The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Kerr-McGee Oil & Gas Onshore LP

GWA_Barclay_68535_Well

FID:753245 Reg:Vol. Freq.:Q4

SGS Job Number: DA21588

Sampling Date: 10/31/19

Report to:

Kerr-McGee Oil & Gas Onshore LP
112 High Street
Buffalo, WY 82834
tanya.cude@absarokasolutions.com; AnadarkoDataMmgt@ghd.com;
joel.mason@absarokasolutions.com; max.moran@absarokasolutions.com
ATTN: Tanya Cude

Total number of pages in report: 52

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Carissa Cumine 303-425-6021

Certifications: CO (CO00049), NE (NE-OS-06-04), ND (R-027), UT (NELAP CO00049)
LA (LA150028), TX (T104704511), WY (8TMS-L)

Sections: 1 2 3 4 5 6 7 8 9 10

Table of Contents

Sample Summary

Kerr-McGee Oil & Gas Onshore LP

Job No: DA21588

GWA_Barclay_68535_Well
Project No: FID:753245 Reg:Vol. Freq.:Q4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies: Organics ND = Not detected above the MDL							
DA21588-1	10/31/19	13:37	JB	11/01/19	AQ	Ground Water	BW_BARCLAY_68535 SWSW_20_3N_66W
DA21588-1A	10/31/19	13:37	JB	11/01/19	AQ	Ground Water	BW_BARCLAY_68535 SWSW_20_3N_66W
DA21588-1B	10/31/19	13:37	JB	11/01/19	AQ	Ground Water	BW_BARCLAY_68535 SWSW_20_3N_66W
DA21588-1F	10/31/19	13:37	JB	11/01/19	AQ	Groundwater Filtered	BW_BARCLAY_68535 SWSW_20_3N_66W

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Kerr-McGee Oil & Gas Onshore LP	**Job No**	DA21588
Site:	GWA_Barclay_68535_Well	**Report Date**	11/23/2019 10:05:19 A

On 11/01/2019, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4.1 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA21588 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260B

Matrix: AQ **Batch ID:** V7V3216

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA17880-4MS, DA17880-4MSD were used as the QC samples indicated.
- The blank spike (BS) recovery(s) of Benzene are outside control limits.
- V7V3216-BS for Benzene: Compound ND in associated samples.

GC Volatiles By Method RSK175 MOD

Matrix: AQ **Batch ID:** GFK60

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21566-1MS, DA21566-1MSD were used as the QC samples indicated.
- DA21588-1A: The pH of the sample was >2 at time of analysis.

GC Volatiles By Method SW846 8015B

Matrix: AQ **Batch ID:** GGA2287

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA17878-4MS, DA17878-4MSD were used as the QC samples indicated.

GC/LC Semi-volatiles By Method SW846-8015B

Matrix: AQ **Batch ID:** OP18482

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA17880-1MS, DA17880-1MSD were used as the QC samples indicated.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP29347

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21594-1MS, DA21594-1MSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ	Batch ID: MP29332

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21556-1FMS, DA21556-1FMSD were used as the QC samples for the metals analysis.

General Chemistry By Method EPA 365.1

Matrix: AQ	Batch ID: GP26308

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21648-1DUP, DA21663-2MS were used as the QC samples for the Phosphorus, Total analysis.
- GP26308-MBF for Phosphorus, Total: Analyzed on a dissolved basis.

General Chemistry By Method EPA300.0/SW846 9056A

Matrix: AQ	Batch ID: GP26196

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21561-1MS, DA21561-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- DA21588-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.

Matrix: AQ	Batch ID: R49623

- The data for EPA300.0/SW846 9056A meets quality control requirements.
- DA21588-1 for Nitrogen, Nitrate + Nitrite: Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

General Chemistry By Method HACH IRB-BART

Matrix: AQ	Batch ID: MB1246

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

General Chemistry By Method HACH SLYM-BART

Matrix: AQ	Batch ID: MB1247

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

General Chemistry By Method HACH SRB-BART

Matrix: AQ	Batch ID: MB1248

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

General Chemistry By Method SM 2320B-2011

Matrix: AQ	Batch ID: GN48760

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA17880-12MS, DA17880-12MSD, DA21560-1DUP were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Matrix: AQ	Batch ID: GN48761

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ	Batch ID: GN48762

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

General Chemistry By Method SM 2510B-2011

Matrix: AQ	Batch ID: GP26200

- Sample(s) DA21574-1DUP were used as the QC samples for the Specific Conductivity analysis.

