



April 22, 2024

A.G. Wassenaar

Rachel Peterson

3211 South Zuni St

Englewood CO 80110

Project Name - Big Jake

Project Number - 160192

Attached are your analytical results for Big Jake received by Origins Laboratory, Inc. March 21, 2024. This project is associated with Origins project number Y403612-01.

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

A.G. Wassenaar
3211 South Zuni St
Englewood CO 80110

Rachel Peterson
Project Number: 160192
Project: Big Jake

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Big Jake - WH	Y403612-01	Soil	March 21, 2024 0:00	03/21/2024 16:17

Origins Laboratory, Inc.



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Englewood CO 80110

Rachel Peterson
Project Number: 160192
Project: Big Jake

ORIGINS
LABORATORY, INC

www.originslaboratory.com

4403612

page of

Client: AGW
Address: 3211 S Zuni
Telephone Number: 3759-8373
Email Address: Peterson.R@AGWCo.com
Project Manager: RAP
Project Name: Big Jake
Project Number: 160192
Samples Collected By: CTT

1725 Elk Place
Denver, CO 80211
Phone: 303.433.1322
Fax: 303.303.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa	Other			
Big Jake - WH	3/21/24		4	X						X				1
														2
														3
														4
														5
														6
														7
														8
														9
														10

Relinquished By: [Signature] Date: 3/21/24 Time: 1107
Relinquished By: [Signature] Date: 3/21/24 Time: 1107
Received By: [Signature] Date: 3/21/24 Time: 1107
Received By: [Signature] Date: 3/21/24 Time: 1107
Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☒ Standard

Date Results Needed

Temp Received-

Origins Laboratory, Inc.

Bynon

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Rachel Peterson
Project Number: 160192
Project: Big Jake

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1403012

Client: AGW

Client Project ID: Big Jake

Checklist Completed by: EHS

Shipped Via: HO

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

Date/time completed: 3/21/12

Airbill #: N/A

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

Water

Other:

Cooler Number/Temperature: 1, 8 °C

1 °C

1 °C

(Describe)

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⁾ ?		<input checked="" type="checkbox"/>		<u>SD</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>no times</u>
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽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)			<input checked="" type="checkbox"/>	
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: JB (Project Manager)

Date/Time Reviewed: 3/25/12

Origins Laboratory, Inc.

J. Bynon

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3211 South Zuni St
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Rachel Peterson
Project Number: 160192
Project: Big Jake

Bia Jake - WH

3/21/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y403612-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.423	0.0988	mg/L	1	B4C2516	03/25/2024	03/26/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2201	03/22/2024	03/26/2024	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	88.4 %	50-150	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2624	03/26/2024	03/27/2024	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	86.0 %	70-130	"	"	"
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Bia Jake - WH

3/21/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y403612-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	95.5 %	70-130				B4C26 24	03/26/2024	03/27/2024	
Surrogate: 4-Bromofluorobenzene	100 %	70-130				"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	3.25	0.499	meq/L	10	[CALC]	03/25/2024	03/28/2024	
Magnesium	1.48	0.823	"	"	"	"	"	
Sodium	0.845	0.435	"	"	"	"	"	

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4C2222	03/22/2024	03/27/2024	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
Fluoranthene	ND	0.020	"	"	"	"	"	U

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3/21/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y403612-01 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4C2222	03/22/2024	03/27/2024	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	U
Naphthalene	ND	0.002	"	"	"	"	"	U
Pyrene	ND	0.020	"	"	"	"	"	U

Surrogate: Fluorene-d10	101 %	60-130	"	"	"
Surrogate: Anthracene-d10	91.6 %	60-130	"	"	"
Surrogate: Pyrene-d10	110 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	97.7 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.30	pH Units	1	B4C2520	03/25/2024	03/26/2024
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SAR by 20B Saturated Paste

SAR	0.550	0.0100	SAR	1	B4C2506	03/25/2024	03/28/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.707	0.00500	mmhos/cm	1	B4C2520	03/25/2024	03/26/2024
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Table 915 metals by EPA 6020B

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3/21/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y403612-01 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.95	0.282	mg/kg	10	B4C2232	03/25/2024	03/29/2024
Barium	210	9.74	"	"	"	"	"
Cadmium	0.173	0.0974	"	"	"	"	"
Copper	10.4	9.74	"	"	"	"	"
Lead	11.1	0.974	"	"	"	"	"
Nickel	11.8	0.974	"	"	"	"	"
Selenium	ND	0.253	"	"	"	"	"
Silver	ND	0.0974	"	"	"	"	"
Zinc	41.2	36.0	"	"	"	"	"

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L744977	03/21/2024	04/18/2024
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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
Batch B4C2201 - EPA 3550B										
Blank (B4C2201-BLK1)					Prepared: 03/22/2024 Analyzed: 03/26/2024					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	23		"	24.9		92.1	50-150			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2201 - EPA 3550B

LCS (B4C2201-BS1)

Prepared: 03/22/2024 Analyzed: 03/26/2024

Diesel (C10-C28)	794	50.0	mg/kg	1000		79.4	70-130			
Residual Range Organics (C28-C40)	807	200	"	1000		80.7	70-130			
Surrogate: o-Terphenyl	47		"	49.8		95.3	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 B4C2201 - EPA 3550B

Matrix Spike (B4C2201-MS1)		Source: Y403568-01			Prepared: 03/22/2024 Analyzed: 03/26/2024					
Diesel (C10-C28)	773	50.0	mg/kg	1000	ND	77.3	70-130			
Residual Range Organics (C28-C40)	793	200	"	1000	ND	79.3	70-130			
Surrogate: o-Terphenyl	44		"	49.8		88.7	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
Batch B4C2201 - EPA 3550B										
Matrix Spike Dup (B4C2201-MSD1)		Source: Y403568-01			Prepared: 03/22/2024 Analyzed: 03/26/2024					
Diesel (C10-C28)	754	50.0	mg/kg	1000	ND	75.4	70-130	2.51	35	
Residual Range Organics (C28-C40)	781	200	"	1000	ND	78.1	70-130	1.55	35	
Surrogate: o-Terphenyl	55		"	49.8		110	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
Batch B4C2624 - EPA 5030 (soil)										
Blank (B4C2624-BLK1)					Prepared: 03/26/2024 Analyzed: 03/27/2024					
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	0.098		"	0.125		78.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.4	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
Batch B4C2624 - EPA 5030 (soil)										
LCS (B4C2624-BS1)					Prepared: 03/26/2024 Analyzed: 03/27/2024					
1,2,4-Trimethylbenzene	0.0928	0.00200	mg/kg	0.100		92.8	70-130			
1,3,5-Trimethylbenzene	0.0940	0.00200	"	0.100		94.0	70-130			
Benzene	0.0884	0.00200	"	0.100		88.4	70-130			
Ethylbenzene	0.0926	0.00200	"	0.100		92.6	70-130			
Naphthalene	0.0936	0.00380	"	0.100		93.6	70-130			
Toluene	0.0870	0.00200	"	0.100		87.0	70-130			
o-Xylene	0.0946	0.00200	"	0.100		94.6	70-130			
m,p-Xylene	0.194	0.00400	"	0.200		96.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		80.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.6	70-130			

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Project Number: 160192
Project: Big Jake

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 B4C2624 - EPA 5030 (soil)										
Matrix Spike (B4C2624-MS1)		Source: Y403612-01			Prepared: 03/26/2024 Analyzed: 03/27/2024					
1,2,4-Trimethylbenzene	0.0915	0.00200	mg/kg	0.100	ND	91.5	70-130			
1,3,5-Trimethylbenzene	0.0913	0.00200	"	0.100	ND	91.3	70-130			
Benzene	0.0885	0.00200	"	0.100	ND	88.5	70-130			
Ethylbenzene	0.0929	0.00200	"	0.100	ND	92.9	70-130			
Naphthalene	0.0889	0.00380	"	0.100	0.00100	87.9	70-130			
Toluene	0.0844	0.00200	"	0.100	ND	84.4	70-130			
o-Xylene	0.0948	0.00200	"	0.100	ND	94.8	70-130			
m,p-Xylene	0.195	0.00400	"	0.200	ND	97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		82.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2624 - EPA 5030 (soil)										
Matrix Spike Dup (B4C2624-MSD1)			Source: Y403612-01		Prepared: 03/26/2024 Analyzed: 03/27/2024					
1,2,4-Trimethylbenzene	0.0880	0.00200	mg/kg	0.100	ND	88.0	70-130	3.83	20	
1,3,5-Trimethylbenzene	0.0872	0.00200	"	0.100	ND	87.2	70-130	4.59	20	
Benzene	0.0876	0.00200	"	0.100	ND	87.6	70-130	1.04	20	
Ethylbenzene	0.0883	0.00200	"	0.100	ND	88.3	70-130	5.05	20	
Naphthalene	0.0901	0.00380	"	0.100	0.00100	89.1	70-130	1.34	20	
Toluene	0.0811	0.00200	"	0.100	ND	81.1	70-130	4.06	20	
o-Xylene	0.0900	0.00200	"	0.100	ND	90.0	70-130	5.19	20	
m,p-Xylene	0.184	0.00400	"	0.200	ND	92.0	70-130	5.67	20	
Surrogate: 1,2-Dichloroethane-d4	0.10		"	0.125		82.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	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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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 B4C2232 - EPA 3050B

Blank (B4C2232-BLK1)

Prepared: 03/25/2024 Analyzed: 03/29/2024

Arsenic	ND	0.290	mg/kg
Barium	ND	10.0	"
Cadmium	ND	0.100	"
Copper	ND	10.0	"
Lead	ND	1.00	"
Nickel	ND	1.00	"
Selenium	ND	0.260	"
Silver	ND	0.100	"
Zinc	ND	37.0	"

LCS (B4C2232-BS1)

Prepared: 03/25/2024 Analyzed: 03/29/2024

Arsenic	5.34	0.290	mg/kg	5.00	107	80-120
Barium	561	10.0	"	500	112	80-120
Cadmium	5.34	0.100	"	5.00	107	80-120
Copper	48.8	10.0	"	50.0	97.7	80-120
Lead	5.17	1.00	"	5.00	103	80-120
Nickel	4.78	1.00	"	5.00	95.6	80-120
Selenium	10.5	0.260	"	9.50	111	80-120
Silver	5.29	0.100	"	5.00	106	80-120
Zinc	50.0	37.0	"	50.0	100	80-120

Matrix Spike (B4C2232-MS1)

Source: Y403606-01

Prepared: 03/25/2024 Analyzed: 03/29/2024

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Rachel Peterson
Project Number: 160192
Project: Big Jake

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 B4C2232 - EPA 3050B

Matrix Spike (B4C2232-MS1)		Source: Y403606-01			Prepared: 03/25/2024 Analyzed: 03/29/2024					
Arsenic	8.42	0.252	mg/kg	4.35	3.59	111	75-125			
Barium	673	8.71	"	435	164	117	75-125			
Cadmium	4.99	0.0871	"	4.35	0.113	112	75-125			
Copper	55.4	8.71	"	43.5	7.48	110	75-125			
Lead	13.0	0.871	"	4.35	8.48	104	75-125			
Nickel	13.9	0.871	"	4.35	9.16	108	75-125			
Selenium	9.59	0.226	"	8.27	0.0584	115	75-125			
Silver	4.55	0.0871	"	4.35	0.0230	104	75-125			
Zinc	79.6	32.2	"	43.5	29.6	115	75-125			
Matrix Spike Dup (B4C2232-MSD1)		Source: Y403606-01			Prepared: 03/25/2024 Analyzed: 03/29/2024					
Arsenic	8.60	0.249	mg/kg	4.29	3.59	117	75-125	2.15	20	
Barium	673	8.59	"	429	164	118	75-125	0.101	20	
Cadmium	4.87	0.0859	"	4.29	0.113	111	75-125	2.35	20	
Copper	55.5	8.59	"	42.9	7.48	112	75-125	0.0973	20	
Lead	14.0	0.859	"	4.29	8.48	128	75-125	7.02	20	QM-07
Nickel	14.6	0.859	"	4.29	9.16	126	75-125	5.00	20	QM-07
Selenium	9.57	0.223	"	8.16	0.0584	117	75-125	0.221	20	
Silver	4.34	0.0859	"	4.29	0.0230	100	75-125	4.72	20	
Zinc	81.3	31.8	"	42.9	29.6	120	75-125	2.07	20	

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Project: Big Jake

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 B4C2222 - EPA 3580

Blank (B4C2222-BLK1)

Prepared: 03/22/2024 Analyzed: 03/27/2024

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	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	190		"	200		94.2	60-130			
Surrogate: Pyrene-d10	200		"	200		98.4	60-130			
Surrogate: Benzo (a) pyrene-d12	190		"	200		96.5	60-130			

LCS (B4C2222-BS1)

Prepared: 03/22/2024 Analyzed: 03/27/2024

1-Methylnaphthalene	0.190	0.002	mg/kg	0.200		95.1	70-130
2-Methylnaphthalene	0.191	0.002	"	0.200		95.3	70-130
Acenaphthene	0.198	0.020	"	0.200		98.8	70-130
Anthracene	0.184	0.020	"	0.200		91.8	70-130

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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 B4C2222 - EPA 3580

LCS (B4C2222-BS1)

Prepared: 03/22/2024 Analyzed: 03/27/2024

Benzo (a) anthracene	0.188	0.005	mg/kg	0.200		94.0	70-130
Benzo (a) pyrene	0.184	0.020	"	0.200		92.0	70-130
Benzo (b) fluoranthene	0.199	0.020	"	0.200		99.4	70-130
Benzo (g,h,i) perylene	0.202	0.020	"	0.200		101	70-130
Benzo (k) fluoranthene	0.190	0.020	"	0.200		95.2	70-130
Chrysene	0.181	0.020	"	0.200		90.7	70-130
Dibenz (a,h) anthracene	0.196	0.020	"	0.200		98.0	70-130
Fluoranthene	0.179	0.020	"	0.200		89.3	70-130
Fluorene	0.195	0.020	"	0.200		97.6	70-130
Indeno (1,2,3-cd) pyrene	0.196	0.020	"	0.200		98.2	70-130
Naphthalene	0.199	0.002	"	0.200		99.5	70-130
Phenanthrene	0.182	0.020	"	0.200		91.2	70-130
Pyrene	0.203	0.020	"	0.200		101	70-130
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130
Surrogate: Anthracene-d10	190		"	200		94.9	60-130
Surrogate: Pyrene-d10	210		"	200		105	60-130
Surrogate: Benzo (a) pyrene-d12	200		"	200		101	60-130

Matrix Spike (B4C2222-MS1)

Source: Y403528-01

Prepared: 03/22/2024 Analyzed: 03/27/2024

1-Methylnaphthalene	0.252	0.002	mg/kg	0.200	0.060	95.9	70-130
2-Methylnaphthalene	0.232	0.002	"	0.200	0.030	101	70-130
Acenaphthene	0.211	0.020	"	0.200	0.022	94.4	70-130
Anthracene	0.192	0.020	"	0.200	0.002	94.9	70-130
Benzo (a) anthracene	0.174	0.005	"	0.200	0.001	86.4	70-130
Benzo (a) pyrene	0.195	0.020	"	0.200	0.003	96.2	70-130
Benzo (b) fluoranthene	0.212	0.020	"	0.200	0.0003	106	70-130
Benzo (g,h,i) perylene	0.197	0.020	"	0.200	0.0008	98.2	70-130

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Project: Big Jake

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 B4C2222 - EPA 3580

Matrix Spike (B4C2222-MS1)		Source: Y403528-01			Prepared: 03/22/2024 Analyzed: 03/27/2024					
Benzo (k) fluoranthene	0.193	0.020	mg/kg	0.200	0.002	95.9	70-130			
Chrysene	0.184	0.020	"	0.200	0.005	89.2	70-130			
Dibenz (a,h) anthracene	0.207	0.020	"	0.200	ND	104	70-130			
Fluoranthene	0.158	0.020	"	0.200	0.001	78.5	70-130			
Fluorene	0.217	0.020	"	0.200	0.032	92.5	70-130			
Indeno (1,2,3-cd) pyrene	0.193	0.020	"	0.200	ND	96.5	70-130			
Naphthalene	0.202	0.002	"	0.200	0.004	99.0	70-130			
Phenanthrene	0.201	0.020	"	0.200	0.023	88.8	70-130			
Pyrene	0.257	0.020	"	0.200	0.004	127	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		101	60-130			
Surrogate: Anthracene-d10	190		"	200		95.1	60-130			
Surrogate: Pyrene-d10	270		"	200		135	60-130			S-04
Surrogate: Benzo (a) pyrene-d12	210		"	200		103	60-130			

