

Narrative

Spill Information

The spill occurred on January 30th, 2021 and consisted of approximately 50 barrels of produced water, all of which was recovered. The spill originated inside the injection building and stayed within the berms located around the injection building – treator – knockout- produced water tanks.

Soil Sampling

In accordance with the COGCC request, on February 11th, 2021, three soil samples were collected within the spill path along with one additional sample collected to determine background concentrations. Due to the ground being frozen, the samples were collected in the upper few inches of the soil (approximately 0-2"). Sample #1 & 2 were collected in fine grained soils. Sample #3 was collected primarily in gravel which was placed after a previous spill excavation in 2019. The locations of the samples are provided on the attached map. The results of the analysis are also attached. The results indicated that the sample #1 & 2 exceeded the Table 915 limits for conductivity. Soil sample #3 exceeded the Table 915 limits for conductivity, SAR and Boron. Wesco believed that exceedances at Sample #3 were from the gravel present in the approximately upper inch of soil at the site.

Because the ground was frozen during the initial sampling and to attempt to collect a sample from beneath the gravel, Wesco collected an additional soil sample at the sample #3 location on March 5th, 2021. This sample is labeled "3-R". This sample was collected from approximately 0-3 inches below ground at the same location as sample #3, with some frost still present in the ground. This sample exceeded Table 915 limits for pH, SAR and Boron. The results are attached. Possibly reflecting a lesser amount of gravel present in the 3-R sample, the concentrations of Conductivity, Calcium, Magnesium, Sodium, SAR and Boron were lower in this sample than sample #3.

On March 31st, two additional soil samples were collected. These were intended to determine if the exceedance at 3-R was limited to shallow soils or extended deeper. The sample was originally planned to be collected at the same location as soil sample #3 and 3-R. However, when the sampler arrived, the area at the location of soil sample #3 and 3-R was under water due to precipitation, so the sample was collected approximately 25 feet west of those samples. The location is indicated on the attached map. Two samples were collected, one from 0-1 inch and the second from 6-7 inches below ground. According to the sampler, the 0-1 inch sample was collected in primarily sand and gravel, while the 6-7 inch sample was collected in primarily silt and clay. The sample from 0-1 inch exceeded the Table 915 standard for SAR, while the sample from 6-7 inches did not exceed any of the Table 915 standards.

Sample Analysis Discussion

The exceedances identified above appear to be limited primarily to the gravel present from approximately 0-1 inch below ground in the area on the eastern side of the spill path. During a discussion with a laboratory, Wesco learned that due to the nature of gravel, the SAR present in the gravel may be mineralogically related rather than spill impact related. This gravel will likely be removed during any future reclamation when the facility is closed. These exceedances will have minimal impact on any future agricultural activities conducted at the site post oil production. In addition, Wesco reviewed spill reports and available analysis for this location dating back to 2013. We were unable to locate any soil analysis with pH, EC, SAR or Boron analysis results exceeding Table 915 standards. Most recently, in 2019 Wesco reported and remediated a produced water spill in the same general area as the eastern portion of the spill path. The initial soil samples (collected before remediation) were analyzed for a variety of constituents, including pH, Conductivity and SAR. For the three soil samples collected, there were no Table 915 exceedances for pH, Conductivity or SAR. These results were submitted to the COGCC as document #402018153. These results are consistent with previously submitted produced water analysis indicating the produced water contains low concentrations of salts and has a low TDS concentration.

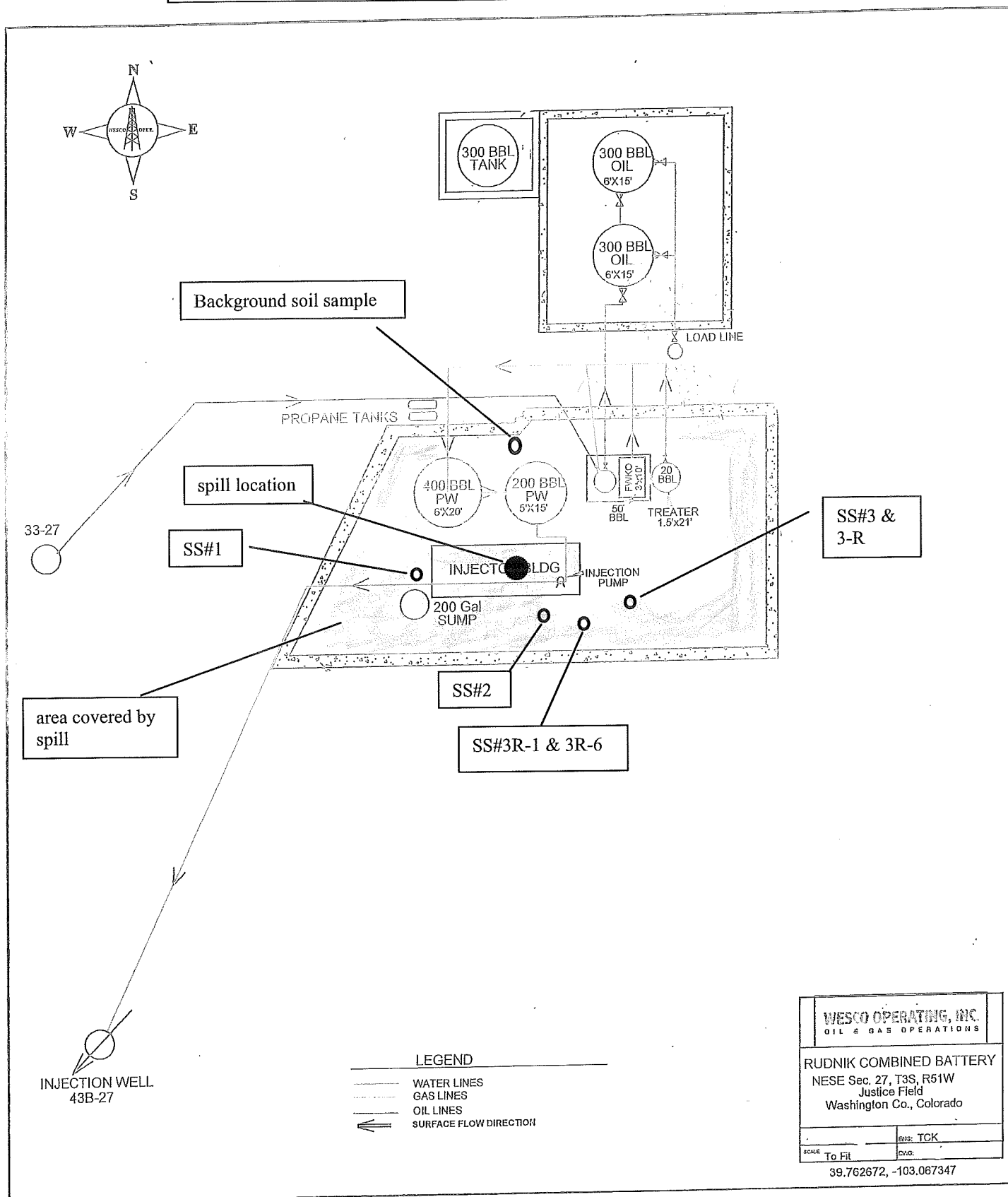
Closure Request

Based on the discussion above, Wesco is requesting spill closure.

End of Narrative

Encl; Updated spill path site map with soil sample locations
Soil analysis

Rudnik Tank Battery January 30th, 2021 Produced Water Spill Soil Sample Location Map





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ANALYTICAL SUMMARY REPORT

March 03, 2021

Wesco Operating Inc
120 S Durbin St
Casper, WY 82602-2512

Work Order: C21020466

Project Name: Rudnik Produced Water Spill

Energy Laboratories, Inc. Casper WY received the following 4 samples for Wesco Operating Inc on 2/12/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C21020466-001	Sample 1	02/11/21 10:00	02/12/21	Soil	Metals, CACL2 Extractable Metals, Saturated Paste Conductivity, Saturated Paste Extract pH, Saturated Paste CaCl2 Hot Water Soil Extraction Saturated Paste Extraction Sodium Adsorption Ratio
C21020466-002	Sample 2	02/11/21 10:05	02/12/21	Soil	Same As Above
C21020466-003	Sample 3	02/11/21 10:00	02/12/21	Soil	Same As Above
C21020466-004	Background	02/11/21 10:05	02/12/21	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Report Approved By:


Project Manager

Digitally signed by
Kasey Vidick
Date: 2021.03.03 15:45:37 -07:00



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CLIENT: Wesco Operating Inc
Project: Rudnik Produced Water Spill
Work Order: C21020466

Revised Date: 03/03/21

Report Date: 02/26/21

CASE NARRATIVE

Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 E.Lyndale Ave., Helena, MT, EPA Number MT00945.

REVISED/SUPPLEMENTAL REPORT

Revised 3/3/2021

Per request from Dave Weinert on 3/1/2021, sample Sample 3 (C21020466-003) was reran for all constituents.

Before re-analysis bottle identifications were verified.

A Boron result of 4.1 mg/kg was originally reported from an analytical run on 2/18/2021.

The sample was re-analyzed on 3/3/2021 with a result of 3.2 mg/kg. The new value will be reported.

However, Conductivity, Ca, Mg, Na and SAR the rerun results confirmed the original result.

The report has been revised and replaces any previously issued report in its entirety.



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: Rudnik Produced Water Spill
Lab ID: C21020466-001
Client Sample ID: Sample 1

Revised Date: 03/03/21
Report Date: 02/26/21
Collection Date: 02/11/21 10:00
Date Received: 02/12/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	7.5	s.u.		0.1		ASA10-3	02/19/21 08:44 / eli-h
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	6.2	mmhos/cm		0.1		ASA10-3	02/19/21 09:25 / eli-h
Calcium, sat. paste	35.1	meq/L		0.05		SW6010B	02/21/21 13:04 / eli-h
Magnesium, sat. paste	8.58	meq/L		0.08		SW6010B	02/21/21 13:04 / eli-h
Sodium, sat. paste	13.3	meq/L		0.04		SW6010B	02/21/21 13:04 / eli-h
Sodium Adsorption Ratio (SAR)	2.9	unitless		0.1		USDA20b	02/23/21 11:47 / eli-h
METALS - CACL2 EXTRACTABLE							
Boron	0.5	mg/kg		0.1		SW6010B	02/18/21 23:04 / eli-h

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: Rudnik Produced Water Spill
Lab ID: C21020466-002
Client Sample ID: Sample 2

Revised Date: 03/03/21
Report Date: 02/26/21
Collection Date: 02/11/21 10:05
Date Received: 02/12/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	7.5	s.u.		0.1		ASA10-3	02/19/21 08:45 / eli-h
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	9.0	mmhos/cm		0.1		ASA10-3	02/19/21 09:26 / eli-h
Calcium, sat. paste	57.7	meq/L		0.05		SW6010B	02/21/21 13:19 / eli-h
Magnesium, sat. paste	12.6	meq/L		0.08		SW6010B	02/21/21 13:19 / eli-h
Sodium, sat. paste	20.7	meq/L		0.04		SW6010B	02/21/21 13:19 / eli-h
Sodium Adsorption Ratio (SAR)	3.5	unitless		0.1		USDA20b	02/23/21 11:47 / eli-h
METALS - CACL2 EXTRACTABLE							
Boron	0.4	mg/kg		0.1		SW6010B	02/18/21 23:19 / eli-h

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: Rudnik Produced Water Spill
Lab ID: C21020466-003
Client Sample ID: Sample 3

Revised Date: 03/03/21
Report Date: 02/26/21
Collection Date: 02/11/21 10:00
Date Received: 02/12/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	8.2	s.u.		0.1		ASA10-3	02/19/21 08:47 / eli-h
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	5.7	mmhos/cm		0.1		ASA10-3	02/19/21 09:27 / eli-h
Calcium, sat. paste	2.87	meq/L		0.05		SW6010B	02/21/21 13:30 / eli-h
Magnesium, sat. paste	0.94	meq/L		0.08		SW6010B	02/21/21 13:30 / eli-h
Sodium, sat. paste	59.3	meq/L		0.04		SW6010B	02/21/21 13:30 / eli-h
Sodium Adsorption Ratio (SAR)	43.0	unitless		0.1		USDA20b	02/23/21 11:47 / eli-h
METALS - CACL2 EXTRACTABLE							
Boron	3.2	mg/kg		0.1		SW6010B	03/03/21 00:50 / eli-h

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: Rudnik Produced Water Spill
Lab ID: C21020466-004
Client Sample ID: Background

Revised Date: 03/03/21
Report Date: 02/26/21
Collection Date: 02/11/21 10:05
Date Received: 02/12/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	7.8	s.u.		0.1		ASA10-3	02/19/21 08:48 / eli-h
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	0.7	mmhos/cm		0.1		ASA10-3	02/19/21 09:28 / eli-h
Calcium, sat. paste	3.97	meq/L		0.05		SW6010B	02/21/21 13:34 / eli-h
Magnesium, sat. paste	1.32	meq/L		0.08		SW6010B	02/21/21 13:34 / eli-h
Sodium, sat. paste	1.11	meq/L		0.04		SW6010B	02/21/21 13:34 / eli-h
Sodium Adsorption Ratio (SAR)	0.7	unitless		0.1		USDA20b	02/23/21 11:47 / eli-h
METALS - CACL2 EXTRACTABLE							
Boron	0.4	mg/kg		0.1		SW6010B	02/18/21 23:34 / eli-h

Report RL - Analyte Reporting Limit
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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3							Analytical Run: SOIL EC_210219A		
Lab ID: ICV_1_210218_1	Initial Calibration Verification Standard								02/19/21 09:18
Conductivity, sat. paste	1.42	mmhos/cm	0.10	100	90	110			
Lab ID: CCV_1_210218_1	Continuing Calibration Verification Standard								02/19/21 09:19
Conductivity, sat. paste	4.94	mmhos/cm	0.10	99	90	110			
Lab ID: CCV1_1_210218_1	Continuing Calibration Verification Standard								02/19/21 09:21
Conductivity, sat. paste	0.970	mmhos/cm	0.10	97	90	110			
Method: ASA10-3							Batch: 55263		
Lab ID: MB-55263	Method Blank								02/19/21 09:22
Conductivity, sat. paste	ND	mmhos/cm	0.05				Run: SOIL EC_210219A		
Lab ID: LCS-55263	Laboratory Control Sample								02/19/21 09:23
Conductivity, sat. paste	4.63	mmhos/cm	0.10	110	80	120	Run: SOIL EC_210219A		
Lab ID: C21020466-004ADUP	Sample Duplicate								02/19/21 09:28
Conductivity, sat. paste	0.608	mmhos/cm	0.10				7.1	20	
Method: ASA10-3							al Run: SOIL PH METER - ORION A211_210219A		
Lab ID: ICV_1_210218_1	Initial Calibration Verification Standard								02/19/21 08:38
pH, sat. paste	7.02	s.u.	0.10	100	98.6	101.4			
Lab ID: CCV_1_210218_1	Continuing Calibration Verification Standard								02/19/21 08:39
pH, sat. paste	7.04	s.u.	0.10	101	98.6	101.4			
Lab ID: CCV1_1_210218_1	Continuing Calibration Verification Standard								02/19/21 08:40
pH, sat. paste	4.01	s.u.	0.10	100	97.5	102.5			
Method: ASA10-3							Batch: 55263		
Lab ID: LCS-55263	Laboratory Control Sample								02/19/21 08:42
pH, sat. paste	8.00	s.u.	0.10	99	95	105	Run: SOIL PH METER - ORION A2		
Lab ID: C21020466-004ADUP	Sample Duplicate								02/19/21 08:49
pH, sat. paste	7.74	s.u.	0.10				0.8	20	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Analytical Run: ICP2-HE_210218B		
Lab ID: ICV	Initial Calibration Verification Standard								02/18/21 20:17
Boron	0.792	mg/L	0.10	99	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								02/18/21 20:21
Boron	2.57	mg/L	0.10	103	90	110			
Lab ID: ICB	Continuing Calibration Blank								02/18/21 20:25
Boron	0.000130	mg/L	0.10						
Lab ID: ICSA	Interference Check Sample A								02/18/21 20:35
Boron	0.00103	mg/L	0.10		0	0			
Lab ID: ICSAB	Interference Check Sample AB								02/18/21 20:39
Boron	1.00	mg/L	0.10	100	80	120			
Method: SW6010B							Batch: 55262		
Lab ID: MB-55262	Method Blank								02/18/21 22:52
Boron	ND	mg/kg	0.004						
Lab ID: LFB-55262	Laboratory Fortified Blank								02/18/21 22:56
Boron	1.96	mg/kg	0.10	98	80	120			
Lab ID: LCS-55262	Laboratory Control Sample								02/18/21 23:00
Boron	0.745	mg/kg	0.10	95	70	130			
Lab ID: C21020466-001AMS2	Sample Matrix Spike								02/18/21 23:12
Boron	2.56	mg/kg	0.10	105	75	125			
Lab ID: C21020466-001AMSD2	Sample Matrix Spike Duplicate								02/18/21 23:15
Boron	2.44	mg/kg	0.10	99	75	125	4.8	20	
Lab ID: C21020466-004Adup	Sample Duplicate								02/18/21 23:38
Boron	0.443	mg/kg	0.10				3.6	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Analytical Run: ICP2-HE_210221B		
Lab ID: ICV	Initial Calibration Verification Standard							02/21/21 08:25	
Calcium	40.4	mg/L	1.0	101	90	110			
Magnesium	40.2	mg/L	1.0	101	90	110			
Sodium	40.5	mg/L	1.0	101	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							02/21/21 08:29	
Calcium	25.4	mg/L	1.0	102	90	110			
Magnesium	25.0	mg/L	1.0	100	90	110			
Sodium	24.6	mg/L	1.0	98	90	110			
Lab ID: ICB	Continuing Calibration Blank							02/21/21 08:32	
Calcium	0.0488	mg/L	1.0						
Magnesium	0.00722	mg/L	1.0						
Sodium	0.00363	mg/L	1.0						
Lab ID: ICSA	Interference Check Sample A							02/21/21 08:40	
Calcium	496	mg/L	1.0	99	80	120			
Magnesium	547	mg/L	1.0	109	80	120			
Sodium	0.0126	mg/L	1.0		0	0			
Lab ID: ICSAB	Interference Check Sample AB							02/21/21 08:44	
Calcium	493	mg/L	1.0	99	80	120			
Magnesium	545	mg/L	1.0	109	80	120			
Sodium	20.5	mg/L	1.0	103	80	120			
Method: SW6010B							Batch: 55263		
Lab ID: MB-55263	Method Blank			Run: ICP2-HE_210221B			02/21/21 12:53		
Calcium	ND	mg/L	0.08						
Magnesium	ND	mg/L	0.01						
Sodium	ND	mg/L	0.05						
Calcium, sat. paste	ND	meq/L	0.004						
Magnesium, sat. paste	ND	meq/L	0.001						
Sodium, sat. paste	ND	meq/L	0.002						
Lab ID: LFB-55263	Laboratory Fortified Blank			Run: ICP2-HE_210221B			02/21/21 12:56		
Calcium	50.0	mg/L	1.0	100	80	120			
Magnesium	50.1	mg/L	1.0	100	80	120			
Sodium	51.6	mg/L	1.0	103	80	120			
Calcium, sat. paste	2.49	meq/L	0.050	100	80	120			
Magnesium, sat. paste	4.12	meq/L	0.082	100	80	120			
Sodium, sat. paste	2.24	meq/L	0.043	103	80	120			
Lab ID: LCS-55263	Laboratory Control Sample			Run: ICP2-HE_210221B			02/21/21 13:00		
Calcium	273	mg/L	1.0	125	70	130			
Magnesium	102	mg/L	1.0	120	70	130			
Sodium	793	mg/L	1.0	129	70	130			

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Batch: 55263		
Lab ID: LCS-55263	Laboratory Control Sample				Run: ICP2-HE_210221B		02/21/21 13:00		
Calcium, sat. paste	13.6	meq/L	0.050	125	70	130			
Magnesium, sat. paste	8.40	meq/L	0.082	120	70	130			
Sodium, sat. paste	34.5	meq/L	0.043	129	70	130			
Lab ID: C21020466-001AMS2	Sample Matrix Spike				Run: ICP2-HE_210221B		02/21/21 13:11		
Calcium	1230	mg/L	1.0	106	70	130			
Magnesium	596	mg/L	1.6	98	70	130			
Sodium	838	mg/L	1.0	106	70	130			
Calcium, sat. paste	61.5	meq/L	0.050	106	70	130			
Magnesium, sat. paste	49.0	meq/L	0.13	98	70	130			
Sodium, sat. paste	36.4	meq/L	0.043	106	70	130			
Lab ID: C21020466-001AMSD2	Sample Matrix Spike Duplicate				Run: ICP2-HE_210221B		02/21/21 13:15		
Calcium	1230	mg/L	1.0	106	70	130	0.0	20	
Magnesium	591	mg/L	1.6	97	70	130	0.7	20	
Sodium	835	mg/L	1.0	106	70	130	0.4	20	
Calcium, sat. paste	61.5	meq/L	0.050	106	70	130	0.0	20	
Magnesium, sat. paste	48.6	meq/L	0.13	97	70	130	0.7	20	
Sodium, sat. paste	36.3	meq/L	0.043	106	70	130	0.4	20	
Lab ID: C21020466-004Adup	Sample Duplicate				Run: ICP2-HE_210221B		02/21/21 13:37		
Calcium	73.0	mg/L	1.0				8.6	30	
Magnesium	14.7	mg/L	1.0				8.6	30	
Sodium	23.5	mg/L	1.0				8.7	30	
Calcium, sat. paste	3.64	meq/L	0.050				8.6	30	
Magnesium, sat. paste	1.21	meq/L	0.082				8.6	30	
Sodium, sat. paste	1.02	meq/L	0.043				8.7	30	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Analytical Run: ICP2-HE_210302B		
Lab ID: ICV	Initial Calibration Verification Standard								03/02/21 19:54
Boron	0.815	mg/L	0.10	102	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								03/02/21 19:57
Boron	2.52	mg/L	0.10	101	90	110			
Lab ID: ICB	Continuing Calibration Blank								03/02/21 20:01
Boron	0.00109	mg/L	0.10						
Lab ID: ICSA	Interference Check Sample A								03/02/21 20:08
Boron	-0.000750	mg/L	0.10		0	0			
Lab ID: ICSAB	Interference Check Sample AB								03/02/21 20:12
Boron	1.01	mg/L	0.10	101	80	120			
Method: SW6010B							Batch: 55352		
Lab ID: MB-55352	Method Blank				Run: ICP2-HE_210302B			03/03/21 00:20	
Boron	0.005	mg/kg	0.004						
Lab ID: LFB-55352	Laboratory Fortified Blank				Run: ICP2-HE_210302B			03/03/21 00:24	
Boron	1.93	mg/kg	0.10	97	80	120			
Lab ID: LCS-55352	Laboratory Control Sample				Run: ICP2-HE_210302B			03/03/21 00:27	
Boron	0.931	mg/kg	0.10	118	70	130			
Lab ID: C21020466-001AMS2	Sample Matrix Spike				Run: ICP2-HE_210302B			03/03/21 00:39	
Boron	2.42	mg/kg	0.10	97	75	125			
Lab ID: C21020466-001AMSD2	Sample Matrix Spike Duplicate				Run: ICP2-HE_210302B			03/03/21 00:43	
Boron	2.46	mg/kg	0.10	100	75	125	1.9	20	
Lab ID: C21020466-003Adup	Sample Duplicate				Run: ICP2-HE_210302B			03/03/21 01:01	
Boron	3.17	mg/kg	0.10				1.1	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21020466

Report Date: 03/03/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA20b									Batch: R162645
Lab ID: C21020466-004ADUP	Sample Duplicate					Run: SOIL CALC_210223A			02/23/21 11:47
Sodium Adsorption Ratio (SAR)	0.660	unitless	0.10				3.0		30
Lab ID: LCS-55263	Laboratory Control Sample					Run: SOIL CALC_210223A			02/23/21 11:47
Sodium Adsorption Ratio (SAR)	10.4	unitless	0.10	118	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Work Order Receipt Checklist

Wesco Operating Inc

C21020466

Login completed by: Kirsten L. Smith

Date Received: 2/12/2021

Reviewed by: Misty Stephens

Received by: mej

Reviewed Date: 2/16/2021

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	-7.6°C From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None




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Page of

Report Information (if different than Account Information)

Comments

Company/Name
Contact
Phone
Mailing Address
City, State, Zip
Email
Receive Report <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email
Special Report/Remarks:
<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NEIAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other _____



Project Name, PWSID, Permit, etc. Rudnik produced water spill

W -	Water
S -	Soils/ Solids
V -	Vegetation
B -	Bioassay
O -	Oil
DW -	Drinking Water

Energy Laboratories
MUST be contacted prior to
RUSH sample submittal for
charges and scheduling –
See Instructions Page

[illegible]

EI is REQUIRED to provide preservative traceability. If the preservatives supplied with the bottle order were NOT used, please attach your preservative information with this COC.

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
Shipped By	Cooler ID(s)	Custody Seals	Initial	Receipt Temp	Temp Blank	On Ice
Hanna	✓	Y N ✓ B	Y / N	7.10 °C	Y / N	Y / N
LABORATORY USE ONLY						
Payment Type				Amount		Receipt Number (cash/check only)
CC Cash Check				\$		

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



ANALYTICAL SUMMARY REPORT

July 20, 2021

Wesco Operating Inc
120 S Durbin St
Casper, WY 82602-2512

Work Order: C21030290

Project Name: Rudnik Resample

Energy Laboratories, Inc. Casper WY received the following 1 sample for Wesco Operating Inc on 3/8/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C21030290-001	3-R	03/05/21 12:30	03/08/21	Soil	Metals, CaCl ₂ Extractable Metals, Saturated Paste Conductivity, Saturated Paste Extract pH, Saturated Paste CaCl ₂ Hot Water Soil Extraction Saturated Paste Extraction Sodium Adsorption Ratio

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

Kasey Vidick
Project Manager

Digitally signed by
Kasey Vidick
Date: 2021.07.20 16:36:07 -06:00



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CLIENT: Wesco Operating Inc
Project: Rudnik Resample
Work Order: C21030290

Revised Date: 07/20/21

Report Date: 03/24/21

CASE NARRATIVE

Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 E.Lyndale Ave., Helena, MT, EPA Number MT00945.

REVISED/SUPPLEMENTAL REPORT

Revised 7/20/2021

Per request from Dave Weinert on 7/20/2021, the project name has been updated to Rudnik Resample.

The report has been revised and replaces any previously issued report in its entirety.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: Rudnik Resample
Lab ID: C21030290-001
Client Sample ID: 3-R

Revised Date: 07/20/21
Report Date: 03/24/21
Collection Date: 03/05/21 12:30
Date Received: 03/08/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	8.4	s.u.		0.1		ASA10-3	03/12/21 09:18 / eli-h
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	3.4	mmhos/cm		0.1		ASA10-3	03/12/21 10:51 / eli-h
Calcium, sat. paste	1.26	meq/L		0.05		SW6010B	03/14/21 17:19 / eli-h
Magnesium, sat. paste	0.49	meq/L		0.08		SW6010B	03/14/21 17:19 / eli-h
Sodium, sat. paste	32.1	meq/L		0.04		SW6010B	03/14/21 17:19 / eli-h
Sodium Adsorption Ratio (SAR)	34.3	unitless		0.1		USDA20b	03/15/21 11:31 / eli-h
METALS - CACL2 EXTRACTABLE							
Boron	2.1	mg/kg		0.1		SW6010B	03/12/21 03:44 / eli-h

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21030290

Report Date: 03/19/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3							Analytical Run: SOIL EC_210315A		
Lab ID: ICV_1_210311_1	Initial Calibration Verification Standard								03/12/21 10:43
Conductivity, sat. paste	1.39	mmhos/cm	0.10	98	90	110			
Lab ID: CCV_1_210311_1	Continuing Calibration Verification Standard								03/12/21 10:46
Conductivity, sat. paste	4.60	mmhos/cm	0.10	92	90	110			
Lab ID: CCV1_1_210311_1	Continuing Calibration Verification Standard								03/12/21 10:47
Conductivity, sat. paste	0.929	mmhos/cm	0.10	93	90	110			
Method: ASA10-3							Batch: 55468		
Lab ID: MB-55468	Method Blank								03/12/21 10:48
Conductivity, sat. paste	ND	mmhos/cm	0.05				Run: SOIL EC_210315A		
Lab ID: LCS-55468	Laboratory Control Sample								03/12/21 10:48
Conductivity, sat. paste	4.24	mmhos/cm	0.10	101	80	120	Run: SOIL EC_210315A		
Lab ID: H21030237-001ADUP	Sample Duplicate								03/12/21 10:57
Conductivity, sat. paste	0.279	mmhos/cm	0.10				8.0	20	
Method: ASA10-3							al Run: SOIL PH METER - ORION A211_210315A		
Lab ID: ICV_1_210311_1	Initial Calibration Verification Standard								03/12/21 09:06
pH, sat. paste	7.04	s.u.	0.10	101	98.6	101.4			
Lab ID: CCV_1_210311_1	Continuing Calibration Verification Standard								03/12/21 09:08
pH, sat. paste	7.02	s.u.	0.10	100	98.6	101.4			
Lab ID: CCV1_1_210311_1	Continuing Calibration Verification Standard								03/12/21 09:10
pH, sat. paste	4.01	s.u.	0.10	100	97.5	102.5			
Method: ASA10-3							Batch: 55468		
Lab ID: LCS-55468	Laboratory Control Sample								03/12/21 09:11
pH, sat. paste	8.09	s.u.	0.10	101	95	105	Run: SOIL PH METER - ORION A2		
Lab ID: H21030237-001ADUP	Sample Duplicate								03/12/21 09:22
pH, sat. paste	7.92	s.u.	0.10				0.3	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21030290

Report Date: 03/19/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Analytical Run: ICP2-HE_210311B		
Lab ID: ICV	Initial Calibration Verification Standard								03/11/21 20:35
Boron	0.808	mg/L	0.10	101	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								03/11/21 20:39
Boron	2.45	mg/L	0.10	98	90	110			
Lab ID: ICB	Continuing Calibration Blank								03/11/21 20:42
Boron	0.000450	mg/L	0.10						
Lab ID: ICSA	Interference Check Sample A								03/11/21 20:50
Boron	0.00246	mg/L	0.10		0	0			
Lab ID: ICSAB	Interference Check Sample AB								03/11/21 20:54
Boron	0.988	mg/L	0.10	99	80	120			
Method: SW6010B							Batch: 55470		
Lab ID: MB-55470	Method Blank								03/12/21 02:57
Boron	ND	mg/kg	0.004						
Lab ID: LFB-55470	Laboratory Fortified Blank								03/12/21 03:01
Boron	1.91	mg/kg	0.10	95	80	120			
Lab ID: LCS-55470	Laboratory Control Sample								03/12/21 03:05
Boron	0.847	mg/kg	0.10	108	70	130			
Lab ID: H21030235-001AMS2	Sample Matrix Spike								03/12/21 03:24
Boron	5.06	mg/kg	0.10	94	75	125			
Lab ID: H21030235-001AMSD2	Sample Matrix Spike Duplicate								03/12/21 03:28
Boron	5.07	mg/kg	0.10	94	75	125	0.2	20	
Lab ID: H21030237-001Adup	Sample Duplicate								03/12/21 03:52
Boron	0.486	mg/kg	0.10				11	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21030290

Report Date: 03/19/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B							Analytical Run: ICP2-HE_210314B		
Lab ID: ICV	Initial Calibration Verification Standard							03/14/21 11:02	
Calcium	39.3	mg/L	1.0	98	90	110			
Magnesium	39.1	mg/L	1.0	98	90	110			
Sodium	39.9	mg/L	1.0	100	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							03/14/21 11:06	
Calcium	25.4	mg/L	1.0	102	90	110			
Magnesium	24.8	mg/L	1.0	99	90	110			
Sodium	26.1	mg/L	1.0	105	90	110			
Lab ID: ICB	Continuing Calibration Blank							03/14/21 11:09	
Calcium	0.0460	mg/L	1.0						
Magnesium	0.00505	mg/L	1.0						
Sodium	-0.0189	mg/L	1.0						
Lab ID: ICSA	Interference Check Sample A							03/14/21 11:17	
Calcium	489	mg/L	1.0	98	80	120			
Magnesium	538	mg/L	1.0	108	80	120			
Sodium	0.00513	mg/L	1.0		0	0			
Lab ID: ICSAB	Interference Check Sample AB							03/14/21 11:21	
Calcium	485	mg/L	1.0	97	80	120			
Magnesium	534	mg/L	1.0	107	80	120			
Sodium	20.8	mg/L	1.0	104	80	120			
Method: SW6010B							Batch: 55468		
Lab ID: MB-55468	Method Blank			Run: ICP2-HE_210314B			03/14/21 16:33		
Calcium	ND	mg/L	0.08						
Magnesium	ND	mg/L	0.01						
Sodium	ND	mg/L	0.05						
Calcium, sat. paste	ND	meq/L	0.004						
Magnesium, sat. paste	ND	meq/L	0.001						
Sodium, sat. paste	ND	meq/L	0.002						
Lab ID: LFB-55468	Laboratory Fortified Blank			Run: ICP2-HE_210314B			03/14/21 16:37		
Calcium	50.2	mg/L	1.0	100	80	120			
Magnesium	50.5	mg/L	1.0	101	80	120			
Sodium	51.7	mg/L	1.0	103	80	120			
Calcium, sat. paste	2.50	meq/L	0.050	100	80	120			
Magnesium, sat. paste	4.16	meq/L	0.082	101	80	120			
Sodium, sat. paste	2.25	meq/L	0.043	103	80	120			
Lab ID: LCS-55468	Laboratory Control Sample			Run: ICP2-HE_210314B			03/14/21 16:41		
Calcium	239	mg/L	1.0	110	70	130			
Magnesium	89.0	mg/L	1.0	105	70	130			
Sodium	707	mg/L	1.0	115	70	130			

Qualifiers:

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ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21030290

Report Date: 03/19/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 55468
Lab ID: LCS-55468	Laboratory Control Sample				Run: ICP2-HE_210314B			03/14/21 16:41	
Calcium, sat. paste	11.9	meq/L	0.050	110	70	130			
Magnesium, sat. paste	7.33	meq/L	0.082	105	70	130			
Sodium, sat. paste	30.7	meq/L	0.043	115	70	130			
Lab ID: H21030235-004AMS2	Sample Matrix Spike				Run: ICP2-HE_210314B			03/14/21 17:12	
Calcium	114	mg/L	1.0	96	70	130			
Magnesium	102	mg/L	1.0	97	70	130			
Sodium	468	mg/L	1.0	99	70	130			
Calcium, sat. paste	5.67	meq/L	0.050	96	70	130			
Magnesium, sat. paste	8.39	meq/L	0.082	97	70	130			
Sodium, sat. paste	20.4	meq/L	0.043	99	70	130			
Lab ID: H21030235-004AMSD2	Sample Matrix Spike Duplicate				Run: ICP2-HE_210314B			03/14/21 17:16	
Calcium	113	mg/L	1.0	95	70	130	0.8	20	
Magnesium	101	mg/L	1.0	96	70	130	1.3	20	
Sodium	464	mg/L	1.0	95	70	130	0.9	20	
Calcium, sat. paste	5.62	meq/L	0.050	95	70	130	0.8	20	
Magnesium, sat. paste	8.28	meq/L	0.082	96	70	130	1.3	20	
Sodium, sat. paste	20.2	meq/L	0.043	95	70	130	0.9	20	
Lab ID: H21030237-001ADUP	Sample Duplicate				Run: ICP2-HE_210314B			03/14/21 17:27	
Calcium	40.2	mg/L	1.0				24	30	
Magnesium	7.22	mg/L	1.0				16	30	
Sodium	10.9	mg/L	1.0				18	30	
Calcium, sat. paste	2.01	meq/L	0.050				24	30	
Magnesium, sat. paste	0.594	meq/L	0.082				16	30	
Sodium, sat. paste	0.474	meq/L	0.043				18	30	

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Wesco Operating Inc

Work Order: C21030290

Report Date: 03/19/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA20b									Batch: R163172
Lab ID: H21030237-001ADUP	Sample Duplicate					Run: SOIL CALC_210315A			03/15/21 11:31
Sodium Adsorption Ratio (SAR)	0.410	unitless	0.10				5.0		30
Lab ID: LCS-55468	Laboratory Control Sample					Run: SOIL CALC_210315A			03/15/21 11:31
Sodium Adsorption Ratio (SAR)	9.90	unitless	0.10	113	80	120			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Work Order Receipt Checklist

Wesco Operating Inc

C21030290

Login completed by: Megan E. Jensen

Date Received: 3/8/2021

Reviewed by: Misty Stephens

Received by: mej

Reviewed Date: 3/9/2021

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	17.2°C No Ice - From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None



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Page of

Report Information (if different than Account Information)

Comments

Company/Name _____

Contact _____

Phone _____

Mailing Address _____

City, State, Zip _____

Email _____

Receive Report ☐ Hard Copy ☐ Email _____

Special Report/Forms: _____

☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

All turnaround times are standard unless marked as RUSH.

Energy Laboratories
MUST be contacted prior to RUSH sample submittal for charges and scheduling –
See Instructions Page

See Attached

021030790

~~In certain circumstances,~~ samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



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ANALYTICAL SUMMARY REPORT

April 07, 2021

Wesco Operating Inc
120 S Durbin St
Casper, WY 82602-2512

Work Order: C21040040

Project Name: 3R 1 inch (Rudnik)

Energy Laboratories, Inc. Casper WY received the following 1 sample for Wesco Operating Inc on 4/1/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C21040040-001	3R 1 inch	03/31/21 14:45	04/01/21	Soil	Metals, CACL2 Extractable Metals, Saturated Paste Conductivity, Saturated Paste Extract pH, Saturated Paste CaCl2 Hot Water Soil Extraction Saturated Paste Extraction Sodium Adsorption Ratio

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Report Approved By:

Kasey Vidick
Project Manager

Digitally signed by
Kasey Vidick
Date: 2021.04.07 17:26:36 -06:00



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CLIENT: Wesco Operating Inc
Project: 3R 1 inch (Rudnik)
Work Order: C21040040

Report Date: 04/07/21

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: 3R 1 inch (Rudnik)
Lab ID: C21040040-001
Client Sample ID: 3R 1 inch

Report Date: 04/07/21
Collection Date: 03/31/21 14:45
Date Received: 04/01/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	8.1	s.u.		0.1		ASA10-3	04/06/21 14:47 / eli-b
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	1.3	mmhos/cm		0.1		ASA10-3	04/06/21 14:47 / eli-b
Calcium, sat. paste	1.06	meq/L		0.05		SW6010B	04/07/21 13:47 / eli-b
Magnesium, sat. paste	0.25	meq/L		0.08		SW6010B	04/07/21 13:47 / eli-b
Sodium, sat. paste	12.5	meq/L		0.04		SW6010B	04/07/21 13:47 / eli-b
Sodium Adsorption Ratio (SAR)	15.4	unitless		0.01		Calculation	04/07/21 14:49 / eli-b
METALS - CACL2 EXTRACTABLE							
Boron	0.8	mg/kg		0.1		SW6010B	04/07/21 13:10 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040040

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 154240
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210406B			04/06/21 14:47
Conductivity, sat. paste	4.88	mmhos/cm	0.10				1.2	30	
Lab ID: LCS-2104061447	Laboratory Control Sample					Run: MISC-SOIL_210406B			04/06/21 14:47
Conductivity, sat. paste	4.20	mmhos/cm	0.10	102	70	130			
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210406B			04/06/21 14:47
pH, sat. paste	7.00	s.u.	0.10				1.4	10	
Lab ID: LCS-2104061447	Laboratory Control Sample					Run: MISC-SOIL_210406B			04/06/21 14:47
pH, sat. paste	7.10	s.u.	0.10	95	90	110			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040040

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Calculation									Batch: R358832
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210407A			04/07/21 14:49
Sodium Adsorption Ratio (SAR)	2.24	unitless	0.010				1.8	30	
Lab ID: LCS-2104071449	Laboratory Control Sample					Run: MISC-SOIL_210407A			04/07/21 14:49
Sodium Adsorption Ratio (SAR)	10.1	unitless	0.010	107	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040040

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 154240
Lab ID: LCS-154240	Laboratory Control Sample		Run: ICP203-B_210407A			04/07/21 12:48			
Calcium, sat. paste	15.1	meq/L	0.074	112	70	130			
Magnesium, sat. paste	6.07	meq/L	0.082	83	70	130			
Sodium, sat. paste	32.3	meq/L	0.058	111	70	130			
Lab ID: B21032194-001A DUP	Sample Duplicate		Run: ICP203-B_210407A			04/07/21 12:57			
Calcium, sat. paste	28.9	meq/L	0.074				3.5	30	
Magnesium, sat. paste	36.2	meq/L	0.082				1.9	30	
Sodium, sat. paste	12.8	meq/L	0.058				3.0	30	
Lab ID: B21040149-001AMS2	Sample Matrix Spike		Run: ICP203-B_210407A			04/07/21 13:38			
Calcium, sat. paste	8.99	meq/L	0.050	98	70	130			
Magnesium, sat. paste	9.03	meq/L	0.082	93	70	130			
Sodium, sat. paste	7.14	meq/L	0.043	104	70	130			
Method: SW6010B									Batch: 154250
Lab ID: LCS-154250	Laboratory Control Sample		Run: ICP203-B_210407A			04/07/21 13:06			
Boron	0.607	mg/kg	0.10	100	70	130			
Lab ID: C21040040-001A DUP	Sample Duplicate		Run: ICP203-B_210407A			04/07/21 13:14			
Boron	0.765	mg/kg	0.10				3.2	30	
Lab ID: B21040171-001AMS2	Sample Matrix Spike		Run: ICP203-B_210407A			04/07/21 13:23			
Boron	10.3	mg/kg	0.10	100	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Work Order Receipt Checklist

Wesco Operating Inc

C21040040

Login completed by: Kirsten L. Smith

Date Received: 4/1/2021

Reviewed by: Misty Stephens

Received by: met

Reviewed Date: 4/2/2021

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	10.4°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None



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Chain of Custody & Analytical Request Record

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Account Information (Billing Information)

Company Name	Stressco Operating Inc		
Contact	Dave Welneff		
Phone	807-577-5324		
Mailing Address	P.O. Box 1650		
City, State, Zip	Casper, WY, 82402		
Email	dave@stresscooperating.com		
Receive Invoice	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	
Receive Report	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	
Purchase Order	Quote	Bottle Order	

Report Information (if different than Account Information)

Company Name	Stressco Operating Inc		
Contact	Dave Welneff		
Phone	807-577-5324		
Mailing Address	P.O. Box 1650		
City, State, Zip	Casper, WY, 82402		
Email	dave@stresscooperating.com		
Receive Report	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	
Special Report/Format:	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other		

Comments

Sample 28.

Project Information

Project Name, PWSID, Permit, etc.	3R / inch (Radonik)		
Sampler Name	Daniel Hartsfield	Sampler Phone	307-251-9764
Sample Origin State	CO	EPA/State Compliance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
URANIUM MINING CLIENTS MUST indicate sample type.			
<input type="checkbox"/> NOT Source or Byproduct Material			
<input type="checkbox"/> Source/Processed Ore (Ground or Refined) --CALL BEFORE SENDING			
<input type="checkbox"/> 116 (2) Byproduct Material (Can ONLY be Submitted to EIL Casper Location)			

Matrix Codes

- A - Air
- W - Water
- S - Soils
- V - Vegetation
- B - Bioassay
- O - Other
- DW - Drinking Water

Analysis Requested

Matrix Codes	Analysis Requested
A - Air	
W - Water	
S - Soils	
V - Vegetation	
B - Bioassay	
O - Other	
DW - Drinking Water	

Sample Identification

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	Analysis Requested	Signature
	Date	Time				
1. 3R / inch	3/31/2008	2:54pm	1	S	PH Baron EC SAR	See Attached
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Signature

Signature: [Signature]

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Daniel Hartsfield	3/31/2008 12:00pm	[Signature]	[Signature]	3/31/2008 12:08	[Signature]

LABORATORY USE ONLY

Shipped By	MAVD	Cooler ID(s)	ELS	Custody Seals	Y	N	C	B	Intact	Y	N	Receipt Temp	10.4 °C	Temp Blank	Y	N	On Ice	Y	N	CC	Cash	Check	Payment Type	Amount	Receipt Number (cash/check only)
------------	------	--------------	-----	---------------	---	---	---	---	--------	---	---	--------------	---------	------------	---	---	--------	---	---	----	------	-------	--------------	--------	----------------------------------

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



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ANALYTICAL SUMMARY REPORT

April 07, 2021

Wesco Operating Inc
120 S Durbin St
Casper, WY 82602-2512

Work Order: C21040039

Project Name: 3R 6inch (Rudnick)

Energy Laboratories, Inc. Casper WY received the following 1 sample for Wesco Operating Inc on 4/1/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C21040039-001	3R 6inch	03/31/21 15:10	04/01/21	Soil	Metals, CACL2 Extractable Metals, Saturated Paste Conductivity, Saturated Paste Extract pH, Saturated Paste CaCl2 Hot Water Soil Extraction Saturated Paste Extraction Sodium Adsorption Ratio

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Report Approved By:

Kasey Vidick
Project Manager

Digitally signed by
Kasey Vidick
Date: 2021.04.07 17:28:17 -06:00



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CLIENT: Wesco Operating Inc
Project: 3R 6inch (Rudnick)
Work Order: C21040039

Report Date: 04/07/21

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Wesco Operating Inc
Project: 3R 6inch (Rudnick)
Lab ID: C21040039-001
Client Sample ID: 3R 6inch

Report Date: 04/07/21
Collection Date: 03/31/21 15:10
Date Received: 04/01/21
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SATURATED PASTE							
pH, sat. paste	7.4	s.u.		0.1		ASA10-3	04/06/21 14:47 / eli-b
SATURATED PASTE EXTRACT							
Conductivity, sat. paste	1.7	mmhos/cm		0.1		ASA10-3	04/06/21 14:47 / eli-b
Calcium, sat. paste	5.84	meq/L		0.05		SW6010B	04/07/21 13:51 / eli-b
Magnesium, sat. paste	1.41	meq/L		0.08		SW6010B	04/07/21 13:51 / eli-b
Sodium, sat. paste	8.76	meq/L		0.04		SW6010B	04/07/21 13:51 / eli-b
Sodium Adsorption Ratio (SAR)	4.60	unitless		0.01		Calculation	04/07/21 14:49 / eli-b
METALS - CACL2 EXTRACTABLE							
Boron	0.3	mg/kg		0.1		SW6010B	04/07/21 13:19 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040039

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 154240
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210406B			04/06/21 14:47
Conductivity, sat. paste	4.88	mmhos/cm	0.10				1.2		30
Lab ID: LCS-2104061447	Laboratory Control Sample					Run: MISC-SOIL_210406B			04/06/21 14:47
Conductivity, sat. paste	4.20	mmhos/cm	0.10	102	70	130			
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210406B			04/06/21 14:47
pH, sat. paste	7.00	s.u.	0.10				1.4		10
Lab ID: LCS-2104061447	Laboratory Control Sample					Run: MISC-SOIL_210406B			04/06/21 14:47
pH, sat. paste	7.10	s.u.	0.10	95	90	110			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040039

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Calculation									Batch: R358832
Lab ID: B21032194-001A DUP	Sample Duplicate					Run: MISC-SOIL_210407A			04/07/21 14:49
Sodium Adsorption Ratio (SAR)	2.24	unitless	0.010				1.8	30	
Lab ID: LCS-2104071449	Laboratory Control Sample					Run: MISC-SOIL_210407A			04/07/21 14:49
Sodium Adsorption Ratio (SAR)	10.1	unitless	0.010	107	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Wesco Operating Inc

Work Order: C21040039

Report Date: 04/07/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 154240
Lab ID: LCS-154240	Laboratory Control Sample								04/07/21 12:48
Calcium, sat. paste	15.1	meq/L	0.074	112	70	130			
Magnesium, sat. paste	6.07	meq/L	0.082	83	70	130			
Sodium, sat. paste	32.3	meq/L	0.058	111	70	130			
Lab ID: B21032194-001A DUP	Sample Duplicate								04/07/21 12:57
Calcium, sat. paste	28.9	meq/L	0.074				3.5	30	
Magnesium, sat. paste	36.2	meq/L	0.082				1.9	30	
Sodium, sat. paste	12.8	meq/L	0.058				3.0	30	
Lab ID: B21040149-001AMS2	Sample Matrix Spike								04/07/21 13:38
Calcium, sat. paste	8.99	meq/L	0.050	98	70	130			
Magnesium, sat. paste	9.03	meq/L	0.082	93	70	130			
Sodium, sat. paste	7.14	meq/L	0.043	104	70	130			
Method: SW6010B									Batch: 154250
Lab ID: LCS-154250	Laboratory Control Sample								04/07/21 13:06
Boron	0.607	mg/kg	0.10	100	70	130			
Lab ID: B21040170-001A DUP	Sample Duplicate								04/07/21 13:14
Boron	0.765	mg/kg	0.10				3.2	30	
Lab ID: C21040039-001AMS2	Sample Matrix Spike								04/07/21 13:23
Boron	10.3	mg/kg	0.10	100	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Work Order Receipt Checklist

Wesco Operating Inc

C21040039

Login completed by: Kirsten L. Smith

Date Received: 4/1/2021

Reviewed by: Misty Stephens

Received by: met

Reviewed Date: 4/2/2021

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	10.4°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None



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Chain of Custody & Analytical Request Record

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Account Information (Billing Information)

Company Name	WESB Operating Inc		
Contact	Dave Weinert		
Phone	307-571-6324		
Mailing Address	P.O. Box 1650		
City, State, Zip	Casper, WY, 82402		
Email	dave@wesboperating.com		
Receive Invoice	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	Receive Report
Purchase Order	Quote	Bottle Order	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email

Report Information (If different than Account Information)

Company Name	WESB Operating Inc		
Contact	Dave Weinert		
Phone	307-571-6324		
Mailing Address	P.O. Box 1650		
City, State, Zip	Casper, WY, 82402		
Email	dave@wesboperating.com		
Receive Report	<input type="checkbox"/> Hard Copy	<input checked="" type="checkbox"/> Email	Special Report/Format:
<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other			

Comments

All turnaround times are standard unless marked as RUSH.	
Energy Laboratories MUST be contacted prior to RUSH sample submission for charges and scheduling - See Instructions Page	

Project Information

Project Name, PWSID, Permit, etc.	3R binch (Erickson)	
Sample Name	Denise/Huskyfield	Sample Phone
Sample Origin State	CO	EPA/State Compliance
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
URANIUM MINING CLIENTS MUST indicate sample type.		
<input type="checkbox"/> NOT Source or Byproduct Material		
<input type="checkbox"/> Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING		
<input type="checkbox"/> 11e/12 Byproduct Material (Can ONLY be Submitted to ELI Casper Location)		

Matrix Codes	A - Air
	W - Water
	S - Solids
	V - Vegetation
	B - Bioassay
	O - Other
	DW - Drinking Water

Analysis Requested	PH
	Baron
	EC
	SAR

See Attached

ELI LAB ID	021040034
Laboratory Use Only	

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Code Above)	Analysis Requested				RUSH TAT	ELI LAB ID
	Date	Time			PH	Baron	EC	SAR		
1 3R binch	3/31/2021	3:10pm	1	S	X	X	X	X	X	021040034
2										
3										
4										
5										
6										
7										
8										
9										
10										

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Daniel Huskyfield	4/1/2021 12:05pm	Daniel Huskyfield		4/1/21 12:05	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Inack	Receipt Temp	Temp Blank	Dr Ice	CC	Cash	Check	Amount	Receipt Number (cash/check only)
HAND	EC5	Y (N) C B	Y (N)	16.4 °C	Y (N)	Y (N)					

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.