General Chemistry By Method SM 2540C-2011

Matrix: AQ	Batch ID: GN48777

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA21568-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

General Chemistry By Method SM1030E-2011

Matrix: AQ	Batch ID: GN48788

- The data for SM1030E-2011 meets quality control requirements.

General Chemistry By Method SM4500HB+-2011/9040C

Matrix: AQ	Batch ID: GN48809

- The data for SM4500HB+-2011/9040C meets quality control requirements.
- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: DA21588-1 Analysis performed past recommended hold time.

Field Data By Method FIELD

Matrix: AQ	Batch ID: R49658

- The data for FIELD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: DA21588
Account: Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well
Collected: 10/31/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA21588-1	**BW_BARCLAY_68535 SWSW_20_3N_66W**					
Alkalinity, Bicarbonate as CaCO3		404	5.0		mg/l	SM 2320B-2011
Alkalinity, Carbonate		10.1	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		414	5.0		mg/l	SM 2320B-2011
Bromide		0.58	0.50		mg/l	EPA300.0/SW846 9056A
Cation Anion Balance		5.0			%	SM1030E-2011
Chloride		54.1	5.0		mg/l	EPA300.0/SW846 9056A
Fluoride		1.8	1.0		mg/l	EPA300.0/SW846 9056A
Phosphorus, Total		0.029	0.010		mg/l	EPA 365.1
Solids, Total Dissolved		603	10		mg/l	SM 2540C-2011
Specific Conductivity		1030	1.0		umhos/cm	SM 2510B-2011
pH [a]		8.67			su	SM4500HB + -2011/9040C
Turbidity		0.02			NTU	FIELD
pH (Field)		8.54			su	FIELD
Temperature (Field)		16.17			Deg. C	FIELD
Specific Conductivity (Field)		1037.5	0.50		umhos/cm	FIELD
Oxygen, Dissolved (Field)		0.05			mg/l	FIELD
DA21588-1A	**BW_BARCLAY_68535 SWSW_20_3N_66W**					
Methane [b]		9.77	0.020	0.018	mg/l	RSK175 MOD
Ethane [b]		0.294	0.0016	0.0010	mg/l	RSK175 MOD
Propane [b]		0.125	0.0022	0.0017	mg/l	RSK175 MOD
DA21588-1B	**BW_BARCLAY_68535 SWSW_20_3N_66W**					
Iron-Related Bacteria		9000	25		CFU/ml	HACH IRB-BART
Slime Forming Bacteria		13000	500		CFU/ml	HACH SLYM-BART
Sulfate Reducing Bacteria		115000	200		CFU/ml	HACH SRB-BART
DA21588-1F	**BW_BARCLAY_68535 SWSW_20_3N_66W**					
Barium		0.0461	0.0040		mg/l	EPA 200.8
Boron		0.170	0.050		mg/l	EPA 200.7
Calcium		2.75	0.40		mg/l	EPA 200.7
Iron		0.0257	0.010		mg/l	EPA 200.7
Magnesium		0.457	0.20		mg/l	EPA 200.7
Manganese		0.0060	0.0050		mg/l	EPA 200.7
Potassium		1.44	1.0		mg/l	EPA 200.7
Selenium		0.00099	0.00080		mg/l	EPA 200.8
Sodium		244	0.40		mg/l	EPA 200.7
Strontium		0.0677	0.0050		mg/l	EPA 200.7

(a) Analysis performed past recommended hold time.

