

APPENDIX C
Copies of Analytical Reports and
Cation/Anion Balance Sheets

July 29, 2015

AMBER GRIFFIN

YATES PETROLEUM CORPORATION

105 S. 4th Street

Artesia, NM 88210

RE: COMPROMISE SWD #1 WELL SITE

Enclosed are the results of analyses for samples received by the laboratory on 07/22/15 14:08.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

YATES PETROLEUM CORPORATION
AMBER GRIFFIN
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	07/22/2015	Sampling Date:	07/21/2015
Reported:	07/29/2015	Sampling Type:	Soil
Project Name:	COMPROMISE SWD #1 WELL SITE	Sampling Condition:	Cool & Intact
Project Number:	2RP-2797	Sample Received By:	Judy Garcia
Project Location:	EDDY COUNTY, NM		

Sample ID: BG1 0-2 (H501913-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG1 2-4 (H501913-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG1 4-6 (H501913-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	07/29/2015	ND	416	104	400	3.92		

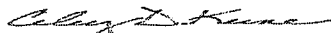
Sample ID: BG1 6-8 (H501913-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	07/29/2015	ND	416	104	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

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Received:	07/22/2015	Sampling Date:	07/21/2015
Reported:	07/29/2015	Sampling Type:	Soil
Project Name:	COMPROMISE SWD #1 WELL SITE	Sampling Condition:	Cool & Intact
Project Number:	2RP-2797	Sample Received By:	Judy Garcia
Project Location:	EDDY COUNTY, NM		

Sample ID: BG1 8-10 (H501913-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG1 10-12 (H501913-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG2 0-2 (H501913-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG2 2-4 (H501913-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	07/29/2015	ND	416	104	400	3.92	

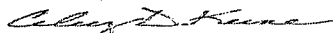
Sample ID: BG2 4-6 (H501913-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	07/29/2015	ND	416	104	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

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 AMBER GRIFFIN
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 Artesia NM, 88210
 Fax To: (505) 748-4635

Received:	07/22/2015	Sampling Date:	07/21/2015
Reported:	07/29/2015	Sampling Type:	Soil
Project Name:	COMPROMISE SWD #1 WELL SITE	Sampling Condition:	Cool & Intact
Project Number:	2RP-2797	Sample Received By:	Judy Garcia
Project Location:	EDDY COUNTY, NM		

Sample ID: BG2 6-8 (H501913-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	07/29/2015	ND	416	104	400	3.92		

Sample ID: BG2 8-10 (H501913-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1140	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG2 10-12 (H501913-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1150	16.0	07/29/2015	ND	416	104	400	3.92		

Sample ID: BG3 0-2 (H501913-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	07/29/2015	ND	416	104	400	3.92		

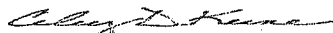
Sample ID: BG3 2-4 (H501913-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	07/29/2015	ND	416	104	400	3.92		

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Received:	07/22/2015	Sampling Date:	07/21/2015
Reported:	07/29/2015	Sampling Type:	Soil
Project Name:	COMPROMISE SWD #1 WELL SITE	Sampling Condition:	Cool & Intact
Project Number:	2RP-2797	Sample Received By:	Judy Garcia
Project Location:	EDDY COUNTY, NM		

Sample ID: BG3 4-6 (H501913-15)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	992	16.0	07/29/2015	ND	416	104	400	3.92	

Sample ID: BG3 6-8 (H501913-16)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1260	16.0	07/29/2015	ND	416	104	400	0.00	

Sample ID: BG3 8-10 (H501913-17)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1280	16.0	07/29/2015	ND	416	104	400	0.00	


Sample ID: BG3 10-12 (H501913-18)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2720	16.0	07/29/2015	ND	416	104	400	0.00		

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Celey D. Keene, Lab Director/Quality Manager

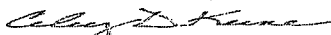
Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

(505) 393-2326 FAX (505) 393-2476

CARDINAL LABORATORIES
1001 East Marland, Hobbs, NM 88240

Project Manager: Amber Griffin

Project Name: Compromise SWD #1 Well Site

Company Name Yates Petroleum Corporation

Project #: 2RP-2797 (Background)

Company Address: 105 South 4th Street

Project Loc: Eddy County

City/State/Zip: Artesia, NM 88210

PO #: 205-2020

Telephone No: 575-748-4111 or 575-513-8799

Fax No: 575-748-4131

Report Format: ☒ Standard

Sampler Signature: Linbaen-Griffiths

acannon@vatespetroleum.com

lab use only)

lab use only) **ORDER #:** 4501913

[illegible]



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 07, 2015

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 390-7067
FAX (575) 393-4388

RE: Yates Compromises WD #1

OrderNo.: 1507C43

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/28/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1507C43

