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

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Automated Report

Technical Report for

Kerr-McGee Oil & Gas Onshore LP

GWA_NGL_Water_Well

FID:755053 Reg:Vol. Freq.:Q2

SGS Job Number: DA15679

Sampling Date: 05/07/19

Report to:

Kerr-McGee Oil & Gas Onshore LP
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ATTN: Tanya Cude

Total number of pages in report: 55

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), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942) UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

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Sample Summary

Kerr-McGee Oil & Gas Onshore LP

Job No: DA15679

GWA_NGL_Water_Well
Project No: FID:755053 Reg:Vol. Freq.:Q2

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
DA15679-1	05/07/19	13:15	TS	05/08/19	AQ	Ground Water	BW_NGL_78801_F_R SESE_30_3N_65W
DA15679-1A	05/07/19	13:15	TS	05/08/19	AQ	Ground Water	BW_NGL_78801_F_R SESE_30_3N_65W
DA15679-1B	05/07/19	13:15	TS	05/08/19	AQ	Ground Water	BW_NGL_78801_F_R SESE_30_3N_65W
DA15679-1F	05/07/19	13:15	TS	05/08/19	AQ	Groundwater Filtered	BW_NGL_78801_F_R SESE_30_3N_65W

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Kerr-McGee Oil & Gas Onshore LP	**Job No**	DA15679
Site:	GWA_NGL_Water_Well	**Report Date**	6/3/2019 4:12:53 PM

On 05/08/2019, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 1.7 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of DA15679 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:** V7V3072

- All samples were analyzed within the recommended method holding time.
- Sample(s) DA12209-38MS, DA12209-38MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

GC Volatiles By Method RSK175 MOD

Matrix: AQ **Batch ID:** GFB1072

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA12209-47MS, DA12209-47MSD were used as the QC samples indicated.
- DA15679-1A: The pH of the sample was >2 at time of analysis.

GC Volatiles By Method SW846 8015B

Matrix: AQ **Batch ID:** GGA2226

- All samples were analyzed within the recommended method holding time.
- Sample(s) DA12209-45MS, DA12209-45MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

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

Matrix: AQ **Batch ID:** OP17782

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) DA12209-24MS, DA12209-24MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals Analysis By Method EPA 200.7

Matrix: AQ **Batch ID:** MP27990

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15692-1MS, DA15692-1MSD were used as the QC samples for the metals analysis.

Metals Analysis By Method EPA 200.8

Matrix: AQ	Batch ID: MP27999

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15684-1FAMS, DA15684-1FAMSD were used as the QC samples for the metals analysis.

Matrix: AQ	Batch ID: MP28018

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15679-1FMS, DA15679-1FMSD were used as the QC samples for the metals analysis.

General Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ	Batch ID: R47612

- The data for EPA 300.0/SW846 9056 meets quality control requirements.
- DA15679-1 for Nitrogen, Nitrate + Nitrite: Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

General Chemistry By Method EPA 365.1

Matrix: AQ	Batch ID: GP25107

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15641-2MS, DA15651-3DUP were used as the QC samples for the Phosphorus, Total analysis.

General Chemistry By Method EPA300.0/SW846 9056A

Matrix: AQ	Batch ID: GP25073

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15651-1MS, DA15651-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- DA15679-1 for Nitrogen, Nitrate and Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

General Chemistry By Method HACH IRB-BART

Matrix: AQ	Batch ID: MB1188

- 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: MB1183

- 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: MB1184

- 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: GN46938

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

Matrix: AQ	Batch ID: GN46939

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

Matrix: AQ	Batch ID: GN46940

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15672-1DUP, DA15674-1MS, DA15674-1MSD were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

General Chemistry By Method SM 2510B-2011

Matrix: AQ	Batch ID: GP25099

- Sample(s) DA15672-1DUP were used as the QC samples for the Specific Conductivity analysis.