Summary of Hits

Job Number: DA21588
Account: Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well
Collected: 10/31/19

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

(b) The pH of the sample was > 2 at time of analysis.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1	**Date Sampled:**	10/31/19
Matrix:	AQ - Ground Water	**Date Received:**	11/01/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	GWA_Barclay_68535_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V63641.D	1	11/04/19 17:48	DC	n/a	n/a	V7V3216
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-130%
17060-07-0	1,2-Dichloroethane-D4	84%		70-130%
2037-26-5	Toluene-D8	95%		70-130%
460-00-4	4-Bromofluorobenzene	112%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1	**Date Sampled:**	10/31/19
Matrix:	AQ - Ground Water	**Date Received:**	11/01/19
Method:	SW846 8015B	**Percent Solids:**	n/a
Project:	GWA_Barclay_68535_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA50305.D	1	11/04/19 21:57	MB	n/a	n/a	GGA2287
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	81%		60-140%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1	**Date Sampled:**	10/31/19
Matrix:	AQ - Ground Water	**Date Received:**	11/01/19
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	GWA_Barclay_68535_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FN7798.D	1	11/06/19 09:08	NO	11/04/19	OP18482	GFN238
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.18	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	33%		11-142%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BW_BARCLAY_68535 SWSW_20_3N_66W
Lab Sample ID: DA21588-1
Matrix: AQ - Ground Water
Project: GWA_Barclay_68535_Well

Date Sampled: 10/31/19
Date Received: 11/01/19
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	404	5.0	mg/l	1	11/04/19	JD	SM 2320B-2011
Alkalinity, Carbonate	10.1	5.0	mg/l	1	11/04/19	JD	SM 2320B-2011
Alkalinity, Total as CaCO3	414	5.0	mg/l	1	11/04/19	JD	SM 2320B-2011
Bromide	0.58	0.50	mg/l	10	11/01/19 20:20	AM	EPA300.0/SW846 9056A
Cation Anion Balance	5.0		%	1	11/07/19	SH	SM1030E-2011
Chloride	54.1	5.0	mg/l	10	11/01/19 20:20	AM	EPA300.0/SW846 9056A
Fluoride	1.8	1.0	mg/l	10	11/01/19 20:20	AM	EPA300.0/SW846 9056A
Nitrogen, Nitrate [a]	< 0.10	0.10	mg/l	10	11/01/19 20:20	AM	EPA300.0/SW846 9056A
Nitrogen, Nitrate + Nitrite [b]	< 0.10	0.10	mg/l	1	11/01/19 20:20	AM	EPA300.0/SW846 9056A
Nitrogen, Nitrite	< 0.0040	0.0040	mg/l	1	11/01/19 15:54	AM	EPA300.0/SW846 9056A
Phosphorus, Total	0.029	0.010	mg/l	1	11/21/19 12:50	PV	EPA 365.1
Solids, Total Dissolved	603	10	mg/l	1	11/06/19	AK	SM 2540C-2011
Specific Conductivity	1030	1.0	umhos/cm	1	11/04/19	JD	SM 2510B-2011
Sulfate	< 0.50	0.50	mg/l	1	11/01/19 15:54	AM	EPA300.0/SW846 9056A
pH [c]	8.67		su	1	11/11/19 12:00	SK	SM4500HB+-2011/9040C

Field Parameters

Oxygen, Dissolved (Field)	0.05		mg/l	1	11/07/19	SUB	FIELD
Redox Potential Vs H2	-101.2		mv	1	11/07/19	SUB	FIELD
Specific Conductivity (Field)	1037.5	0.50	umhos/cm	1	11/07/19	SUB	FIELD
Temperature (Field)	16.17		Deg. C	1	11/07/19	SUB	FIELD
Turbidity	0.02		NTU	1	11/07/19	SUB	FIELD
pH (Field)	8.54		su	1	11/07/19	SUB	FIELD

(a) Elevated detection limit due to matrix interference.
(b) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)
(c) Analysis performed past recommended hold time.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1A	**Date Sampled:**	10/31/19
Matrix:	AQ - Ground Water	**Date Received:**	11/01/19
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	GWA_Barclay_68535_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FK676.D	1	11/04/19 19:23	GN	n/a	n/a	GFK60
Run #2 [a]	FK678.D	25	11/04/19 19:35	GN	n/a	n/a	GFK60

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	21.0 Deg. C
Run #2	39.0 ml	4.0 ml	500 ul	21.0 Deg. C

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	9.77 [b]	0.020	0.018	mg/l	
74-84-0	Ethane	0.294	0.0016	0.0010	mg/l	
74-98-6	Propane	0.125	0.0022	0.0017	mg/l	

(a) The pH of the sample was > 2 at time of analysis.
(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1B	**Date Sampled:**	10/31/19
Matrix:	AQ - Ground Water	**Date Received:**	11/01/19
		Percent Solids:	n/a
Project:	GWA_Barclay_68535_Well		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Iron-Related Bacteria	9000	25	CFU/ml	1	11/04/19 10:00	SK	HACH IRB-BART
Slime Forming Bacteria	13000	500	CFU/ml	1	11/04/19 10:00	SK	HACH SLYM-BART
Sulfate Reducing Bacteria	115000	200	CFU/ml	1	11/04/19 10:00	SK	HACH SRB-BART

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BW_BARCLAY_68535 SWSW_20_3N_66W		
Lab Sample ID:	DA21588-1F	**Date Sampled:**	10/31/19
Matrix:	AQ - Groundwater Filtered	**Date Received:**	11/01/19
		Percent Solids:	n/a
Project:	GWA_Barclay_68535_Well		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	0.0461	0.0040	mg/l	2	11/04/19	11/05/19	JM	EPA 200.8 [2]	EPA 200.8 [5]
Boron	0.170	0.050	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]
Calcium	2.75	0.40	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]
Iron	0.0257	0.010	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]
Magnesium	0.457	0.20	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]
Manganese	0.0060	0.0050	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]
Potassium	1.44	1.0	mg/l	1	11/04/19	11/05/19	JM	EPA 200.7 [3]	EPA 200.7 [6]
Selenium	0.00099	0.00080	mg/l	2	11/04/19	11/12/19	JM	EPA 200.8 [4]	EPA 200.8 [5]
Sodium	244	0.40	mg/l	1	11/04/19	11/05/19	JM	EPA 200.7 [3]	EPA 200.7 [6]
Strontium	0.0677	0.0050	mg/l	1	11/04/19	11/04/19	JM	EPA 200.7 [1]	EPA 200.7 [6]

(1) Instrument QC Batch: MA11942
(2) Instrument QC Batch: MA11944
(3) Instrument QC Batch: MA11946
(4) Instrument QC Batch: MA11963
(5) Prep QC Batch: MP29332
(6) Prep QC Batch: MP29347

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.accutest.com

Bottle Order Control #:
FED-EX Tracking #:
SGS Quote #:
SGS Job #: DA 21588

Client / Reporting Information

Company: (Report to) Absaroka Solutions
Street: 112 High Street
City, State: Buffalo, WY 82834
Project Contact: Tanya Cude
Phone: 352-318-4034
Email: Tanya.Cude@Absarokasolutions.com
Sampler(s) Name(s): John Brouwer

Project Information

Project Name: GWA_Barclay_68535_Well
Frequency: Q4
Regulation: Voluntary
Facility ID: 753245
EQuIS Facility Code: 0089019-AN-GWABWQ
Client Purchase Order #: WO #88561343
Project Manager: Joel Mason

Billing Information (if different from Report to)

Company: Occidental Petroleum Corporation (OXY)
Street Address: 1099 18th Street, Suite 1800
City, State ZIP: Denver, CO 80202-1918
Attention: Erik Mickelson User ID: fvv451

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Field ID / Point of Collection	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	HCl	NaOH	HNO3	H2SO4	DI Water	MEOH	ENCORE	Na2S2O4	Other	PH, SCON, TDS	XCARBICALK	BRO, CHL, F, NO2, XNO3O, NO32, SO4	TPO4	Dissolved Metals - Lab Filtered*	VRSK175DGMEP	V8260BTX	B8015DRO	V8015GRO	IRBAC, SFBAC, SO4RBAC	CABAL	LAB USE ONLY
BW_Barclay_68535	10/31/2019	1337	JB	GW	17	9	6			1					1	X	X	X	X	X	X	X	X	X	X	X	01
SWSW_20_3N_66W																											SW111
Temperature, field	16.17	°C																									
pH, field	8.54	s.u.																									
Specific Conductivity, field	1032.5	uS/cm																									
Oxidation Reduction Potential, field	-101.2	mV																									
Dissolved Oxygen, field	0.05	mg/L																									
Turbidity, field	0.02	NTU																									

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [ ] 1 Day Emergency

Emergency & Rush T/A data available VIA LabLink. RUSH TAT approval needed.

