DIVERSIFIED GAS & OIL

CORPORATION

Fall 2021 SOIL/VEGITATION SURVEY FOR
WATER PRODUCED FROM COALBED METHANE WELLS
WPP-005B AND WPP-005C
CURRENT PERMIT #GP-WV-1-07-10902805
GLEN ROGERS, WYOMING COUNTY, WEST VIRGINIA

Diversified Production LLC

101 McQuiston Drive
Jackson Center, PA 16133

DIVERSIFIED GAS & OIL

CORPORATION

November 17, 2021 certified mail 70151730000129359807

Mr. James Martin, *Chief*
West Virginia Department of
Environmental Protection Office of Oil and Gas
601 57th Street, SE
Charleston, West Virginia 25304

Re: Fall 2021 Soil/Vegetation Survey
Land Application of Water Produced from Coalbed Methane Well
Diversified Production LLC WPP-005B/C
API 109-02805 and API 109-02806
Wyoming County West Virginia

Dear Mr. Martin:

On behalf of Diversified Production, I am pleased to submit this *"Soil/Vegetation Survey for 2021 Fall Land Application of Water Produced from Coalbed Methane Wells."* The facility is currently permitted under General Permit #GP-WV-1-07-10902805.

Sincerely

Rocky Stilwell

Rocky Stilwell
Diversified Production LLC
rstilwell@dgoc.com
276-245-6057 mobile
330-896-8510 ext. 335 Office

11/22/2024

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Soil Sampling / Vegetation study, to include both background and baseline conditions:

Vegetation surveys have been conducted on site since 2007 and those finding have been provided to WVDEP. The baseline study was to develop snap-shot look at the floral communities to help determine if the discharged water is having any adverse effects. Vegetation studies will continue twice each year during spring and fall to monitor the community for signs of stress. The data collected from sample sites and control areas will be compared to identify difference over time. Vegetation will be examined for visible foliar symptoms of contamination, such as Aluminium toxicity, due to water released by CBM water well. Land application areas have been chosen based on Soil types, plant communities, topography, and distance from surface water sources. The studyareas are shown on the Location and Design Map,.

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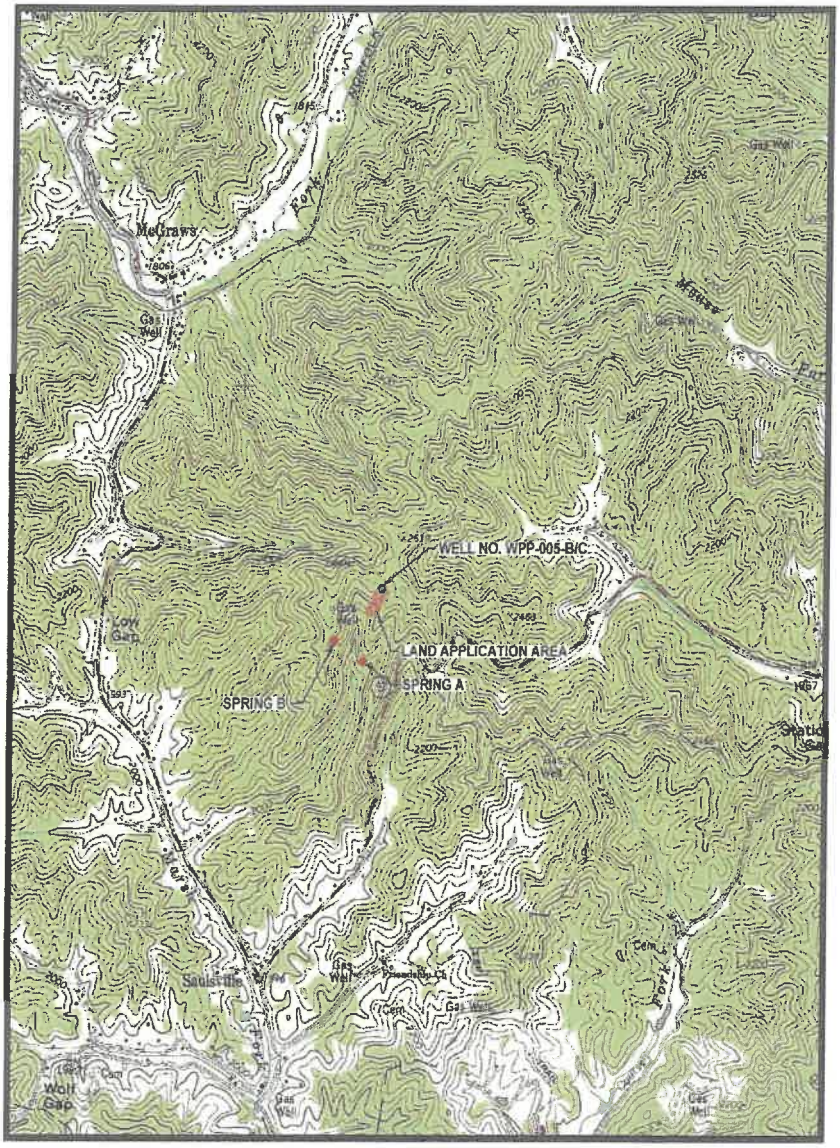

LAND APPLICATION SITE – WYOMING COUNTY, WEST VIRGINIA

PORTION OF USGS 7.5' MCGRAWS, WV QUADRANGLE

2,000' 0 2,000'

SCALE 1:2,000

LOCATION MAP

WELL NO. WPP-005-B/C

WEST VIRGINIA QUADRANGLE LOCATION

11/22/2024

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Base Line Soil/Vegetation Survey

WPP-005B/C (Surveyed 9/21/2021)

The forested area is an upland old growth deciduous forest in dry acidic soil. The dominate trees are composed primarily of Tulip Populars *(Liriodendron tulipifera)*, Red Maples *(Acer rubra)*, and Oaks *(Quercus rubra, Q. Prinus)*. The area surrounding the well site bench will be used for the water application site; water will come from well WPP-005B/C.

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The herbaceous layer is comprised of species found in over story and ground cover is consistent with what is to be expected in an old growth forest with minor disturbance.

The existing vegetation was examined for visible foliar symptoms of contamination, such as aluminium toxicity, due to water released from WPP- 005B/C. No contamination of any nature was not observed on the vegetation located in the water application site.

11/22/2024

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Summary of Surface Water Data

11/22/2024

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005-Surface #1 Grab
Collection Date: 9/21/2021 09:40 AM

Work Order: 21091995
Lab ID: 21091995-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA (DISSOLVED)		Method: **SW7470A**		Prep: SW7470 / 9/27/21			Analyst: **MTW**
Mercury	U		0.00016	0.00020	mg/L	1	9/27/2021 13:39
METALS BY ICP-MS		Method: **SW6020B**		Prep: SW3015A / 9/27/21			Analyst: **STP**
Barium	**0.093**		**0.0020**	**0.0050**	**mg/L**	1	9/29/2021 19:20
Calcium	**11**		**0.25**	**0.50**	**mg/L**	1	9/29/2021 19:20
Magnesium	**4.2**		**0.050**	**0.20**	**mg/L**	1	9/29/2021 19:20
Potassium	**14**		**0.096**	**0.20**	**mg/L**	1	9/29/2021 19:20
Sodium	**0.57**		**0.18**	**0.20**	**mg/L**	1	9/29/2021 19:20
METALS BY ICP-MS (DISSOLVED)		Method: **SW6020B**		Prep: SW3015A / 9/27/21			Analyst: **STP**
Aluminum	**0.022**		**0.0080**	**0.010**	**mg/L**	1	9/29/2021 19:18
Iron	**0.20**		**0.050**	**0.080**	**mg/L**	1	9/29/2021 19:18
Manganese	**5.3**		**0.025**	**0.050**	**mg/L**	10	9/30/2021 12:33
Selenium	**0.00094**	J	**0.00048**	**0.0050**	**mg/L**	1	9/29/2021 19:18
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Chloride	**2.3**		**0.62**	**2.0**	**mg/L**	2	9/23/2021 22:15
Sulfate	**0.21**	J	**0.19**	**1.0**	**mg/L**	1	9/24/2021 14:01
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-11**		Prep: FILTER / 9/23/21			Analyst: **SRN**
Total Dissolved Solids	**120**		**22**	**30**	**mg/L**	1	9/27/2021 15:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

DIVERSIFIED GAS & OIL

CORPORATION

Coalbed Produced Water

11/22/2024

30-Sep-2021

Josh Roberts
Core Appalachia Operating, LLC
414 Summers Street
Charleston, WV 25301

Re: **005 CBM** Work Order: **21091997**

Dear Josh,

ALS Environmental received 1 sample on 21-Sep-2021 04:03 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - South Charleston and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 1740 Union Carbide Drive, South Charleston, WV, USA
PHONE: +1 (304) 356-3168 FAX: +1 (304) 205-6262

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Report of Laboratory Analysis

Certificate No: WV: 385

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: 005 CBM
Work Order: **21091997**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21091997-01	005 CBM Grab	Water		9/21/2021 09:40	9/21/2021 16:03	☐
21091997-01	005 CBM Grab	Water		9/21/2021 09:40	9/22/2021 09:00	☐

ALS Group, USA *Date: 30-Sep-21*

Client:	Core Appalachia Operating, LLC
Project:	005 CBM
Work Order:	21091997

Case Narrative

Samples for the above noted Work Order were received on 09/21/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
Batch R327207, Method A4500-H B-11, Sample 005 CBM Grab (21091997-01C): pH was received and analyzed outside of the holding time. Results should be considered estimated.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: 005 CBM
WorkOrder: 21091997

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter
s.u.	Standard Units

11/22/2024

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: 005 CBM
Sample ID: 005 CBM Grab
Collection Date: 9/21/2021 09:40 AM

Work Order: 21091997
Lab ID: 21091997-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**8.69**	H	**0**	**0.020**	**s.u.**	1	9/21/2021 16:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC

Work Order: 21091997

Project: 005 CBM

QC BATCH REPORT

Batch ID: **R327207** Instrument ID **STC-WC** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R327207-R327207** Units: **s.u.** Analysis Date: **9/21/2021 04:47 PM**

Client ID: Run ID: **STC-WC_210921D** SeqNo: **7768275** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0	0.020	4	0	99.8	90-110	0			

DUP Sample ID: **21091995-03B DUP** Units: **s.u.** Analysis Date: **9/21/2021 04:47 PM**

Client ID: Run ID: **STC-WC_210921D** SeqNo: **7768277** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.11	0	0.020	0	0	0	0-0	7.07	0.564	20	H

The following samples were analyzed in this batch: 21091997-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

ALS

☒ ALS
1740 Union Carbide Drive
South Charleston, WV 25303
(Tel) 304.356.3168
(Fax) 304.205.6262

Chain of Custody Form

Page ____ of ____

10159

☐ ALS
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:

ALS Work Order #: 2109197

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	DGOC	Project Name		A	dissolved: Fe, Al, Mn, Se
Work Order		Project Number		B	Total: Ba, Ca, Mg, K, Na, Hg
Company Name		Bill To Company		C	pH
Send Report To	Josh Roberts	Invoice Attn.		D	Cl, SO4, TDS
Address	414 Summers St.	Address		E	
City/State/Zip	Chas, WV 25301	City/State/Zip		F	
Phone	304-807-3882	Phone		G	
Fax		Fax		H	
e-Mail Address	JRoberts@dgoc.com			I	
				J	

No.	Sample Description	Comp / Grab	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	005 CBM	G	9-21	9:40	W	N/A	1	✓										
2	↓	↓	↓	↓	W	N/A	1		✓									
3					W	N/A	1			✓								
4					W	N/A	1				✓							
5																		
6																		
7																		
8																		
9																		
10																		

Sampler(s): Please Print & Sign: [signature] MICHAEL

Shipment Method:

Turnaround Time in Business Days (BD): ☐ Other ____ ☐ 10 BD (STD) ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Temp:	Notes:
[signature]	9-21	3:55	[signature] 9/21/21 (602)	4.0°C on ice	pH out of hold
Relinquished by:	Date:	Time:	Received by:		
Relinquished by:	Date:	Time:	Received by:	Temp:	QC Package: (Check Box Below)
Relinquished by:	Date:	Time:	Received by (Laboratory):		Level II: Standard QC
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		Level III: Standard QC + Raw Data Level IV: SW846 Methods/CLP Other:

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS

11/22/2024

2109199?

ALS Environmental

Sample Receiving Checklist

Received by:	Janet Smith
Date/Time:	9/21/21 1603
Carrier Name:	Client
Shipping container/cooler in good condition?	Yes / No / Not Present
Custody seals intact on shipping container/cooler?	Yes / No / Not Present
Custody seals intact on sample bottles?	Yes / No / Not Present
Chain of Custody present?	Yes / No
COC signed when relinquished and received?	Yes / No
COC agrees with sample labels?	Yes / No
Samples in proper container/bottle?	Yes / No
Sample containers intact?	Yes / No
Sufficient sample volume for indicated test?	Yes / No
All samples received within holding time?	Yes / No
All sample temperatures verified to be in compliance?	Yes / No
Temperature(s) (°C):	4.0, 4.2, 5.2 C
Thermometer(s):	SR
Sample(s) received on ice?	Yes / No
Matrix/Matrices:	Water
Cooler(s)/Kit(s):	
Date/Time sample(s) sent to storage:	
Trip Blanks included? (for volatile analysis only)	Yes / No / N/A
Water – VOA vials have zero headspace?	Yes / No / No Vials
Water – pH acceptable upon receipt?	Yes / No / N/A
pH strip lot #:	*not checked
pH adjusted (note adjustments below)?	Yes / No / N/A
pH adjusted by:	

Login Notes:

pH out, hold

11/22/2024

21091997

ALS Environmental

1740 Union Carbide Drive
South Charleston WV 25303
Tel. +1 304 881 0437

CUSTODY SEAL

Date: 9-21 Time: 535

Name: Chad

Company: VGOC

Seal Broken By: JAS

Date: 9/21/21

11/22/2024

30-Sep-2021

Josh Roberts
Core Appalachia Operating, LLC
414 Summers Street
Charleston, WV 25301

Re: **005 CBM** Work Order: **21091997**

Dear Josh,

ALS Environmental received 1 sample on 21-Sep-2021 04:03 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Report of Laboratory Analysis

Certificate No: WV: 355

11/22/2024

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: 005 CBM
Work Order: **21091997**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21091997-01	005 CBM Grab	Water		9/21/2021 09:40	9/21/2021 16:03	☐
21091997-01	005 CBM Grab	Water		9/21/2021 09:40	9/22/2021 09:00	☐

ALS Group, USA *Date: 30-Sep-21*

Client:	Core Appalachia Operating, LLC
Project:	005 CBM
Work Order:	21091997

Case Narrative

Samples for the above noted Work Order were received on 09/22/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:
No other deviations or anomalies were noted.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: 005 CBM
WorkOrder: **21091997**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: 005 CBM
Sample ID: 005 CBM Grab
Collection Date: 9/21/2021 09:40 AM

Work Order: 21091997
Lab ID: 21091997-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			Method:**SW7470A**		Prep: SW7470 / 9/27/21		Analyst: **MTW**
Mercury	U		0.00016	0.00020	mg/L	1	9/27/2021 13:41
METALS BY ICP-MS			Method:**SW6020B**		Prep: SW3015A / 9/27/21		Analyst: **STP**
Barium	**1.9**		**0.020**	**0.050**	**mg/L**	10	9/30/2021 12:38
Calcium	**12**		**0.25**	**0.50**	**mg/L**	1	9/29/2021 19:23
Magnesium	**4.5**		**0.050**	**0.20**	**mg/L**	1	9/29/2021 19:23
Potassium	**2.6**		**0.096**	**0.20**	**mg/L**	1	9/29/2021 19:23
Sodium	**690**		**1.8**	**2.0**	**mg/L**	10	9/30/2021 12:38
METALS BY ICP-MS (DISSOLVED)			Method:**SW6020B**		Prep: SW3015A / 9/27/21		Analyst: **STP**
Aluminum	U		0.0080	0.010	mg/L	1	9/29/2021 19:21
Iron	U		0.050	0.080	mg/L	1	9/29/2021 19:21
Manganese	**0.0074**		**0.0025**	**0.0050**	**mg/L**	1	9/29/2021 19:21
Selenium	U		0.00048	0.0050	mg/L	1	9/29/2021 19:21
ANIONS BY ION CHROMATOGRAPHY			Method:**E300.0**				Analyst: **QTN**
Chloride	**700**		**31**	**100**	**mg/L**	100	9/23/2021 22:31
Sulfate	**0.36**	J	**0.19**	**1.0**	**mg/L**	1	9/24/2021 14:16
TOTAL DISSOLVED SOLIDS			Method:**A2540 C-11**		Prep: FILTER / 9/23/21		Analyst: **SRN**
Total Dissolved Solids	**1,800**		**110**	**150**	**mg/L**	1	9/27/2021 15:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC

Work Order: 21091997

Project: 005 CBM

QC BATCH REPORT

Batch ID: **184398** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-184398-184398** Units: **mg/L** Analysis Date: **9/27/2021 01:06 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7786976** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00016	0.00020								

LCS Sample ID: **LCS-184398-184398** Units: **mg/L** Analysis Date: **9/27/2021 01:08 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7786977** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00225	0.00016	0.00020	0.002	0	112	80-120	0			

MS Sample ID: **21092203-01AMS** Units: **mg/L** Analysis Date: **9/27/2021 01:57 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7787003** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002145	0.00016	0.00020	0.002	0.0001185	101	75-125	0			

MSD Sample ID: **21092203-01AMSD** Units: **mg/L** Analysis Date: **9/27/2021 01:58 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7787004** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00213	0.00016	0.00020	0.002	0.0001185	101	75-125	0.002145	0.702	20	

The following samples were analyzed in this batch: 21091997-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **184442** Instrument ID **ICPMS4** Method: **SW6020B**

MBLK Sample ID: **MBLK-184442-184442** Units: **mg/L** Analysis Date: **9/29/2021 03:26 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7795846** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.008	0.010								
Barium	U	0.002	0.0050								
Calcium	U	0.25	0.50								
Iron	U	0.05	0.080								
Magnesium	U	0.05	0.20								
Manganese	U	0.0025	0.0050								
Potassium	U	0.096	0.20								
Selenium	U	0.00048	0.0050								
Sodium	U	0.18	0.20								

LCS Sample ID: **LCS-184442-184442** Units: **mg/L** Analysis Date: **9/29/2021 03:27 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7795847** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1028	0.008	0.010	0.1	0	103	80-120	0			
Barium	0.09856	0.002	0.0050	0.1	0	98.6	80-120	0			
Calcium	10.22	0.25	0.50	10	0	102	80-120	0			
Iron	10.27	0.05	0.080	10	0	103	80-120	0			
Magnesium	10.5	0.05	0.20	10	0	105	80-120	0			
Manganese	0.1001	0.0025	0.0050	0.1	0	100	80-120	0			
Potassium	10.29	0.096	0.20	10	0	103	80-120	0			
Selenium	0.1006	0.00048	0.0050	0.1	0	101	80-120	0			
Sodium	10.69	0.18	0.20	10	0	107	80-120	0			

MS Sample ID: **21091857-18BMS** Units: **mg/L** Analysis Date: **9/29/2021 07:14 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7796873** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1042	0.008	0.010	0.1	0.009043	95.2	75-125	0			
Barium	0.1439	0.002	0.0050	0.1	0.04349	100	75-125	0			
Calcium	95.64	0.25	0.50	10	89.32	63.3	75-125	0			SO
Iron	8.832	0.05	0.080	10	0.06693	87.7	75-125	0			
Magnesium	27.88	0.05	0.20	10	19.27	86.1	75-125	0			
Manganese	0.2809	0.0025	0.0050	0.1	0.1995	81.4	75-125	0			
Potassium	19.74	0.096	0.20	10	10.44	92.9	75-125	0			
Selenium	0.09593	0.00048	0.0050	0.1	0.001069	94.9	75-125	0			
Sodium	256.4	0.18	0.20	10	258	-16.7	75-125	0			SEO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **184442** Instrument ID **ICPMS4** Method: **SW6020B**

MSD Sample ID: **21091857-18BMSD** Units: **mg/L** Analysis Date: **9/29/2021 07:16 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7796874** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1265	0.008	0.010	0.1	0.009043	117	75-125	0.1042	19.3	20	
Barium	0.1443	0.002	0.0050	0.1	0.04349	101	75-125	0.1439	0.266	20	
Calcium	95.57	0.25	0.50	10	89.32	62.5	75-125	95.64	0.0826	20	SO
Iron	8.907	0.05	0.080	10	0.06693	88.4	75-125	8.832	0.842	20	
Magnesium	28.08	0.05	0.20	10	19.27	88.1	75-125	27.88	0.685	20	
Manganese	0.2791	0.0025	0.0050	0.1	0.1995	79.6	75-125	0.2809	0.674	20	
Potassium	19.89	0.096	0.20	10	10.44	94.5	75-125	19.74	0.762	20	
Selenium	0.09753	0.00048	0.0050	0.1	0.001069	96.5	75-125	0.09593	1.66	20	
Sodium	258.8	0.18	0.20	10	258	7.84	75-125	256.4	0.954	20	SEO

The following samples were analyzed in this batch: 21091997-01A 21091997-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **184276** Instrument ID **TDS** Method: **A2540 C-11**

MBLK Sample ID: **MBLK-184276-184276** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786516** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

LCS Sample ID: **LCS-184276-184276** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786515** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	512	22	30	495	0	103	85-109	0			

DUP Sample ID: **21092027-02A DUP** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786510** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1913	74	100	0	0	0	0-0	1893	1.05	10	

DUP Sample ID: **21092270-03A DUP** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786514** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1113	74	100	0	0	0	0-0	1080	3.04	10	

The following samples were analyzed in this batch: 21091997-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **R327401** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-R327401** Units: **mg/L** Analysis Date: **9/23/2021 10:46 AM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776445** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								

LCS Sample ID: **LCS-R327401** Units: **mg/L** Analysis Date: **9/23/2021 11:32 AM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776448** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.814	0.31	1.0	10	0	98.1	90-110	0			

LCS Sample ID: **LCS-R327401** Units: **mg/L** Analysis Date: **9/23/2021 06:42 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776476** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.854	0.31	1.0	10	0	98.5	90-110	0			

MS Sample ID: **21091719-03B MS** Units: **mg/L** Analysis Date: **9/23/2021 12:17 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776451** Prep Date: DF: **20**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	236.4	6.2	20	200	48.36	94	80-120	0			

MS Sample ID: **21091880-04B MS** Units: **mg/L** Analysis Date: **9/23/2021 03:22 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776463** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	144.5	3.1	10	100	43.85	101	80-120	0			

MS Sample ID: **21091880-12B MS** Units: **mg/L** Analysis Date: **9/23/2021 07:28 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776479** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	178.2	3.1	10	100	69.28	109	80-120	0			

MS Sample ID: **21091997-01D MS** Units: **mg/L** Analysis Date: **9/23/2021 10:46 PM**
Client ID: **005 CBM Grab** Run ID: **IC3_210923A** SeqNo: **7776492** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1687	31	100	1000	698.8	98.8	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **R327401** Instrument ID **IC3** Method: **E300.0**

MSD Sample ID: **21091719-03B MSD** Units: **mg/L** Analysis Date: **9/23/2021 12:33 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776452** Prep Date: DF: **20**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	235.5	6.2	20	200	48.36	93.6	80-120	236.4	0.375	20	

MSD Sample ID: **21091880-04B MSD** Units: **mg/L** Analysis Date: **9/23/2021 03:38 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776464** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	144.9	3.1	10	100	43.85	101	80-120	144.5	0.299	20	

MSD Sample ID: **21091880-12B MSD** Units: **mg/L** Analysis Date: **9/23/2021 07:43 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776480** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	177.7	3.1	10	100	69.28	108	80-120	178.2	0.282	20	

MSD Sample ID: **21091997-01D MSD** Units: **mg/L** Analysis Date: **9/23/2021 11:01 PM**
Client ID: **005 CBM Grab** Run ID: **IC3_210923A** SeqNo: **7776493** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1688	31	100	1000	698.8	98.9	80-120	1687	0.0433	20	

The following samples were analyzed in this batch: 21091997-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091997
Project: 005 CBM

QC BATCH REPORT

Batch ID: **R327499** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-R327499** Units: **mg/L** Analysis Date: **9/24/2021 10:41 AM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780474** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	U	0.19	1.0								

LCS Sample ID: **LCS-R327499** Units: **mg/L** Analysis Date: **9/24/2021 11:28 AM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780477** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.22	0.19	1.0	10	0	102	90-110	0			

MS Sample ID: **21092215-02B MS** Units: **mg/L** Analysis Date: **9/24/2021 12:14 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780480** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1488	19	100	1000	527	96.1	80-120	0			

MS Sample ID: **21091997-01D MS** Units: **mg/L** Analysis Date: **9/24/2021 03:17 PM**
Client ID: **005 CBM Grab** Run ID: **IC3_210924A** SeqNo: **7780492** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	96.21	1.9	10	100	0	96.2	80-120	0			

MSD Sample ID: **21092215-02B MSD** Units: **mg/L** Analysis Date: **9/24/2021 12:29 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780481** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1489	19	100	1000	527	96.2	80-120	1488	0.0497	20	

MSD Sample ID: **21091997-01D MSD** Units: **mg/L** Analysis Date: **9/24/2021 03:33 PM**
Client ID: **005 CBM Grab** Run ID: **IC3_210924A** SeqNo: **7780493** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	96.25	1.9	10	100	0	96.3	80-120	96.21	0.0416	20	

The following samples were analyzed in this batch: 21091997-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

11/22/2024

ALS Environmental

Subcontractor:
ALS Environmental - Holland
3352 128th Avenue
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

Salesperson: Paul Painter

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 21-Sep-21
COC ID: 17777
Due Date: 28-Sep-21

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	21091997	A Total Dissolved Solids (A2540 C-11)
Work Order		Project Number		B Anions by Ion Chromatography (E300.0)
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C Metals by ICP-MS (SW6020B)
Send Report To	Rebecca Kiser	Inv Attn	Accounts Payable	D Metals by ICP-MS (dissolved) (SW6020B)
Address	1740 Union Carbide Dr	Address	1740 Union Carbide Dr	E Mercury by CVAA (SW7470A)
				F
City/State/Zip	So Charleston, WV 25303	City/State/Zip	So Charleston, WV 25303	G
Phone	(304) 356-3168	Phone	(304) 356-3168	H
Fax		Fax		I
eMail Address	rebecca.kiser@alsglobal.com	eMail CC		J

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
21091997-01A	005 CBM Grab	Water	21/Sep/2021 9:40	(1) 250PHNO3				X						
21091997-01B	005 CBM Grab	Water	21/Sep/2021 9:40	(1) 250PHNO3			X		X					
21091997-01D	005 CBM Grab	Water	21/Sep/2021 9:40	(1) 250PNEAT	X	X								

Comments:
WV Samples.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
[signature]	9/21/21 1700	FED EX		ALSHN 26.0-C	STD
Relinquished by: FED EX	Date/Time 9/22/21 0900	Received by: [signature]	Date/Time	IR3 pH 29	

ALS Group, USA

Sample Receipt Checklist

Client Name: **CORE APPALACHIA** Date/Time Received: **21-Sep-21 16:03**

Work Order: **21091997** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 23-Sep-21 (Date) Reviewed by: Rebecca Kiser (eSignature) 27-Sep-21 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	<6.0 c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/23/2021 8:46:18 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

11/22/2024

DIVERSIFIED GAS & OIL

CORPORATION

Soil Sample Background

11/22/2024

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #2 Background Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			Method:**SW7471B**		Prep: SW7471 / 9/27/21		Analyst: **MTW**
Mercury	**0.090**		**0.026**	**0.038**	**mg/Kg-dry**	1	9/27/2021 17:47
METALS BY ICP-MS			Method:**SW6020B**		Prep: SW3050B / 9/25/21		Analyst: **STP**
Aluminum	**2,400**		**480**	**600**	**mg/Kg-dry**	100	9/27/2021 16:45
Barium	**89**		**0.69**	**0.75**	**mg/Kg-dry**	1	9/26/2021 21:52
Calcium	**1,700**		**36**	**75**	**mg/Kg-dry**	1	9/26/2021 21:52
Iron	**5,300**		**24**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Magnesium	**320**		**21**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Manganese	**160**		**0.63**	**0.75**	**mg/Kg-dry**	1	9/26/2021 21:52
Potassium	**710**		**13**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Selenium	U		0.69	0.75	mg/Kg-dry	1	9/26/2021 21:52
Sodium	**59**		**40**	**45**	**mg/Kg-dry**	1	9/26/2021 21:52
ANIONS BY ION CHROMATOGRAPHY			Method:**SW9056A**		Prep: EXTRACT / 9/27/21		Analyst: **QTN**
Chloride	**9.5**	J	**6.3**	**20**	**mg/L-dry**	1	9/27/2021 18:14
Sulfate	**3.2**	J	**1.1**	**20**	**mg/L-dry**	1	9/27/2021 18:14
MOISTURE			Method:**SW3550C**				Analyst: **ALG**
Moisture	**51**		**0.10**	**0.10**	**% of sample**	1	9/24/2021 15:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

DIVERSIFIED GAS & OIL

CORPORATION

Soil Sample

11/22/2024

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #1 On-site Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			Method:**SW7471B**		Prep: SW7471 / 9/27/21		Analyst: **MTW**
Mercury	**0.042**		**0.018**	**0.026**	**mg/Kg-dry**	1	9/27/2021 17:45
METALS BY ICP-MS			Method:**SW6020B**		Prep: SW3050B / 9/25/21		Analyst: **STP**
Aluminum	**5,900**		**310**	**390**	**mg/Kg-dry**	100	9/27/2021 16:42
Barium	**330**		**4.5**	**4.9**	**mg/Kg-dry**	10	9/27/2021 16:43
Calcium	**1,200**		**23**	**49**	**mg/Kg-dry**	1	9/26/2021 21:50
Iron	**11,000**		**16**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Magnesium	**440**		**14**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Manganese	**220**		**4.1**	**4.9**	**mg/Kg-dry**	10	9/27/2021 16:43
Potassium	**700**		**8.2**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Selenium	U		0.45	0.49	mg/Kg-dry	1	9/26/2021 21:50
Sodium	U		26	29	mg/Kg-dry	1	9/26/2021 21:50
ANIONS BY ION CHROMATOGRAPHY			Method:**SW9056A**		Prep: EXTRACT / 9/27/21		Analyst: **QTN**
Chloride	**7.9**	J	**4.4**	**14**	**mg/L-dry**	1	9/27/2021 17:59
Sulfate	**2.4**	J	**0.80**	**14**	**mg/L-dry**	1	9/27/2021 17:59
MOISTURE			Method:**SW3550C**				Analyst: **ALG**
Moisture	**29**		**0.10**	**0.10**	**% of sample**	1	9/24/2021 15:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

30-Sep-2021

Josh Roberts
Core Appalachia Operating, LLC
414 Summers Street
Charleston, WV 25301

Re: **WPP-005** Work Order: **21091995**

Dear Josh,

ALS Environmental received 3 samples on 21-Sep-2021 04:03 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - South Charleston and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 13.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 1740 Union Carbide Drive, South Charleston, WV, USA
PHONE: +1 (304) 356-3168 FAX: +1 (304) 205-6262

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Report of Laboratory Analysis

Certificate No: WV: 385

11/22/2024

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: WPP-005
Work Order: **21091995**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21091995-01	WPP-005 Soil #1 On-site Grab	Soil		9/21/2021 09:30	9/22/2021 09:00	☐
21091995-02	WPP-005 Soil #2 Background Grab	Soil		9/21/2021 09:30	9/22/2021 09:00	☐
21091995-03	WPP-005-Surface #1 Grab	Water		9/21/2021 09:40	9/21/2021 16:03	☐
21091995-03	WPP-005-Surface #1 Grab	Water		9/21/2021 09:40	9/22/2021 09:00	☐

ALS Group, USA *Date: 30-Sep-21*

Client:	Core Appalachia Operating, LLC
Project:	WPP-005
Work Order:	21091995

Case Narrative

Samples for the above noted Work Order were received on 09/21/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
Batch R327207, Method A4500-H B-11, Sample WPP-005-Surface #1 Grab (21091995-03B): pH was received and analyzed outside of the holding time at the request of the client. Results should be considered estimated.

Client: Core Appalachia Operating, LLC
Project: WPP-005
WorkOrder: 21091995

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #1 On-site Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH		Method: **SW9045D**					Analyst: **MLH**
pH	**5.87**		**0**	**0.10**	**s.u.**	1	9/21/2021 16:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #2 Background Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH		Method: **SW9045D**					Analyst: **MLH**
pH	**3.89**		**0**	**0.10**	**s.u.**	1	9/21/2021 16:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005-Surface #1 Grab
Collection Date: 9/21/2021 09:40 AM

Work Order: 21091995
Lab ID: 21091995-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PH (LABORATORY)		Method: **A4500-H B-11**					Analyst: **BJL**
pH (laboratory)	**7.07**	H	**0**	**0.020**	**s.u.**	1	9/21/2021 16:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC

Work Order: 21091995

Project: WPP-005

QC BATCH REPORT

Batch ID: **R327205** Instrument ID **STC-WC** Method: **SW9045D**

LCS Sample ID: **LCS-R327205-R327205** Units: **s.u.** Analysis Date: **9/21/2021 03:55 PM**

Client ID: Run ID: **STC-WC_210921C** SeqNo: **7768232** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.96	0	0.10	4	0	99	90-110	0			

DUP Sample ID: **21091951-01A DUP** Units: **s.u.** Analysis Date: **9/21/2021 03:55 PM**

Client ID: Run ID: **STC-WC_210921C** SeqNo: **7768234** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.83	0	0.10	0	0	0	0-0	3.73	2.65	20	

DUP Sample ID: **21091995-01A DUP** Units: **s.u.** Analysis Date: **9/21/2021 04:40 PM**

Client ID: **WPP-005 Soil #1 On-site Grab** Run ID: **STC-WC_210921C** SeqNo: **7768238** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	5.83	0	0.10	0	0	0	0-0	5.87	0.684	20	

The following samples were analyzed in this batch: 21091995-01A 21091995-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **R327207** Instrument ID **STC-WC** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R327207-R327207** Units: **s.u.** Analysis Date: **9/21/2021 04:47 PM**
Client ID: Run ID: **STC-WC_210921D** SeqNo: **7768275** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0	0.020	4	0	99.8	90-110	0			

DUP Sample ID: **21091995-03B DUP** Units: **s.u.** Analysis Date: **9/21/2021 04:47 PM**
Client ID: **WPP-005-Surface #1 Grab** Run ID: **STC-WC_210921D** SeqNo: **7768277** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.11	0	0.020	0	0	0	0-0	7.07	0.564	20	H

The following samples were analyzed in this batch: 21091995-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

☒ ALS
1740 Union Carbide Drive
South Charleston, WV 25303
(Tel) 304.356.3168
(Fax) 304.205.6262

Chain of Custody Form

Page ____ of ____

10160

☐ ALS
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	2109195

Customer Information		Project Information	
Purchase Order		Project Name	
Work Order		Project Number	
Company Name	DGOC	Bill To Company	
Send Report To	Josh Roberts	Invoice Attn.	
Address	414 Summers St.	Address	
City/State/Zip	Chas WV 25301	City/State/Zip	
Phone	304-807-3882	Phone	
Fax		Fax	
e-Mail Address	JLRoberts@dgoc.com		

Parameter/Method Request for Analysis	
A	pH, Cl, SO4, Total Fe, Al, Mn, Se, Na, K, Ba, Ca, Mg, Hg
B	Dissolved: Fe, Al, Mn, Se, Hg
C	pH
D	Total: Na, K, Ba, Ca, Mg
E	Cl; SO4; TDS
F	
G	
H	
I	
J	

No.	Sample Description	Comp / Grab	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WPP-005 Soil #1 / On-site	Grab	9/21/21	9:30am	S	7/8	1	✓										
2	WPP-005 Soil #2 / Background	|	|	|	S	7/8	1	✓										
3	WPP-005 - Surface #1	|	|	9:40am	W	2	4		✓	✓	✓	✓						
4	~~WPP-005 - Surface #2~~ ↳ No sample not enough water	~~|~~	~~|~~	~~|~~	~~W~~	~~2~~	~~4~~		~~✓~~	~~✓~~	~~✓~~	~~✓~~						
5																		
6																		
7																		
8																		
9																		
10																		

pH 8.02

Sampler(s): Please Print & Sign	Shipment Method:	Turnaround Time in Business Days (BD): ☐ Other	Results Due Date:
Chad Carmichael [signature]		☐ 10 BD(STD) ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD	

Relinquished by:	Date:	Time:	Received by:	Temp:	Notes:
[signature]	9-21	3:55	[signature] 9/21/21 1603	<6°C #2 sec	Water pH out of hold
Relinquished by:	Date:	Time:	Received by:		
Relinquished by:	Date:	Time:	Received by:	Temp:	QC Package: (Check Box Below)
Relinquished by:	Date:	Time:	Received by (Laboratory):		Level II: Standard QC
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		Level III: Standard QC + Raw Data
					Level IV: SW846 Methods/CLP
					Other:

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS

11/22/2024

(ALS) Environmental

21091995

Sample Receiving Checklist

Received by:	Janet Smith
Date/Time:	9/21/21 1603
Carrier Name:	Client
Shipping container/cooler in good condition?	(Yes) / No / Not Present
Custody seals intact on shipping container/cooler?	(Yes) / No / Not Present
Custody seals intact on sample bottles?	Yes / No / (Not Present)
Chain of Custody present?	(Yes) / No
COC signed when relinquished and received?	(Yes) / No
COC agrees with sample labels?	(Yes) / No
Samples in proper container/bottle?	(Yes) / No
Sample containers intact?	(Yes) / No
Sufficient sample volume for indicated test?	(Yes) / No
All samples received within holding time?	Yes / (No)
All sample temperatures verified to be in compliance?	(Yes) / No
Temperature(s) (°C):	<6°C AES7C
Thermometer(s):	Ir
Sample(s) received on ice?	(Yes) / No
Matrix/Matrices:	water/soil
Cooler(s)/Kit(s):	
Date/Time sample(s) sent to storage:	
Trip Blanks included? (for volatile analysis only)	Yes / No / (N/A)
Water – VOA vials have zero headspace?	Yes / No / (No Vials)
Water – pH acceptable upon receipt?	Yes / No / N/A
pH strip lot #: ____________	*not checked
pH adjusted (note adjustments below)?	Yes / (No) / N/A
pH adjusted by:	

Login Notes:

water pH out of hold.

QA Control Number: Chklst Rev.02 4/10/2019

11/22/2024

2109195

ALS Environmental
1740 Union Carbide Drive
South Charleston WV 25303
Tel. +1 304 881 0437

CUSTODY SEAL

Date: 9-21 Time: 3:55

Name: Mark DEAL

Company:

Seal Broken By: JAS

Date: 9/21/21

11/22/2024

30-Sep-2021

Josh Roberts
Core Appalachia Operating, LLC
414 Summers Street
Charleston, WV 25301

Re: **WPP-005**

Work Order: **21091995**

Dear Josh,

ALS Environmental received 3 samples on 21-Sep-2021 04:03 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 24.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Report of Laboratory Analysis

Certificate No: WV: 355

11/22/2024

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC
Project: WPP-005
Work Order: **21091995**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21091995-01	WPP-005 Soil #1 On-site Grab	Soil		9/21/2021 09:30	9/22/2021 09:00	☐
21091995-02	WPP-005 Soil #2 Background Grab	Soil		9/21/2021 09:30	9/22/2021 09:00	☐
21091995-03	WPP-005-Surface #1 Grab	Water		9/21/2021 09:40	9/21/2021 16:03	☐
21091995-03	WPP-005-Surface #1 Grab	Water		9/21/2021 09:40	9/22/2021 09:00	☐

ALS Group, USA *Date: 30-Sep-21*

Client:	Core Appalachia Operating, LLC
Project:	WPP-005
Work Order:	21091995

Case Narrative

Samples for the above noted Work Order were received on 09/22/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:
No other deviations or anomalies were noted.

Client: Core Appalachia Operating, LLC
Project: WPP-005
WorkOrder: 21091995

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #1 On-site Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			Method:**SW7471B**		Prep: SW7471 / 9/27/21		Analyst: **MTW**
Mercury	**0.042**		**0.018**	**0.026**	**mg/Kg-dry**	1	9/27/2021 17:45
METALS BY ICP-MS			Method:**SW6020B**		Prep: SW3050B / 9/25/21		Analyst: **STP**
Aluminum	**5,900**		**310**	**390**	**mg/Kg-dry**	100	9/27/2021 16:42
Barium	**330**		**4.5**	**4.9**	**mg/Kg-dry**	10	9/27/2021 16:43
Calcium	**1,200**		**23**	**49**	**mg/Kg-dry**	1	9/26/2021 21:50
Iron	**11,000**		**16**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Magnesium	**440**		**14**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Manganese	**220**		**4.1**	**4.9**	**mg/Kg-dry**	10	9/27/2021 16:43
Potassium	**700**		**8.2**	**20**	**mg/Kg-dry**	1	9/26/2021 21:50
Selenium	U		0.45	0.49	mg/Kg-dry	1	9/26/2021 21:50
Sodium	U		26	29	mg/Kg-dry	1	9/26/2021 21:50
ANIONS BY ION CHROMATOGRAPHY			Method:**SW9056A**		Prep: EXTRACT / 9/27/21		Analyst: **QTN**
Chloride	**7.9**	J	**4.4**	**14**	**mg/L-dry**	1	9/27/2021 17:59
Sulfate	**2.4**	J	**0.80**	**14**	**mg/L-dry**	1	9/27/2021 17:59
MOISTURE			Method:**SW3550C**				Analyst: **ALG**
Moisture	**29**		**0.10**	**0.10**	**% of sample**	1	9/24/2021 15:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005 Soil #2 Background Grab
Collection Date: 9/21/2021 09:30 AM

Work Order: 21091995
Lab ID: 21091995-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			Method:**SW7471B**		Prep: SW7471 / 9/27/21		Analyst: **MTW**
Mercury	**0.090**		**0.026**	**0.038**	**mg/Kg-dry**	1	9/27/2021 17:47
METALS BY ICP-MS			Method:**SW6020B**		Prep: SW3050B / 9/25/21		Analyst: **STP**
Aluminum	**2,400**		**480**	**600**	**mg/Kg-dry**	100	9/27/2021 16:45
Barium	**89**		**0.69**	**0.75**	**mg/Kg-dry**	1	9/26/2021 21:52
Calcium	**1,700**		**36**	**75**	**mg/Kg-dry**	1	9/26/2021 21:52
Iron	**5,300**		**24**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Magnesium	**320**		**21**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Manganese	**160**		**0.63**	**0.75**	**mg/Kg-dry**	1	9/26/2021 21:52
Potassium	**710**		**13**	**30**	**mg/Kg-dry**	1	9/26/2021 21:52
Selenium	U		0.69	0.75	mg/Kg-dry	1	9/26/2021 21:52
Sodium	**59**		**40**	**45**	**mg/Kg-dry**	1	9/26/2021 21:52
ANIONS BY ION CHROMATOGRAPHY			Method:**SW9056A**		Prep: EXTRACT / 9/27/21		Analyst: **QTN**
Chloride	**9.5**	J	**6.3**	**20**	**mg/L-dry**	1	9/27/2021 18:14
Sulfate	**3.2**	J	**1.1**	**20**	**mg/L-dry**	1	9/27/2021 18:14
MOISTURE			Method:**SW3550C**				Analyst: **ALG**
Moisture	**51**		**0.10**	**0.10**	**% of sample**	1	9/24/2021 15:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *30-Sep-21*

Client: Core Appalachia Operating, LLC
Project: WPP-005
Sample ID: WPP-005-Surface #1 Grab
Collection Date: 9/21/2021 09:40 AM

Work Order: 21091995
Lab ID: 21091995-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA (DISSOLVED)		Method: **SW7470A**		Prep: SW7470 / 9/27/21			Analyst: **MTW**
Mercury	U		0.00016	0.00020	mg/L	1	9/27/2021 13:39
METALS BY ICP-MS		Method: **SW6020B**		Prep: SW3015A / 9/27/21			Analyst: **STP**
Barium	**0.093**		**0.0020**	**0.0050**	**mg/L**	1	9/29/2021 19:20
Calcium	**11**		**0.25**	**0.50**	**mg/L**	1	9/29/2021 19:20
Magnesium	**4.2**		**0.050**	**0.20**	**mg/L**	1	9/29/2021 19:20
Potassium	**14**		**0.096**	**0.20**	**mg/L**	1	9/29/2021 19:20
Sodium	**0.57**		**0.18**	**0.20**	**mg/L**	1	9/29/2021 19:20
METALS BY ICP-MS (DISSOLVED)		Method: **SW6020B**		Prep: SW3015A / 9/27/21			Analyst: **STP**
Aluminum	**0.022**		**0.0080**	**0.010**	**mg/L**	1	9/29/2021 19:18
Iron	**0.20**		**0.050**	**0.080**	**mg/L**	1	9/29/2021 19:18
Manganese	**5.3**		**0.025**	**0.050**	**mg/L**	10	9/30/2021 12:33
Selenium	**0.00094**	J	**0.00048**	**0.0050**	**mg/L**	1	9/29/2021 19:18
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **QTN**
Chloride	**2.3**		**0.62**	**2.0**	**mg/L**	2	9/23/2021 22:15
Sulfate	**0.21**	J	**0.19**	**1.0**	**mg/L**	1	9/24/2021 14:01
TOTAL DISSOLVED SOLIDS		Method: **A2540 C-11**		Prep: FILTER / 9/23/21			Analyst: **SRN**
Total Dissolved Solids	**120**		**22**	**30**	**mg/L**	1	9/27/2021 15:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 30-Sep-21

Client: Core Appalachia Operating, LLC

Work Order: 21091995

Project: WPP-005

QC BATCH REPORT

Batch ID: **184398** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-184398-184398** Units: **mg/L** Analysis Date: **9/27/2021 01:06 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7786976** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00016	0.00020								

LCS Sample ID: **LCS-184398-184398** Units: **mg/L** Analysis Date: **9/27/2021 01:08 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7786977** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00225	0.00016	0.00020	0.002	0	112	80-120	0			

MS Sample ID: **21092203-01AMS** Units: **mg/L** Analysis Date: **9/27/2021 01:57 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7787003** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002145	0.00016	0.00020	0.002	0.0001185	101	75-125	0			

MSD Sample ID: **21092203-01AMSD** Units: **mg/L** Analysis Date: **9/27/2021 01:58 PM**

Client ID: Run ID: **HG4_210927A** SeqNo: **7787004** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00213	0.00016	0.00020	0.002	0.0001185	101	75-125	0.002145	0.702	20	

The following samples were analyzed in this batch: 21091995-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184433** Instrument ID **HG4** Method: **SW7471B**

MBLK Sample ID: **MBLK-184433-184433** Units: **mg/Kg** Analysis Date: **9/27/2021 05:21 PM**
Client ID: Run ID: **HG4_210927A** SeqNo: **7788450** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.014	0.020								

LCS Sample ID: **LCS-184433-184433** Units: **mg/Kg** Analysis Date: **9/27/2021 05:22 PM**
Client ID: Run ID: **HG4_210927A** SeqNo: **7788451** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1858	0.014	0.020	0.1665	0	112	80-120	0			

MS Sample ID: **21091998-02AMS** Units: **mg/Kg** Analysis Date: **9/27/2021 05:52 PM**
Client ID: Run ID: **HG4_210927A** SeqNo: **7788467** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1958	0.013	0.019	0.1558	0.03449	103	75-125	0			

MSD Sample ID: **21091998-02AMSD** Units: **mg/Kg** Analysis Date: **9/27/2021 05:54 PM**
Client ID: Run ID: **HG4_210927A** SeqNo: **7788468** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1955	0.013	0.019	0.1556	0.03449	103	75-125	0.1958	0.156	35	

The following samples were analyzed in this batch: 21091995-01A 21091995-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184368** Instrument ID **ICPMS4** Method: **SW6020B**

MBLK Sample ID: **MBLK-184368-184368** Units: **mg/Kg** Analysis Date: **9/26/2021 09:01 PM**
Client ID: Run ID: **ICPMS4_210926B** SeqNo: **7783624** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	U	0.23	0.25								
Calcium	13.37	12	25								J
Iron	U	8	10								
Magnesium	U	7	10								
Manganese	U	0.21	0.25								
Potassium	U	4.2	10								
Selenium	U	0.23	0.25								
Sodium	U	13	15								

MBLK Sample ID: **MBLK-184368-184368** Units: **mg/Kg** Analysis Date: **9/27/2021 04:32 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788488** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	1.6	2.0								

LCS Sample ID: **LCS-184368-184368** Units: **mg/Kg** Analysis Date: **9/26/2021 09:45 PM**
Client ID: Run ID: **ICPMS4_210926B** SeqNo: **7783644** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	4.833	1.6	2.0	5	0	96.7	80-120	0			B
Barium	4.778	0.23	0.25	5	0	95.6	80-120	0			
Calcium	471.8	12	25	500	0	94.4	80-120	0			
Iron	466.9	8	10	500	0	93.4	80-120	0			
Magnesium	474.9	7	10	500	0	95	80-120	0			
Manganese	4.657	0.21	0.25	5	0	93.1	80-120	0			
Potassium	469.7	4.2	10	500	0	93.9	80-120	0			
Sodium	473.8	13	15	500	0	94.8	80-120	0			

LCS Sample ID: **LCS-184368-184368** Units: **mg/Kg** Analysis Date: **9/27/2021 04:34 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788489** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	5.105	0.23	0.25	5	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184368** Instrument ID **ICPMS4** Method: **SW6020B**

MS Sample ID: **21091998-02AMS** Units: **mg/Kg** Analysis Date: **9/26/2021 09:59 PM**
Client ID: Run ID: **ICPMS4_210926B** SeqNo: **7783650** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	11010	2.2	2.7	6.868	7954	44400	75-125	0			BSEO
Barium	53.49	0.32	0.34	6.868	43.27	149	75-125	0			SO
Calcium	713.6	16	34	686.8	87.31	91.2	75-125	0			
Iron	14790	11	14	686.8	12560	324	75-125	0			SEO
Magnesium	1451	9.6	14	686.8	667.1	114	75-125	0			
Manganese	341.1	0.29	0.34	6.868	170.3	2490	75-125	0			SEO
Potassium	994.7	5.8	14	686.8	410.2	85.1	75-125	0			
Sodium	588.2	18	21	686.8	6.351	84.7	75-125	0			

MS Sample ID: **21091998-02AMS** Units: **mg/Kg** Analysis Date: **9/27/2021 04:50 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788499** Prep Date: **9/25/2021** DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13180	220	270	6.868	9875	48100	75-125	0			SEO

MS Sample ID: **21091998-02AMS** Units: **mg/Kg** Analysis Date: **9/27/2021 04:59 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788505** Prep Date: **9/25/2021** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	18860	110	140	686.8	15850	439	75-125	0			SO
Manganese	426.6	2.9	3.4	6.868	209.7	3160	75-125	0			SO

MS Sample ID: **21091998-02AMS** Units: **mg/Kg** Analysis Date: **9/29/2021 02:27 PM**
Client ID: Run ID: **ICPMS4_210929B** SeqNo: **7795763** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	7.159	0.32	0.34	6.868	0.324	99.5	75-125	0			

MSD Sample ID: **21091998-02AMSD** Units: **mg/Kg** Analysis Date: **9/26/2021 10:01 PM**
Client ID: Run ID: **ICPMS4_210926B** SeqNo: **7783651** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	12190	2.2	2.7	6.748	7954	62700	75-125	11010	10.2	20	BSEO
Barium	61.47	0.31	0.34	6.748	43.27	270	75-125	53.49	13.9	20	SO
Calcium	745.3	16	34	674.8	87.31	97.5	75-125	713.6	4.34	20	
Iron	15270	11	13	674.8	12560	401	75-125	14790	3.2	20	SEO
Magnesium	1560	9.4	13	674.8	667.1	132	75-125	1451	7.18	20	S
Manganese	242.5	0.28	0.34	6.748	170.3	1070	75-125	341.1	33.8	20	SREO
Potassium	1106	5.7	13	674.8	410.2	103	75-125	994.7	10.6	20	
Sodium	635.7	18	20	674.8	6.351	93.3	75-125	588.2	7.76	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184368** Instrument ID **ICPMS4** Method: **SW6020B**

MSD Sample ID: **21091998-02AMSD** Units: **mg/Kg** Analysis Date: **9/27/2021 04:51 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788500** Prep Date: **9/25/2021** DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	13550	220	270	6.748	9875	54500	75-125	12660	6.79	20	SEO

MSD Sample ID: **21091998-02AMSD** Units: **mg/Kg** Analysis Date: **9/27/2021 05:01 PM**
Client ID: Run ID: **ICPMS4_210927B** SeqNo: **7788506** Prep Date: **9/25/2021** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	18060	110	130	674.8	15850	329	75-125	17660	2.28	20	SO
Manganese	282.6	2.8	3.4	6.748	209.7	1080	75-125	396.7	33.6	20	SRO

MSD Sample ID: **21091998-02AMSD** Units: **mg/Kg** Analysis Date: **9/29/2021 02:29 PM**
Client ID: Run ID: **ICPMS4_210929B** SeqNo: **7795764** Prep Date: **9/25/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	6.992	0.31	0.34	6.748	0.324	98.8	75-125	7.159	2.36	20	

The following samples were analyzed in this batch: 21091995-01A 21091995-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184442** Instrument ID **ICPMS4** Method: **SW6020B**

MBLK Sample ID: **MBLK-184442-184442** Units: **mg/L** Analysis Date: **9/29/2021 03:26 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7795846** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.008	0.010								
Barium	U	0.002	0.0050								
Calcium	U	0.25	0.50								
Iron	U	0.05	0.080								
Magnesium	U	0.05	0.20								
Manganese	U	0.0025	0.0050								
Potassium	U	0.096	0.20								
Selenium	U	0.00048	0.0050								
Sodium	U	0.18	0.20								

LCS Sample ID: **LCS-184442-184442** Units: **mg/L** Analysis Date: **9/29/2021 03:27 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7795847** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1028	0.008	0.010	0.1	0	103	80-120	0			
Barium	0.09856	0.002	0.0050	0.1	0	98.6	80-120	0			
Calcium	10.22	0.25	0.50	10	0	102	80-120	0			
Iron	10.27	0.05	0.080	10	0	103	80-120	0			
Magnesium	10.5	0.05	0.20	10	0	105	80-120	0			
Manganese	0.1001	0.0025	0.0050	0.1	0	100	80-120	0			
Potassium	10.29	0.096	0.20	10	0	103	80-120	0			
Selenium	0.1006	0.00048	0.0050	0.1	0	101	80-120	0			
Sodium	10.69	0.18	0.20	10	0	107	80-120	0			

MS Sample ID: **21091857-18BMS** Units: **mg/L** Analysis Date: **9/29/2021 07:14 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7796873** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1042	0.008	0.010	0.1	0.009043	95.2	75-125	0			
Barium	0.1439	0.002	0.0050	0.1	0.04349	100	75-125	0			
Calcium	95.64	0.25	0.50	10	89.32	63.3	75-125	0			SO
Iron	8.832	0.05	0.080	10	0.06693	87.7	75-125	0			
Magnesium	27.88	0.05	0.20	10	19.27	86.1	75-125	0			
Manganese	0.2809	0.0025	0.0050	0.1	0.1995	81.4	75-125	0			
Potassium	19.74	0.096	0.20	10	10.44	92.9	75-125	0			
Selenium	0.09593	0.00048	0.0050	0.1	0.001069	94.9	75-125	0			
Sodium	256.4	0.18	0.20	10	258	-16.7	75-125	0			SEO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184442** Instrument ID **ICPMS4** Method: **SW6020B**

MSD Sample ID: **21091857-18BMSD** Units: **mg/L** Analysis Date: **9/29/2021 07:16 PM**
Client ID: Run ID: **ICPMS4_210929A** SeqNo: **7796874** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1265	0.008	0.010	0.1	0.009043	117	75-125	0.1042	19.3	20	
Barium	0.1443	0.002	0.0050	0.1	0.04349	101	75-125	0.1439	0.266	20	
Calcium	95.57	0.25	0.50	10	89.32	62.5	75-125	95.64	0.0826	20	SO
Iron	8.907	0.05	0.080	10	0.06693	88.4	75-125	8.832	0.842	20	
Magnesium	28.08	0.05	0.20	10	19.27	88.1	75-125	27.88	0.685	20	
Manganese	0.2791	0.0025	0.0050	0.1	0.1995	79.6	75-125	0.2809	0.674	20	
Potassium	19.89	0.096	0.20	10	10.44	94.5	75-125	19.74	0.762	20	
Selenium	0.09753	0.00048	0.0050	0.1	0.001069	96.5	75-125	0.09593	1.66	20	
Sodium	258.8	0.18	0.20	10	258	7.84	75-125	256.4	0.954	20	SEO

The following samples were analyzed in this batch: 21091995-03A 21091995-03C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184276** Instrument ID **TDS** Method: **A2540 C-11**

MBLK Sample ID: **MBLK-184276-184276** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786516** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	22	30								

LCS Sample ID: **LCS-184276-184276** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786515** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	512	22	30	495	0	103	85-109	0			

DUP Sample ID: **21092027-02A DUP** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786510** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1913	74	100	0	0	0	0-0	1893	1.05	10	

DUP Sample ID: **21092270-03A DUP** Units: **mg/L** Analysis Date: **9/27/2021 03:46 PM**
Client ID: Run ID: **TDS_210927D** SeqNo: **7786514** Prep Date: **9/23/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1113	74	100	0	0	0	0-0	1080	3.04	10	

The following samples were analyzed in this batch: 21091995-03D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184422** Instrument ID **IC4** Method: **SW9056A**

MBLK Sample ID: **MBLK-184422-184422** Units: **mg/Kg** Analysis Date: **9/27/2021 01:25 PM**
Client ID: Run ID: **IC4_210927A** SeqNo: **7789448** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	3.1	10								
Sulfate	U	0.57	10								

MBLK Sample ID: **MBLK-184422-184422** Units: **mg/Kg** Analysis Date: **9/28/2021 11:54 AM**
Client ID: Run ID: **IC4_210928A** SeqNo: **7793565** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	3.1	10								
Sulfate	U	0.57	10								

LCS Sample ID: **LCS-184422-184422** Units: **mg/Kg** Analysis Date: **9/27/2021 01:25 PM**
Client ID: Run ID: **IC4_210927A** SeqNo: **7789449** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	95.62	3.1	10	100	0	95.6	80-116	0			
Sulfate	99.43	0.57	10	100	0	99.4	85-114	0			

LCS Sample ID: **LCS-184422-184422** Units: **mg/Kg** Analysis Date: **9/28/2021 11:54 AM**
Client ID: Run ID: **IC4_210928A** SeqNo: **7793566** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	105.3	3.1	10	100	0	105	80-116	0			
Sulfate	107.3	0.57	10	100	0	107	85-114	0			

MS Sample ID: **21091998-02A MS** Units: **mg/L** Analysis Date: **9/27/2021 07:00 PM**
Client ID: Run ID: **IC4_210927A** SeqNo: **7789438** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	96.18	3.1	10	100.2	4.286	91.7	80-116	0			
Sulfate	94.27	0.57	10	100.2	2.863	91.2	85-114	0			

MS Sample ID: **21091998-02A MS** Units: **mg/L** Analysis Date: **9/28/2021 01:36 PM**
Client ID: Run ID: **IC4_210928A** SeqNo: **7793516** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104.2	3.1	10	100.2	4.618	99.4	80-116	0			
Sulfate	102.2	0.57	10	100.2	3.527	98.5	85-114	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **184422** Instrument ID **IC4** Method: **SW9056A**

MSD Sample ID: **21091998-02A MSD** Units: **mg/L** Analysis Date: **9/27/2021 07:15 PM**
Client ID: Run ID: **IC4_210927A** SeqNo: **7789439** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	95.76	3.1	10	99.8	4.286	91.7	80-116	96.18	0.44	20	
Sulfate	93.69	0.57	10	99.8	2.863	91	85-114	94.27	0.616	20	

MSD Sample ID: **21091998-02A MSD** Units: **mg/L** Analysis Date: **9/28/2021 01:51 PM**
Client ID: Run ID: **IC4_210928A** SeqNo: **7793517** Prep Date: **9/27/2021** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	104	3.1	10	99.8	4.618	99.6	80-116	104.2	0.215	20	
Sulfate	101.9	0.57	10	99.8	3.527	98.6	85-114	102.2	0.317	20	

The following samples were analyzed in this batch: 21091995-01A 21091995-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **R327401** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-R327401** Units: **mg/L** Analysis Date: **9/23/2021 10:46 AM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776445** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	U	0.31	1.0								

LCS Sample ID: **LCS-R327401** Units: **mg/L** Analysis Date: **9/23/2021 11:32 AM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776448** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.814	0.31	1.0	10	0	98.1	90-110	0			

LCS Sample ID: **LCS-R327401** Units: **mg/L** Analysis Date: **9/23/2021 06:42 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776476** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.854	0.31	1.0	10	0	98.5	90-110	0			

MS Sample ID: **21091719-03B MS** Units: **mg/L** Analysis Date: **9/23/2021 12:17 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776451** Prep Date: DF: **20**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	236.4	6.2	20	200	48.36	94	80-120	0			

MS Sample ID: **21091880-04B MS** Units: **mg/L** Analysis Date: **9/23/2021 03:22 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776463** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	144.5	3.1	10	100	43.85	101	80-120	0			

MS Sample ID: **21091880-12B MS** Units: **mg/L** Analysis Date: **9/23/2021 07:28 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776479** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	178.2	3.1	10	100	69.28	109	80-120	0			

MS Sample ID: **21091997-01D MS** Units: **mg/L** Analysis Date: **9/23/2021 10:46 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776492** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1687	31	100	1000	698.8	98.8	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **R327401** Instrument ID **IC3** Method: **E300.0**

MSD Sample ID: **21091719-03B MSD** Units: **mg/L** Analysis Date: **9/23/2021 12:33 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776452** Prep Date: DF: **20**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	235.5	6.2	20	200	48.36	93.6	80-120	236.4	0.375	20	

MSD Sample ID: **21091880-04B MSD** Units: **mg/L** Analysis Date: **9/23/2021 03:38 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776464** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	144.9	3.1	10	100	43.85	101	80-120	144.5	0.299	20	

MSD Sample ID: **21091880-12B MSD** Units: **mg/L** Analysis Date: **9/23/2021 07:43 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776480** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	177.7	3.1	10	100	69.28	108	80-120	178.2	0.282	20	

MSD Sample ID: **21091997-01D MSD** Units: **mg/L** Analysis Date: **9/23/2021 11:01 PM**
Client ID: Run ID: **IC3_210923A** SeqNo: **7776493** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1688	31	100	1000	698.8	98.9	80-120	1687	0.0433	20	

The following samples were analyzed in this batch: 21091995-03D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **R327499** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **MBLK-R327499** Units: **mg/L** Analysis Date: **9/24/2021 10:41 AM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780474** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	U	0.19	1.0								

LCS Sample ID: **LCS-R327499** Units: **mg/L** Analysis Date: **9/24/2021 11:28 AM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780477** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	10.22	0.19	1.0	10	0	102	90-110	0			

MS Sample ID: **21092215-02B MS** Units: **mg/L** Analysis Date: **9/24/2021 12:14 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780480** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1488	19	100	1000	527	96.1	80-120	0			

MS Sample ID: **21091997-01D MS** Units: **mg/L** Analysis Date: **9/24/2021 03:17 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780492** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	96.21	1.9	10	100	0	96.2	80-120	0			

MSD Sample ID: **21092215-02B MSD** Units: **mg/L** Analysis Date: **9/24/2021 12:29 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780481** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1489	19	100	1000	527	96.2	80-120	1488	0.0497	20	

MSD Sample ID: **21091997-01D MSD** Units: **mg/L** Analysis Date: **9/24/2021 03:33 PM**
Client ID: Run ID: **IC3_210924A** SeqNo: **7780493** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	96.25	1.9	10	100	0	96.3	80-120	96.21	0.0416	20	

The following samples were analyzed in this batch: 21091995-03D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

Client: Core Appalachia Operating, LLC
Work Order: 21091995
Project: WPP-005

QC BATCH REPORT

Batch ID: **R327577** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R327577** Units: **% of sample** Analysis Date: **9/24/2021 03:34 PM**
Client ID: Run ID: **MOIST_210924D** SeqNo: **7784596** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.1	0.10								

LCS Sample ID: **LCS-R327577** Units: **% of sample** Analysis Date: **9/24/2021 03:34 PM**
Client ID: Run ID: **MOIST_210924D** SeqNo: **7784595** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.99	0.1	0.10	100	0	100	98-102	0			

DUP Sample ID: **21091995-01A DUP** Units: **% of sample** Analysis Date: **9/24/2021 03:34 PM**
Client ID: **WPP-005 Soil #1 On-site Grab** Run ID: **MOIST_210924D** SeqNo: **7784574** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	31.27	0.1	0.10	0	0	0	0-0	29.22	6.78	10	

DUP Sample ID: **21092200-01A DUP** Units: **% of sample** Analysis Date: **9/24/2021 03:34 PM**
Client ID: Run ID: **MOIST_210924D** SeqNo: **7784585** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.01	0.1	0.10	0	0	0	0-0	12.05	0.333	10	

The following samples were analyzed in this batch: 21091995-01A 21091995-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

11/22/2024

ALS Environmental

Subcontractor:
ALS Environmental - Holland
3352 128th Avenue
Holland, MI 49424
TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 21-Sep-21
COC ID: 17776
Due Date: 28-Sep-21

Salesperson: Paul Painter

Customer Information		Project Information	
Purchase Order		Project Name	21091995
Work Order		Project Number	
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp
Send Report To	Rebecca Kiser	Inv Attn	Accounts Payable
Address	1740 Union Carbide Dr	Address	1740 Union Carbide Dr
City/State/Zip	So Charleston, WV 25303	City/State/Zip	So Charleston, WV 25303
Phone	(304) 356-3168	Phone	(304) 356-3168
Fax		Fax	
eMail Address	rebecca.kiser@alsglobal.com	eMail CC	

	Parameter/Method Request for Analysis
A	Total Dissolved Solids (A2540 C-11)
B	Anions by Ion Chromatography (E300.0)
C	Moisture (SW3550C)
D	Metals by ICP-MS (SW6020B)
E	Metals by ICP-MS (SW6020B)
F	Metals by ICP-MS (dissolved) (SW6020B)
G	Mercury by CVAA (dissolved) (SW7470A)
H	Mercury by CVAA (SW7471B)
I	Anions by Ion Chromatography (SW9056A)
J	

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
21091995-01A	WPP-005 Soil #1 On-site Grab	Soil	21/Sep/2021 9:30	(1) 8OZGNEAT			X	X				X	X	
21091995-02A	WPP-005 Soil #2 Background Grab	Soil	21/Sep/2021 9:30	(1) 8OZGNEAT			X	X				X	X	
21091995-03A	WPP-005-Surface #1 Grab	Water	21/Sep/2021 9:40	(1) 250PHNO3						X	X			
21091995-03C	WPP-005-Surface #1 Grab	Water	21/Sep/2021 9:40	(1) 250PHNO3					X					
21091995-03D	WPP-005-Surface #1 Grab	Water	21/Sep/2021 9:40	(1) 250PNEAT	X	X								

Comments:
WV Samples.

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
[signature]	9/21/21 1700	FED EX		ALSHN C/6.0°C ID3 pH2	std
Relinquished by: FED EX	Date/Time 9/22/21 0900	Received by: [signature]	Date/Time		

11/22/2024

ALS Group, USA

Sample Receipt Checklist

Client Name: **CORE APPALACHIA** Date/Time Received: **21-Sep-21 16:03**

Work Order: **21091995** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 23-Sep-21 (Date) Reviewed by: Rebecca Kiser (eSignature) 27-Sep-21 (Date)

Matrices: Soil, Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	<6.0 c	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/23/2021 9:04:44 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

11/22/2024