General Chemistry By Method SM 2540C-2011

Matrix: AQ	Batch ID: GN46872

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) DA15581-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

General Chemistry By Method SM1030E-2011

Matrix: AQ	Batch ID: GN46959

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

General Chemistry By Method SM4500HB+-2011/9040C

Matrix: AQ	Batch ID: GN46933

- Sample(s) DA15672-1DUP were used as the QC samples for the pH analysis.
- The following samples were run outside of holding time for method SM4500HB+-2011/9040C: DA15679-1 Analysis performed past recommended hold time.

Field Data By Method FIELD

Matrix: AQ	Batch ID: R47637

- 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: DA15679
Account: Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well
Collected: 05/07/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
DA15679-1	**BW_NGL_78801_F_R SESE_30_3N_65W**					
Alkalinity, Bicarbonate as CaCO3		502	5.0		mg/l	SM 2320B-2011
Alkalinity, Total as CaCO3		505	5.0		mg/l	SM 2320B-2011
Bromide		0.93	0.25		mg/l	EPA300.0/SW846 9056A
Cation Anion Balance		1.2			%	SM1030E-2011
Chloride		182	25		mg/l	EPA300.0/SW846 9056A
Fluoride		1.7	0.50		mg/l	EPA300.0/SW846 9056A
Phosphorus, Total		0.019	0.010		mg/l	EPA 365.1
Solids, Total Dissolved		1180	10		mg/l	SM 2540C-2011
Specific Conductivity		1860	1.0		umhos/cm	SM 2510B-2011
Sulfate		235	25		mg/l	EPA300.0/SW846 9056A
pH [a]		8.31			su	SM4500HB + -2011/9040C
pH (Field)		7.83			su	FIELD
Temperature (Field)		18.2			Deg. C	FIELD
Oxygen, Dissolved (Field)		1.94			mg/l	FIELD
Turbidity		1.09			NTU	FIELD
Specific Conductivity (Field)		2011	0.50		umhos/cm	FIELD
DA15679-1A	**BW_NGL_78801_F_R SESE_30_3N_65W**					
Methane [b]		3.94	0.020	0.010	mg/l	RSK175 MOD
Ethane [b]		0.0182	0.0016	0.00080	mg/l	RSK175 MOD
Propane [b]		0.0016 J	0.0022	0.0011	mg/l	RSK175 MOD
DA15679-1B	**BW_NGL_78801_F_R SESE_30_3N_65W**					
Iron-Related Bacteria		500	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
DA15679-1F	**BW_NGL_78801_F_R SESE_30_3N_65W**					
Barium		0.0284	0.0040		mg/l	EPA 200.8
Boron		0.207	0.050		mg/l	EPA 200.7
Calcium		25.6	0.40		mg/l	EPA 200.7
Iron		0.0412	0.010		mg/l	EPA 200.7
Magnesium		7.84	0.20		mg/l	EPA 200.7
Manganese		0.0148	0.0050		mg/l	EPA 200.7
Potassium		3.69	1.0		mg/l	EPA 200.7
Sodium		404	0.40		mg/l	EPA 200.7
Strontium		0.611	0.0050		mg/l	EPA 200.7

(a) Analysis performed past recommended hold time.
(b) The pH of the sample was > 2 at time of analysis.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	BW_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1	**Date Sampled:**	05/07/19
Matrix:	AQ - Ground Water	**Date Received:**	05/08/19
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	GWA_NGL_Water_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V60473.D	1	05/10/19 13:54	MB	n/a	n/a	V7V3072
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	97%		70-130%
17060-07-0	1,2-Dichloroethane-D4	95%		70-130%
2037-26-5	Toluene-D8	97%		70-130%
460-00-4	4-Bromofluorobenzene	99%		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_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1	**Date Sampled:**	05/07/19
Matrix:	AQ - Ground Water	**Date Received:**	05/08/19
Method:	SW846 8015B	**Percent Solids:**	n/a
Project:	GWA_NGL_Water_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA48383.D	1	05/11/19 09:02	BB	n/a	n/a	GGA2226
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	101%		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_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1	**Date Sampled:**	05/07/19
Matrix:	AQ - Ground Water	**Date Received:**	05/08/19
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	GWA_NGL_Water_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FC63460.D	1	05/10/19 22:23	RB	05/09/19	OP17782	GFC2602
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		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_NGL_78801_F_R SESE_30_3N_65W
Lab Sample ID: DA15679-1
Matrix: AQ - Ground Water
Project: GWA_NGL_Water_Well