Special Reporting Instructions

- [ ] Report in PPB
- [ ] Report in PPM
- [ ] Report MDLs

Data Deliverable Information

- [ ] Commercial "A" (Level 1, Results Only)
- [ ] Commercial "B" (Level 2, Results + QC Summary)
- [ ] COMMBN (Results/QC/Narrative)
- [ ] COMMBN+ [Results/QC/Narrative (+ chromatograms)]
- [ ] REDT2
- [ ] FULT1
- [X] EDD Format: COGCC Compatible

Comments / Special Instructions

*Dissolved Metals (200.7/200.8): BaMS, B, Ca, Fe,Mg, Mn, K, SeMS, Na, Sr

Please also send reports to Joel.Mason@Absarokasolutions.com and Max.Moran@Absarokasolutions.com

Bubbles / Effervesce

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
1	10/31/19 1800	1	1 11/1/19 1300		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3 CO	4		4

Custody Seal # | Intact [X] | Not Intact [ ] | Absent [ ] | Preserved where applicable [ ] | Cooler Temp. °C: 4.1 | Therm. ID: T080 | On Ice [X]

Form MSQA 064-01, RV 6/19/17
http://www.sgs.com/terms-and-conditions

SGS Accutest Sample Receipt Summary

Job Number: DA21588 **Client:** ABSAROKA SOLUTIONS **Project:** GWA_BARCLAY_68535_WELL

Date / Time Received: 11/1/2019 1:00:00 PM **Delivery Method:** **Airbill #'s:** co

Cooler Temps (Initial/Adjusted): 0

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

DA21588: Chain of Custody
Page 2 of 2

MS Volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V3216-MB	7V63628.D	1	11/04/19	DC	n/a	n/a	V7V3216

The QC reported here applies to the following samples: **Method:** SW846 8260B

DA21588-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
	m,p-Xylene	ND	1.0	0.70	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	1.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	106%	70-130%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%
2037-26-5	Toluene-D8	105%	70-130%
460-00-4	4-Bromofluorobenzene	96%	70-130%

Blank Spike Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V3216-BS	7V63626.D	1	11/04/19	DC	n/a	n/a	V7V3216

The QC reported here applies to the following samples: **Method:** SW846 8260B

DA21588-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	66.2	132* [a]	70-130
100-41-4	Ethylbenzene	50	53.7	107	69-130
108-88-3	Toluene	50	48.0	96	70-130
	m,p-Xylene	100	110	110	70-130
95-47-6	o-Xylene	50	55.8	112	70-130
1330-20-7	Xylene (total)	150	166	111	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	114%	70-130%
2037-26-5	Toluene-D8	85%	70-130%
460-00-4	4-Bromofluorobenzene	102%	70-130%

(a) Compound ND in associated samples.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA17880-4MS	7V63629.D	1	11/04/19	DC	n/a	n/a	V7V3216
DA17880-4MSD	7V63630.D	1	11/04/19	DC	n/a	n/a	V7V3216
DA17880-4	7V63631.D	1	11/04/19	DC	n/a	n/a	V7V3216

The QC reported here applies to the following samples: **Method:** SW846 8260B

DA21588-1

CAS No.	Compound	DA17880-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	58.2	116	50	56.6	113	3	67-130/30
100-41-4	Ethylbenzene	ND		50	52.8	106	50	46.6	93	12	69-130/30
108-88-3	Toluene	ND		50	53.6	107	50	47.0	94	13	70-130/30
	m,p-Xylene	ND		100	107	107	100	93.2	93	14	70-130/30
95-47-6	o-Xylene	ND		50	54.2	108	50	46.3	93	16	70-130/30
1330-20-7	Xylene (total)	ND		150	162	108	150	140	93	15	67-130/30

CAS No.	Surrogate Recoveries	MS	MSD	DA17880-4	Limits
1868-53-7	Dibromofluoromethane	103%	99%	97%	70-130%
17060-07-0	1,2-Dichloroethane-D4	100%	105%	95%	70-130%
2037-26-5	Toluene-D8	94%	85%	87%	70-130%
460-00-4	4-Bromofluorobenzene	99%	104%	99%	70-130%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA2287-MB	GA50288.D	1	11/04/19	MB	n/a	n/a	GGA2287

