



March 21, 2023

Absaroka

Joel Mason

112 High St.

Buffalo

WY

82834

Project Name - FED - NP Remediation 2023

Project Number - FED.CO.0701.09 Grizzly

Attached are your analytical results for FED - NP Remediation 2023 received by Origins Laboratory, Inc. March 10, 2023. This project is associated with Origins project number Y303259-01.

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

Absaroka
112 High St.
Buffalo

WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-01@6"	Y303259-01	Soil	March 9, 2023 10:15	03/10/2023 08:00
SS-01@1'	Y303259-02	Soil	March 9, 2023 10:30	03/10/2023 08:00
SS-02@6"	Y303259-03	Soil	March 9, 2023 10:20	03/10/2023 08:00
SS-02@1'	Y303259-04	Soil	March 9, 2023 10:35	03/10/2023 08:00
SS-02@2'	Y303259-05	Soil	March 9, 2023 11:00	03/10/2023 08:00
SS-BG-01@2'	Y303259-06	Soil	March 9, 2023 12:30	03/10/2023 08:00

Origins Laboratory, Inc.



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Jordan A. Bynon For Jen Pellegrini, Project Manager

Absaroka
112 High St.
Buffalo

WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: UB03259

Client: Absaroka

Client Project ID: FED-NP Remediation 2023

Checklist Completed by: JSN

Shipped Via: HL

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

Date/time completed: 3/10/23

Airbill #: HL

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

Cooler Number/Temperature: 1 / 3 °C 1 °C 1 °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 ⁽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): <u>* Whiteout on COC *</u>				

⁽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 3/10/23

Origins Laboratory, Inc.

Bynon

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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-01@6"

3/9/2023 10:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.727	0.0985	mg/L	1	B3C1309	03/13/2023	03/15/2023
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	427	25.0	mg/kg	1	B3C1001	03/10/2023	03/15/2023
Residual Range Organics (C28-C40)	150	100	"	"	"	"	"

Surrogate: o-Terphenyl	89.4 %	50-150	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C1041	03/11/2023	03/14/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	0.237	0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.3 %	70-130	"	"	"
Surrogate: Toluene-d8	112 %	70-130	"	"	"

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Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-01@6"

3/9/2023 10:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: 4-Bromofluorobenzene	109 %	70-130	B3C10 41	03/11/2023	03/14/2023
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Metals by Saturated Paste by EPA 6010

Calcium	1.34	0.499	meq/L	10	[CALC]	03/14/2023	03/16/2023
Magnesium	ND	0.823	"	"	"	"	"
Sodium	11.5	0.435	"	"	"	"	"

PAH by 8270D SIM

1-Methylnaphthalene	0.551	0.0218	0.0402	mg/Kg	20	L670250	03/16/2023	03/17/2023
2-Methylnaphthalene	0.495	0.0387	0.0402	"	"	"	"	"
Acenaphthene	0.0615	0.00608	0.0134	"	"	"	"	"
Anthracene	0.0176	0.00668	0.0134	"	"	"	"	"
Benzo(a)anthracene	0.0454	0.00986	0.0134	"	"	"	"	"
Benzo(a)pyrene	0.0175	0.00936	0.0134	"	"	"	"	"
Benzo(b)fluoranthene	0.0141	0.0117	0.0134	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.00874	0.0134	"	"	"	"	"
Chrysene	0.0603	0.0125	0.0134	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.0123	0.0134	"	"	"	"	"
Fluoranthene	0.0218	0.00788	0.0134	"	"	"	"	"
Fluorene	0.267	0.00572	0.0134	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	0.0125	0.0134	"	"	"	"	"

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3/9/2023 10:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC.
Y303259-01 (Soil)

PAH by 8270D SIM

Naphthalene	0.0564	0.029	0.0402	mg/Kg	20	L670250	03/16/2023	03/17/2023
Pyrene	0.0691	0.0129	0.0134	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	56.4 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	68.5 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	50.9 %	29-110	"	"	"

pH in Soil by 9045D

pH	7.99	pH Units	1	B3C1412	03/14/2023	03/15/2023
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SAR by 20B Saturated Paste

SAR	13.1	SAR	1	B3C1408	03/14/2023	03/16/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.17	0.00500	mmhos/cm	1	B3C1412	03/14/2023	03/15/2023
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Table 915 metals by EPA 6020B