Date Sampled: 05/07/19
Date Received: 05/08/19
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	502	5.0	mg/l	1	05/14/19 14:30	PV	SM 2320B-2011
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	05/14/19 14:30	PV	SM 2320B-2011
Alkalinity, Total as CaCO3	505	5.0	mg/l	1	05/14/19 14:30	PV	SM 2320B-2011
Bromide	0.93	0.25	mg/l	5	05/09/19 10:52	JB	EPA300.0/SW846 9056A
Cation Anion Balance	1.2		%	1	05/15/19	SH	SM1030E-2011
Chloride	182	25	mg/l	50	05/09/19 11:05	JB	EPA300.0/SW846 9056A
Fluoride	1.7	0.50	mg/l	5	05/09/19 10:52	JB	EPA300.0/SW846 9056A
Nitrogen, Nitrate [a]	< 0.050	0.050	mg/l	5	05/09/19 10:52	JB	EPA300.0/SW846 9056A
Nitrogen, Nitrate + Nitrite [b]	< 0.25	0.25	mg/l	1	05/09/19 11:05	JB	EPA 300.0/SW846 9056
Nitrogen, Nitrite [a]	< 0.20	0.20	mg/l	50	05/09/19 11:05	JB	EPA300.0/SW846 9056A
Phosphorus, Total	0.019	0.010	mg/l	1	05/15/19 09:57	AM	EPA 365.1
Solids, Total Dissolved	1180	10	mg/l	1	05/09/19	SK	SM 2540C-2011
Specific Conductivity	1860	1.0	umhos/cm	1	05/14/19 13:30	PV	SM 2510B-2011
Sulfate	235	25	mg/l	50	05/09/19 11:05	JB	EPA300.0/SW846 9056A
pH [c]	8.31		su	1	05/14/19 14:00	PV	SM4500HB+-2011/9040C

Field Parameters

Oxygen, Dissolved (Field)	1.94		mg/l	1	05/15/19	SH	FIELD
Redox Potential Vs H2	-18.7		mv	1	05/15/19	SH	FIELD
Specific Conductivity (Field)	2011	0.50	umhos/cm	1	05/15/19	SH	FIELD
Temperature (Field)	18.2		Deg. C	1	05/15/19	SH	FIELD
Turbidity	1.09		NTU	1	05/15/19	SH	FIELD
pH (Field)	7.83		su	1	05/15/19	SH	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_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1A	**Date Sampled:**	05/07/19
Matrix:	AQ - Ground Water	**Date Received:**	05/08/19
Method:	RSK175 MOD	**Percent Solids:**	n/a
Project:	GWA_NGL_Water_Well		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FB23540.D	1	05/14/19 17:21	BB	n/a	n/a	GFB1072
Run #2 [a]	FB23542.D	25	05/14/19 17:57	BB	n/a	n/a	GFB1072

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	39.0 ml	4.0 ml	500 ul	21.6 Deg. C
Run #2	39.0 ml	4.0 ml	500 ul	21.6 Deg. C

Methane, Ethane and Propane

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	3.94 [b]	0.020	0.010	mg/l	
74-84-0	Ethane	0.0182	0.0016	0.00080	mg/l	
74-98-6	Propane	0.0016	0.0022	0.0011	mg/l	J