Date Reported: 8/7/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Compromises WD #1

Collection Date: 7/23/2015 12:20:00 PM

Lab ID: 1507C43-001

Matrix: AQUEOUS

Received Date: 7/28/2015 9:03:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	1.7	1.0		mg/L	10	7/28/2015 5:39:04 PM	R27827
Chloride	1800	50		mg/L	100	7/28/2015 5:51:28 PM	R27827
Nitrogen, Nitrite (As N)	ND	1.0	H	mg/L	10	7/28/2015 5:39:04 PM	R27827
Bromide	1.4	1.0		mg/L	10	7/28/2015 5:39:04 PM	R27827
Nitrogen, Nitrate (As N)	6.2	1.0	H	mg/L	10	7/28/2015 5:39:04 PM	R27827
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	7/28/2015 5:39:04 PM	R27827
Sulfate	3200	50		mg/L	100	7/28/2015 5:51:28 PM	R27827
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	10000	0.010		µmhos/cm	1	7/28/2015 11:53:09 PM	R27844
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	337.1	20.00		mg/L CaCO ₃	1	7/28/2015 11:53:09 PM	R27844
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	7/28/2015 11:53:09 PM	R27844
Total Alkalinity (as CaCO ₃)	337.1	20.00		mg/L CaCO ₃	1	7/28/2015 11:53:09 PM	R27844
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	8130	100	*	mg/L	1	7/29/2015 4:44:00 PM	20475
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	600	20		mg/L	20	7/31/2015 1:55:16 PM	R27875
Magnesium	460	5.0		mg/L	5	7/31/2015 11:28:24 AM	R27875
Potassium	10	1.0		mg/L	1	7/31/2015 11:26:21 AM	R27875
Sodium	1500	20		mg/L	20	7/31/2015 1:55:16 PM	R27875

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 9
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix			

Analytical Report

Lab Order 1507C43

Date Reported: 8/7/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Safety & Environmental Solutions**Client Sample ID:** MW-2**Project:** Yates Compromises WD #1**Collection Date:** 7/23/2015 2:10:00 PM**Lab ID:** 1507C43-002**Matrix:** AQUEOUS**Received Date:** 7/28/2015 9:03:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.6	1.0		mg/L	10	7/28/2015 6:03:53 PM	R27827
Chloride	17000	500		mg/L	1E	7/31/2015 10:37:10 PM	R27901
Nitrogen, Nitrite (As N)	ND	10	H	mg/L	100	7/28/2015 6:16:17 PM	R27827
Bromide	18	1.0		mg/L	10	7/28/2015 6:03:53 PM	R27827
Nitrogen, Nitrate (As N)	20	1.0	*H	mg/L	10	7/28/2015 6:03:53 PM	R27827
Phosphorus, Orthophosphate (As P)	ND	50	H	mg/L	100	7/28/2015 6:16:17 PM	R27827
Sulfate	26000	500		mg/L	1E	7/31/2015 10:37:10 PM	R27901
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	86000	0.10		µmhos/cm	10	8/4/2015 11:47:43 PM	R27980
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	429.7	20.00		mg/L CaCO ₃	1	7/29/2015 12:08:33 AM	R27844
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	7/29/2015 12:08:33 AM	R27844
Total Alkalinity (as CaCO ₃)	429.7	20.00		mg/L CaCO ₃	1	7/29/2015 12:08:33 AM	R27844
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	64900	2000	*	mg/L	1	7/29/2015 4:44:00 PM	20475
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	560	10		mg/L	10	7/31/2015 1:57:17 PM	R27875
Magnesium	4800	100		mg/L	100	7/31/2015 1:59:18 PM	R27875
Potassium	18	5.0		mg/L	5	7/31/2015 11:32:21 AM	R27875
Sodium	12000	200		mg/L	200	8/3/2015 1:50:40 PM	R27918