Arsenic	3.04	0.0952	mg/kg	10	B3C1502	03/15/2023	03/16/2023
Barium	282	9.52	"	"	"	"	"
Cadmium	0.142	0.0952	"	"	"	"	"

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Project: FED - NP Remediation 2023

SS-01@6"

3/9/2023 10:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-01 (Soil)

Table 915 metals by EPA 6020B

Copper	ND	9.52	mg/kg	10	B3C1502	03/15/2023	03/16/2023
Lead	ND	9.52	"	"	"	"	"
Nickel	ND	9.52	"	"	"	"	"
Selenium	0.190	0.0952	"	"	"	"	"
Silver	ND	0.0952	"	"	"	"	"
Zinc	ND	95.2	"	"	"	"	"

Total Metals by 7196A

Chromium, Hexavalent	ND	0.249	0.511	mg/Kg	1	L670224	03/09/2023	03/16/2023
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Project Number: FED.CO.0701.09 Grizzly 3.32H
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SS-01@1'
3/9/2023 10:30:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-02 (Soil)

Boron (DTPA Sorbitol)

Boron	0.371	0.0981	mg/L	1	B3C1309	03/13/2023	03/15/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	62.3	25.0	mg/kg	1	B3C1001	03/10/2023	03/15/2023	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	88.1 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

Benzene	ND	0.00200	mg/kg	1	B3C1041	03/11/2023	03/14/2023	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.5 %	70-130			"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	

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Project: FED - NP Remediation 2023

SS-01@1'

3/9/2023 10:30:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-02 (Soil)

Metals by Saturated Paste by EPA 6010

Calcium	2.00	0.499	meq/L	10	[CALC]	03/14/2023	03/16/2023
Magnesium	ND	0.823	"	"	"	"	"
Sodium	5.26	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	8.05		pH Units	1	B3C1412	03/14/2023	03/15/2023
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SAR by 20B Saturated Paste

SAR	4.88		SAR	1	B3C1408	03/14/2023	03/16/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.742	0.00500	mmhos/cm	1	B3C1412	03/14/2023	03/15/2023
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Project: FED - NP Remediation 2023

SS-02@6"

3/9/2023 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-03 (Soil)

Boron (DTPA Sorbitol)

Boron	1.59	0.0999	mg/L	1	B3C1309	03/13/2023	03/15/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	188	25.0	mg/kg	1	B3C1001	03/10/2023	03/15/2023	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	89.3 %	50-150	"	"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	0.0198	0.00200	mg/kg	1	B3C1041	03/11/2023	03/14/2023	
1,3,5-Trimethylbenzene	0.00368	0.00200	"	"	"	"	"	
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	1.58	0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.3 %	70-130	"	"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130	"	"	"	"	"	

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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@6"

3/9/2023 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-03 (Soil)

GBTEX+TMBs by 8260D

Surrogate: 4-Bromofluorobenzene	95.2 %	70-130	B3C10 41	03/11/2023	03/14/2023
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Metals by Saturated Paste by EPA 6010

Calcium	9.40	0.499	meq/L	10	[CALC]	03/14/2023	03/16/2023
Magnesium	0.904	0.823	"	"	"	"	"
Sodium	28.0	0.435	"	"	"	"	"

PAH by 8270D SIM

1-Methylnaphthalene	0.257	0.00549	0.0101	mg/Kg	5	L670250	03/16/2023	03/17/2023
2-Methylnaphthalene	0.267	0.00972	0.0101	"	"	"	"	"
Acenaphthene	0.0121	0.00152	0.00335	"	"	"	"	"
Anthracene	ND	0.00167	0.00335	"	"	"	"	"
Benzo(a)anthracene	0.00248	0.00247	0.00335	"	"	"	"	" J
Benzo(a)pyrene	ND	0.00234	0.00335	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.00293	0.00335	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.00219	0.00335	"	"	"	"	"
Chrysene	0.0126	0.00312	0.00335	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.00307	0.00335	"	"	"	"	"
Fluoranthene	0.00198	0.00197	0.00335	"	"	"	"	" J
Fluorene	0.0449	0.00143	0.00335	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	0.00314	0.00335	"	"	"	"	"

