596	-104.61872406	1.0
FL01-R@3'	03/06/23	0.0	No Staining	No Odor	Grab	40.25563493	-104.61899339	0.9
FL01-S@3'	03/07/23	0.0	No Staining	No Odor	Grab	40.25505388	-104.61983061	0.9

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. - HSR-LAURICE 6-1

Soil Sample ID	Date	¹ 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 ²		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 ^{2,3}		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
FL01-A@3'	03/03/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201
FL01-M@4'	03/06/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201
FL01-N@4'	03/06/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201
FL01-O@3'	03/06/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201
FL01-P@4'	03/06/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201
FL01-Q@3'	03/06/23	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00201	<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	<0.00201	<0.00201

Soil Sample ID	Date	pH	SAR	EC (mmhos/cm)	Boron (mg/L)
Residential SSL ²		6 - 8.3	<6	<4mmhos/cm	2
FL01-A@3'	03/03/23	8.08	3.78	0.825	0.244
FL01-M@4'	03/06/23	7.95	5.89	2.10	0.175
FL01-N@4'	03/06/23	7.97	6.73	2.57	0.163
FL01-O@3'	03/06/23	8.17	10.4	2.53	0.387
FL01-P@4'	03/06/23	7.85	1.77	2.75	0.119
FL01-Q@3'	03/06/23	8.04	7.38	2.61	0.304

Notes:

1. Compounds referenced from 2 CCR 404-1, Table 915-1, effective January 15, 2021.

2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.

3. 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 = Millmhos per centimeter

mg/L = Milligrams per liter

< = 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) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

Benzo(a) = Benzopyrene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

1-M = 1-methylnaphthalene

2-M = 2-methylnaphthalene





March 14, 2023

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

Project Name - Noble - HSR - Laurice 6-1

Project Number - UWRWE-A2539-ABN

Attached are your analytical results for Noble - HSR - Laurice 6-1 received by Origins Laboratory, Inc. March 03, 2023. This project is associated with Origins project number Y303101-01.

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: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-A@3'	Y303101-01	Soil	March 3, 2023 11:20	03/03/2023 14:05

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.

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

[illegible]

Origins Laboratory, Inc.

Byron

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: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 430301

Client: Tasman

Client Project ID: Laurice 6-1

Checklist Completed by: ZHS

Shipped Via: HD

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

Date/time completed: 3/13/23

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____

Cooler Number/Temperature: 1 / 5.5 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: T004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	☒	☐	☐	
Is there ice present (document if blue ice is used)	☒	☐	☐	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	☐	☒	☐	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	☒	☐	☐	
Were all samples received intact ⁽¹⁾ ?	☒	☐	☐	
Was adequate sample volume provided ⁽¹⁾ ?	☒	☐	☐	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	☐	☒	☐	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	☒	☐	☐	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	☒	☐	☐	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	☒	☐	☐	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	☒	☐	☐	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	☐	☐	☒	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	☐	☐	☒	
Additional Comments (if any):				

⁽¹⁾ 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) [Signature]

Date/Time Reviewed 3/16/23

Origins Laboratory, Inc.

[Signature]

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-A@3'
3/3/2023 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303101-01 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.244	0.0993	mg/L	1	B3C0602	KAP	03/06/2023	03/07/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	89.1 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0402	JSM	03/04/2023	03/05/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Benzene	ND	0.00200	"	"	"	JSM	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	JSM	"	"	U
Toluene	ND	0.00200	"	"	"	JSM	"	"	U
Xylenes, total	ND	0.00200	"	"	"	JSM	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	JSM	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"	
Surrogate: Toluene-d8	90.4 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.4 %	70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-A@3'
3/3/2023 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303101-01 (Soil)
Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	1.94	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	ND	0.823	"	"	"	KAP	"	"
Sodium	4.23	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	8.08		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	3.78		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.825	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668611		03/09/2023	03/10/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-A@3'

3/3/2023 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303101-01 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668611		03/09/2023	03/10/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	48.2 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	44.5 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	46.6 %	29-110		"	"	"

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0402 - EPA 5030 (soil)										
Blank (B3C0402-BLK1)					Prepared: 03/04/2023 Analyzed: 03/05/2023					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							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		93.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.2	70-130			