(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_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1B	**Date Sampled:**	05/07/19
Matrix:	AQ - Ground Water	**Date Received:**	05/08/19
		Percent Solids:	n/a
Project:	GWA_NGL_Water_Well		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Iron-Related Bacteria	500	25	CFU/ml	1	05/28/19 16:00	SK	HACH IRB-BART
Slime Forming Bacteria	13000	500	CFU/ml	1	05/16/19 13:00	SK	HACH SLYM-BART
Sulfate Reducing Bacteria	115000	200	CFU/ml	1	05/16/19 14:00	SK	HACH SRB-BART

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BW_NGL_78801_F_R SESE_30_3N_65W		
Lab Sample ID:	DA15679-1F	**Date Sampled:**	05/07/19
Matrix:	AQ - Groundwater Filtered	**Date Received:**	05/08/19
		Percent Solids:	n/a
Project:	GWA_NGL_Water_Well		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Barium	0.0284	0.0040	mg/l	2	05/10/19	05/12/19	EP	EPA 200.8 [1]	EPA 200.8 [6]
Boron	0.207	0.050	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Calcium	25.6	0.40	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Iron	0.0412	0.010	mg/l	1	05/10/19	05/13/19	JR	EPA 200.7 [3]	EPA 200.7 [5]
Magnesium	7.84	0.20	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Manganese	0.0148	0.0050	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Potassium	3.69	1.0	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Selenium	< 0.00080	0.00080	mg/l	2	05/15/19	05/15/19	EP	EPA 200.8 [4]	EPA 200.8 [7]
Sodium	404	0.40	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]
Strontium	0.611	0.0050	mg/l	1	05/10/19	05/11/19	JR	EPA 200.7 [2]	EPA 200.7 [5]

(1) Instrument QC Batch: MA11372
(2) Instrument QC Batch: MA11374
(3) Instrument QC Batch: MA11378
(4) Instrument QC Batch: MA11388
(5) Prep QC Batch: MP27990
(6) Prep QC Batch: MP27999
(7) Prep QC Batch: MP28018

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 15679

Client / Reporting Information		Project Information		Billing Information (if different from Report to)	
Company:	(Report to) Absaroka Solutions	Project Name:	GWA_NGL_Water_Well	Frequency:	Q2
Street:	112 High Street	Regulation:	Voluntary		
City, State:	Buffalo, WY 82834	Facility ID:	755053	Company:	Anadarko Petroleum Corporation (APC)
Project Contact:	Tanya Cude	EQuIS Facility Code:	0089019-AN-GWABWQ	Street Address:	1099 18th Street, Suite 1800
Phone:	352-318-4034	Client Purchase Order #:	WO#89225208	City, State ZIP:	Denver, CO 80202-1918
Email:					
Sampler(s) Name(s):	Tyler Scherden	Project Manager:	Joel Mason	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	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_NGL_78801_F_R	5/7/2019	1315	TS	GW	17	9	6			1					1	X	X	X	X	X	X	X	X	X	X	X	01
SESE_30_3N_65W																											
Temperature, field	18.2	°C																									
pH, field	7.83	s.u.																									
Specific Conductivity, field	2011	uS/cm																									
Oxidation Reduction Potential, field	-18.7	mV																									
Dissolved Oxygen, field	1.94	mg/L																									
Turbidity, field	1.09	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 / BH

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	5/7/19 1600	1 5/8/19	2 1430		2
Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date/Time:	Received By:
3		3	4		4

Custody Seal # Intact ☐ Not Intact ☐ Absent ☐ | Preserved where applicable ☐ | Cooler Temp. °C: 1.7 | Therm. ID: T050 | On Ice ☑

Form MSQA 064-01, RV 6/19/17

SGS Accutest Sample Receipt Summary

Job Number: DA15679 **Client:** ABSAROKA SOLUTIONS **Project:** GWA

Date / Time Received: 5/8/2019 2:30:00 PM **Delivery Method:** **Airbill #'s:** CO

