



January 04, 2024

Eagle Environmental Consulting, LLC

Andrew Newberry

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Huntsman G #13-9

Project Number - [none]

Attached are your analytical results for Noble - Huntsman G #13-9 received by Origins Laboratory, Inc. November 17, 2023. This project is associated with Origins project number Y311467-01.

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

Eagle Environmental Consulting, LLC  
8000 W 44th Ave  
Wheat Ridge CO 80033

Andrew Newberry  
Project Number: [none]  
Project: Noble - Huntsman G #13-9

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y311467-01	Soil	November 17, 2023 12:36	11/17/2023 14:20

A pH rerun was requested per Kedra's email on 12/11/2023. No errors were found in the original data, all results are reported. JAB

Origins Laboratory, Inc.



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Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4311467

Client: Eagle  
 Client Project ID: Huntsman G #13-9

Checklist Completed by: EHS/Ad

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

Date/time completed: 11/19/12

Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
 Cooler Number/Temperature: 117 °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: 7004

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> ?				<u>SP</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input 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) [Signature]

11/20/12  
 Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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**WH-FS-01@6'**

**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.133		0.100	mg/L	1	B3K2012	11/20/2023	11/21/2023	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B3K2001	11/20/2023	11/21/2023	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	101 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3K1724	11/17/2023	11/19/2023	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

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**WH-FS-01@6'**

**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 1,2-Dichloroethane-d4	97.6 %		70-130			B3K17 24	11/17/2023	11/19/2023	
Surrogate: Toluene-d8	91.7 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	92.7 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	<b>0.772</b>		0.499	meq/L	10	[CALC]	11/18/2023	11/20/2023	
Magnesium	<b>0.871</b>		0.823	"	"	"	"	"	
Sodium	<b>2.30</b>		0.435	"	"	"	"	"	

**PAH by EPA 8270E**

1-Methylnaphthalene	ND		0.002	mg/kg	1	B3K2029	11/20/2023	11/23/2023	U
2-Methylnaphthalene	ND		0.002	"	"	"	"	"	U
Acenaphthene	ND		0.020	"	"	"	"	"	U
Anthracene	ND		0.020	"	"	"	"	"	U
Benzo (a) anthracene	ND		0.005	"	"	"	"	"	U
Benzo (a) pyrene	ND		0.020	"	"	"	"	"	U
Benzo (b) fluoranthene	ND		0.020	"	"	"	"	"	U
Benzo (k) fluoranthene	ND		0.020	"	"	"	"	"	U
Chrysene	ND		0.020	"	"	"	"	"	U
Dibenz (a,h) anthracene	ND		0.020	"	"	"	"	"	U

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**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01 (Soil)**

**PAH by EPA 8270E**

Fluoranthene	ND		0.020	mg/kg	1	B3K2029	11/20/2023	11/23/2023	U
Fluorene	ND		0.020	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND		0.020	"	"	"	"	"	U
Pyrene	ND		0.020	"	"	"	"	"	U

Surrogate: Fluorene-d10	103 %		60-130			"	"	"	
Surrogate: Anthracene-d10	87.5 %		60-130			"	"	"	
Surrogate: Pyrene-d10	96.5 %		60-130			"	"	"	
Surrogate: Benzo (a) pyrene-d12	99.5 %		60-130			"	"	"	

**pH in Soil by 9045D**

pH	8.41			pH Units	1	B3K1805	11/18/2023	11/20/2023	
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**SAR by 20B Saturated Paste**

SAR	2.54		0.0100	SAR	1	B3K1802	11/18/2023	11/20/2023	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.402		0.00500	mmhos/cm	1	B3K1805	11/18/2023	11/20/2023	
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**Table 915 metals by EPA 6020B**

