ANALYTICAL REPORT

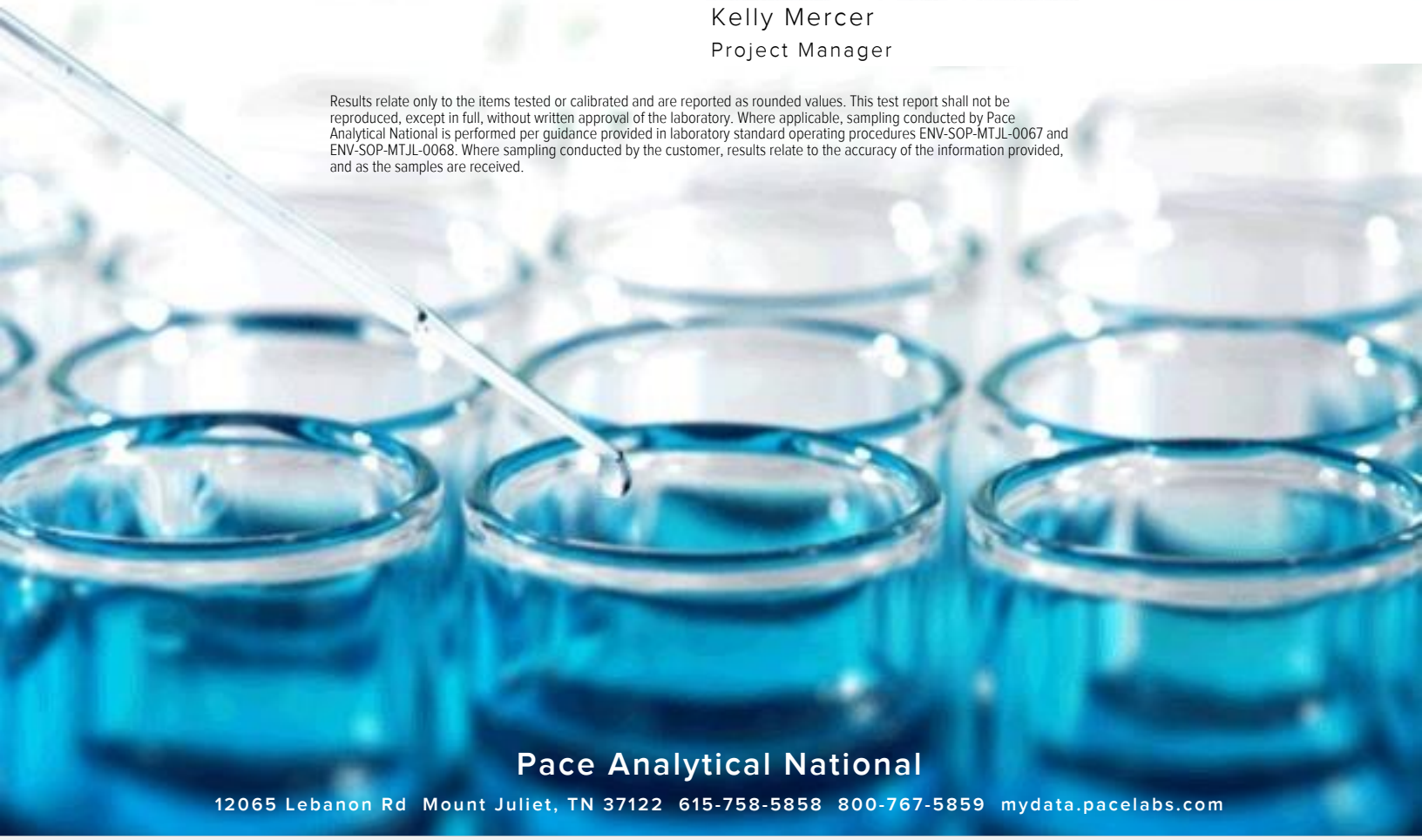
October 07, 2024

Raptor Materials, LLC.

Sample Delivery Group:	L1780398
Samples Received:	09/21/2024
Project Number:	
Description:	P124 - Two Rivers
Site:	P124 GW
Report To:	Ben Wilson 8120 Gage St Frederick, CO 80516

Entire Report Reviewed By:

Kelly Mercer
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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SAMPLE SUMMARY

1-4 L1780398-01 GW

Collected by: Ben Wilson
Collected date/time: 09/20/24 11:28
Received date/time: 09/21/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2368007	1	09/23/24 14:35	09/24/24 14:54	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2367014	1	09/21/24 15:23	09/21/24 15:23	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2367014	5	09/27/24 18:08	09/27/24 18:08	AJC	Mt. Juliet, TN
Mercury by Method 7470A	WG2367198	1	09/22/24 18:56	09/23/24 14:08	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2370613	1	10/04/24 00:35	10/04/24 09:24	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2370616	1	10/04/24 06:11	10/04/24 18:57	LD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Kelly Mercer
Project Manager

Sample Delivery Group (SDG) Narrative

Analysis was filtered in the laboratory.

Lab Sample ID	Project Sample ID	Method
R4128741-6		6020

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	817		13.3	1	09/24/2024 14:54	WG2368007

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate as (N)	8.93		0.100	1	09/21/2024 15:23	WG2367014
Sulfate	417		25.0	5	09/27/2024 18:08	WG2367014

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	09/23/2024 14:08	WG2367198

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Cadmium,Dissolved	ND		0.00200	1	10/04/2024 09:24	WG2370613
Chromium,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Copper,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Lead,Dissolved	ND		0.00600	1	10/04/2024 09:24	WG2370613
Manganese,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Nickel,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Selenium,Dissolved	ND		0.0100	1	10/04/2024 09:24	WG2370613
Zinc,Dissolved	ND		0.0500	1	10/04/2024 09:24	WG2370613

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Manganese,Dissolved	ND		0.00500	1	10/04/2024 18:57	WG2370616
Uranium,Dissolved	0.0175		0.00100	1	10/04/2024 18:57	WG2370616

Method Blank (MB)

(MB) R4124937-1 09/24/24 14:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1780282-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1780282-01 09/24/24 14:54 • (DUP) R4124937-3 09/24/24 14:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	13200	13600	1	2.84		10

L1780498-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1780498-08 09/24/24 14:54 • (DUP) R4124937-4 09/24/24 14:54

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2970	2950	1	0.677		10

Laboratory Control Sample (LCS)

(LCS) R4124937-2 09/24/24 14:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8870	101	85.0-115	

Method Blank (MB)

(MB) R4125534-1 09/21/24 09:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate as (N)	U		0.0884	0.100
Sulfate	U		0.637	5.00

L1780190-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1780190-02 09/21/24 11:35 • (DUP) R4125534-3 09/21/24 11:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	ND	ND	1	0.000		15
Sulfate	2180	2170	1	0.310	E	15

L1780190-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1780190-03 09/21/24 12:26 • (DUP) R4125534-6 09/21/24 12:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	ND	ND	1	0.000		15
Sulfate	ND	ND	1	200	P1	15

Laboratory Control Sample (LCS)

(LCS) R4125534-2 09/21/24 09:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate as (N)	8.00	8.44	106	80.0-120	
Sulfate	40.0	42.4	106	80.0-120	

L1780190-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1780190-02 09/21/24 11:35 • (MS) R4125534-4 09/21/24 12:01 • (MSD) R4125534-5 09/21/24 12:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate as (N)	8.00	ND	5.22	5.21	65.3	65.2	1	80.0-120	J6	J6	0.149	15
Sulfate	40.0	2180	1760	1760	0.000	0.000	1	80.0-120	E V	E V	0.412	15

L1780190-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1780190-03 09/21/24 12:26 • (MS) R4125534-7 09/21/24 12:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate as (N)	8.00	ND	8.65	108	1	80.0-120	
Sulfate	40.0	ND	44.1	108	1	80.0-120	

Method Blank (MB)

(MB) R4123141-1 09/23/24 13:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R4123141-2 09/23/24 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00304	101	80.0-120	

L1780190-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1780190-02 09/23/24 13:38 • (MS) R4123141-4 09/23/24 13:43 • (MSD) R4123141-5 09/23/24 13:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00302	0.00313	101	104	1	75.0-125			3.55	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R4128476-1 10/04/24 09:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic,Dissolved	U		0.00440	0.0100
Cadmium,Dissolved	U		0.000479	0.00200
Chromium,Dissolved	U		0.00140	0.0100
Copper,Dissolved	U		0.00368	0.0100
Lead,Dissolved	U		0.00299	0.00600
Manganese,Dissolved	U		0.000934	0.0100
Nickel,Dissolved	U		0.00161	0.0100
Selenium,Dissolved	U		0.00735	0.0100
Zinc,Dissolved	0.0551		0.00652	0.0500

Laboratory Control Sample (LCS)

(LCS) R4128476-2 10/04/24 09:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic,Dissolved	1.00	0.977	97.7	80.0-120	
Cadmium,Dissolved	1.00	0.956	95.6	80.0-120	
Chromium,Dissolved	1.00	1.03	103	80.0-120	
Copper,Dissolved	1.00	0.996	99.6	80.0-120	
Lead,Dissolved	1.00	0.987	98.7	80.0-120	
Manganese,Dissolved	1.00	1.01	101	80.0-120	
Nickel,Dissolved	1.00	0.988	98.8	80.0-120	
Selenium,Dissolved	1.00	0.980	98.0	80.0-120	
Zinc,Dissolved	1.00	1.07	107	80.0-120	

L1780463-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1780463-01 10/04/24 09:14 • (MS) R4128476-4 10/04/24 09:19 • (MSD) R4128476-5 10/04/24 09:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	1.00	ND	0.954	0.959	95.4	95.9	1	75.0-125			0.553	20
Cadmium,Dissolved	1.00	ND	0.938	0.940	93.8	94.0	1	75.0-125			0.223	20
Chromium,Dissolved	1.00	ND	0.998	0.998	99.8	99.8	1	75.0-125			0.0310	20
Copper,Dissolved	1.00	ND	0.969	0.968	96.9	96.8	1	75.0-125			0.0662	20
Lead,Dissolved	1.00	ND	0.962	0.957	96.2	95.7	1	75.0-125			0.425	20
Manganese,Dissolved	1.00	ND	0.995	0.994	99.3	99.3	1	75.0-125			0.0340	20
Nickel,Dissolved	1.00	ND	0.958	0.953	95.8	95.3	1	75.0-125			0.534	20
Selenium,Dissolved	1.00	ND	0.951	0.951	95.1	95.1	1	75.0-125			0.0300	20
Zinc,Dissolved	1.00	ND	0.988	0.987	98.8	98.7	1	75.0-125			0.0421	20

Method Blank (MB)

(MB) R4128741-1 10/04/24 17:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Manganese,Dissolved	U		0.000704	0.00500
Uranium,Dissolved	U		0.0000789	0.00100

Laboratory Control Sample (LCS)

(LCS) R4128741-2 10/04/24 17:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Manganese,Dissolved	0.0500	0.0486	97.1	80.0-120	
Uranium,Dissolved	0.0500	0.0469	93.8	80.0-120	

L1780540-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1780540-03 10/04/24 17:30 • (MS) R4128741-4 10/04/24 17:36 • (MSD) R4128741-5 10/04/24 17:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Manganese,Dissolved	0.0500	12.0	11.9	11.9	0.000	0.000	1	75.0-125	E V	E V	0.302	20
Uranium,Dissolved	0.0500	0.00372	0.0551	0.0531	103	98.8	1	75.0-125			3.61	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Raptor Materials, LLC.
8120 Gage St
Frederick, CO 80516

Billing Information:
Cathy Clark
8120 Gage St
Frederick, CO 80516

Report to: Ben Wilson

Email To: bwilson@raptormaterialsllc.com

Project Description: P124 - Two Rivers

City/State Collected: Evans, CO

Please Circle: PT (MT) CT ET

Phone: 720-272-2857

Client Project #: P124 GW

Lab Project #: RAPMATFCO-P124 TWO R

Collected by (print): Ben Wilson

Site/Facility ID #:

P.O. #:

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #:

Date Results Needed:

Immediately Packed on Ice N___ Y X

Chain of Custody Page ___ of ___

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MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1780398

B108

Acctnum: RAPMATFCO
Template: T232043
Prelogin: P1101307
PM: 841 - Kelly Mercer
PB:
Shipped Via: FedEX Ground

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	**Nitrate, Sulfate 125mlHDPE-NoPres	Diss Metals 6020 250mlHDPE-HNO3	GROSS ALPHA/BETA 500mlHDPE-Add HNO3	TDS 1L-HDPE NoPres	Total HG 250mlHDPE-HNO3	Remarks	Sample # (lab only)
Pres Chk								<2	<2		<2		
1	Grab	GW		9/20/24	11:28	1				X			-01
2	↓	NPW		↓	↓	1	X						
3						1		X					
4						1					X		
5						2			X				

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks: **Nitrate= 48 hour hold time --Dissolved metals 6010: As, Cd, Cr, Cu, Pb, Mn, Ni, Se, Zn-- Dissolved metals 6020: U, Mn

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ________

Tracking # 7315 3194 7872

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: Y __N
Bottles arrive intact: Y __N
Correct bottles used: Y __N
Sufficient volume sent: Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: Y __N
RAD Screen <0.5 mR/hr: Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	
[signature]	9/20/24	12:46		Trip Blank Received: Yes / (No) HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.3+0.3=0.6 TLA9 °C Bottles Received: 6
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) CRODERO	Date: 092124 Time: 0900

If preservation required by Login: Date/Time

PH = 10BDH0941
TRC = 3327A228

Hold:

Condition: NCF / (OK)