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Project: FED - NP Remediation 2023

SS-02@6"

3/9/2023 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC.
Y303259-03 (Soil)

PAH by 8270D SIM

Naphthalene	0.0894	0.0073	0.0101	mg/Kg	5	L670250	03/16/2023	03/17/2023
Pyrene	0.00814	0.00322	0.00335	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	64.7 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	71 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	58.3 %	29-110	"	"	"

pH in Soil by 9045D

pH	7.73	pH Units	1	B3C1412	03/14/2023	03/15/2023
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SAR by 20B Saturated Paste

SAR	12.3	SAR	1	B3C1408	03/14/2023	03/16/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	4.02	0.00500	mmhos/cm	1	B3C1412	03/14/2023	03/15/2023
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Table 915 metals by EPA 6020B

Arsenic	3.72	0.0913	mg/kg	10	B3C1502	03/15/2023	03/16/2023
Barium	176	9.13	"	"	"	"	"
Cadmium	0.163	0.0913	"	"	"	"	"

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Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@6"

3/9/2023 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-03 (Soil)

Table 915 metals by EPA 6020B

Copper	11.8		9.13	mg/kg	10	B3C1502	03/15/2023	03/16/2023	
Lead	ND		9.13	"	"	"	"	"	
Nickel	ND		9.13	"	"	"	"	"	
Selenium	0.130		0.0913	"	"	"	"	"	
Silver	ND		0.0913	"	"	"	"	"	
Zinc	ND		91.3	"	"	"	"	"	

Total Metals by 7196A

Chromium, Hexavalent	ND	0.245	0.504	mg/Kg	1	L670224	03/09/2023	03/16/2023	
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112 High St.
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Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@1'
3/9/2023 10:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-04 (Soil)

Boron (DTPA Sorbitol)

Boron	1.11	0.0998	mg/L	1	B3C1309	03/13/2023	03/15/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	96.0	25.0	mg/kg	1	B3C1001	03/10/2023	03/15/2023	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	86.3 %	50-150			"	"	"	
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GBTEX+TMBs by 8260D

Benzene	ND	0.00200	mg/kg	1	B3C1041	03/11/2023	03/14/2023	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	0.00862	0.00200	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.33	0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130			"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.6 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@1'

3/9/2023 10:35:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-04 (Soil)

Metals by Saturated Paste by EPA 6010

Calcium	18.7	0.499	meq/L	10	[CALC]	03/15/2023	03/17/2023
Magnesium	1.73	0.823	"	"	"	"	"
Sodium	38.9	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	7.68		pH Units	1	B3C1515	03/15/2023	03/16/2023
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SAR by 20B Saturated Paste

SAR	12.2		SAR	1	B3C1505	03/15/2023	03/17/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	6.56	0.00500	mmhos/cm	1	B3C1515	03/15/2023	03/16/2023
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Origins Laboratory, Inc.



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

Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@2'
3/9/2023 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-05 (Soil)

Boron (DTPA Sorbitol)

Boron	7.07	0.0988	mg/L	1	B3C1404	03/14/2023	03/15/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C1001	03/10/2023	03/15/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	97.8 %	50-150	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C1041	03/11/2023	03/14/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.1 %	70-130	"	"	"
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Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@2'

3/9/2023 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-05 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	100 %		70-130			B3C10 41	03/11/2023	03/14/2023
Surrogate: 4-Bromofluorobenzene	107 %		70-130			"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	15.6		0.499	meq/L	10	[CALC]	03/15/2023	03/17/2023
Magnesium	1.72		0.823	"	"	"	"	"
Sodium	129		4.35	"	100	"	"	03/17/2023

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L670250	03/16/2023	03/17/2023
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	0.000771	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	ND	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@2'

3/9/2023 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC. Y303259-05 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L670250	03/16/2023	03/17/2023
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	52.4 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	60.3 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	50.3 %	29-110	"	"	"

pH in Soil by 9045D

pH	7.33	pH Units	1	B3C1515	03/15/2023	03/16/2023
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SAR by 20B Saturated Paste

SAR	44.0	SAR	1	B3C1505	03/15/2023	03/17/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	13.5	0.00500	mmhos/cm	1	B3C1515	03/15/2023	03/16/2023
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Table 915 metals by EPA 6020B