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**WH-FS-01@6'**

**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01 (Soil)**

**Table 915 metals by EPA 6020B**

Arsenic	4.95	0.000979	0.000979	mg/kg	10	B3K2712	11/27/2023	11/29/2023	
Barium	79.9	0.0979	0.0979	"	"	"	"	"	
Cadmium	0.163	0.000979	0.000979	"	"	"	"	"	
Copper	4.81	0.0979	0.0979	"	"	"	"	"	
Lead	7.66	0.0979	0.0979	"	"	"	"	"	
Nickel	10.1	0.0979	0.0979	"	"	"	"	"	
Selenium	0.138	0.000979	0.000979	"	"	"	"	"	
Silver	0.0215	0.000979	0.000979	"	"	"	"	"	
Zinc	31.9	0.979	0.979	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L718583	11/17/2023	11/22/2023	
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**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01RE1 (Soil)**

**pH in Soil by 9045D**

pH	8.36			pH Units	1	B3L1212	11/18/2023	12/13/2023	
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**WH-FS-01@6'**

**11/17/2023 12:36:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311467-01RE2 (Soil)**

**pH in Soil by 9045D**

pH	8.36			pH Units	1	B3L1212	11/18/2023	12/13/2023	
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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
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**Batch B3K1724 - EPA 5030 (soil)**

**Blank (B3K1724-BLK1)**

Prepared: 11/17/2023 Analyzed: 11/18/2023

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	0.091		"	0.125	73.0		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	92.4		70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125	90.4		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
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Batch B3K1724 - EPA 5030 (soil)

**LCS (B3K1724-BS1)**

Prepared: 11/17/2023 Analyzed: 11/18/2023

1,2,4-Trimethylbenzene	0.100	0.00200	mg/kg	0.100		100	70-130			
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100		101	70-130			
Benzene	0.0988	0.00200	"	0.100		98.8	70-130			
Ethylbenzene	0.0972	0.00200	"	0.100		97.2	70-130			
Naphthalene	0.113	0.00380	"	0.100		113	70-130			
Toluene	0.0926	0.00200	"	0.100		92.6	70-130			
o-Xylene	0.101	0.00200	"	0.100		101	70-130			
m,p-Xylene	0.192	0.00400	"	0.200		95.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.093		"	0.125		74.1	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		91.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.3	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
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Batch B3K1724 - EPA 5030 (soil)

Matrix Spike (B3K1724-MS1)	Source: Y311436-01			Prepared: 11/17/2023 Analyzed: 11/18/2023						
1,2,4-Trimethylbenzene	0.0875	0.00200	mg/kg	0.100	ND	87.5	70-130			
1,3,5-Trimethylbenzene	0.0878	0.00200	"	0.100	ND	87.8	70-130			
Benzene	0.0852	0.00200	"	0.100	ND	85.2	70-130			
Ethylbenzene	0.0865	0.00200	"	0.100	ND	86.5	70-130			
Naphthalene	0.0961	0.00380	"	0.100	0.00144	94.7	70-130			
Toluene	0.0807	0.00200	"	0.100	ND	80.7	70-130			
o-Xylene	0.0791	0.00200	"	0.100	ND	79.1	70-130			
m,p-Xylene	0.160	0.00400	"	0.200	ND	79.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.092		"	0.125		73.3	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		92.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		91.9	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
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Batch B3K1724 - EPA 5030 (soil)

Matrix Spike Dup (B3K1724-MSD1)	Source: Y311436-01			Prepared: 11/17/2023 Analyzed: 11/18/2023						
1,2,4-Trimethylbenzene	0.0882	0.00200	mg/kg	0.100	ND	88.2	70-130	0.797	20	
1,3,5-Trimethylbenzene	0.0879	0.00200	"	0.100	ND	87.9	70-130	0.0455	20	
Benzene	0.0880	0.00200	"	0.100	ND	88.0	70-130	3.26	20	
Ethylbenzene	0.0876	0.00200	"	0.100	ND	87.6	70-130	1.29	20	
Naphthalene	0.101	0.00380	"	0.100	0.00144	99.5	70-130	4.89	20	
Toluene	0.0842	0.00200	"	0.100	ND	84.2	70-130	4.27	20	
o-Xylene	0.0798	0.00200	"	0.100	ND	79.8	70-130	0.906	20	
m,p-Xylene	0.161	0.00400	"	0.200	ND	80.5	70-130	0.861	20	
Surrogate: 1,2-Dichloroethane-d4	0.094		"	0.125		74.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		90.6	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 B3K2001 - EPA 3550B</b>										
<b>Blank (B3K2001-BLK1)</b>										
					Prepared: 11/20/2023 Analyzed: 11/21/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	25		"	24.9		102	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 B3K2001 - EPA 3550B**