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1507C43

Date Reported: 8/7/2015

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-3

Project: Yates Compromises WD #1

Collection Date: 7/23/2015 2:30:00 PM

Lab ID: 1507C43-003

Matrix: AQUEOUS

Received Date: 7/28/2015 9:03:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	1.0		mg/L	10	7/28/2015 6:28:41 PM	R27827
Chloride	2600	100		mg/L	200	7/31/2015 10:49:35 PM	R27901
Nitrogen, Nitrite (As N)	ND	1.0	H	mg/L	10	7/28/2015 6:28:41 PM	R27827
Bromide	1.2	1.0		mg/L	10	7/28/2015 6:28:41 PM	R27827
Nitrogen, Nitrate (As N)	ND	1.0	H	mg/L	10	7/28/2015 6:28:41 PM	R27827
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	7/28/2015 6:28:41 PM	R27827
Sulfate	3300	50		mg/L	100	7/28/2015 6:41:06 PM	R27827
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	12000	0.020		µmhos/cm	2	7/30/2015 1:57:48 PM	R27865
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	214.8	20.00		mg/L CaCO ₃	1	7/29/2015 12:29:38 AM	R27844
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	7/29/2015 12:29:38 AM	R27844
Total Alkalinity (as CaCO ₃)	214.8	20.00		mg/L CaCO ₃	1	7/29/2015 12:29:38 AM	R27844
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	8790	200	*	mg/L	1	7/29/2015 4:44:00 PM	20475
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	760	20		mg/L	20	7/31/2015 2:01:12 PM	R27875
Magnesium	420	5.0		mg/L	5	7/31/2015 11:42:04 AM	R27875
Potassium	4.1	1.0		mg/L	1	7/31/2015 11:34:20 AM	R27875
Sodium	1600	20		mg/L	20	7/31/2015 2:01:12 PM	R27875

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R27875	RunNo:	27875					
Prep Date:		Analysis Date:	7/31/2015	SeqNo:	838538	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R27875	RunNo:	27875					
Prep Date:		Analysis Date:	7/31/2015	SeqNo:	838539	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	85	115			
Magnesium	51	1.0	50.00	0	102	85	115			
Potassium	49	1.0	50.00	0	98.0	85	115			
Sodium	50	1.0	50.00	0	99.1	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27875	RunNo:	27875					
Prep Date:		Analysis Date:	7/31/2015	SeqNo:	838540	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	111	50	150			
Magnesium	ND	1.0	0.5000	0	108	50	150			
Potassium	ND	1.0	0.5000	0	103	50	150			
Sodium	ND	1.0	0.5000	0	139	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839534	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839535	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	49	1.0	50.00	0	97.9	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839536	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0	0.5000	0	101	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839537	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839538	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	99.0	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27918	RunNo:	27918					
Prep Date:		Analysis Date:	8/3/2015	SeqNo:	839539	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0	0.5000	0	102	50	150			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions
Client ID:	PBW	Batch ID:	R27827	RunNo:	27827
Prep Date:		Analysis Date:	7/28/2015	SeqNo:	836710
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions
Client ID:	LCSW	Batch ID:	R27827	RunNo:	27827
Prep Date:		Analysis Date:	7/28/2015	SeqNo:	836711
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.8	90	110			
Chloride	4.9	0.50	5.000	0	98.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.6	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.8	90	110			
Sulfate	9.9	0.50	10.00	0	99.2	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions
Client ID:	PBW	Batch ID:	R27827	RunNo:	27827
Prep Date:		Analysis Date:	7/28/2015	SeqNo:	836769
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions
Client ID:	LCSW	Batch ID:	R27827	RunNo:	27827
Prep Date:		Analysis Date:	7/28/2015	SeqNo:	836770
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R27827	RunNo:	27827					
Prep Date:		Analysis Date:	7/28/2015	SeqNo:	836770	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	90	110			
Bromide	2.3	0.10	2.500	0	93.0	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.3	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.6	90	110			
Sulfate	9.5	0.50	10.00	0	95.3	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R27901	RunNo:	27901					
Prep Date:		Analysis Date:	7/31/2015	SeqNo:	839136	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R27901	RunNo:	27901					
Prep Date:		Analysis Date:	7/31/2015	SeqNo:	839137	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	mb-1	SampType: MBLK			TestCode: SM2320B: Alkalinity						
Client ID:	PBW	Batch ID: R27844			RunNo: 27844						
Prep Date:		Analysis Date: 7/28/2015			SeqNo: 837175		Units: mg/L CaCO3				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	lcs-1	SampType: LCS			TestCode: SM2320B: Alkalinity						
Client ID:	LCSW	Batch ID: R27844			RunNo: 27844						
Prep Date:		Analysis Date: 7/28/2015			SeqNo: 837176		Units: mg/L CaCO3				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		79.20	20.00	80.00	0	99.0	90	110			

Sample ID	mb-2	SampType: MBLK			TestCode: SM2320B: Alkalinity						
Client ID:	PBW	Batch ID: R27844			RunNo: 27844						
Prep Date:		Analysis Date: 7/28/2015			SeqNo: 837199		Units: mg/L CaCO3				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	lcs-2	SampType: LCS			TestCode: SM2320B: Alkalinity						
Client ID:	LCSW	Batch ID: R27844			RunNo: 27844						
Prep Date:		Analysis Date: 7/28/2015			SeqNo: 837200		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	79.96	20.00	80.00	0	100	90	110				

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507C43

07-Aug-15

Client: Safety & Environmental Solutions

Project: Yates Compromises WD #1

Sample ID	MB-20475	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	20475	RunNo:	27846					
Prep Date:	7/28/2015	Analysis Date:	7/29/2015	SeqNo:	837493	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-20475		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	20475		RunNo:	27846				
Prep Date:	7/28/2015		Analysis Date:	7/29/2015		SeqNo:	837494		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1010	20.0	1000	0	101	80	120				