Arsenic	3.40	0.0887	mg/kg	10	B3C1416	03/14/2023	03/14/2023
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Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-02@2'

3/9/2023 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-05 (Soil)

Table 915 metals by EPA 6020B

Barium	141	8.87	mg/kg	10	B3C1416	03/14/2023	03/14/2023
Cadmium	0.276	0.0887	"	"	"	"	"
Copper	14.7	8.87	"	"	"	"	"
Lead	ND	8.87	"	"	"	"	"
Nickel	10.5	8.87	"	"	"	"	"
Selenium	0.193	0.0887	"	"	"	"	"
Silver	ND	0.0887	"	"	"	"	"
Zinc	ND	88.7	"	"	"	"	"

Total Metals by 7196A

Chromium, Hexavalent	ND	2.46	5.04	mg/Kg	1	L670224	03/09/2023	03/16/2023
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Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

SS-BG-01@2'
3/9/2023 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y303259-06 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	0.0998	mg/L	1	B3C1404	03/14/2023	03/15/2023
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Metals by Saturated Paste by EPA 6010

Calcium	11.0	0.499	meq/L	10	[CALC]	03/15/2023	03/17/2023
Magnesium	19.9	0.823	"	"	"	"	"
Sodium	20.4	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	6.78		pH Units	1	B3C1515	03/15/2023	03/16/2023
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SAR by 20B Saturated Paste

SAR	5.20		SAR	1	B3C1505	03/15/2023	03/17/2023
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.150	0.00500	mmhos/cm	1	B3C1515	03/15/2023	03/16/2023
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Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1001 - EPA 3580										
Blank (B3C1001-BLK1)					Prepared: 03/10/2023 Analyzed: 03/14/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	23		"	24.9		90.8	50-150			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1001 - EPA 3580

LCS (B3C1001-BS1)

Prepared: 03/10/2023 Analyzed: 03/14/2023

Diesel (C10-C28)	855	50.0	mg/kg	1000		85.5	70-130			
Residual Range Organics (C28-C40)	889	200	"	1000		88.9	70-130			
Surrogate: o-Terphenyl	47		"	49.8		94.4	50-150			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1001 - EPA 3580

Matrix Spike (B3C1001-MS1)		Source: Y303237-01			Prepared: 03/10/2023 Analyzed: 03/14/2023					
Diesel (C10-C28)	846	50.0	mg/kg	1000	ND	84.6	70-130			
Residual Range Organics (C28-C40)	972	200	"	1000	ND	97.2	70-130			
Surrogate: o-Terphenyl	42		"	49.8		84.1	50-150			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1001 - EPA 3580										
Matrix Spike Dup (B3C1001-MSD1)			Source: Y303237-01			Prepared: 03/10/2023 Analyzed: 03/14/2023				
Diesel (C10-C28)	826	50.0	mg/kg	1000	ND	82.6	70-130	2.46	35	
Residual Range Organics (C28-C40)	910	200	"	1000	ND	91.0	70-130	6.63	35	
Surrogate: o-Terphenyl	42		"	49.8		83.6	50-150			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1041 - EPA 5030 (soil)										
Blank (B3C1041-BLK1)					Prepared: 03/11/2023 Analyzed: 03/14/2023					
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		95.5	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.14		"	0.125		109	70-130			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1041 - EPA 5030 (soil)										
LCS (B3C1041-BS1)					Prepared: 03/11/2023 Analyzed: 03/14/2023					
1,2,4-Trimethylbenzene	0.0981	0.00200	mg/kg	0.100		98.1	70-130			
1,3,5-Trimethylbenzene	0.103	0.00200	"	0.100		103	70-130			
Benzene	0.102	0.00200	"	0.100		102	70-130			
Ethylbenzene	0.0999	0.00200	"	0.100		99.9	70-130			
Naphthalene	0.0915	0.00380	"	0.100		91.5	70-130			
Toluene	0.0942	0.00200	"	0.100		94.2	70-130			
o-Xylene	0.0863	0.00200	"	0.100		86.3	70-130			
m,p-Xylene	0.200	0.00400	"	0.200		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.4	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.0	70-130			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1041 - EPA 5030 (soil)										
Matrix Spike (B3C1041-MS1)		Source: Y303257-01			Prepared: 03/11/2023 Analyzed: 03/14/2023					
1,2,4-Trimethylbenzene	0.0835	0.00200	mg/kg	0.100	ND	83.5	70-130			
1,3,5-Trimethylbenzene	0.0874	0.00200	"	0.100	ND	87.4	70-130			
Benzene	0.0856	0.00200	"	0.100	ND	85.6	70-130			
Ethylbenzene	0.0941	0.00200	"	0.100	ND	94.1	70-130			
Naphthalene	0.0717	0.00380	"	0.100	ND	71.7	70-130			
Toluene	0.0782	0.00200	"	0.100	ND	78.2	70-130			
o-Xylene	0.0812	0.00200	"	0.100	ND	81.2	70-130			
m,p-Xylene	0.186	0.00400	"	0.200	ND	93.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1041 - EPA 5030 (soil)										
Matrix Spike Dup (B3C1041-MSD1)			Source: Y303257-01		Prepared: 03/11/2023 Analyzed: 03/14/2023					
1,2,4-Trimethylbenzene	0.0802	0.00200	mg/kg	0.100	ND	80.2	70-130	4.10	20	
1,3,5-Trimethylbenzene	0.0834	0.00200	"	0.100	ND	83.4	70-130	4.68	20	
Benzene	0.0909	0.00200	"	0.100	ND	90.9	70-130	6.01	20	
Ethylbenzene	0.0950	0.00200	"	0.100	ND	95.0	70-130	0.910	20	
Naphthalene	0.0726	0.00380	"	0.100	ND	72.6	70-130	1.19	20	
Toluene	0.0803	0.00200	"	0.100	ND	80.3	70-130	2.63	20	
o-Xylene	0.0796	0.00200	"	0.100	ND	79.6	70-130	1.89	20	
m,p-Xylene	0.190	0.00400	"	0.200	ND	94.8	70-130	1.84	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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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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 B3C1416 - EPA 3050B