**LCS (B3K2001-BS1)**

Prepared: 11/20/2023 Analyzed: 11/21/2023

Diesel (C10-C28)	1000	50.0	mg/kg	1000		100	70-130			
Residual Range Organics (C28-C40)	986	200	"	1000		98.6	70-130			
Surrogate: o-Terphenyl	58		"	49.8		116	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 B3K2001 - EPA 3550B**

<b>Matrix Spike (B3K2001-MS1)</b>	<b>Source: Y311466-01</b>			Prepared: 11/20/2023 Analyzed: 11/21/2023						
Diesel (C10-C28)	915	50.0	mg/kg	1000	ND	91.5	70-130			
Residual Range Organics (C28-C40)	888	200	"	1000	ND	88.8	70-130			
Surrogate: o-Terphenyl	52		"	49.8		105	50-150			

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 Wheat Ridge CO 80033

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Huntsman G #13-9

**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 B3K2001 - EPA 3550B**

<b>Matrix Spike Dup (B3K2001-MSD1)</b>	<b>Source: Y311466-01</b>		<b>Prepared: 11/20/2023 Analyzed: 11/21/2023</b>							
Diesel (C10-C28)	922	50.0	mg/kg	1000	ND	92.2	70-130	0.787	35	
Residual Range Organics (C28-C40)	886	200	"	1000	ND	88.6	70-130	0.188	35	
Surrogate: o-Terphenyl	52		"	49.8		105	50-150			

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Andrew Newberry  
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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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**Metals by EPA 6000/7000 Series Methods - 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 B3K2712 - EPA 3050B**

**Blank (B3K2712-BLK1)**

Prepared: 11/27/2023 Analyzed: 11/29/2023

Arsenic	ND	0.0100	mg/kg							
Barium	ND	1.00	"							
Cadmium	ND	0.0100	"							
Copper	ND	1.00	"							
Lead	ND	1.00	"							
Nickel	ND	0.100	"							
Selenium	ND	0.0100	"							
Silver	ND	0.0100	"							
Zinc	ND	1.00	"							

**LCS (B3K2712-BS1)**

Prepared: 11/27/2023 Analyzed: 12/06/2023

Arsenic	5.11	0.0100	mg/kg	5.00		102	80-120			
Barium	529	1.00	"	500		106	80-120			
Cadmium	5.13	0.0100	"	5.00		103	80-120			
Copper	54.6	1.00	"	50.0		109	80-120			
Lead	4.96	1.00	"	5.00		99.3	80-120			
Nickel	5.30	0.100	"	5.00		106	80-120			
Selenium	4.46	0.0100	"	5.00		89.2	80-120			
Silver	5.22	0.0100	"	5.00		104	80-120			
Zinc	50.9	1.00	"	50.0		102	80-120			

**Matrix Spike (B3K2712-MS1)**

Source: Y311466-01

Prepared: 11/27/2023 Analyzed: 11/29/2023

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 Project Number: [none]  
 Project: Noble - Huntsman G #13-9

**Metals by EPA 6000/7000 Series Methods - 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 B3K2712 - EPA 3050B**

<b>Matrix Spike (B3K2712-MS1)</b>		<b>Source: Y311466-01</b>			<b>Prepared: 11/27/2023 Analyzed: 11/29/2023</b>					
Arsenic	8.54	0.0923	mg/kg	4.62	1.92	143	75-125			QM-07
Barium	564	9.23	"	462	41.1	113	75-125			
Cadmium	4.51	0.0923	"	4.62	0.0446	96.8	75-125			
Copper	50.4	9.23	"	46.2	2.37	104	75-125			
Lead	11.4	9.23	"	4.62	3.30	175	75-125			QM-07
Nickel	9.77	0.923	"	4.62	3.74	131	75-125			QM-07
Selenium	4.22	0.0923	"	4.62	0.0670	89.9	75-125			
Silver	4.58	0.0923	"	4.62	0.0152	98.9	75-125			
Zinc	60.7	9.23	"	46.2	12.6	104	75-125			
<b>Matrix Spike Dup (B3K2712-MSD1)</b>		<b>Source: Y311466-01</b>			<b>Prepared: 11/27/2023 Analyzed: 11/29/2023</b>					
Arsenic	6.16	0.0906	mg/kg	4.53	1.92	93.4	75-125	32.5	20	QR-DUP
Barium	506	9.06	"	453	41.1	103	75-125	10.8	20	
Cadmium	3.96	0.0906	"	4.53	0.0446	86.4	75-125	13.1	20	
Copper	47.9	9.06	"	45.3	2.37	100	75-125	5.19	20	
Lead	7.46	9.06	"	4.53	3.30	91.8	75-125	41.4	20	QR-DUP
Nickel	7.69	0.906	"	4.53	3.74	87.2	75-125	23.9	20	QR-DUP
Selenium	3.77	0.0906	"	4.53	0.0670	81.7	75-125	11.1	20	
Silver	4.02	0.0906	"	4.53	0.0152	88.3	75-125	13.1	20	
Zinc	49.7	9.06	"	45.3	12.6	81.9	75-125	20.0	20	

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Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Huntsman G #13-9

**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K2029 - EPA 3580**

**Blank (B3K2029-BLK1)**

Prepared: 11/20/2023 Analyzed: 11/23/2023

1-Methylnaphthalene	ND	0.002	mg/kg							U
2-Methylnaphthalene	ND	0.002	"							U
Acenaphthene	ND	0.020	"							U
Anthracene	ND	0.020	"							U
Benzo (a) anthracene	ND	0.005	"							U
Benzo (a) pyrene	ND	0.020	"							U
Benzo (b) fluoranthene	ND	0.020	"							U
Benzo (g,h,i) perylene	ND	0.020	"							U
Benzo (k) fluoranthene	ND	0.020	"							U
Chrysene	ND	0.020	"							U
Dibenz (a,h) anthracene	ND	0.020	"							U
Fluoranthene	ND	0.020	"							U
Fluorene	ND	0.020	"							U
Indeno (1,2,3-cd) pyrene	ND	0.020	"							U
Naphthalene	ND	0.002	"							U
Phenanthrene	ND	0.020	"							U
Pyrene	ND	0.020	"							U
Surrogate: Fluorene-d10	210		ug/kg	200		103	60-130			
Surrogate: Anthracene-d10	180		"	200		89.3	60-130			
Surrogate: Pyrene-d10	200		"	200		97.6	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		98.8	60-130			

**LCS (B3K2029-BS1)**

Prepared: 11/20/2023 Analyzed: 11/23/2023

1-Methylnaphthalene	0.202	0.002	mg/kg	0.200		101	70-130			
2-Methylnaphthalene	0.196	0.002	"	0.200		98.1	70-130			
Acenaphthene	0.204	0.020	"	0.200		102	70-130			
Anthracene	0.163	0.020	"	0.200		81.3	70-130			

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Andrew Newberry  
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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K2029 - EPA 3580**

**LCS (B3K2029-BS1)**

Prepared: 11/20/2023 Analyzed: 11/23/2023

Benzo (a) anthracene	0.169	0.005	mg/kg	0.200		84.7	70-130			
Benzo (a) pyrene	0.201	0.020	"	0.200		101	70-130			
Benzo (b) fluoranthene	0.203	0.020	"	0.200		102	70-130			
Benzo (g,h,i) perylene	0.202	0.020	"	0.200		101	70-130			
Benzo (k) fluoranthene	0.192	0.020	"	0.200		96.0	70-130			
Chrysene	0.196	0.020	"	0.200		98.0	70-130			
Dibenz (a,h) anthracene	0.191	0.020	"	0.200		95.4	70-130			
Fluoranthene	0.177	0.020	"	0.200		88.6	70-130			
Fluorene	0.201	0.020	"	0.200		100	70-130			
Indeno (1,2,3-cd) pyrene	0.236	0.020	"	0.200		118	70-130			
Naphthalene	0.208	0.002	"	0.200		104	70-130			
Phenanthrene	0.188	0.020	"	0.200		93.8	70-130			
Pyrene	0.191	0.020	"	0.200		95.5	70-130			
Surrogate: Fluorene-d10	190		ug/kg	200		97.4	60-130			
Surrogate: Anthracene-d10	170		"	200		86.5	60-130			
Surrogate: Pyrene-d10	190		"	200		97.1	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		98.1	60-130			

**Matrix Spike (B3K2029-MS1)**

Source: Y311455-01

Prepared: 11/20/2023 Analyzed: 11/23/2023

1-Methylnaphthalene	0.211	0.002	mg/kg	0.200	ND	106	70-130			
2-Methylnaphthalene	0.206	0.002	"	0.200	ND	103	70-130			
Acenaphthene	0.203	0.020	"	0.200	ND	101	70-130			
Anthracene	0.165	0.020	"	0.200	ND	82.6	70-130			
Benzo (a) anthracene	0.167	0.005	"	0.200	ND	83.6	70-130			
Benzo (a) pyrene	0.200	0.020	"	0.200	ND	100	70-130			
Benzo (b) fluoranthene	0.196	0.020	"	0.200	ND	98.2	70-130			
Benzo (g,h,i) perylene	0.220	0.020	"	0.200	ND	110	70-130			

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Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Huntsman G #13-9

**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K2029 - EPA 3580**

<b>Matrix Spike (B3K2029-MS1)</b>		<b>Source: Y311455-01</b>			Prepared: 11/20/2023 Analyzed: 11/23/2023					
Benzo (k) fluoranthene	0.193	0.020	mg/kg	0.200	ND	96.5	70-130			
Chrysene	0.193	0.020	"	0.200	ND	96.4	70-130			
Dibenz (a,h) anthracene	0.194	0.020	"	0.200	ND	97.2	70-130			
Fluoranthene	0.201	0.020	"	0.200	ND	100	70-130			
Fluorene	0.211	0.020	"	0.200	ND	105	70-130			
Indeno (1,2,3-cd) pyrene	0.168	0.020	"	0.200	ND	84.1	70-130			
Naphthalene	0.211	0.002	"	0.200	ND	105	70-130			
Phenanthrene	0.189	0.020	"	0.200	ND	94.3	70-130			
Pyrene	0.179	0.020	"	0.200	ND	89.5	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		102	60-130			
Surrogate: Anthracene-d10	170		"	200		86.9	60-130			
Surrogate: Pyrene-d10	180		"	200		90.7	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		100	60-130			

<b>Matrix Spike Dup (B3K2029-MSD1)</b>		<b>Source: Y311455-01</b>			Prepared: 11/20/2023 Analyzed: 11/23/2023					
1-Methylnaphthalene	0.205	0.002	mg/kg	0.200	ND	102	70-130	3.17	20	
2-Methylnaphthalene	0.203	0.002	"	0.200	ND	102	70-130	1.62	20	
Acenaphthene	0.205	0.020	"	0.200	ND	102	70-130	0.822	20	
Anthracene	0.160	0.020	"	0.200	ND	80.1	70-130	3.10	20	
Benzo (a) anthracene	0.181	0.005	"	0.200	ND	90.6	70-130	8.07	20	
Benzo (a) pyrene	0.200	0.020	"	0.200	ND	100	70-130	0.229	20	
Benzo (b) fluoranthene	0.197	0.020	"	0.200	ND	98.3	70-130	0.139	20	
Benzo (g,h,i) perylene	0.221	0.020	"	0.200	ND	110	70-130	0.563	20	
Benzo (k) fluoranthene	0.189	0.020	"	0.200	ND	94.4	70-130	2.27	20	
Chrysene	0.193	0.020	"	0.200	ND	96.7	70-130	0.337	20	
Dibenz (a,h) anthracene	0.206	0.020	"	0.200	ND	103	70-130	5.99	20	
Fluoranthene	0.198	0.020	"	0.200	ND	98.8	70-130	1.51	20	

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K2029 - EPA 3580

Matrix Spike Dup (B3K2029-MSD1)	Source: Y311455-01			Prepared: 11/20/2023 Analyzed: 11/23/2023						
Fluorene	0.213	0.020	mg/kg	0.200	ND	106	70-130	0.785	20	
Indeno (1,2,3-cd) pyrene	0.195	0.020	"	0.200	ND	97.3	70-130	14.6	20	
Naphthalene	0.206	0.002	"	0.200	ND	103	70-130	2.28	20	
Phenanthrene	0.187	0.020	"	0.200	ND	93.6	70-130	0.788	20	
Pyrene	0.184	0.020	"	0.200	ND	92.1	70-130	2.80	20	
Surrogate: Fluorene-d10	200		ug/kg	200		102	60-130			
Surrogate: Anthracene-d10	180		"	200		87.6	60-130			
Surrogate: Pyrene-d10	190		"	200		94.9	60-130			
Surrogate: Benzo (a) pyrene-d12	190		"	200		95.4	60-130			

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 Project: Noble - Huntsman G #13-9

**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 B3K1802 - Saturated Paste Metals**

**Blank (B3K1802-BLK1)**

Prepared: 11/18/2023 Analyzed: 11/20/2023

SAR	ND	0.0100	SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							

**Duplicate (B3K1802-DUP1)**

**Source: Y311439-01**

Prepared: 11/18/2023 Analyzed: 11/20/2023

Calcium PPM	56.0	10.0	mg/L		57.7			3.06	50	
SAR	ND	0.0100	SAR		1.01				200	
Magnesium PPM	16.4	10.0	mg/L		15.8			4.04	50	
Sodium PPM	36.8	10.0	"		33.5			9.40	50	

**Batch B3K2012 - DTPA Sorbitol Preparation**

**Blank (B3K2012-BLK1)**

Prepared: 11/20/2023 Analyzed: 11/21/2023

Boron	ND	0.100	mg/L							
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**Duplicate (B3K2012-DUP1)**

**Source: Y311409-02**

Prepared: 11/20/2023 Analyzed: 11/21/2023

Boron	3.25	0.0998	mg/L		2.86			13.0	50	
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 Project: Noble - Huntsman G #13-9

**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 B3K1805 - Saturated Paste pH/EC**

**Blank (B3K1805-BLK1)**

Prepared: 11/18/2023 Analyzed: 11/20/2023

Specific Conductance (EC) ND 0.00500 mmhos/cm

**Duplicate (B3K1805-DUP1)**

**Source: Y311439-01**

Prepared: 11/18/2023 Analyzed: 11/20/2023

pH 8.08 pH Units 8.14 0.740 25

Specific Conductance (EC) 0.598 0.00500 mmhos/cm 0.569 4.97 25

**Batch B3L1212 - Saturated Paste pH/EC**

**Duplicate (B3L1212-DUP1)**

**Source: Y311120-02**

Prepared: 12/12/2023 Analyzed: 12/13/2023

pH 8.38 pH Units 8.48 1.19 25

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 Project Number: [none]  
 Project: Noble - Huntsman G #13-9

**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 L718583 -</b>										
<b>DUP (L 84277-DUP)</b>		<b>Source: 84277</b>			Prepared: Analyzed: 11/22/2023					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0	20	
<b>MS (L 84277-MS)</b>		<b>Source: 84277</b>			Prepared: Analyzed: 11/22/2023					
Chromium, Hexavalent	36.5	2.5	mg/Kg	38.5	<1.22	95	75-125			
<b>LCS (LCS)</b>		Prepared: Analyzed: 11/22/2023								
Chromium, Hexavalent	7.09	0.5	mg/Kg	8		89	75-125			
<b>LRB (LRB)</b>		Prepared: Analyzed: 11/22/2023								
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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Andrew Newberry  
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Project: Noble - Huntsman G #13-9

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### Notes and Definitions

U Sample is Non-Detect.

QR-DUP RPD exceeds QC acceptance criteria, this indicates source sample is not homogenous.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on 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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Jordan A. Bynon, Project Manager