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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0402 - EPA 5030 (soil)										
LCS (B3C0402-BS1)					Prepared: 03/04/2023 Analyzed: 03/05/2023					
1,2,4-Trimethylbenzene	0.106	0.00200	mg/kg	0.100		106	70-130			
1,3,5-Trimethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Benzene	0.0944	0.00200	"	0.100		94.4	70-130			
Ethylbenzene	0.105	0.00200	"	0.100		105	70-130			
Naphthalene	0.0965	0.00380	"	0.100		96.5	70-130			
Toluene	0.0935	0.00200	"	0.100		93.5	70-130			
o-Xylene	0.106	0.00200	"	0.100		106	70-130			
m,p-Xylene	0.207	0.00400	"	0.200		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.0	70-130			

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Jake Whritenour
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Project: Noble - HSR - Laurice 6-1

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
Batch B3C0402 - EPA 5030 (soil)										
Matrix Spike (B3C0402-MS1)		Source: Y302542-01			Prepared: 03/04/2023 Analyzed: 03/06/2023					
1,2,4-Trimethylbenzene	0.0909	0.00200	mg/kg	0.100	ND	90.9	70-130			
1,3,5-Trimethylbenzene	0.0928	0.00200	"	0.100	ND	92.8	70-130			
Benzene	0.0914	0.00200	"	0.100	ND	91.4	70-130			
Ethylbenzene	0.0926	0.00200	"	0.100	ND	92.6	70-130			
Naphthalene	0.0740	0.00380	"	0.100	ND	74.0	70-130			
Toluene	0.0928	0.00200	"	0.100	ND	92.8	70-130			
o-Xylene	0.0950	0.00200	"	0.100	ND	95.0	70-130			
m,p-Xylene	0.183	0.00400	"	0.200	ND	91.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.7	70-130			

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Project: Noble - HSR - Laurice 6-1

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
Batch B3C0402 - EPA 5030 (soil)										
Matrix Spike Dup (B3C0402-MSD1)		Source: Y302542-01			Prepared: 03/04/2023 Analyzed: 03/06/2023					
1,2,4-Trimethylbenzene	0.0928	0.00200	mg/kg	0.100	ND	92.8	70-130	2.09	20	
1,3,5-Trimethylbenzene	0.0927	0.00200	"	0.100	ND	92.7	70-130	0.0647	20	
Benzene	0.0919	0.00200	"	0.100	ND	91.9	70-130	0.502	20	
Ethylbenzene	0.0951	0.00200	"	0.100	ND	95.1	70-130	2.73	20	
Naphthalene	0.0778	0.00380	"	0.100	ND	77.8	70-130	4.93	20	
Toluene	0.0919	0.00200	"	0.100	ND	91.9	70-130	0.931	20	
o-Xylene	0.0975	0.00200	"	0.100	ND	97.5	70-130	2.62	20	
m,p-Xylene	0.188	0.00400	"	0.200	ND	93.8	70-130	2.28	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Jake Whritenour
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Project: Noble - HSR - Laurice 6-1

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
Batch B3C0719 - EPA 3580										
Blank (B3C0719-BLK1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	25		"	24.9		101	50-150			

Origins Laboratory, Inc.



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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0719 - EPA 3580										
LCS (B3C0719-BS1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	846	50.0	mg/kg	1000		84.6	70-130			
Residual Range Organics (C28-C40)	820	200	"	1000		82.0	70-130			
Surrogate: o-Terphenyl	45		"	49.8		91.3	50-150			

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Project: Noble - HSR - Laurice 6-1

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 B3C0719 - EPA 3580

Matrix Spike (B3C0719-MS1)		Source: Y303101-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	804	50.0	mg/kg	1000	ND	80.4	70-130			
Residual Range Organics (C28-C40)	785	200	"	1000	ND	78.5	70-130			
Surrogate: o-Terphenyl	42		"	49.8		84.7	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 B3C0719 - EPA 3580

Matrix Spike Dup (B3C0719-MSD1)		Source: Y303101-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	835	50.0	mg/kg	1000	ND	83.5	70-130	3.77	35	
Residual Range Organics (C28-C40)	815	200	"	1000	ND	81.5	70-130	3.79	35	
Surrogate: o-Terphenyl	43		"	49.8		85.7	50-150			

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Project: Noble - HSR - Laurice 6-1

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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Classical Chemistry Parameters - 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 B3C0602 - DTPA Sorbitol Preparation

Blank (B3C0602-BLK1)

Prepared: 03/06/2023 Analyzed: 03/07/2023

Boron ND 0.100 mg/L

Duplicate (B3C0602-DUP1)

Source: Y303085-01

Prepared: 03/06/2023 Analyzed: 03/07/2023

Boron 0.101 0.0996 mg/L 0.107 5.76 50

Batch B3C0707 - Saturated Paste Metals

Blank (B3C0707-BLK1)

Prepared: 03/07/2023 Analyzed: 03/08/2023

SAR 0.00 SAR

Calcium PPM ND 10.0 mg/L

Magnesium PPM ND 10.0 "

Sodium PPM ND 10.0 "

Duplicate (B3C0707-DUP1)

Source: Y303101-01

Prepared: 03/07/2023 Analyzed: 03/08/2023

SAR 0.00 SAR 3.78 200 200

Calcium PPM 37.5 10.0 mg/L 38.8 3.38 50

Magnesium PPM 6.56 10.0 " 6.82 3.87 50

Sodium PPM 95.2 10.0 " 97.2 2.03 50

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Project: Noble - HSR - Laurice 6-1

Saturated Paste - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3C0713 - Saturated Paste pH/EC										
Blank (B3C0713-BLK1)					Prepared: 03/07/2023 Analyzed: 03/08/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3C0713-DUP1)					Source: Y303101-01 Prepared: 03/07/2023 Analyzed: 03/08/2023					
Specific Conductance (EC)	0.834	0.00500	mmhos/cm		0.825			1.07	25	
pH	8.13		pH Units		8.08			0.617	25	

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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

PAH by 8270D SIM - 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 L668611 - 3550B

MSD (L 96052-MSD-L668611)		Source: 96052			Prepared: 03/09/2023 Analyzed: 03/10/2023					
2-Methylnaphthalene	0.0904	0.00201	mg/Kg	0.162	<0.00194	55.8	30-130	3.9	30	
Fluorene	0.106	0.00067	"	0.162	<0.000286	65.4	30-130	2.8	30	
Pyrene	0.0994	0.00067	"	0.162	<0.000643	61.3	30-130	3.3	30	
Indeno(1,2,3-cd)pyrene	0.0777	0.00067	"	0.162	<0.000627	47.9	30-130	0.3	30	
Fluoranthene	0.103	0.00067	"	0.162	<0.000394	63.5	30-130	3.6	30	
Dibenz(a,h)anthracene	0.0946	0.00067	"	0.162	<0.000614	58.3	30-130	0.3	30	
Chrysene	0.106	0.00067	"	0.162	0.000779	64.9	30-130	3.8	30	
Naphthalene	0.0916	0.00201	"	0.162	<0.00145	56.5	30-130	3.7	30	
1-Methylnaphthalene	0.0935	0.00201	"	0.162	<0.00109	57.7	30-130	4	30	
Benzo(k)fluoranthene	0.076	0.00067	"	0.162	<0.000437	46.9	30-130	0.1	30	
Acenaphthene	0.0996	0.00067	"	0.162	<0.000304	61.4	30-130	4.2	30	
Anthracene	0.105	0.00067	"	0.162	<0.000334	64.8	30-130	1.9	30	
Benzo(a)anthracene	0.106	0.00067	"	0.162	<0.000493	65.4	30-130	4.8	30	
Benzo(a)pyrene	0.111	0.00067	"	0.162	0.000515	68.2	30-130	5.5	30	
Benzo(b)fluoranthene	0.079	0.00067	"	0.162	<0.000585	48.7	30-130	8.5	30	
Surrogate: 2-Fluorobiphenyl	50.4		"	0.325	160	50.4	33-115			
Surrogate: Nitrobenzene-d5	49.8		"	0.325	158	49.8	29-110			
Surrogate: 4-Terphenyl-d14	55		"	0.325	181	55	33-122			

MS (L 96052-MS-L668611)		Source: 96052			Prepared: 03/09/2023 Analyzed: 03/10/2023					
Benzo(k)fluoranthene	0.0759	0.00067	mg/Kg	0.163	<0.000437	46.5	30-130			
Acenaphthene	0.0955	0.00067	"	0.163	<0.000304	58.5	30-130			
Naphthalene	0.0882	0.00201	"	0.163	<0.00145	54.1	30-130			
Indeno(1,2,3-cd)pyrene	0.0774	0.00067	"	0.163	<0.000627	47.4	30-130			
Fluorene	0.103	0.00067	"	0.163	<0.000286	63.1	30-130			
Fluoranthene	0.0993	0.00067	"	0.163	<0.000394	60.9	30-130			
Dibenz(a,h)anthracene	0.0943	0.00067	"	0.163	<0.000614	57.8	30-130			

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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

PAH by 8270D SIM - 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 L668611 - 3550B

MS (L 96052-MS-L668611)		Source: 96052			Prepared: 03/09/2023 Analyzed: 03/10/2023					
Chrysene	0.102	0.00067	mg/Kg	0.163	0.000779	62	30-130			
1-Methylnaphthalene	0.0898	0.00201	"	0.163	<0.00109	55	30-130			
Benzo(a)pyrene	0.105	0.00067	"	0.163	0.000515	64.1	30-130			
Anthracene	0.103	0.00067	"	0.163	<0.000334	63.1	30-130			
Pyrene	0.0961	0.00067	"	0.163	<0.000643	58.9	30-130			
2-Methylnaphthalene	0.0869	0.00201	"	0.163	<0.00194	53.3	30-130			
Benzo(b)fluoranthene	0.0725	0.00067	"	0.163	<0.000585	44.4	30-130			
Benzo(a)anthracene	0.101	0.00067	"	0.163	<0.000493	61.9	30-130			
Surrogate: Nitrobenzene-d5	41.7		"	0.326	158	41.7	29-110			
Surrogate: 4-Terphenyl-d14	53.3		"	0.326	181	53.3	33-122			
Surrogate: 2-Fluorobiphenyl	42.3		"	0.326	160	42.3	33-115			

LCS (LCS-L668611)		Prepared: 03/09/2023 Analyzed: 03/10/2023								
Chrysene	0.113	0.00067	mg/Kg	0.167		67.6	30-130			
Dibenz(a,h)anthracene	0.135	0.00067	"	0.167		80.8	30-130			
Fluoranthene	0.112	0.00067	"	0.167		67	30-130			
Fluorene	0.118	0.00067	"	0.167		70.6	30-130			
Indeno(1,2,3-cd)pyrene	0.117	0.00067	"	0.167		70	30-130			
Naphthalene	0.102	0.00201	"	0.167		61	30-130			
Benzo(k)fluoranthene	0.0936	0.00067	"	0.167		56	30-130			
Pyrene	0.11	0.00067	"	0.167		65.8	30-130			
Benzo(a)pyrene	0.12	0.00067	"	0.167		71.8	30-130			
Benzo(a)anthracene	0.115	0.00067	"	0.167		68.8	30-130			
Anthracene	0.118	0.00067	"	0.167		70.6	30-130			
Acenaphthene	0.109	0.00067	"	0.167		65.2	30-130			
2-Methylnaphthalene	0.0989	0.00201	"	0.167		59.2	30-130			
1-Methylnaphthalene	0.102	0.00201	"	0.167		61	30-130			

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Jake Whritenour
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Project: Noble - HSR - Laurice 6-1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L668611 - 3550B										
LCS (LCS-L668611)					Prepared: 03/09/2023 Analyzed: 03/10/2023					
Benzo(b)fluoranthene	0.0915	0.00067	mg/Kg	0.167		54.7	30-130			
Surrogate: Nitrobenzene-d5	56.4		"	0.333		56.4	29-110			
Surrogate: 4-Terphenyl-d14	62.7		"	0.333		62.7	33-122			
Surrogate: 2-Fluorobiphenyl	57.3		"	0.333		57.3	33-115			
LRB (LRB-L668611)					Prepared: 03/09/2023 Analyzed: 03/10/2023					
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	0.00201	"				-			
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	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	52.8		"	0.333		52.8	29-110			
Surrogate: 4-Terphenyl-d14	62.1		"	0.333		62.1	33-122			
Surrogate: 2-Fluorobiphenyl	52.2		"	0.333		52.2	33-115			

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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

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March 16, 2023

Tasman Geosciences

Jake Whritenour

6855 West 119th Avenue

Broomfield CO 80020

Project Name - Noble - HSR - Laurice 6-1

Project Number - UWRWE-A2539-ABN

Attached are your analytical results for Noble - HSR - Laurice 6-1 received by Origins Laboratory, Inc. March 06, 2023. This project is associated with Origins project number Y303141-01.

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: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01-M@4'	Y303141-01	Soil	March 6, 2023 9:57	03/06/2023 15:00
FL01-N@4'	Y303141-02	Soil	March 6, 2023 10:29	03/06/2023 15:00
FL01-O@3'	Y303141-03	Soil	March 6, 2023 10:53	03/06/2023 15:00
FL01-P@4'	Y303141-04	Soil	March 6, 2023 11:49	03/06/2023 15:00
FL01-Q@3'	Y303141-05	Soil	March 6, 2023 12:11	03/06/2023 15:00

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.

Page 3 of 33

Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4303141

Client: Tasman

Client Project ID: Hartman 4-1

Checklist Completed by: EH S/OE

Shipped Via: HD

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

Date/time completed: 3/6/23

Airbill #: NA

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

Cooler Number/Temperature: 1 / 41 °C / °C / °C / °C

Thermometer ID: TO 04

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	☒	☐	☐	
Is there ice present (document if blue ice is used)	☒	☐	☐	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	☐	☒	☐	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	☐	☒	☐	
Were all samples received intact ⁽¹⁾ ?	☒	☐	☐	
Was adequate sample volume provided ⁽¹⁾ ?	☒	☐	☐	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	☐	☒	☐	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	☒	☐	☐	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	☒	☐	☐	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	☒	☐	☐	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	☒	☐	☐	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	☐	☐	☒	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	☐	☐	☒	
Additional Comments (if any):				

⁽¹⁾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)

Date/Time Reviewed

3/7/23

Origins Laboratory, Inc.

J. Bynon

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-M@4'

3/6/2023 9:57:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-01 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.175	0.0998	mg/L	1	B3C0710	KAP	03/07/2023	03/08/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	97.7 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0728	ZZZ	03/07/2023	03/09/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	119 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-M@4'

3/6/2023 9:57:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-01 (Soil)
Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	4.59	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	3.03	0.823	"	"	"	KAP	"	"
Sodium	11.5	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	7.95		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	5.89		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.10	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668578		03/09/2023	03/09/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Jake Whritenour
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Project: Noble - HSR - Laurice 6-1

FL01-M@4'

3/6/2023 9:57:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-01 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668578		03/09/2023	03/09/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	51.7 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	64.6 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	50.8 %	29-110		"	"	"

Origins Laboratory, Inc.



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Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-N@4'

3/6/2023 10:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-02 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.163	0.0998	mg/L	1	B3C0710	KAP	03/07/2023	03/08/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	94.9 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0728	ZZZ	03/07/2023	03/09/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	122 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.9 %	70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Project: Noble - HSR - Laurice 6-1

FL01-N@4'

3/6/2023 10:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-02 (Soil)

Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	5.57	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	3.40	0.823	"	"	"	KAP	"	"
Sodium	14.3	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	7.97		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	6.73		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.57	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668578		03/09/2023	03/09/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-N@4'
3/6/2023 10:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-02 (Soil)
Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668578		03/09/2023	03/09/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	51.8 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	66.9 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	51.5 %	29-110		"	"	"

Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-0@3'

3/6/2023 10:53:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-03 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.387	0.0995	mg/L	1	B3C0710	KAP	03/07/2023	03/08/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	93.9 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0728	ZZZ	03/07/2023	03/09/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	125 %	70-130			"	"	"
Surrogate: Toluene-d8	96.6 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.4 %	70-130			"	"	"

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-0@3'

3/6/2023 10:53:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-03 (Soil)

Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	3.39	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	2.01	0.823	"	"	"	KAP	"	"
Sodium	17.1	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	8.17		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	10.4		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.53	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668578		03/09/2023	03/09/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-0@3'

3/6/2023 10:53:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-03 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668578		03/09/2023	03/09/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	52.7 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	62.7 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	49.4 %	29-110		"	"	"

Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-P@4'

3/6/2023 11:49:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-04 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.119	0.0981	mg/L	1	B3C0710	KAP	03/07/2023	03/08/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	107 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0728	ZZZ	03/07/2023	03/09/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	122 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.4 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-P@4'

3/6/2023 11:49:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-04 (Soil)

Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	19.2	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	6.81	0.823	"	"	"	KAP	"	"
Sodium	6.40	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	7.85		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	1.77		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.75	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668578		03/09/2023	03/09/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-P@4'

3/6/2023 11:49:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-04 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668578		03/09/2023	03/09/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	56.5 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	70.9 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	52 %	29-110		"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-Q@3'
3/6/2023 12:11:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-05 (Soil)
Origins Laboratory, Inc.

Boron (DTPA Sorbitol)

Boron	0.304	0.0993	mg/L	1	B3C0710	KAP	03/07/2023	03/08/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C0719	ZZZ	03/07/2023	03/09/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	95.6 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C0728	ZZZ	03/07/2023	03/09/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	125 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-Q@3'

3/6/2023 12:11:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-05 (Soil)

Origins Laboratory, Inc.

Metals by Saturated Paste by EPA 6010

Calcium	6.09	0.499	meq/L	10	[CALC]	KAP	03/07/2023	03/08/2023
Magnesium	3.09	0.823	"	"	"	KAP	"	"
Sodium	15.8	0.435	"	"	"	KAP	"	"

pH in Soil by 9045D

pH	8.04		pH Units	1	B3C0713	HJD	03/07/2023	03/08/2023
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SAR by 20B Saturated Paste

SAR	7.38		SAR	1	B3C0707	KAP	03/07/2023	03/08/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.61	0.00500	mmhos/cm	1	B3C0713	HJD	03/07/2023	03/08/2023
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Waypoint Analytical, LLC.