Blank (B3C1416-BLK1)

Prepared: 03/14/2023 Analyzed: 03/14/2023

Arsenic ND 0.000100 mg/kg

LCS (B3C1416-BS1)

Prepared: 03/14/2023 Analyzed: 03/14/2023

Arsenic 0.0526 0.000100 mg/kg 0.0500 105 80-120

Matrix Spike (B3C1416-MS1)

Source: Y303227-01

Prepared: 03/14/2023 Analyzed: 03/14/2023

Arsenic 8.57 0.0948 mg/kg 4.74 3.59 105 75-125

Matrix Spike Dup (B3C1416-MSD1)

Source: Y303227-01

Prepared: 03/14/2023 Analyzed: 03/14/2023

Arsenic 7.70 0.0904 mg/kg 4.52 3.59 91.0 75-125 10.7 20

Batch B3C1502 - EPA 3050B

Blank (B3C1502-BLK1)

Prepared: 03/15/2023 Analyzed: 03/16/2023

Arsenic ND 0.000100 mg/kg

Barium ND 0.0100 "

Cadmium ND 0.000100 "

Copper ND 0.0100 "

Lead ND 0.0100 "

Nickel ND 0.0100 "

Selenium ND 0.000100 "

Silver ND 0.000100 "

Zinc ND 0.100 "

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1502 - EPA 3050B

LCS (B3C1502-BS1)

Prepared: 03/15/2023 Analyzed: 03/16/2023

Arsenic	0.0515	0.000100	mg/kg	0.0500		103	80-120			
Barium	5.21	0.0100	"	5.00		104	80-120			
Cadmium	0.0527	0.000100	"	0.0500		105	80-120			
Copper	0.542	0.0100	"	0.500		108	80-120			
Lead	0.0522	0.0100	"	0.0500		104	80-120			
Nickel	0.0520	0.0100	"	0.0500		104	80-120			
Selenium	0.0502	0.000100	"	0.0500		100	80-120			
Silver	0.0495	0.000100	"	0.0500		98.9	80-120			
Zinc	0.531	0.100	"	0.500		106	80-120			

Matrix Spike (B3C1502-MS1)