Cooler Temps (Initial/Adjusted): #1: (1.7/1.7);

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:	IR Gun;		
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

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: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V3072-MB	7V60462.D	1	05/10/19	MB	n/a	n/a	V7V3072

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

DA15679-1

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	100%	70-130%
17060-07-0	1,2-Dichloroethane-D4	100%	70-130%
2037-26-5	Toluene-D8	97%	70-130%
460-00-4	4-Bromofluorobenzene	95%	70-130%

Blank Spike Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V7V3072-BS	7V60460.D	1	05/10/19	MB	n/a	n/a	V7V3072

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

DA15679-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	50.1	100	70-130
100-41-4	Ethylbenzene	50	48.7	97	69-130
108-88-3	Toluene	50	49.1	98	70-130
	m,p-Xylene	100	98.6	99	70-130
95-47-6	o-Xylene	50	48.5	97	70-130
1330-20-7	Xylene (total)	150	147	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	70-130%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%
2037-26-5	Toluene-D8	97%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA12209-38MS	7V60463.D	1	05/10/19	MB	n/a	n/a	V7V3072
DA12209-38MSD	7V60464.D	1	05/10/19	MB	n/a	n/a	V7V3072
DA12209-38	7V60465.D	1	05/10/19	MB	n/a	n/a	V7V3072

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

DA15679-1

CAS No.	Compound	DA12209-38 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	54.1	108	50	53.0	106	2	67-130/30
100-41-4	Ethylbenzene	ND		50	51.9	104	50	50.2	100	3	69-130/30
108-88-3	Toluene	ND		50	51.6	103	50	50.8	102	2	70-130/30
	m,p-Xylene	ND		100	105	105	100	101	101	4	70-130/30
95-47-6	o-Xylene	ND		50	52.7	105	50	50.7	101	4	70-130/30
1330-20-7	Xylene (total)	ND		150	158	105	150	152	101	4	67-130/30

CAS No.	Surrogate Recoveries	MS	MSD	DA12209-38	Limits
1868-53-7	Dibromofluoromethane	102%	104%	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	99%	101%	97%	70-130%
2037-26-5	Toluene-D8	98%	98%	97%	70-130%
460-00-4	4-Bromofluorobenzene	100%	99%	98%	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: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA2226-MB	GA48361.D	1	05/10/19	BB	n/a	n/a	GGA2226

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

DA15679-1

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	101%	60-140%

Method Blank Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB1072-MB	FB23528.D	1	05/14/19	BB	n/a	n/a	GFB1072

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

DA15679-1A

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.00080	0.00040	mg/l	
74-84-0	Ethane	ND	0.0016	0.00080	mg/l	
74-98-6	Propane	ND	0.0022	0.0011	mg/l	

Blank Spike Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA2226-BS	GA48362.D	1	05/10/19	BB	n/a	n/a	GGA2226

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

DA15679-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.16	98	51-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	104%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFB1072-BS	FB23529.D	10	05/14/19	BB	n/a	n/a	GFB1072

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

DA15679-1A

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
74-82-8	Methane	0.512	0.504	98	70-133
74-84-0	Ethane	0.923	1.03	112	70-137
74-98-6	Propane	1.38	1.55	112	70-137

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA12209-45MS	GA48363.D	1	05/10/19	BB	n/a	n/a	GGA2226
DA12209-45MSD	GA48364.D	1	05/10/19	BB	n/a	n/a	GGA2226
DA12209-45	GA48365.D	1	05/10/19	BB	n/a	n/a	GGA2226

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

DA15679-1

CAS No.	Compound	DA12209-45 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	2.12	96	2.2	2.34	106	10	40-132/30

CAS No.	Surrogate Recoveries	MS	MSD	DA12209-45	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	101%	95%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
DA12209-47MS	FB23530.D	10	05/14/19	BB	n/a	n/a	GFB1072
DA12209-47MSD	FB23531.D	10	05/14/19	BB	n/a	n/a	GFB1072
DA12209-47	FB23532.D	1	05/14/19	BB	n/a	n/a	GFB1072

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

DA15679-1A

CAS No.	Compound	DA12209-47 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	0.0016		0.512	0.509	99	0.512	0.510	99	0	15-196/30
74-84-0	Ethane	ND		0.923	1.05	114	0.923	1.05	114	0	53-144/30
74-98-6	Propane	ND		1.38	1.56	113	1.38	1.57	114	1	54-144/30

* = 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: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP17782-MB	FM5019.D	1	05/09/19	RB	05/09/19	OP17782	GFM170

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

DA15679-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	69%	11-142%

Blank Spike Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP17782-BS	FM5021.D	1	05/09/19	RB	05/09/19	OP17782	GFM170

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

DA15679-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.19	44	22-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	46%	11-142%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: DA15679
Account: ANADACOD Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP17782-MS	FM5023.D	1	05/09/19	RB	05/09/19	OP17782	GFM170
OP17782-MSD	FM5025.D	1	05/09/19	RB	05/09/19	OP17782	GFM170
DA12209-24	FM5027.D	1	05/09/19	RB	05/09/19	OP17782	GFM170

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

DA15679-1

CAS No.	Compound	DA12209-24 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	3.14	63	5	3.76	75	18	22-130/30

CAS No.	Surrogate Recoveries	MS	MSD	DA12209-24	Limits
84-15-1	o-Terphenyl	60%	72%	74%	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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	30		
Antimony	30	14	10		
Arsenic	25	22	7		
Barium	10	.3	2		
Beryllium	10	1	1.3		
Boron	50	3.3	7.4	-1.4	<50
Cadmium	10	1.9	1.6		
Calcium	400	6.6	53	27.4	<400
Chromium	10	1.1	1.7		
Cobalt	5.0	2.7	2.3		
Copper	10	4.6	2.3		
Iron	10	8.9	3.1	2.2	<10
Lead	50	13	6.3		
Lithium	5.0	.6	4		
Magnesium	200	50	31	11.5	<200
Manganese	5.0	.5	1.1	0.20	<5.0
Molybdenum	10	8.5	4.3		
Nickel	30	6.2	6.1		
Phosphorus	100	91	24		
Potassium	1000	84	250	37.4	<1000
Selenium	50	30	21		
Silicon	50	41	45		
Silver	30	.6	4		
Sodium	400	13	51	127	<400
Strontium	5.0	.1	.6	0.10	<5.0
Thallium	10	17	7.5		
Tin	60	41	51		
Titanium	10	.5	1.9		
Uranium	50	3.9	8.5		
Vanadium	10	.9	.7		
Zinc	30	9	3.8		

Associated samples MP27990: DA15679-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	DA15692-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron	23.3	1060	1000	103.9	70-130
Cadmium					
Calcium	40800	66600	25000	107.6	70-130
Chromium	anr				
Cobalt					
Copper	anr				
Iron	0.0	5220	5000	104.4	70-130
Lead					
Lithium	anr				
Magnesium	9560	34700	25000	99.2	70-130
Manganese	65.2	561	500	99.5	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	3310	29100	25000	103.4	70-130
Selenium					
Silicon					
Silver					
Sodium	28600	53100	25000	98.0	70-130
Strontium	278	766	500	99.0	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP27990: DA15679-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	DA15692-1 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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	DA15692-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	23.3	1060	1000	103.9	0.0	20
Cadmium						
Calcium	40800	66600	25000	107.6	0.0	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	0.0	4950	5000	99.0	5.3	20
Lead						
Lithium	anr					
Magnesium	9560	34700	25000	99.2	0.0	20
Manganese	65.2	558	500	98.9	0.5	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	3310	29200	25000	103.8	0.3	20
Selenium						
Silicon						
Silver						
Sodium	28600	54100	25000	102.0	1.9	20
Strontium	278	763	500	98.4	0.4	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP27990: DA15679-1F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	DA15692-1 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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1020	1000	102.0	85-115
Cadmium				
Calcium	25400	25000	101.6	85-115
Chromium	anr			
Cobalt				
Copper	anr			
Iron	5070	5000	101.4	85-115
Lead				
Lithium	anr			
Magnesium	24600	25000	98.4	85-115
Manganese	479	500	95.8	85-115
Molybdenum				
Nickel				
Phosphorus				
Potassium	25200	25000	100.8	85-115
Selenium				
Silicon				
Silver				
Sodium	23800	25000	95.2	85-115
Strontium	484	500	96.8	85-115
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP27990: DA15679-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27990
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 05/10/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27999
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/10/19

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	0.12	<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		
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		
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 MP27999: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27999
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/10/19

Metal	DA15684-1FA Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	33.1	854	800	102.6	70-130
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP27999: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27999
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/10/19

Metal	DA15684-1FA Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	33.1	832	800	99.8	2.6	20
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP27999: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP27999
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/10/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	802	800	100.3	85-115
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP27999: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP28018
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/15/19

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		
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	0.0080	<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 MP28018: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP28018
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/15/19

Metal	DA15679-1F Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper	anr				
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	0.67	386	400	96.3	70-130
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP28018: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP28018 Methods: EPA 200.8
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 05/15/19

Metal	DA15679-1F Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper	anr					
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	0.67	385	400	96.1	0.3	20
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP28018: DA15679-1F

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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

QC Batch ID: MP28018
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 05/15/19

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper	anr			
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	377	400	94.3	85-115
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP28018: DA15679-1F

Results < IDL are shown as zero for calculation purposes
(*) Outside of 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: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as CaC	GN46938	5.0	2.0	mg/l	100	99.5	99.5	90-110%
Alkalinity, Carbonate	GN46939	5.0	2.0	mg/l	100	99.5	99.5	80-120%
Alkalinity, Total as CaCO3	GN46940	5.0	2.0	mg/l	100	99.5	99.5	90-110%
Bromide	GP25073/GN46891	0.050	0.0	mg/l	0.5	0.502	100.4	90-110%
Chloride	GP25073/GN46891	0.50	0.0	mg/l	5	4.99	99.8	90-110%
Fluoride	GP25073/GN46891	0.10	0.0	mg/l	1	1.00	100.0	90-110%
Iron-Related Bacteria	MB1188	25	<25	CFU/ml				
Nitrogen, Nitrate	GP25073/GN46891	0.010	0.0	mg/l	0.1	0.0984	98.4	90-110%
Nitrogen, Nitrite	GP25073/GN46891	0.0040	0.0	mg/l	0.05	0.0514	102.8	90-110%
Phosphorus, Total	GP25107/GN46948	0.010	0.00	mg/l	0.2	0.194	97.0	90-110%
Phosphorus, Total	GP25107/GN46948	0.010	0.00	mg/l	0.2	0.199	99.5	90-110%
Phosphorus, Total	GP25107/GN46948	0.010	0.00	mg/l	0.2	0.195	97.5	90-110%
Slime Forming Bacteria	MB1183	500	<500	CFU/ml				
Solids, Total Dissolved	GN46872	10	0.0	mg/l	400	410	102.5	90-110%
Solids, Total Dissolved	GN46872	10	0.0	mg/l				
Specific Conductivity	GP25099/GN46934			umhos/cm	1413	1410	99.7	90-110%
Specific Conductivity	GP25099/GN46934			umhos/cm	1413	1390	98.4	90-110%
Specific Conductivity	GP25099/GN46934			umhos/cm	1413	1420	100.6	90-110%
Specific Conductivity	GP25099/GN46934			umhos/cm	1004	1000	99.9	90-110%
Specific Conductivity	GP25099/GN46934			umhos/cm	98.8	95.0	96.2	90-110%
Sulfate	GP25073/GN46891	0.50	0.0	mg/l	5	5.01	100.2	90-110%
Sulfate Reducing Bacteria	MB1184	200	<200	CFU/ml				
pH	GN46933			su	8.00	7.98	99.8	99.1-100.9%
pH	GN46933			su	8.00	7.97	99.6	99.1-100
pH	GN46933			su	6.00	5.99	99.8	99.1-100

Associated Samples:
Batch MB1183: DA15679-1B
Batch MB1184: DA15679-1B
Batch MB1188: DA15679-1B
Batch GN46872: DA15679-1
Batch GN46933: DA15679-1
Batch GN46938: DA15679-1
Batch GN46939: DA15679-1
Batch GN46940: DA15679-1
Batch GP25073: DA15679-1
Batch GP25099: DA15679-1
Batch GP25107: DA15679-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN46940	DA15672-1	mg/l	464	475	2.2	0-20%
Phosphorus, Total	GP25107/GN46948	DA15651-3	mg/l	0.11	0.111	0.0	0-20%
Solids, Total Dissolved	GN46872	DA15581-2	mg/l	1440	1430	0.4	0-5%
Specific Conductivity	GP25099/GN46934	DA15672-1	umhos/cm	953	962	0.9	0-20%
pH	GN46933	DA15672-1	su	8.68	8.69	0.1	0-5%

Associated Samples:
Batch GN46872: DA15679-1
Batch GN46933: DA15679-1
Batch GN46940: DA15679-1
Batch GP25099: DA15679-1
Batch GP25107: DA15679-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN46940	DA15674-1	mg/l	225	100	321	96.5	80-120%
Bromide	GP25073/GN46891	DA15651-1	mg/l	0.63 U	12.5	12.5	100.0	80-120%
Chloride	GP25073/GN46891	DA15651-1	mg/l	150	125	278	102.4	80-120%
Fluoride	GP25073/GN46891	DA15651-1	mg/l	1.3 U	25	26.4	105.6	80-120%
Nitrogen, Nitrate	GP25073/GN46891	DA15651-1	mg/l	4.0	2.5	6.4	96.0	80-120%
Nitrogen, Nitrite	GP25073/GN46891	DA15651-1	mg/l	0.075 U	1.25	1.2	96.0	80-120%
Phosphorus, Total	GP25107/GN46948	DA15641-2	mg/l	0.0	0.2	0.204	100.5	90-110%
Sulfate	GP25073/GN46891	DA15651-1	mg/l	126	125	251	100.0	80-120%

Associated Samples:
Batch GN46940: DA15679-1
Batch GP25073: DA15679-1
Batch GP25107: DA15679-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA15679
Account: ANADACOD - Kerr-McGee Oil & Gas Onshore LP
Project: GWA_NGL_Water_Well

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN46940	DA15674-1	mg/l	225	100	322	0.1	20%
Bromide	GP25073/GN46891	DA15651-1	mg/l	0.63 U	12.5	12.5	0.0	20%
Chloride	GP25073/GN46891	DA15651-1	mg/l	150	125	276	0.7	20%
Fluoride	GP25073/GN46891	DA15651-1	mg/l	1.3 U	25	26.1	1.1	20%
Nitrogen, Nitrate	GP25073/GN46891	DA15651-1	mg/l	4.0	2.5	6.4	0.0	20%
Nitrogen, Nitrite	GP25073/GN46891	DA15651-1	mg/l	0.075 U	1.25	1.2	0.0	20%
Sulfate	GP25073/GN46891	DA15651-1	mg/l	126	125	251	0.0	20%

Associated Samples:
Batch GN46940: DA15679-1
Batch GP25073: DA15679-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits