



Environmental Works

October 03, 2024

Adam Kubat

AP@environmentalworks.com

Briggsdale CO 80204

Project Name - Taproot - Pintail

Project Number - 223274

Attached are your analytical results for Taproot - Pintail received by Origins Laboratory September 11, 2024. This project is associated with Origins project number E409275-01.

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

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FS3-10	E409275-01	Soil	September 10, 2024 8:44	09/11/2024 11:31
FS4-10	E409275-02	Soil	September 10, 2024 8:46	09/11/2024 11:31
SW6-7	E409275-03	Soil	September 10, 2024 10:25	09/11/2024 11:31
SW7-7	E409275-04	Soil	September 10, 2024 10:45	09/11/2024 11:31
SW8-7	E409275-05	Soil	September 10, 2024 11:00	09/11/2024 11:31
SW9-7	E409275-06	Soil	September 10, 2024 11:15	09/11/2024 11:31

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: E409275

Client: Env. Works
Client Project ID: Taproot Pintail

Checklist Completed by: JK

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: N/A

Date/time completed: 9/11/24

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

Cooler Number/Temperature: 1/6 °C / _____ °C / _____ °C (Describe)

Thermometer ID: J005

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"/>			
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"/>			
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 (Project Manager) JK

9/13/24
Date/Time Reviewed

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

FS3-10

9/10/2024 8:44:00AM

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

**Origins Laboratory
E409275-01 (Soil)**

Boron (DTPA Sorbitol)

Boron	1.28		0.0994	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	------	--	--------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	38.0		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	9.40		0.823	"	"	"	"	"	
Sodium	19.4		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	7.87			pH Units	1	B4I1624	09/16/2024	09/18/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	3.99		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	7.40		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	8.46		0.275	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

FS4-10

9/10/2024 8:46:00AM

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

**Origins Laboratory
E409275-02 (Soil)**

Boron (DTPA Sorbitol)

Boron	0.126		0.102	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	-------	--	-------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	5.38		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	1.45		0.823	"	"	"	"	"	
Sodium	5.33		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.04			pH Units	1	B4I1624	09/16/2024	09/18/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	2.89		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.35		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	3.44		0.279	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

SW6-7

9/10/2024 10:25:00AM

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

**Origins Laboratory
E409275-03 (Soil)**

Boron (DTPA Sorbitol)

Boron	2.03		0.0999	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	------	--	--------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	1.99		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	3.35		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.45			pH Units	1	B4I1624	09/16/2024	09/18/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	2.97		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.742		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	-------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	4.82		0.256	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

SW7-7

9/10/2024 10:45:00AM

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

**Origins Laboratory
E409275-04 (Soil)**

Boron (DTPA Sorbitol)

Boron	1.63		0.0980	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	------	--	--------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	13.7		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	3.14		0.823	"	"	"	"	"	
Sodium	8.84		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.02			pH Units	1	B4I1624	09/16/2024	09/19/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	3.05		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.81		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	3.90		0.278	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works
 AP@environmentalworks.com
 Briggsdale CO 80204

Adam Kubat
 Project Number: 223274
 Project: Taproot - Pintail

SW8-7

9/10/2024 11:00:00AM

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

**Origins Laboratory
 E409275-05 (Soil)**

Boron (DTPA Sorbitol)

Boron	2.49		0.0988	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	------	--	--------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	16.9		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	4.37		0.823	"	"	"	"	"	
Sodium	9.76		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.06			pH Units	1	B4I1624	09/16/2024	09/19/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	2.99		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	3.71		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	4.18		0.269	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

SW9-7

9/10/2024 11:15:00AM

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

**Origins Laboratory
E409275-06 (Soil)**

Boron (DTPA Sorbitol)

Boron	2.30		0.102	mg/L	1	B4I1320	09/13/2024	09/16/2024	
-------	------	--	-------	------	---	---------	------------	------------	--

Metals by Saturated Paste by EPA 6010

Calcium	18.7		0.499	meq/L	10	[CALC]	09/16/2024	09/17/2024	
Magnesium	5.08		0.823	"	"	"	"	"	
Sodium	10.1		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.10			pH Units	1	B4I1624	09/16/2024	09/19/2024	
----	------	--	--	----------	---	---------	------------	------------	--

SAR by 20B Saturated Paste

SAR	2.93		0.0100	SAR	1	B4I1616	09/16/2024	09/17/2024	
-----	------	--	--------	-----	---	---------	------------	------------	--

Specific Conductance Mod. 9050A

Specific Conductance (EC)	4.36		0.00500	mmhos/cm	1	B4I2016	09/20/2024	09/24/2024	
---------------------------	------	--	---------	----------	---	---------	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	4.98		0.263	mg/kg	10	B4I1230	09/12/2024	09/17/2024	
---------	------	--	-------	-------	----	---------	------------	------------	--

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

**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 B4I1230 - EPA 3050B										
Blank (B4I1230-BLK1)					Prepared: 09/12/2024 Analyzed: 09/17/2024					
Arsenic	ND	0.290	mg/kg							
LCS (B4I1230-BS1)					Prepared: 09/12/2024 Analyzed: 09/17/2024					
Arsenic	4.93	0.290	mg/kg	5.00		98.6	80-120			
Matrix Spike (B4I1230-MS1)					Source: E409275-03 Prepared: 09/12/2024 Analyzed: 09/17/2024					
Arsenic	9.75	0.279	mg/kg	4.80	4.82	103	75-125			
Matrix Spike Dup (B4I1230-MSD1)					Source: E409275-03 Prepared: 09/12/2024 Analyzed: 09/17/2024					
Arsenic	9.65	0.282	mg/kg	4.85	4.82	99.6	75-125	0.989	20	

Origins Laboratory



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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B4I1320 - DTPA Sorbitol Preparation

Blank (B4I1320-BLK1)

Prepared: 09/13/2024 Analyzed: 09/16/2024

Boron ND 0.100 mg/L

Duplicate (B4I1320-DUP1)

Source: E409260-01

Prepared: 09/13/2024 Analyzed: 09/16/2024

Boron 0.314 0.100 mg/L 0.283 10.4 50

Batch B4I1616 - Saturated Paste Metals

Blank (B4I1616-BLK1)

Prepared: 09/16/2024 Analyzed: 09/17/2024

SAR ND 0.0100 SAR

Calcium PPM ND 10.0 mg/L

Magnesium PPM ND 10.0 "

Sodium PPM ND 10.0 "

Duplicate (B4I1616-DUP1)

Source: E409270-01

Prepared: 09/16/2024 Analyzed: 09/17/2024

Calcium PPM 41.7 10.0 mg/L 42.6 2.09 50

SAR ND 0.0100 SAR 2.64 200

Magnesium PPM 27.2 10.0 mg/L 27.9 2.39 50

Sodium PPM 89.9 10.0 " 90.1 0.189 50

Origins Laboratory



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.



Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

Saturated Paste - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4I2016 - Saturated Paste pH/EC										
Blank (B4I2016-BLK1)					Prepared: 09/20/2024 Analyzed: 09/24/2024					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B4I2016-DUP1)					Source: E409271-01 Prepared: 09/20/2024 Analyzed: 09/24/2024					
Specific Conductance (EC)	1.57	0.00500	mmhos/cm		1.51			3.54	25	

Origins Laboratory

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.

Environmental Works

AP@environmentalworks.com

Briggsdale CO 80204

Adam Kubat

Project Number: 223274

Project: Taproot - Pintail

Notes and Definitions

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



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.