Source: Y303257-01

Prepared: 03/15/2023 Analyzed: 03/16/2023

Arsenic	6.37	0.0939	mg/kg	4.70	1.71	99.1	75-125			
Barium	528	9.39	"	470	34.6	105	75-125			
Cadmium	4.90	0.0939	"	4.70	0.0408	103	75-125			
Copper	55.9	9.39	"	47.0	3.25	112	75-125			
Lead	10.1	9.39	"	4.70	5.93	89.3	75-125			
Nickel	7.42	9.39	"	4.70	2.58	103	75-125			
Selenium	4.42	0.0939	"	4.70	0.0855	92.2	75-125			
Silver	4.64	0.0939	"	4.70	0.0237	98.3	75-125			
Zinc	67.4	93.9	"	47.0	16.1	109	75-125			

Matrix Spike Dup (B3C1502-MSD1)

Source: Y303257-01

Prepared: 03/15/2023 Analyzed: 03/16/2023

Arsenic	6.19	0.0933	mg/kg	4.67	1.71	96.0	75-125	2.82	20	
Barium	531	9.33	"	467	34.6	106	75-125	0.545	20	
Cadmium	4.79	0.0933	"	4.67	0.0408	102	75-125	2.10	20	
Copper	54.8	9.33	"	46.7	3.25	110	75-125	2.02	20	
Lead	10.1	9.33	"	4.67	5.93	89.1	75-125	0.368	20	

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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1502 - EPA 3050B

Matrix Spike Dup (B3C1502-MSD1)		Source: Y303257-01			Prepared: 03/15/2023 Analyzed: 03/16/2023					
Nickel	7.32	9.33	mg/kg	4.67	2.58	102	75-125	1.42	20	
Selenium	4.55	0.0933	"	4.67	0.0855	95.7	75-125	3.02	20	
Silver	4.53	0.0933	"	4.67	0.0237	96.5	75-125	2.49	20	
Zinc	63.5	93.3	"	46.7	16.1	102	75-125	5.94	20	

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112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1309 - DTPA Sorbitol Preparation

Blank (B3C1309-BLK1)

Prepared: 03/13/2023 Analyzed: 03/15/2023

Boron ND 0.100 mg/L

Duplicate (B3C1309-DUP1)

Source: Y303257-01

Prepared: 03/13/2023 Analyzed: 03/15/2023

Boron ND 0.985 mg/L

ND

50

Batch B3C1404 - DTPA Sorbitol Preparation

Blank (B3C1404-BLK1)

Prepared: 03/14/2023 Analyzed: 03/15/2023

Boron ND 0.100 mg/L

Duplicate (B3C1404-DUP1)

Source: Y303259-05

Prepared: 03/14/2023 Analyzed: 03/15/2023

Boron 5.84 0.0981 mg/L

7.07

19.1

50

Batch B3C1408 - Saturated Paste Metals

Blank (B3C1408-BLK1)

Prepared: 03/14/2023 Analyzed: 03/16/2023

SAR 0.00 SAR

Calcium PPM ND 10.0 mg/L

Magnesium PPM ND 10.0 "

Sodium PPM ND 10.0 "

Duplicate (B3C1408-DUP1)

Source: Y303259-01

Prepared: 03/14/2023 Analyzed: 03/16/2023

SAR 0.00 SAR

13.1

200

200

Calcium PPM 16.4 10.0 mg/L

26.8

48.0

50

Magnesium PPM 1.47 10.0 "

2.27

42.5

50

Sodium PPM 218 10.0 "

263

19.0

50

Origins Laboratory, Inc.



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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1505 - Saturated Paste Metals

Blank (B3C1505-BLK1)

Prepared: 03/15/2023 Analyzed: 03/17/2023

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

Duplicate (B3C1505-DUP1)

Source: Y303259-04

Prepared: 03/15/2023 Analyzed: 03/17/2023

Calcium PPM	370	10.0	mg/L	374	1.23	50
SAR	0.00		SAR	12.2	200	200
Magnesium PPM	21.2	10.0	mg/L	21.0	1.10	50
Sodium PPM	937	10.0	"	895	4.66	50

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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 B3C1412 - Saturated Paste pH/EC

Blank (B3C1412-BLK1)

Prepared: 03/14/2023 Analyzed: 03/15/2023

Specific Conductance (EC) ND 0.00500 mmhos/cm

Duplicate (B3C1412-DUP1)

