



Environmental Works

November 04, 2024

Adam Kubat

AP@environmentalworks.com

Briggsdale CO 80204

Project Name - Taproot - Pintail

Project Number - 223274-C1

Attached are your analytical results for Taproot - Pintail received by Origins Laboratory October 16, 2024. This project is associated with Origins project number E410513-01.

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
303.433.1322
projectmanager@originslab.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645



Environmental Works

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Briggsdale CO 80204

Adam Kubat

Project Number: 223274-C1

Project: Taproot - Pintail

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS5-10	E410513-01	Soil	October 15, 2024 7:12	10/16/2024 09:49
SW10-7	E410513-02	Soil	October 15, 2024 9:34	10/16/2024 09:49
SW11-7	E410513-03	Soil	October 15, 2024 13:30	10/16/2024 09:49
SW12-7	E410513-04	Soil	October 15, 2024 16:07	10/16/2024 09:49

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Project Number: 223274-C1

Project: Taproot - Pintail

ORIGINS
LABORATORY

EU10513

Page 1 of 1

Client:

2770 Industrial Ln

Project Manager:

Adam Kubat

Key:

W= Water

Project Name:

Taproot - Pintail

Project Number:

223274

GW=Groundwater

Collected By:

Kelly Frank

SW=Surface Water

Telephone Number:

507-475-2825

Email Address:

AKubat@environmentalworks.com

Invoice/Billing Info:

AP@environmentalworks.com

WW=Waste Water

S=Soil | SO=Solid | O=Oil | A=Air | G=Gas | UNP=Impres | HCL= Hydrochloric | HNO3=Nitric | H2SO4=Sulfuric | NaOH=Sodium Hydroxide

Sample ID	Date Sampled	Time Sampled	# of Containers	Matrix	Preservative	Analysis					Comments
						Cond.	SAR	pH	Boron	Arsenic	
FS-10	10/5	9:42	2	5	NT						
SW10-7		9:39	2	5							
SW11-7		1:30	2	5							
SW12-7		4:07	2	5							

Temp Received - 5.4 Received On Ice? ☒ Yes ☐ No

Turnaround Time
☐ SAME DAY ☐ 24 Hr ☒ 48 Hr ☒ 72 Hr

☒ Standard

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Bynon

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Project Number: 223274-C1

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Origins Laboratory

Sample Receipt Checklist

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

Origins Work Order: EUC0513

Client: Env. Works

Client Project ID: Pintail

Checklist Completed by: EHU WS

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

Date/time completed: 10/17/24

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.4 °C ☐ / ☐ °C ☐ / ☐ °C (Describe) _____

Thermometer ID: 1004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	/			
Is there ice present (document if blue ice is used)	/			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		/		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		/		
Were all samples received intact ⁽¹⁾ ?	/			
Was adequate sample volume provided ⁽¹⁾ ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		/		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	/			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	/			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	/			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			/	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			/	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) AK

10/21/24
Date/Time Reviewed

Origins Laboratory

J. Bynon

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Briggsdale CO 80204

Adam Kubat

Project Number: 223274-C1

Project: Taproot - Pintail

FS5-10

10/15/2024 7:12:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory

E410513-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.397	0.0994	mg/L	1	B4J1807	10/18/2024	10/21/2024
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Metals by Saturated Paste by EPA 6010

Calcium	43.1	0.499	meq/L	10	[CALC]	10/22/2024	10/25/2024
Magnesium	10.6	0.823	"	"	"	"	"
Sodium	17.1	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	7.61		pH Units	1	B4J2229	10/22/2024	10/23/2024
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SAR by 20B Saturated Paste

SAR	3.31	0.0100	SAR	1	B4J2212	10/22/2024	10/25/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	6.96	0.00500	mmhos/cm	1	B4J2229	10/22/2024	10/23/2024
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Table 915 metals by EPA 6020B

Arsenic	16.9	0.283	mg/kg	10	B4J1751	10/17/2024	10/22/2024
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Briggsdale CO 80204

Adam Kubat

Project Number: 223274-C1

Project: Taproot - Pintail

SW10-7

10/15/2024 9:34:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E410513-02 (Soil)

Boron (DTPA Sorbitol)

Boron	3.06	0.100	mg/L	1	B4J1807	10/18/2024	10/21/2024
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Metals by Saturated Paste by EPA 6010

Calcium	ND	0.499	meq/L	10	[CALC]	10/22/2024	10/23/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	7.81		pH Units	1	B4J2229	10/22/2024	10/23/2024
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SAR by 20B Saturated Paste

SAR	ND	0.0100	SAR	1	B4J2212	10/22/2024	10/23/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.27	0.00500	mmhos/cm	1	B4J2229	10/22/2024	10/23/2024
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Table 915 metals by EPA 6020B

Arsenic	6.07	0.257	mg/kg	10	B4J1751	10/17/2024	10/22/2024
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Project Number: 223274-C1

Project: Taproot - Pintail

SW11-7

10/15/2024 1:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory E410513-03 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	0.997	mg/L	10	B4J1807	10/18/2024	10/22/2024
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Metals by Saturated Paste by EPA 6010

Calcium	2.51	0.499	meq/L	"	[CALC]	10/22/2024	10/23/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	8.15		pH Units	1	B4J2229	10/22/2024	10/23/2024
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SAR by 20B Saturated Paste

SAR	0.304	0.0100	SAR	1	B4J2212	10/22/2024	10/23/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.492	0.00500	mmhos/cm	1	B4J2229	10/22/2024	10/23/2024
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Table 915 metals by EPA 6020B

Arsenic	4.83	0.261	mg/kg	10	B4J1751	10/17/2024	10/22/2024
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Project Number: 223274-C1

Project: Taproot - Pintail

SW12-7

10/15/2024 4:07:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory

E410513-04 (Soil)

Boron (DTPA Sorbitol)

Boron	0.721	0.0993	mg/L	1	B4J1807	10/18/2024	10/21/2024
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Metals by Saturated Paste by EPA 6010

Calcium	22.9	0.499	meq/L	10	[CALC]	10/22/2024	10/23/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	4.05	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	8.24		pH Units	1	B4J2229	10/22/2024	10/23/2024
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SAR by 20B Saturated Paste

SAR	1.20	0.0100	SAR	1	B4J2212	10/22/2024	10/23/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.382	0.00500	mmhos/cm	1	B4J2229	10/22/2024	10/23/2024
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Table 915 metals by EPA 6020B

Arsenic	5.25	0.252	mg/kg	10	B4J1751	10/17/2024	10/22/2024
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Project Number: 223274-C1

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Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4J1751 - EPA 3050B										
Blank (B4J1751-BLK1)					Prepared: 10/17/2024 Analyzed: 10/22/2024					
Arsenic	ND	0.290	mg/kg							
LCS (B4J1751-BS1)					Prepared: 10/17/2024 Analyzed: 10/22/2024					
Arsenic	5.58	0.290	mg/kg	5.00		112	80-120			
Matrix Spike (B4J1751-MS1)					Source: E410513-02 Prepared: 10/17/2024 Analyzed: 10/22/2024					
Arsenic	11.4	0.276	mg/kg	4.76	6.07	113	75-125			
Matrix Spike Dup (B4J1751-MSD1)					Source: E410513-02 Prepared: 10/17/2024 Analyzed: 10/22/2024					
Arsenic	11.3	0.267	mg/kg	4.61	6.07	115	75-125	0.763	20	

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Project Number: 223274-C1

Project: Taproot - Pintail

Classical Chemistry Parameters - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4J1807 - DTPA Sorbitol Preparation

Blank (B4J1807-BLK1)

Prepared: 10/18/2024 Analyzed: 10/21/2024

Boron ND 0.100 mg/L

Duplicate (B4J1807-DUP1)

Source: E410513-01

Prepared: 10/18/2024 Analyzed: 10/21/2024

Boron 0.514 0.0995 mg/L 0.397 25.8 50

Batch B4J2212 - Saturated Paste Metals

Blank (B4J2212-BLK1)

Prepared: 10/22/2024 Analyzed: 10/23/2024

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 (B4J2212-DUP1)

Source: E410513-02

Prepared: 10/22/2024 Analyzed: 10/25/2024

SAR ND 0.0100 SAR ND 200

Calcium PPM 211 10.0 mg/L ND 50 QR-DUP

Magnesium PPM 35.5 10.0 " ND 50 QR-DUP

Sodium PPM 190 10.0 " ND 50 QR-DUP

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Saturated Paste - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4J2229 - Saturated Paste pH/EC

Blank (B4J2229-BLK1)

Prepared: 10/22/2024 Analyzed: 10/23/2024

Specific Conductance (EC) ND 0.00500 mmhos/cm

Duplicate (B4J2229-DUP1)

Source: E410513-02

Prepared: 10/22/2024 Analyzed: 10/23/2024

Specific Conductance (EC)	2.44	0.00500	mmhos/cm	2.27	7.11	25
pH	7.73		pH Units	7.81	1.03	25

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Jordan A. Bynon For Jen Pellegrini, Project Manager



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Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Origins Laboratory

A handwritten signature in black ink, appearing to read "J. Bynon".

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Jordan A. Bynon For Jen Pellegrini, Project Manager