Matrix Spike Dup (B4C2222-MSD1)		Source: Y403528-01			Prepared: 03/22/2024 Analyzed: 03/27/2024					
1-Methylnaphthalene	0.272	0.002	mg/kg	0.200	0.060	106	70-130	7.59	20	
2-Methylnaphthalene	0.264	0.002	"	0.200	0.030	117	70-130	12.9	20	
Acenaphthene	0.223	0.020	"	0.200	0.022	100	70-130	5.36	20	
Anthracene	0.193	0.020	"	0.200	0.002	95.6	70-130	0.714	20	
Benzo (a) anthracene	0.182	0.005	"	0.200	0.001	90.6	70-130	4.72	20	
Benzo (a) pyrene	0.198	0.020	"	0.200	0.003	97.4	70-130	1.19	20	
Benzo (b) fluoranthene	0.206	0.020	"	0.200	0.0003	103	70-130	3.05	20	
Benzo (g,h,i) perylene	0.195	0.020	"	0.200	0.0008	97.0	70-130	1.23	20	
Benzo (k) fluoranthene	0.178	0.020	"	0.200	0.002	88.1	70-130	8.41	20	
Chrysene	0.185	0.020	"	0.200	0.005	90.0	70-130	0.779	20	
Dibenz (a,h) anthracene	0.207	0.020	"	0.200	ND	103	70-130	0.119	20	
Fluoranthene	0.162	0.020	"	0.200	0.001	80.5	70-130	2.60	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
Batch B4C2222 - EPA 3580										
Matrix Spike Dup (B4C2222-MSD1)			Source: Y403528-01		Prepared: 03/22/2024 Analyzed: 03/27/2024					
Fluorene	0.221	0.020	mg/kg	0.200	0.032	94.7	70-130	2.02	20	
Indeno (1,2,3-cd) pyrene	0.162	0.020	"	0.200	ND	81.2	70-130	17.2	20	
Naphthalene	0.214	0.002	"	0.200	0.004	105	70-130	5.73	20	
Phenanthrene	0.212	0.020	"	0.200	0.023	94.5	70-130	5.51	20	
Pyrene	0.262	0.020	"	0.200	0.004	129	70-130	1.94	20	
Surrogate: Fluorene-d10	200		ug/kg	200		101	60-130			
Surrogate: Anthracene-d10	190		"	200		96.8	60-130			
Surrogate: Pyrene-d10	270		"	200		135	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		104	60-130			S-04

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Project: Big Jake

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 B4C2506 - Saturated Paste Metals

Blank (B4C2506-BLK1)

Prepared: 03/25/2024 Analyzed: 03/28/2024

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

Duplicate (B4C2506-DUP1)

Source: Y403580-01

Prepared: 03/25/2024 Analyzed: 03/28/2024

SAR	ND	0.0100	SAR	2.89			200
Calcium PPM	395	10.0	mg/L	426		7.48	50
Magnesium PPM	72.5	10.0	"	80.8		10.8	50
Sodium PPM	239	10.0	"	248		3.68	50

Batch B4C2516 - DTPA Sorbitol Preparation

Blank (B4C2516-BLK1)

Prepared: 03/25/2024 Analyzed: 03/26/2024

Boron	ND	0.100	mg/L
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Duplicate (B4C2516-DUP1)

Source: Y403569-01

Prepared: 03/25/2024 Analyzed: 03/26/2024

Boron	0.545	0.0995	mg/L	0.526		3.58	50
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Saturated Paste - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2520 - Saturated Paste pH/EC										
Blank (B4C2520-BLK1)					Prepared: 03/25/2024 Analyzed: 03/26/2024					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B4C2520-DUP1)					Source: Y403580-01 Prepared: 03/25/2024 Analyzed: 03/26/2024					
pH	7.92		pH Units		8.30			4.69	25	
Specific Conductance (EC)	2.62	0.00500	mmhos/cm		2.67			2.15	25	

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L744977 -										
DUP (L 97712-DUP)	Source: 97712				Prepared: Analyzed: 04/18/2024					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0.3	20	
MS (L 97712-MS)	Source: 97712				Prepared: Analyzed: 04/18/2024					
Chromium, Hexavalent	27	2.5	mg/Kg	39.9	< 0.244	68	75-125			*
LCS (LCS)					Prepared: Analyzed: 04/18/2024					
Chromium, Hexavalent	6.66	0.5	mg/Kg	8		83	75-125			
LRB (LRB)					Prepared: Analyzed: 04/18/2024					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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Notes and Definitions

U Sample is Non-Detect.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

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

* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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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