Source: Y303259-01

Prepared: 03/14/2023 Analyzed: 03/15/2023

pH	8.14		pH Units	7.99			1.86	25
Specific Conductance (EC)	1.11	0.00500	mmhos/cm	1.17			5.85	25

Batch B3C1515 - Saturated Paste pH/EC

Blank (B3C1515-BLK1)

Prepared: 03/15/2023 Analyzed: 03/16/2023

Specific Conductance (EC) ND 0.00500 mmhos/cm

Duplicate (B3C1515-DUP1)

Source: Y303259-04

Prepared: 03/15/2023 Analyzed: 03/16/2023

Specific Conductance (EC)	6.68	0.00500	mmhos/cm	6.56			1.81	25
pH	7.70		pH Units	7.68			0.260	25

Origins Laboratory, Inc.



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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 L670250 - 3550B

MSD (L 98530-MSD-L670250)		Source: 98530			Prepared: 03/16/2023 Analyzed: 03/17/2023					
Chrysene	0.119	0.00067	mg/Kg	0.165	<0.000624	72.1	30-130	7.8	30	
Benzo(a)pyrene	0.123	0.00067	"	0.165	<0.000468	74.5	30-130	2.4	30	
1-Methylnaphthalene	0.103	0.00201	"	0.165	<0.00109	62.4	30-130	0.9	30	
2-Methylnaphthalene	0.103	0.00201	"	0.165	<0.00194	62.4	30-130	1.9	30	
Acenaphthene	0.107	0.00067	"	0.165	<0.000304	64.8	30-130	0	30	
Fluoranthene	0.115	0.00067	"	0.165	<0.000394	69.6	30-130	2.6	30	
Benzo(a)anthracene	0.112	0.00067	"	0.165	<0.000493	67.8	30-130	3.5	30	
Pyrene	0.112	0.00067	"	0.165	<0.000643	67.8	30-130	2.7	30	
Benzo(b)fluoranthene	0.0803	0.00067	"	0.165	<0.000585	48.6	30-130	11.1	30	
Benzo(k)fluoranthene	0.0985	0.00067	"	0.165	<0.000437	59.6	30-130	9.2	30	
Dibenz(a,h)anthracene	0.153	0.00067	"	0.165	<0.000614	92.7	30-130	6.7	30	
Fluorene	0.116	0.00067	"	0.165	<0.000286	70.3	30-130	0.8	30	
Indeno(1,2,3-cd)pyrene	0.111	0.00067	"	0.165	<0.000627	67.2	30-130	5.5	30	
Naphthalene	0.097	0.00201	"	0.165	<0.00145	58.7	30-130	2.5	30	
Anthracene	0.121	0.00067	"	0.165	<0.000334	73.3	30-130	2.5	30	
Surrogate: 2-Fluorobiphenyl	54.5		"	0.33	176	54.5	33-115			
Surrogate: 4-Terphenyl-d14	60.9		"	0.33	204	60.9	33-122			
Surrogate: Nitrobenzene-d5	51.8		"	0.33	172	51.8	29-110			

MS (L 98530-MS-L670250)		Source: 98530			Prepared: 03/16/2023 Analyzed: 03/17/2023					
Benzo(k)fluoranthene	0.108	0.00067	mg/Kg	0.166	<0.000437	65	30-130			
Indeno(1,2,3-cd)pyrene	0.105	0.00067	"	0.166	<0.000627	63.2	30-130			
Pyrene	0.109	0.00067	"	0.166	<0.000643	65.6	30-130			
Naphthalene	0.0946	0.00201	"	0.166	<0.00145	56.9	30-130			
Anthracene	0.118	0.00067	"	0.166	<0.000334	71	30-130			
Fluorene	0.115	0.00067	"	0.166	<0.000286	69.2	30-130			
2-Methylnaphthalene	0.101	0.00201	"	0.166	<0.00194	60.8	30-130			

Origins Laboratory, Inc.