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00201	mg/Kg	1	L668578		03/09/2023	03/09/2023
2-Methylnaphthalene	ND	0.00201	"	"	"		"	"
Acenaphthene	ND	0.00067	"	"	"		"	"
Anthracene	ND	0.00067	"	"	"		"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

FL01-Q@3'

3/6/2023 12:11:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Y303141-05 (Soil)

Waypoint Analytical, LLC.

PAH by 8270D SIM

Benzo(a)anthracene	ND	0.00067	mg/Kg	1	L668578		03/09/2023	03/09/2023	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	ND	0.00067	"	"	"		"	"	
Chrysene	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	0.00201	"	"	"		"	"	
Pyrene	ND	0.00067	"	"	"		"	"	

Surrogate: 2-Fluorobiphenyl	44.1 %	33-115		"	"	"
Surrogate: 4-Terphenyl-d14	55.9 %	33-122		"	"	"
Surrogate: Nitrobenzene-d5	44.4 %	29-110		"	"	"

Origins Laboratory, Inc.



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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0719 - EPA 3580										
Blank (B3C0719-BLK1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	25		"	24.9		101	50-150			

Origins Laboratory, Inc.



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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0719 - EPA 3580										
LCS (B3C0719-BS1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	846	50.0	mg/kg	1000		84.6	70-130			
Residual Range Organics (C28-C40)	820	200	"	1000		82.0	70-130			
Surrogate: o-Terphenyl	45		"	49.8		91.3	50-150			

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Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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 B3C0719 - EPA 3580

Matrix Spike (B3C0719-MS1)		Source: Y303101-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	804	50.0	mg/kg	1000	ND	80.4	70-130			
Residual Range Organics (C28-C40)	785	200	"	1000	ND	78.5	70-130			
Surrogate: o-Terphenyl	42		"	49.8		84.7	50-150			

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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 B3C0719 - EPA 3580

Matrix Spike Dup (B3C0719-MSD1)		Source: Y303101-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
Diesel (C10-C28)	835	50.0	mg/kg	1000	ND	83.5	70-130	3.77	35	
Residual Range Organics (C28-C40)	815	200	"	1000	ND	81.5	70-130	3.79	35	
Surrogate: o-Terphenyl	43		"	49.8		85.7	50-150			

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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0728 - EPA 5030 (soil)										
Blank (B3C0728-BLK1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.2	70-130			

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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0728 - EPA 5030 (soil)										
LCS (B3C0728-BS1)					Prepared: 03/07/2023 Analyzed: 03/09/2023					
1,2,4-Trimethylbenzene	0.102	0.00200	mg/kg	0.100		102	70-130			
1,3,5-Trimethylbenzene	0.102	0.00200	"	0.100		102	70-130			
Benzene	0.0916	0.00200	"	0.100		91.6	70-130			
Ethylbenzene	0.0966	0.00200	"	0.100		96.6	70-130			
Naphthalene	0.0901	0.00380	"	0.100		90.1	70-130			
Toluene	0.0924	0.00200	"	0.100		92.4	70-130			
o-Xylene	0.0996	0.00200	"	0.100		99.6	70-130			
m,p-Xylene	0.195	0.00400	"	0.200		97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.9	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0728 - EPA 5030 (soil)										
Matrix Spike (B3C0728-MS1)		Source: Y303129-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
1,2,4-Trimethylbenzene	0.0973	0.00200	mg/kg	0.100	ND	97.3	70-130			
1,3,5-Trimethylbenzene	0.0974	0.00200	"	0.100	ND	97.4	70-130			
Benzene	0.0889	0.00200	"	0.100	ND	88.9	70-130			
Ethylbenzene	0.0935	0.00200	"	0.100	ND	93.5	70-130			
Naphthalene	0.0870	0.00380	"	0.100	ND	87.0	70-130			
Toluene	0.0886	0.00200	"	0.100	ND	88.6	70-130			
o-Xylene	0.0960	0.00200	"	0.100	ND	96.0	70-130			
m,p-Xylene	0.188	0.00400	"	0.200	ND	94.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.6	70-130			

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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
Batch B3C0728 - EPA 5030 (soil)										
Matrix Spike Dup (B3C0728-MSD1)		Source: Y303129-01			Prepared: 03/07/2023 Analyzed: 03/09/2023					
1,2,4-Trimethylbenzene	0.105	0.00200	mg/kg	0.100	ND	105	70-130	7.16	20	
1,3,5-Trimethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130	6.23	20	
Benzene	0.0966	0.00200	"	0.100	ND	96.6	70-130	8.33	20	
Ethylbenzene	0.101	0.00200	"	0.100	ND	101	70-130	7.36	20	
Naphthalene	0.0970	0.00380	"	0.100	ND	97.0	70-130	10.8	20	
Toluene	0.0943	0.00200	"	0.100	ND	94.3	70-130	6.24	20	
o-Xylene	0.103	0.00200	"	0.100	ND	103	70-130	6.70	20	
m,p-Xylene	0.202	0.00400	"	0.200	ND	101	70-130	6.86	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.6	70-130			

Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

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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Classical Chemistry Parameters - 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 B3C0707 - Saturated Paste Metals

Blank (B3C0707-BLK1)

Prepared: 03/07/2023 Analyzed: 03/08/2023

Calcium PPM	ND	10.0	mg/L
SAR	0.00		SAR
Magnesium PPM	ND	10.0	mg/L
Sodium PPM	ND	10.0	"

Duplicate (B3C0707-DUP1)

Source: Y303101-01

Prepared: 03/07/2023 Analyzed: 03/08/2023

Calcium PPM	37.5	10.0	mg/L	38.8	3.38	50
SAR	0.00		SAR	3.78	200	200
Magnesium PPM	6.56	10.0	mg/L	6.82	3.87	50
Sodium PPM	95.2	10.0	"	97.2	2.03	50

Batch B3C0710 - DTPA Sorbitol Preparation

Blank (B3C0710-BLK1)

Prepared: 03/07/2023 Analyzed: 03/08/2023

Boron	ND	0.100	mg/L
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Duplicate (B3C0710-DUP1)

Source: Y303129-01

Prepared: 03/07/2023 Analyzed: 03/08/2023

Boron	2.60	0.0995	mg/L	2.61	0.259	50
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Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

Saturated Paste - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3C0713 - Saturated Paste pH/EC										
Blank (B3C0713-BLK1)					Prepared: 03/07/2023 Analyzed: 03/08/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3C0713-DUP1)					Source: Y303101-01 Prepared: 03/07/2023 Analyzed: 03/08/2023					
pH	8.13		pH Units		8.08			0.617	25	
Specific Conductance (EC)	0.834	0.00500	mmhos/cm		0.825			1.07	25	

Origins Laboratory, Inc.



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6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

PAH by 8270D SIM - 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 L668578 - 3550B

MSD (L 96042-MSD-L668578)		Source: 96042			Prepared: 03/09/2023 Analyzed: 03/09/2023					
2-Methylnaphthalene	0.101	0.00201	mg/Kg	0.167	<0.00194	60.4	30-130	4.4	30	
Fluorene	0.119	0.00067	"	0.167	<0.000286	71.2	30-130	5.1	30	
Pyrene	0.118	0.00067	"	0.167	<0.000643	70.6	30-130	0.8	30	
Indeno(1,2,3-cd)pyrene	0.1	0.00067	"	0.167	<0.000627	59.8	30-130	13.7	30	
Fluoranthene	0.119	0.00067	"	0.167	<0.000394	71.2	30-130	1.6	30	
Dibenz(a,h)anthracene	0.114	0.00067	"	0.167	<0.000614	68.2	30-130	13.9	30	
Chrysene	0.115	0.00067	"	0.167	<0.000624	68.8	30-130	1.7	30	
Naphthalene	0.103	0.00201	"	0.167	<0.00145	61.6	30-130	3.7	30	
1-Methylnaphthalene	0.105	0.00201	"	0.167	<0.00109	62.8	30-130	4.8	30	
Benzo(k)fluoranthene	0.087	0.00067	"	0.167	<0.000437	52	30-130	9.2	30	
Acenaphthene	0.114	0.00067	"	0.167	<0.000304	68.2	30-130	6.3	30	
Anthracene	0.124	0.00067	"	0.167	<0.000334	74.2	30-130	4.1	30	
Benzo(a)anthracene	0.119	0.00067	"	0.167	<0.000493	71.2	30-130	4.2	30	
Benzo(a)pyrene	0.123	0.00067	"	0.167	<0.000468	73.6	30-130	1.6	30	
Benzo(b)fluoranthene	0.0899	0.00067	"	0.167	<0.000585	53.8	30-130	8.2	30	
Surrogate: 2-Fluorobiphenyl	59.1		"	0.333	189	59.1	33-115			
Surrogate: Nitrobenzene-d5	54.6		"	0.333	179	54.6	29-110			
Surrogate: 4-Terphenyl-d14	69.6		"	0.333	215	69.6	33-122			

MS (L 96042-MS-L668578)		Source: 96042			Prepared: 03/09/2023 Analyzed: 03/09/2023					
Benzo(k)fluoranthene	0.0793	0.00067	mg/Kg	0.166	<0.000437	47.7	30-130			
Acenaphthene	0.107	0.00067	"	0.166	<0.000304	64.4	30-130			
Naphthalene	0.0992	0.00201	"	0.166	<0.00145	59.7	30-130			
Indeno(1,2,3-cd)pyrene	0.0871	0.00067	"	0.166	<0.000627	52.4	30-130			
Fluorene	0.113	0.00067	"	0.166	<0.000286	68	30-130			
Fluoranthene	0.117	0.00067	"	0.166	<0.000394	70.4	30-130			
Dibenz(a,h)anthracene	0.0991	0.00067	"	0.166	<0.000614	59.6	30-130			

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Jake Whritenour
Project Number: UWRWE-A2539-ABN
Project: Noble - HSR - Laurice 6-1

PAH by 8270D SIM - 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 L668578 - 3550B

MS (L 96042-MS-L668578)		Source: 96042			Prepared: 03/09/2023 Analyzed: 03/09/2023					
Chrysene	0.113	0.00067	mg/Kg	0.166	<0.000624	68	30-130			
1-Methylnaphthalene	0.1	0.00201	"	0.166	<0.00109	60.2	30-130			
Benzo(a)pyrene	0.121	0.00067	"	0.166	<0.000468	72.8	30-130			
Anthracene	0.119	0.00067	"	0.166	<0.000334	71.6	30-130			
Pyrene	0.117	0.00067	"	0.166	<0.000643	70.4	30-130			
2-Methylnaphthalene	0.0966	0.00201	"	0.166	<0.00194	58.1	30-130			
Benzo(b)fluoranthene	0.0828	0.00067	"	0.166	<0.000585	49.8	30-130			
Benzo(a)anthracene	0.114	0.00067	"	0.166	<0.000493	68.6	30-130			
Surrogate: Nitrobenzene-d5	52.4		"	0.332	179	52.4	29-110			
Surrogate: 4-Terphenyl-d14	67.7		"	0.332	215	67.7	33-122			
Surrogate: 2-Fluorobiphenyl	53.9		"	0.332	189	53.9	33-115			

LCS (LCS-L668578)		Prepared: 03/09/2023 Analyzed: 03/09/2023								
Chrysene	0.125	0.00067	mg/Kg	0.167		74.8	30-130			
Dibenz(a,h)anthracene	0.12	0.00067	"	0.167		71.8	30-130			
Fluoranthene	0.128	0.00067	"	0.167		76.6	30-130			
Fluorene	0.128	0.00067	"	0.167		76.6	30-130			
Indeno(1,2,3-cd)pyrene	0.104	0.00067	"	0.167		62.2	30-130			
Naphthalene	0.106	0.00201	"	0.167		63.4	30-130			
Benzo(k)fluoranthene	0.0938	0.00067	"	0.167		56.1	30-130			
Pyrene	0.128	0.00067	"	0.167		76.6	30-130			
Benzo(a)pyrene	0.134	0.00067	"	0.167		80.2	30-130			
Benzo(a)anthracene	0.127	0.00067	"	0.167		76	30-130			
Anthracene	0.132	0.00067	"	0.167		79	30-130			
Acenaphthene	0.118	0.00067	"	0.167		70.6	30-130			
2-Methylnaphthalene	0.104	0.00201	"	0.167		62.2	30-130			
1-Methylnaphthalene	0.109	0.00201	"	0.167		65.2	30-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L668578 - 3550B										
LCS (LCS-L668578)					Prepared: 03/09/2023 Analyzed: 03/09/2023					
Benzo(b)fluoranthene	0.0892	0.00067	mg/Kg	0.167		53.4	30-130			
Surrogate: Nitrobenzene-d5	57.6		"	0.333		57.6	29-110			
Surrogate: 4-Terphenyl-d14	74.7		"	0.333		74.7	33-122			
Surrogate: 2-Fluorobiphenyl	61.2		"	0.333		61.2	33-115			
LRB (LRB-L668578)					Prepared: 03/09/2023 Analyzed: 03/09/2023					
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	0.00201	"				-			
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	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	55.2		"	0.333		55.2	29-110			
Surrogate: 4-Terphenyl-d14	67.2		"	0.333		67.2	33-122			
Surrogate: 2-Fluorobiphenyl	55.8		"	0.333		55.8	33-115			

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Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

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