The QC reported here applies to the following samples: **Method:** SW846 8015B

DA21588-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.050	0.050	mg/l	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	90%	60-140%

Method Blank Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFK60-MB	FK659.D	1	11/04/19	GN	n/a	n/a	GFK60

The QC reported here applies to the following samples: **Method:** RSK175 MOD

DA21588-1A

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00070	mg/l	
74-84-0	Ethane	ND	0.0016	0.0010	mg/l	
74-98-6	Propane	ND	0.0022	0.0017	mg/l	

Blank Spike Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA2287-BS	GA50287.D	1	11/04/19	MB	n/a	n/a	GGA2287

The QC reported here applies to the following samples: **Method:** SW846 8015B

DA21588-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	1.68	76	51-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	112%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFK60-BS	FK660.D	10	11/04/19	GN	n/a	n/a	GFK60

The QC reported here applies to the following samples: **Method:** RSK175 MOD

DA21588-1A

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.512	0.564	110	70-130
74-84-0	Ethane	0.923	1.09	118	70-142
74-98-6	Propane	1.38	1.56	113	70-137

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA17878-4MS	GA50289.D	1	11/04/19	MB	n/a	n/a	GGA2287
DA17878-4MSD	GA50290.D	1	11/04/19	MB	n/a	n/a	GGA2287
DA17878-4	GA50291.D	1	11/04/19	MB	n/a	n/a	GGA2287

The QC reported here applies to the following samples: **Method:** SW846 8015B

DA21588-1

CAS No.	Compound	DA17878-4 mg/l	Q	Spike mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		2.2	1.69	77	2.2	1.72	78	2	40-132/30

CAS No.	Surrogate Recoveries	MS	MSD	DA17878-4	Limits
120-82-1	1,2,4-Trichlorobenzene	118%	115%	94%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA21566-1MS	FK662.D	10	11/04/19	GN	n/a	n/a	GFK60
DA21566-1MSD	FK663.D	10	11/04/19	GN	n/a	n/a	GFK60
DA21566-1	FK661.D	1	11/04/19	GN	n/a	n/a	GFK60

The QC reported here applies to the following samples: **Method:** RSK175 MOD

DA21588-1A

CAS No.	Compound	DA21566-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
74-82-8	Methane	0.0116		0.512	0.458	87	0.512	0.465	89	2	15-200/30
74-84-0	Ethane	ND		0.923	0.871	94	0.923	0.876	95	1	64-147/30
74-98-6	Propane	ND		1.38	1.24	90	1.38	1.26	91	2	63-139/30

* = Outside of Control Limits.

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18482-MB	FD65143.D	1	11/09/19	NO	11/04/19	OP18482	GFD2689

The QC reported here applies to the following samples: **Method:** SW846-8015B

DA21588-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.19	mg/l	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	27%	11-142%

Blank Spike Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18482-BS	FD65144.D	1	11/09/19	NO	11/04/19	OP18482	GFD2689

The QC reported here applies to the following samples: **Method:** SW846-8015B

DA21588-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	3.26	65	22-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	29%	11-142%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA21588
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18482-MS	FD65145.D	1	11/09/19	NO	11/04/19	OP18482	GFD2689
OP18482-MSD	FD65146.D	1	11/09/19	NO	11/04/19	OP18482	GFD2689
DA17880-1	FD65147.D	1	11/09/19	NO	11/04/19	OP18482	GFD2689

The QC reported here applies to the following samples: **Method:** SW846-8015B

DA21588-1

CAS No.	Compound	DA17880-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		5	3.98	80	5	4.31	86	8	22-130/30

CAS No.	Surrogate Recoveries	MS	MSD	DA17880-1	Limits
84-15-1	o-Terphenyl	55%	58%	42%	11-142%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29332
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/04/19

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079	-0.0050	<2.0
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Cadmium	0.10	.036	.042		
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13		
Iron	10	3.5	4.6		
Lead	0.50	.0079	.008		
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13		
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21	-0.16	<0.40
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96		

Associated samples MP29332: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29332 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/04/19

Metal	DA21556-1F Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	39.5	470	400	107.6	70-130
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	anr				
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	1.1	190	200	94.5	70-130
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	anr				

Associated samples MP29332: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29332 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/04/19

Metal	DA21556-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	39.5	464	400	106.1	1.3	20
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	1.1	192	200	95.5	1.0	20
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	anr					