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Absaroka
112 High St.
Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 L670250 - 3550B

MS (L 98530-MS-L670250)		Source: 98530			Prepared: 03/16/2023 Analyzed: 03/17/2023					
Dibenz(a,h)anthracene	0.143	0.00067	mg/Kg	0.166	<0.000614	86.1	30-130			
Acenaphthene	0.107	0.00067	"	0.166	<0.000304	64.4	30-130			
1-Methylnaphthalene	0.102	0.00201	"	0.166	<0.00109	61.4	30-130			
Benzo(a)anthracene	0.116	0.00067	"	0.166	<0.000493	69.8	30-130			
Benzo(a)pyrene	0.12	0.00067	"	0.166	<0.000468	72.2	30-130			
Benzo(b)fluoranthene	0.0898	0.00067	"	0.166	<0.000585	54	30-130			
Chrysene	0.11	0.00067	"	0.166	<0.000624	66.2	30-130			
Fluoranthene	0.112	0.00067	"	0.166	<0.000394	67.4	30-130			
Surrogate: Nitrobenzene-d5	51		"	0.331	172	51	29-110			
Surrogate: 2-Fluorobiphenyl	52.8		"	0.331	176	52.8	33-115			
Surrogate: 4-Terphenyl-d14	57		"	0.331	204	57	33-122			

LCS (LCS-L670250)		Prepared: 03/16/2023 Analyzed: 03/17/2023								
Chrysene	0.131	0.00067	mg/Kg	0.167		78.4	30-130			
Dibenz(a,h)anthracene	0.166	0.00067	"	0.167		99.4	30-130			
Naphthalene	0.122	0.00201	"	0.167		73	30-130			
Indeno(1,2,3-cd)pyrene	0.13	0.00067	"	0.167		77.8	30-130			
Fluorene	0.14	0.00067	"	0.167		83.8	30-130			
1-Methylnaphthalene	0.127	0.00201	"	0.167		76	30-130			
Fluoranthene	0.135	0.00067	"	0.167		80.8	30-130			
2-Methylnaphthalene	0.126	0.00201	"	0.167		75.4	30-130			
Pyrene	0.132	0.00067	"	0.167		79	30-130			
Acenaphthene	0.129	0.00067	"	0.167		77.2	30-130			
Anthracene	0.146	0.00067	"	0.167		87.4	30-130			
Benzo(a)anthracene	0.135	0.00067	"	0.167		80.8	30-130			
Benzo(a)pyrene	0.147	0.00067	"	0.167		88	30-130			
Benzo(b)fluoranthene	0.095	0.00067	"	0.167		56.8	30-130			

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Buffalo WY 82834

Joel Mason
Project Number: FED.CO.0701.09 Grizzly 3.32H
Project: FED - NP Remediation 2023

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 L670250 - 3550B

LCS (LCS-L670250)

Prepared: 03/16/2023 Analyzed: 03/17/2023

Benzo(k)fluoranthene	0.117	0.00067	mg/Kg	0.167		70	30-130			
Surrogate: Nitrobenzene-d5	64.5		"	0.333	64.5		29-110			
Surrogate: 4-Terphenyl-d14	71.1		"	0.333	71.1		33-122			
Surrogate: 2-Fluorobiphenyl	66.3		"	0.333	66.3		33-115			

LRB (LRB-L670250)

Prepared: 03/16/2023 Analyzed: 03/17/2023

Dibenz(a,h)anthracene	ND	0.00067	mg/Kg				-			
Pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Surrogate: Nitrobenzene-d5	57.6		"	0.333	57.6		29-110			
Surrogate: 4-Terphenyl-d14	73.2		"	0.333	73.2		33-122			
Surrogate: 2-Fluorobiphenyl	62.7		"	0.333	62.7		33-115			

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Project: FED - NP Remediation 2023

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
Batch L670224 -										
DUP (L 98559-DUP)	Source: 98559				Prepared: Analyzed: 03/16/2023					
Chromium, Hexavalent	ND	0.513	mg/Kg		<0.513		-	0	20	
MS (L 98559-MS)	Source: 98559				Prepared: Analyzed: 03/16/2023					
Chromium, Hexavalent	39.8	2.5	mg/Kg	39.9	<1.22	100	75-125			
LCS (LCS)					Prepared: Analyzed: 03/16/2023					
Chromium, Hexavalent	6.71	0.5	mg/Kg	8		84	75-125			
LRB (LRB)					Prepared: Analyzed: 03/16/2023					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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Joel Mason
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Project: FED - NP Remediation 2023

Notes and Definitions

U Sample is Non-Detect.

J Estimated Value. Analyte below reported quantitation limit.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported 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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