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | |

Sample Log-In Check List

Client Name: Safety Env Solutions

Work Order Number: 1507C43

RcptNo: 1

Received by/date:

SA 07/28/15

Logged By: Lindsay Mangin 7/28/2015 9:03:00 AM

Completed By: Lindsay Mangin 7/28/2015 9:49:00 AM

Reviewed By:

JA 07/28/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? FedEx

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☐ No ☒
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☐ No ☒
9. Was preservative added to bottles? Yes ☒ No ☐ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☐ No ☒

SEE REMARKS

of preserved bottles checked for pH: 3
(≤ 2 or > 12 unless noted)
Adjusted? YES
Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

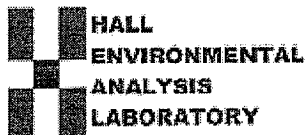
Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

For dissolved metals analysis: Filtered from unpreserved portion of each sample into a 125mL HDPE and added 0.4mL HNO₃ to -001B, -002B, and -003B for acceptable pH. Held in Log in for 24 hours after preservation. NO₂, NO₃ and PO₄ received out of hold.

18. Cooler Information

WILL RUN COOLERS



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Safety Env Solutions

Work Order Number: 1507C43

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly noted on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1 1507C43-01		MW-2 1507C43-02		MW-3 1507C43-03	
	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
CATIONS						
Sodium	1500	66.25	12000	521.97	1600	69.60
Potassium	10	0.26	18	0.46	4.1	0.10
Calcium	600	29.94	560	27.94	760	37.92
Magnesium	460	37.86	4800	395.06	420	34.57
Total Cations		133.30		945.43		142.19
ANIONS						
Sulfate	3200	66.63	26000	541.33	3300	68.71
Chloride	1800	50.78	17000	479.55	2600	73.34
Bicarbonate (CaCO3)	337.1	6.74	430	8.59	214.8	4.29
Carbonate (CaCO3)						
Phosphate (P)						
Nitrite (N)	6.2	0.44	20	1.43	-	
Nitrate (N)	1.7	0.09	3.6	0.19		
Fluoride	1.4	0.02	18	0.23	1.2	0.02
Bromide						
Total Anions		124.69		1031.31		146.36
Elect. Cond. (µMhos/cm)	10000		86000		12000	
CATION/ANION RATIO		1.07		0.92		0.97
% Difference		3		4		1
TOTAL DISSOLVED SOLIDS RATIOS						
TDS (measured)	8130		64900		8790	
TDS (calculated)	7803		60746		8814	
Ratio meas TDS:calc TDS		1.0		1.1		1.0
Ratio Meas. TDS:EC		0.81		0.75		0.73
Ratio Calc. TDS:EC		0.78		0.71		0.73
Ratio of anion sum:EC		1.2		1.2		1.2
Ratio of cation sum:EC		1.3		1.1		1.2

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio Measured TDS:EC--0.55-0.7. Ratio of anion sum:EC -- 0.9-1.

Ratio of cation sum:EC -- 0.9-1.1



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 07, 2016

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 390-7067
FAX (575) 393-4388

RE: Yates Compromise SWD #1 Monitor Wells

OrderNo.: 1512821

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/17/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1512821

Date Reported: 1/7/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Compromise SWD #1 Monitor We

Collection Date: 12/15/2015 2:05:00 PM

Lab ID: 1512821-001

Matrix: AQUEOUS

Received Date: 12/17/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.1	0.50		mg/L	5	12/17/2015 9:02:46 PM	A30936
Chloride	2200	100	*	mg/L	200	12/23/2015 11:41:07 AM	B31054
Bromide	1.4	0.50		mg/L	5	12/17/2015 9:02:46 PM	A30936
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	12/17/2015 9:02:46 PM	A30936
Sulfate	4500	100	*	mg/L	200	12/23/2015 11:41:07 AM	B31054
Nitrate+Nitrite as N	12	2.0	*	mg/L	10	12/23/2015 8:45:47 PM	A31072
SM2510B: SPECIFIC CONDUCTANCE							Analyst: MRA
Conductivity	14000	0.10		µmhos/cm	10	12/21/2015 2:35:45 PM	R31018
SM2320B: ALKALINITY							Analyst: MRA
Bicarbonate (As CaCO ₃)	345.4	20.00		mg/L CaCO ₃	1	12/17/2015 4:05:56 PM	R30943
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	12/17/2015 4:05:56 PM	R30943
Total Alkalinity (as CaCO ₃)	345.4	20.00		mg/L CaCO ₃	1	12/17/2015 4:05:56 PM	R30943
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	10000	1000	*D	mg/L	1	12/23/2015 7:30:00 AM	22898
EPA METHOD 200.7: METALS							Analyst: ELS
Calcium	550	10		mg/L	10	12/22/2015 12:57:18 PM	22906
Magnesium	500	10		mg/L	10	12/22/2015 12:57:18 PM	22906
Potassium	7.4	1.0		mg/L	1	12/22/2015 12:55:19 PM	22906
Sodium	1600	20		mg/L	20	12/22/2015 5:03:54 PM	22906

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1512821

Date Reported: 1/7/2016

CLIENT: Safety & Environmental Solutions**Client Sample ID:** MW-2**Project:** Yates Compromise SWD #1 Monitor We**Collection Date:** 12/15/2015 4:05:00 PM**Lab ID:** 1512821-002**Matrix:** AQUEOUS**Received Date:** 12/17/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	2.0		mg/L	20	12/17/2015 10:04:49 PM	A30936
Chloride	19000	1000	*	mg/L	2E	12/23/2015 12:05:57 PM	B31054
Bromide	13	5.0		mg/L	50	12/30/2015 12:21:44 PM	R31173
Phosphorus, Orthophosphate (As P)	ND	100	H	mg/L	200	12/23/2015 11:53:32 AM	B31054
Sulfate	30000	1000	*	mg/L	2E	12/23/2015 12:05:57 PM	B31054
Nitrate+Nitrite as N	33	10	*	mg/L	50	12/23/2015 8:58:12 PM	A31072
SM2510B: SPECIFIC CONDUCTANCE							Analyst: MRA
Conductivity	99000	0.50		µmhos/cm	50	12/21/2015 2:40:18 PM	R31018
SM2320B: ALKALINITY							Analyst: MRA
Bicarbonate (As CaCO ₃)	417.6	20.00		mg/L CaCO ₃	1	12/17/2015 4:22:32 PM	R30943
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	12/17/2015 4:22:32 PM	R30943
Total Alkalinity (as CaCO ₃)	417.6	20.00		mg/L CaCO ₃	1	12/17/2015 4:22:32 PM	R30943
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	65500	2000	*D	mg/L	1	12/23/2015 7:30:00 AM	22898
EPA METHOD 200.7: METALS							Analyst: ELS
Calcium	500	10		mg/L	10	12/22/2015 1:01:27 PM	22906
Magnesium	4800	200		mg/L	200	12/28/2015 1:40:41 PM	22906
Potassium	13	1.0		mg/L	1	12/22/2015 12:59:21 PM	22906
Sodium	14000	200		mg/L	200	12/28/2015 1:40:41 PM	22906

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512821

Date Reported: 1/7/2016

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-3

Project: Yates Compromise SWD #1 Monitor We

Collection Date: 12/15/2015 5:05:00 PM

Lab ID: 1512821-003

Matrix: AQUEOUS

Received Date: 12/17/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	12/17/2015 10:17:13 PM	A30936
Chloride	2900	100	*	mg/L	200	12/23/2015 12:18:22 PM	B31054
Bromide	0.74	0.50		mg/L	5	12/17/2015 10:17:13 PM	A30936
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	12/17/2015 10:17:13 PM	A30936
Sulfate	3400	100	*	mg/L	200	12/23/2015 12:18:22 PM	B31054
Nitrate+Nitrite as N	ND	2.0		mg/L	10	12/23/2015 9:47:50 PM	A31072
SM2510B: SPECIFIC CONDUCTANCE							Analyst: MRA
Conductivity	14000	0.10		µmhos/cm	10	12/21/2015 2:44:30 PM	R31018
SM2320B: ALKALINITY							Analyst: MRA
Bicarbonate (As CaCO3)	216.7	20.00		mg/L CaCO3	1	12/17/2015 4:43:34 PM	R30943
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/17/2015 4:43:34 PM	R30943
Total Alkalinity (as CaCO3)	216.7	20.00		mg/L CaCO3	1	12/17/2015 4:43:34 PM	R30943
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	9370	200	*D	mg/L	1	12/23/2015 7:30:00 AM	22898
EPA METHOD 200.7: METALS							Analyst: ELS
Calcium	810	10		mg/L	10	12/22/2015 1:05:16 PM	22906
Magnesium	420	10		mg/L	10	12/22/2015 1:05:16 PM	22906
Potassium	6.7	1.0		mg/L	1	12/22/2015 1:03:25 PM	22906
Sodium	1500	20		mg/L	20	12/22/2015 5:09:39 PM	22906

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512821

07-Jan-16

Client: Safety & Environmental Solutions
Project: Yates Compromise SWD #1 Monitor Wells

Sample ID	MB-22906	SampType: MBLK		TestCode: EPA Method 200.7: Metals						
Client ID:	PBW	Batch ID: 22906		RunNo: 31036						
Prep Date:	12/21/2015	Analysis Date: 12/22/2015		SeqNo: 949281		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LSC-22906	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	22906	RunNo:	31036					
Prep Date:	12/21/2015	Analysis Date:	12/22/2015	SeqNo:	949282	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	85	115			
Magnesium	49	1.0	50.00	0	98.6	85	115			
Potassium	49	1.0	50.00	0	98.1	85	115			
Sodium	50	1.0	50.00	0	99.1	85	115			

Sample ID	LLLCS-22906	SampType:	LCSLL	TestCode:	EPA Method 200.7: Metals					
Client ID:	BatchQC	Batch ID:	22906	RunNo:	31036					
Prep Date:	12/21/2015	Analysis Date:	12/22/2015	SeqNo:	949283	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	94.8	50	150			
Magnesium	ND	1.0	0.5000	0	95.7	50	150			
Potassium	ND	1.0	0.5000	0	95.5	50	150			
Sodium	ND	1.0	0.5000	0	96.3	50	150			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512821

07-Jan-16

Client: Safety & Environmental Solutions
Project: Yates Compromise SWD #1 Monitor Wells

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A30936	RunNo:	30936					
Prep Date:		Analysis Date:	12/17/2015	SeqNo:	946107	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A30936	RunNo:	30936					
Prep Date:		Analysis Date:	12/17/2015	SeqNo:	946108	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Bromide	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P)	5.0	0.50	5.000	0	99.9	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	B31054	RunNo:	31054					
Prep Date:		Analysis Date:	12/23/2015	SeqNo:	950005	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	B31054	RunNo:	31054					
Prep Date:		Analysis Date:	12/23/2015	SeqNo:	950006	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	101	90	110			
Phosphorus, Orthophosphate (As P)	5.1	0.50	5.000	0	103	90	110			
Sulfate	10	0.50	10.00	0	102	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A31072	RunNo:	31072					
Prep Date:		Analysis Date:	12/23/2015	SeqNo:	950729	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512821

07-Jan-16

Client: Safety & Environmental Solutions
Project: Yates Compromise SWD #1 Monitor Wells

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A31072	RunNo:	31072					
Prep Date:		Analysis Date:	12/23/2015	SeqNo:	950731	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.8	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R31173	RunNo:	31173					
Prep Date:		Analysis Date:	12/30/2015	SeqNo:	954297	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	0.10								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R31173	RunNo:	31173					
Prep Date:		Analysis Date:	12/30/2015	SeqNo:	954298	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.5	0.10	2.500	0	100	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512821

07-Jan-16

Client: Safety & Environmental Solutions
Project: Yates Compromise SWD #1 Monitor Wells

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R30943	RunNo:	30943					
Prep Date:		Analysis Date:	12/17/2015	SeqNo:	946248	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R30943	RunNo:	30943					
Prep Date:		Analysis Date:	12/17/2015	SeqNo:	946249	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.04	20.00	80.00	0	97.6	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512821

07-Jan-16

Client: Safety & Environmental Solutions
Project: Yates Compromise SWD #1 Monitor Wells

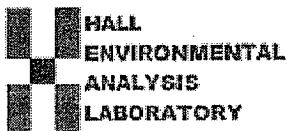
Sample ID	MB-22898	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	22898	RunNo:	31037					
Prep Date:	12/21/2015	Analysis Date:	12/23/2015	SeqNo:	949330	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-22898	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	22898	RunNo:	31037					
Prep Date:	12/21/2015	Analysis Date:	12/23/2015	SeqNo:	949331	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-343-3975 FAX: 505-343-4100
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Safety Env Solutions

Work Order Number: 1512821

Rep/No: 1

Received by/date:

JA 12/17/15

Logged By: Michelle Garcia

12/17/2015 9:15:00 AM

Michelle Garcia

Completed By: Michelle Garcia

12/17/2015 11:00:56 AM

Michelle Garcia

Reviewed By:

mg 12/17/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 5.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 16
(<2 or >12 unless noted)
Adjusted? 16
Checked by: [Signature]

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1		MW-2		MW-3			
	1512821-001		1512821-002		1512821-003			
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	1600	69.60	14000	608.96	1500	65.25		
Potassium	7.4	0.19	13	0.33	6.7	0.17		
Calcium	550	27.45	500	24.95	810	40.42		
Magnesium	500	41.15	4800	395.06	420	34.57		
Total Cations		138.38		1029.30		140.40		
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	4500	93.69	30000	624.61	3400	70.79		
Chloride	2200	62.06	19000	535.97	2900	81.81		
Bicarbonate (CaCO3)	345.4	6.90	417.6	8.35	216.7	4.33		
Carbonate (CaCO3)								
Phosphate (P)								
Nitrite (N)	12	0.86	33	2.36	-			
Nitrate (N)	3.1	0.16						
Fluoride								
Bromide								
Total Anions		163.67		1171.28		156.92		
Elect. Cond. (µMhos/cm)	14000		99000		14000			
CATION/ANION RATIO		0.85		0.88		0.89		
% Difference		8		6		6		
TOTAL DISSOLVED SOLIDS RATIOS								
TDS (measured)	10000		65500		9370			
TDS (calculated)	9621		68710		9167			
Ratio meas TDS:calc TDS		1.0		1.0		1.0		
Ratio Meas. TDS:EC		0.71		0.66		0.67		
Ratio Calc. TDS:EC		0.69		0.69		0.65		
Ratio of anion sum:EC		1.2		1.2		1.1		
Ratio of cation sum:EC		1.0		1.0		1.0		

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher than 0.7 are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio Measured TDS:EC--0.55-0.7. Ratio of anion sum:EC -- 0.9-1.1.

Ratio of cation sum:EC -- 0.9-1.1



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 08, 2015

Amber Griffin
Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
TEL: (575) 748-4111
FAX

RE: Compromise SWD #1 Well Site

OrderNo.: 1508977

Dear Amber Griffin:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/20/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1508977

Date Reported: 9/8/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: Compromise SWD #1

Project: Compromise SWD #1 Well Site

Collection Date: 8/17/2015 9:00:00 AM

Lab ID: 1508977-001

Matrix: AQUEOUS

Received Date: 8/20/2015 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	5.0		mg/L	50	8/26/2015 8:06:18 PM	R28485
Chloride	120000	5000	*	mg/L	1E	8/26/2015 8:31:07 PM	R28485
Nitrogen, Nitrite (As N)	ND	50	H	mg/L	500	8/26/2015 8:18:42 PM	R28485
Bromide	39	10		mg/L	100	8/20/2015 11:54:57 PM	R28361
Nitrogen, Nitrate (As N)	ND	5.0	H	mg/L	50	8/26/2015 8:06:18 PM	R28485
Phosphorus, Orthophosphate (As P)	ND	25	H	mg/L	50	8/26/2015 8:06:18 PM	R28485
Sulfate	4300	50	*	mg/L	100	8/20/2015 11:54:57 PM	R28361
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	430000	1.0		µmhos/cm	100	8/25/2015 12:57:15 PM	R28459
SM2320B: ALKALINITY							Analyst: MRA
Bicarbonate (As CaCO ₃)	276.1	20.00		mg/L CaCO ₃	1	8/21/2015 3:39:19 PM	R28401
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/21/2015 3:39:19 PM	R28401
Total Alkalinity (as CaCO ₃)	276.1	20.00		mg/L CaCO ₃	1	8/21/2015 3:39:19 PM	R28401
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	191000	2000	*D	mg/L	1	8/21/2015 1:22:00 PM	20906
EPA METHOD 200.7: TOTAL METALS							Analyst: JLF
Calcium	2700	200		mg/L	200	8/27/2015 1:50:32 PM	20984
Magnesium	580	20		mg/L	20	8/27/2015 1:48:37 PM	20984
Potassium	580	20		mg/L	20	8/27/2015 1:48:37 PM	20984
Sodium	73000	2000		mg/L	2E	8/27/2015 3:10:34 PM	20984

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508977

08-Sep-15

Client: Yates Petroleum Corporation
Project: Compromise SWD #1 Well Site

Sample ID	MB-20984	SampType:	MBLK	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	PBW	Batch ID:	20984	RunNo:	28494					
Prep Date:	8/26/2015	Analysis Date:	8/27/2015	SeqNo:	861634	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS-20984	SampType:	LCS	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	LCSW	Batch ID:	20984	RunNo:	28494					
Prep Date:	8/26/2015	Analysis Date:	8/27/2015	SeqNo:	861635	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	101	85	115			
Magnesium	50	1.0	50.00	0	101	85	115			
Potassium	48	1.0	50.00	0	96.8	85	115			
Sodium	50	1.0	50.00	0	99.1	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508977

08-Sep-15

Client: Yates Petroleum Corporation
Project: Compromise SWD #1 Well Site

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28361	RunNo:	28361					
Prep Date:		Analysis Date:	8/20/2015	SeqNo:	856657	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R28361	RunNo:	28361					
Prep Date:		Analysis Date:	8/20/2015	SeqNo:	856658	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.5	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28361	RunNo:	28361					
Prep Date:		Analysis Date:	8/20/2015	SeqNo:	856695	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	0.10								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R28361	RunNo:	28361					
Prep Date:		Analysis Date:	8/20/2015	SeqNo:	856696	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.3	0.10	2.500	0	90.2	90	110			
Sulfate	9.7	0.50	10.00	0	96.8	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28485	RunNo:	28485					
Prep Date:		Analysis Date:	8/26/2015	SeqNo:	861110	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508977

08-Sep-15

Client: Yates Petroleum Corporation
Project: Compromise SWD #1 Well Site

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R28485	RunNo:	28485					
Prep Date:		Analysis Date:	8/26/2015	SeqNo:	861111	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.0	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Phosphorus, Orthophosphate (As P)	5.0	0.50	5.000	0	101	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508977

08-Sep-15

Client: Yates Petroleum Corporation
Project: Compromise SWD #1 Well Site

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R28401	RunNo:	28401					
Prep Date:		Analysis Date:	8/21/2015	SeqNo:	858004	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R28401	RunNo:	28401					
Prep Date:		Analysis Date:	8/21/2015	SeqNo:	858005	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.16	20.00	80.00	0	100	90	110			

Sample ID	mb-2	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R28401	RunNo:	28401					
Prep Date:		Analysis Date:	8/21/2015	SeqNo:	858028	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R28401	RunNo:	28401					
Prep Date:		Analysis Date:	8/21/2015	SeqNo:	858029	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.44	20.00	80.00	0	101	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508977

08-Sep-15

Client: Yates Petroleum Corporation
Project: Compromise SWD #1 Well Site

Sample ID	MB-20906	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	20906	RunNo:	28383					
Prep Date:	8/20/2015	Analysis Date:	8/21/2015	SeqNo:	857078	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-20906	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	20906	RunNo:	28383					
Prep Date:	8/20/2015	Analysis Date:	8/21/2015	SeqNo:	857079	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Yates Petroleum Corpora

Work Order Number: 1508977

RcptNo: 1

Received by/date: ARM 08/20/15

Logged By: Ashley Gallegos 8/20/2015 8:40:00 AM AG

Completed By: Ashley Gallegos 8/20/2015 9:01:53 AM AG

Reviewed By: AK 08/20/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? 08/20/15 Yes ☒ No ☒
9. Was preservative added to bottles? For metals analysis: Added 1ml HNO₃ to -001B for acceptable pH. Held in login 24 Yes ☒ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒ hours after preserv
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 1

(2 or >12 unless noted)

Adjusted? Yes

Checked by: AK

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good	Yes			

Chain-of-Custody Record

Client: Yates Petroleum Corporation

Mailing Address:

105 South 4th Street Artesia, NM 88210

Phone #: 575-513-8977 or 575-748-4111

email or Fax#: agriffin@yatespetroleum.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Date Time Matrix Sample Request ID

8/17/15 9:00 Water Compromise SWD #1

Turn-Around Time:

☐ Standard ☐ Rush

Project Name:

Compromise SWD #1 Well Site

Project #:

2RP-2797

Project Manager:

Amber Griffin

PO # 205-2020

Sampler: Amber Griffin

On Ice: ☒ Yes ☐ No A-081215

Sample Temperature: 57.7

Container Type and #

Preservative Type

HEAL No.

1508917

2 - 500 mL Ice

-001

Date: 8/18/15

Relinquished by: Amber Griffin

Date: 8/18/15

Relinquished by:

Received by: [Signature]

Date: 8/18/15

Time: 0410

Date: 8/18/15

Time: 0410

Remarks:

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas/Diesel)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

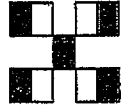
8260B (VOA)

8270 (Semi-VOA)

Cations/Anions/Balance

X

Air Bubbles (Y or N)



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	Compromise SWD #1 1508977-01					
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	73000	3175.29				
Potassium	580	14.83				
Calcium	2700	134.73				
Magnesium	580	47.74				
Total Cations		3372.59				
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	4300	89.53				
Chloride	120000	3385.05				
Bicarbonate (CaCO ₃)	276	5.52				
Carbonate (CaCO ₃)						
Phosphate (P)						
Nitrite (N)						
Nitrate (N)						
Fluoride						
Bromide	39	0.49				
Total Anions		3480.58				
Elect. Cond. (µMhos/cm)	430000					
CATION/ANION RATIO		0.97				
% Difference		2				
TOTAL DISSOLVED SOLIDS RATIOS						
TDS (measured)	191000					
TDS (calculated)	201365					
Ratio meas TDS:calc TDS		0.9				
Ratio Meas. TDS:EC		0.44				
Ratio Calc. TDS:EC		0.47				
Ratio of anion sum:EC		0.8				
Ratio of cation sum:EC		0.8				

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS - 1.0-1.2. Ratio Calculated TDS:EC - 0.55-0.7. Ratio Measured TDS:EC-0.55-0.7. Ratio of anion sum:EC - 0.9-1.

Ratio of cation sum:EC - 0.9-1.1