Associated samples MP29332: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29332
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 11/04/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	398	400	99.5	85-115
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	189	200	94.5	85-115
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP29332: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/04/19

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	11	30		
Antimony	30	2.1	10		
Arsenic	25	3.8	7		
Barium	10	.2	2		
Beryllium	10	.9	1.3		
Boron	50	.8	7.4	-1.7	<50
Cadmium	10	.2	1.6		
Calcium	400	2.4	53	7.0	<400
Chromium	10	.3	1.7		
Cobalt	5.0	.5	2.3		
Copper	10	.8	2.3		
Iron	10	1.5	3.1	-0.80	<10
Lead	50	2.1	6.3		
Lithium	5.0	.4	4		
Magnesium	200	6.8	31	8.6	<200
Manganese	5.0	.5	1.1	-0.10	<5.0
Molybdenum	10	.4	4.3		
Nickel	30	.5	6.1		
Phosphorus	100	15	24		
Potassium	1000	84	250	67.0	<1000
Selenium	50	7.1	21		
Silicon	50	4.7	45		
Silver	30	.3	4		
Sodium	400	13	51	44.7	<400
Strontium	5.0	.01	.6	0.0	<5.0
Thallium	10	1.8	7.5		
Tin	60	12	51		
Titanium	10	.1	1.9		
Uranium	50	2.9	8.5		
Vanadium	10	.4	.7		
Zinc	30	.4	3.8		

Associated samples MP29347: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/04/19

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/04/19

Metal	DA21594-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron	39.0	1090	1000	105.4	70-130
Cadmium					
Calcium	171000	169000	25000	72.0	70-130
Chromium	anr				
Cobalt					
Copper					
Iron	544	5520	5000	99.5	70-130
Lead					
Lithium					
Magnesium	2700	27200	25000	98.4	70-130
Manganese	26.0	520	500	99.1	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	159000	191000	25000	128.0	70-130
Selenium					
Silicon					
Silver					
Sodium	136000	159000	25000	104.0	70-130
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP29347: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/04/19

Metal	DA21594-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/04/19

Metal	DA21594-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	39.0	1090	1000	105.4	0.0	20
Cadmium						
Calcium	171000	169000	25000	72.0	0.0	20
Chromium	anr					
Cobalt						
Copper						
Iron	544	5550	5000	100.1	0.5	20
Lead						
Lithium						
Magnesium	2700	27400	25000	99.2	0.7	20
Manganese	26.0	522	500	99.5	0.4	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	159000	191000	25000	128.0	8.2	20
Selenium						
Silicon						
Silver						
Sodium	136000	160000	25000	108.0	3.2	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP29347: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347 Methods: EPA 200.7
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/04/19

Metal	DA21594-1 Original MSD	Spikelot ICPALL2 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/04/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1020	1000	102.0	85-115
Cadmium				
Calcium	24800	25000	99.2	85-115
Chromium	anr			
Cobalt				
Copper				
Iron	5080	5000	101.6	85-115
Lead				
Lithium				
Magnesium	24800	25000	99.2	85-115
Manganese	515	500	103.0	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	27200	25000	108.8	85-115
Selenium				
Silicon				
Silver				
Sodium	26400	25000	105.6	85-115
Strontium	510	500	102.0	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP29347: DA21588-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

QC Batch ID: MP29347
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/04/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN48761	5.0	0.0	mg/l	100	92.4	92.4	90-110%
Alkalinity, Carbonate	GN48762	5.0	0.0	mg/l	100	92.4	92.4	80-120%
Alkalinity, Total as CaCO3	GN48760	5.0	0.0	mg/l	100	92.4	92.4	90-110%
Bromide	GP26196/GN48746	0.050	0.0	mg/l	0.5	0.483	96.6	90-110%
Chloride	GP26196/GN48746	0.50	0.0	mg/l	5	4.84	96.8	90-110%
Fluoride	GP26196/GN48746	0.10	0.0	mg/l	1	0.963	96.3	90-110%
Iron-Related Bacteria	MB1246	25	<25	CFU/ml				
Nitrogen, Nitrate	GP26196/GN48746	0.010	0.0	mg/l	0.1	0.0964	96.4	90-110%
Nitrogen, Nitrite	GP26196/GN48746	0.0040	0.0	mg/l	0.05	0.0493	98.6	90-110%
Phosphorus, Total	GP26308/GN48951	0.010	0.00	mg/l	0.2	0.192	96.0	90-110%
Phosphorus, Total	GP26308/GN48951	0.010	-0.0100	mg/l	0.2	0.183	91.5	90-110%
Phosphorus, Total	GP26308/GN48951	0.010	-0.0100(a)	mg/l				
Phosphorus, Total	GP26308/GN48951	0.010	-0.0100	mg/l	0.2	0.194	97.0	90-110%
Slime Forming Bacteria	MB1247	500	<500	CFU/ml				
Solids, Total Dissolved	GN48777	10	0.0	mg/l	250	246	98.4	90-110%
Specific Conductivity	GP26200/GN48751			umhos/cm	998	1010	101.1	90-110%
Sulfate	GP26196/GN48746	0.50	0.0	mg/l	5	4.86	97.2	90-110%
Sulfate Reducing Bacteria	MB1248	200	<200	CFU/ml				

Associated Samples:
Batch MB1246: DA21588-1B
Batch MB1247: DA21588-1B
Batch MB1248: DA21588-1B
Batch GN48760: DA21588-1
Batch GN48761: DA21588-1
Batch GN48762: DA21588-1
Batch GN48777: DA21588-1
Batch GP26196: DA21588-1
Batch GP26200: DA21588-1
Batch GP26308: DA21588-1
(*) Outside of QC limits
(a) Analyzed on a dissolved basis.

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN48760	DA21560-1	mg/l	129	128	0.8	0-20%
Phosphorus, Total	GP26308/GN48951	DA21648-1	mg/l	-0.011	0.00	0.0	0-20%
Solids, Total Dissolved	GN48777	DA21568-2	mg/l	3350	3330	0.6	0-5%
Specific Conductivity	GP26200/GN48751	DA21574-1	umhos/cm	2630	2700	2.6	0-20%

Associated Samples:
Batch GN48760: DA21588-1
Batch GN48777: DA21588-1
Batch GP26200: DA21588-1
Batch GP26308: DA21588-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN48760	DA17880-12	mg/l	18.5	100	110	91.2	80-120%
Bromide	GP26196/GN48746	DA21561-1	mg/l	0.0	0.5	0.49	98.0	80-120%
Chloride	GP26196/GN48746	DA21561-1	mg/l	0.65	5	5.6	99.0	80-120%
Fluoride	GP26196/GN48746	DA21561-1	mg/l	0.0	1	1.0	100.0	80-120%
Nitrogen, Nitrate	GP26196/GN48746	DA21561-1	mg/l	0.045	0.1	0.14	95.0	80-120%
Nitrogen, Nitrite	GP26196/GN48746	DA21561-1	mg/l	0.0	0.05	0.050	100.0	80-120%
Phosphorus, Total	GP26308/GN48951	DA21663-2	mg/l	0.0	0.2	0.196	98.0	90-110%
Sulfate	GP26196/GN48746	DA21561-1	mg/l	10.5	5	15.4	98.0	80-120%

Associated Samples:
Batch GN48760: DA21588-1
Batch GP26196: DA21588-1
Batch GP26308: DA21588-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA21588
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_Barclay_68535_Well

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN48760	DA17880-12	mg/l	18.5	100	107	2.0	20%
Bromide	GP26196/GN48746	DA21561-1	mg/l	0.0	0.5	0.49	0.0	20%
Chloride	GP26196/GN48746	DA21561-1	mg/l	0.65	5	5.6	0.0	20%
Fluoride	GP26196/GN48746	DA21561-1	mg/l	0.0	1	1.0	0.0	20%
Nitrogen, Nitrate	GP26196/GN48746	DA21561-1	mg/l	0.045	0.1	0.14	0.0	20%
Nitrogen, Nitrite	GP26196/GN48746	DA21561-1	mg/l	0.0	0.05	0.048	4.1	20%
Sulfate	GP26196/GN48746	DA21561-1	mg/l	10.5	5	15.4	0.0	20%

Associated Samples:
Batch GN48760: DA21588-1
Batch GP26196: DA21588-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits