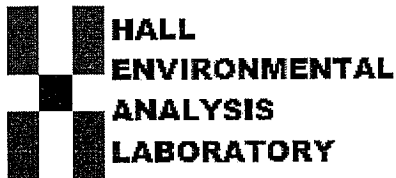


Ms. Amber Griffin
May 22, 2017

Appendix – Copies of 2016 Water Quality Analyses



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

April 15, 2016

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 397-0510
FAX (575) 393-4388

RE: Yates Composite SWD

OrderNo.: 1603C13

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/24/2016 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 1603C13

Date Reported: 4/15/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Composite SWD

Collection Date: 3/23/2016 11:20:00 AM

Lab ID: 1603C13-001

Matrix: AQUEOUS

Received Date: 3/24/2016 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.2	0.50		mg/L	5	3/24/2016 3:51:59 PM	R33074
Chloride	6900	250		mg/L	500	3/30/2016 11:01:46 PM	R33211
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	3/24/2016 4:04:24 PM	R33074
Bromide	4.7	0.50		mg/L	5	3/24/2016 3:51:59 PM	R33074
Nitrogen, Nitrate (As N)	20	0.50	*	mg/L	5	3/24/2016 3:51:59 PM	R33074
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	3/24/2016 4:04:24 PM	R33074
Sulfate	6600	250		mg/L	500	3/30/2016 11:01:46 PM	R33211
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	30000	0.10		µmhos/cm	10	3/29/2016 9:19:05 PM	R33151
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	401.0	20.00		mg/L CaCO3	1	3/28/2016 8:26:00 PM	R33125
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	3/28/2016 8:26:00 PM	R33125
Total Alkalinity (as CaCO3)	401.0	20.00		mg/L CaCO3	1	3/28/2016 8:26:00 PM	R33125
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	22900	2000	*D	mg/L	1	3/31/2016 3:29:00 PM	24507
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	650	20		mg/L	20	3/29/2016 8:58:23 AM	A33119
Magnesium	1100	20		mg/L	20	3/29/2016 8:58:23 AM	A33119
Potassium	6.4	1.0		mg/L	1	3/25/2016 1:25:30 PM	A33073
Sodium	3800	50		mg/L	50	3/31/2016 9:08:47 AM	A33198

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	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1603C13

Date Reported: 4/15/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-3

Project: Yates Composite SWD

Collection Date: 3/23/2016 12:15:00 PM

Lab ID: 1603C13-002

Matrix: AQUEOUS

Received Date: 3/24/2016 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.17	0.10		mg/L	1	3/24/2016 4:16:49 PM	R33074
Chloride	2400	100		mg/L	200	3/30/2016 11:14:10 PM	R33211
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	3/24/2016 4:29:13 PM	R33074
Bromide	0.20	0.10		mg/L	1	3/24/2016 4:16:49 PM	R33074
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	3/24/2016 4:16:49 PM	R33074
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	3/24/2016 4:16:49 PM	R33074
Sulfate	3100	100		mg/L	200	3/30/2016 11:14:10 PM	R33211
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	13000	0.050		µmhos/cm	5	3/29/2016 9:23:14 PM	R33151
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	208.1	20.00		mg/L CaCO ₃	1	3/28/2016 8:44:33 PM	R33125
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	3/28/2016 8:44:33 PM	R33125
Total Alkalinity (as CaCO ₃)	208.1	20.00		mg/L CaCO ₃	1	3/28/2016 8:44:33 PM	R33125
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	8600	200	*D	mg/L	1	3/31/2016 3:29:00 PM	24507
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	800	20		mg/L	20	3/29/2016 9:02:12 AM	A33119
Magnesium	400	5.0		mg/L	5	3/25/2016 1:30:25 PM	A33073
Potassium	3.8	1.0		mg/L	1	3/25/2016 1:28:52 PM	A33073
Sodium	1600	20		mg/L	20	3/31/2016 9:10:17 AM	A33198

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 2 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	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603C13

Date Reported: 4/15/2016

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-2

Project: Yates Composite SWD

Collection Date: 3/23/2016 12:55:00 PM

Lab ID: 1603C13-003

Matrix: AQUEOUS

Received Date: 3/24/2016 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	8.7	2.0	*	mg/L	20	3/24/2016 4:54:03 PM	R33074
Chloride	17000	1000		mg/L	2E	3/30/2016 11:38:58 PM	R33211
Bromide	13	2.0		mg/L	20	3/24/2016 4:54:03 PM	R33074
Phosphorus, Orthophosphate (As P)	ND	100	H	mg/L	200	3/30/2016 11:26:34 PM	R33211
Sulfate	28000	1000		mg/L	2E	3/30/2016 11:38:58 PM	R33211
Nitrate+Nitrite as N	30	10	*	mg/L	50	4/5/2016 3:55:16 AM	A33291
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	100000	0.50		µmhos/cm	50	3/29/2016 9:27:19 PM	R33151
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	407.2	20.00		mg/L CaCO3	1	3/28/2016 8:56:21 PM	R33125
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	3/28/2016 8:56:21 PM	R33125
Total Alkalinity (as CaCO3)	407.2	20.00		mg/L CaCO3	1	3/28/2016 8:56:21 PM	R33125
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	66500	2000	*D	mg/L	1	3/31/2016 3:29:00 PM	24507
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	540	20		mg/L	20	3/29/2016 9:21:51 AM	A33119
Magnesium	4800	50		mg/L	50	3/29/2016 9:53:16 AM	A33119
Potassium	15	1.0		mg/L	1	3/29/2016 9:04:05 AM	A33119
Sodium	15000	200		mg/L	200	3/31/2016 9:11:44 AM	A33198

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	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1		MW-3		MW-2			
	1603C13-001		1603C13-002		1603C13-003			
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	3800	165.29	1600	69.60	15000	652.46		
Potassium	6.4	0.16	3.8	0.10	15	0.38		
Calcium	650	32.44	800	39.92	540	26.95		
Magnesium	1100	90.53	400	32.92	4800	395.06		
Total Cations		288.42		142.53		1074.85		
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	6600	137.41	3100	64.54	28000	582.97		
Chloride	6900	194.64	2400	67.70	17000	479.55		
Bicarbonate (CaCO ₃)	401.0	8.01	208.1	4.16	407.2	8.14		
Carbonate (CaCO ₃)								
Phosphate (P)								
Nitrite (N)	20	1.43			30	2.14		
Nitrate (N)	3.2	0.17	0.17	0.01	8.7	0.46		
Fluoride	4.7	0.06	0.20	0.00	13	0.16		
Bromide								
Total Anions		341.72		136.41		1073.42		
Elect. Cond. (µMhos/cm)	30000		13000		100000			
CATION/ANION RATIO		0.84		1.04		1.00		
% Difference		8		2		0		
TOTAL DISSOLVED SOLIDS RATIOS								
TDS (measured)	22900		8600		66500			
TDS (calculated)	19393		8429		65754			
Ratio meas TDS:calc TDS		1.2		1.0		1.0		
Ratio Meas. TDS:EC		0.76		0.66		0.67		
Ratio Calc. TDS:EC		0.65		0.65		0.66		
Ratio of anion sum:EC		1.1		1.0		1.1		
Ratio of cation sum:EC		1.0		1.1		1.1		

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R33074	RunNo:	33074					
Prep Date:		Analysis Date:	3/24/2016	SeqNo:	1014928	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
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								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R33074	RunNo:	33074					
Prep Date:		Analysis Date:	3/24/2016	SeqNo:	1014929	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.0	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.0	90	110			
Bromide	2.4	0.10	2.500	0	94.4	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.9	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R33211	RunNo:	33211					
Prep Date:		Analysis Date:	3/30/2016	SeqNo:	1019904	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:	R33211	RunNo:	33211					
Prep Date:		Analysis Date:	3/30/2016	SeqNo:	1019905	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	95.6	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	95.7	90	110			
Sulfate	9.9	0.50	10.00	0	99.4	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A33291	RunNo:	33291					
Prep Date:		Analysis Date:	4/4/2016	SeqNo:	1022901	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A33291		RunNo:	33291					
Prep Date:		Analysis Date:	4/4/2016		SeqNo:	1022901	Units:	mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N		ND	0.20								

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID:	LCSW	Batch ID: A33291			RunNo: 33291						
Prep Date:		Analysis Date: 4/4/2016			SeqNo: 1022902		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N		3.4	0.20	3.500	0	97.5	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A33073	RunNo:	33073					
Prep Date:		Analysis Date:	3/25/2016	SeqNo:	1014890	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A33073	RunNo:	33073					
Prep Date:		Analysis Date:	3/25/2016	SeqNo:	1014891	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	100	80	120			
Potassium	49	1.0	50.00	0	98.5	80	120			

Sample ID	LCSD-A	SampType:	LCSD	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSS02	Batch ID:	A33073	RunNo:	33073					
Prep Date:		Analysis Date:	3/25/2016	SeqNo:	1014892	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	44	1.0	50.00	0	87.3	80	120	13.5	20	
Potassium	43	1.0	50.00	0	86.4	80	120	13.0	20	

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A33119	RunNo:	33119					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1016648	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								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A33119	RunNo:	33119					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1016649	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	53	1.0	50.00	0	107	80	120			
Magnesium	53	1.0	50.00	0	107	80	120			
Potassium	52	1.0	50.00	0	104	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
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	LCSD-A	SampType:	LCSD	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSS02	Batch ID:	A33119	RunNo:	33119					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1016650	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	80	120	4.61	20	
Magnesium	51	1.0	50.00	0	103	80	120	3.88	20	
Potassium	50	1.0	50.00	0	100	80	120	3.61	20	

Sample ID	1603C13-003BMS	SampType:	MS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	MW-2	Batch ID:	A33119	RunNo:	33119					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1016657	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	69	1.0	50.00	15.25	107	75	125			

Sample ID	1603C13-003BMSD	SampType:	MSD	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	MW-2	Batch ID:	A33119	RunNo:	33119					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1016709	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	68	1.0	50.00	15.25	106	75	125	0.819	20	

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A33198	RunNo:	33198					
Prep Date:		Analysis Date:	3/31/2016	SeqNo:	1019629	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A33198	RunNo:	33198					
Prep Date:		Analysis Date:	3/31/2016	SeqNo:	1019630	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	52	1.0	50.00	0	104	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions
Project: Yates Composite SWD

Sample ID	mb-1	SampType:	mblk		TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R33125		RunNo:	33125					
Prep Date:		Analysis Date:	3/28/2016		SeqNo:	1017089	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:	R33125		RunNo:	33125				
Prep Date:			Analysis Date:	3/28/2016		SeqNo:	1017090		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	78.64	20.00	80.00	0	98.3	90	110				

Sample ID	mb-2	SampType:	mblk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW	Batch ID:	R33125		RunNo:	33125				
Prep Date:		Analysis Date:	3/28/2016		SeqNo:	1017113	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: R33125		RunNo: 33125					
Prep Date:			Analysis Date: 3/28/2016		SeqNo: 1017114		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.20	20.00	80.00	0	97.7	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603C13

15-Apr-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB-24507	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	24507	RunNo:	33218					
Prep Date:	3/30/2016	Analysis Date:	3/31/2016	SeqNo:	1020154	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-24507	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	24507	RunNo:	33218					
Prep Date:	3/30/2016	Analysis Date:	3/31/2016	SeqNo:	1020155	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. | 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 | W Sample container temperature is out of limit as specified |



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: 1603C13

ReptNo: 1

Received by/date:

Logged By: Lindsay Mangin

3/24/2016 9:50:00 AM

Completed By: Lindsay Mangin

3/24/2016 10:15:10 AM

Reviewed By:

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? 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: 6
(<2 or >12 unless noted)
Adjusted? NO
Checked by: AJ

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

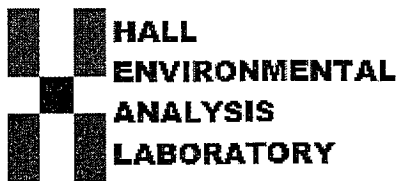
Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			



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

July 14, 2016

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL:
FAX

RE: Yates Compromise SWD

OrderNo.: 1606A15

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/17/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued July 08, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606A15

Date Reported: 7/14/2016

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Compromise SWD

Collection Date: 6/16/2016 9:05:00 AM

Lab ID: 1606A15-001

Matrix: AQUEOUS

Received Date: 6/17/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.7	2.0		mg/L	20	6/18/2016 4:39:29 AM	A35015
Chloride	3700	250		mg/L	500	6/23/2016 5:11:59 PM	B35156
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	6/18/2016 4:39:29 AM	A35015
Bromide	4.4	2.0		mg/L	20	6/18/2016 4:39:29 AM	A35015
Nitrogen, Nitrate (As N)	18	2.0	*	mg/L	20	6/18/2016 4:39:29 AM	A35015
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	6/18/2016 4:39:29 AM	A35015
Sulfate	5600	250		mg/L	500	6/23/2016 5:11:59 PM	B35156
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	21000	5.0		µmhos/cm	5	6/21/2016 9:07:09 PM	R35104
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	368.2	20.00		mg/L CaCO3	1	6/20/2016 2:02:21 PM	R35035
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/20/2016 2:02:21 PM	R35035
Total Alkalinity (as CaCO3)	368.2	20.00		mg/L CaCO3	1	6/20/2016 2:02:21 PM	R35035
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	14000	200	*D	mg/L	1	6/23/2016 9:25:00 PM	25988
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	640	10		mg/L	10	6/24/2016 10:01:16 AM	A35153
Magnesium	980	10		mg/L	10	6/24/2016 10:01:16 AM	A35153
Potassium	5.8	1.0		mg/L	1	6/22/2016 3:53:00 PM	A35085
Sodium	3300	50		mg/L	50	6/24/2016 10:03:20 AM	A35153

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	W	Sample container temperature is out of limit as specified

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

Lab Order 1606A15

Date Reported: 7/14/2016

CLIENT: Safety & Environmental Solutions**Client Sample ID:** MW-3**Project:** Yates Compromise SWD**Collection Date:** 6/16/2016 10:05:00 AM**Lab ID:** 1606A15-002**Matrix:** AQUEOUS**Received Date:** 6/17/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.50		mg/L	5	6/23/2016 5:49:13 PM	B35156
Chloride	2500	500		mg/L	1E	6/23/2016 6:01:37 PM	B35156
Bromide	ND	0.50		mg/L	5	6/23/2016 5:49:13 PM	B35156
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	6/23/2016 5:49:13 PM	B35156
Sulfate	3100	500		mg/L	1E	6/23/2016 6:01:37 PM	B35156
Nitrate+Nitrite as N	ND	2.0		mg/L	10	6/23/2016 6:51:15 PM	B35156
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	12000	2.0		µmhos/cm	2	6/21/2016 9:11:16 PM	R35104
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	210.9	20.00		mg/L CaCO ₃	1	6/20/2016 2:20:08 PM	R35035
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	6/20/2016 2:20:08 PM	R35035
Total Alkalinity (as CaCO ₃)	210.9	20.00		mg/L CaCO ₃	1	6/20/2016 2:20:08 PM	R35035
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	8590	200	*D	mg/L	1	6/23/2016 9:25:00 PM	25988
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	740	20		mg/L	20	6/24/2016 10:05:14 AM	A35153
Magnesium	430	5.0		mg/L	5	6/22/2016 3:58:37 PM	A35085
Potassium	3.9	1.0		mg/L	1	6/22/2016 3:56:50 PM	A35085
Sodium	1700	20		mg/L	20	6/24/2016 10:05:14 AM	A35153

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 2 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	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions Client Sample ID: MW-2
 Project: Yates Compromise SWD Collection Date: 6/16/2016 10:50:00 AM
 Lab ID: 1606A15-003 Matrix: AQUEOUS Received Date: 6/17/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	6.8	2.0	*	mg/L	20	6/23/2016 6:14:01 PM	B35156
Chloride	17000	1000		mg/L	2E	6/23/2016 6:38:50 PM	B35156
Bromide	15	2.0		mg/L	20	6/23/2016 6:14:01 PM	B35156
Phosphorus, Orthophosphate (As P)	ND	25	H	mg/L	50	6/23/2016 6:26:26 PM	B35156
Sulfate	26000	1000		mg/L	2E	6/23/2016 6:38:50 PM	B35156
Nitrate+Nitrite as N	40	10	*	mg/L	50	6/27/2016 11:03:18 AM	R35229
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	100000	50		µmhos/cm	50	6/21/2016 9:15:29 PM	R35104
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	399.4	20.00		mg/L CaCO3	1	6/20/2016 2:32:43 PM	R35035
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/20/2016 2:32:43 PM	R35035
Total Alkalinity (as CaCO3)	399.4	20.00		mg/L CaCO3	1	6/20/2016 2:32:43 PM	R35035
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	61400	2000	*D	mg/L	1	6/23/2016 9:25:00 PM	25988
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Calcium	690	10		mg/L	10	6/24/2016 10:07:08 AM	A35153
Magnesium	5000	100		mg/L	100	6/24/2016 10:09:18 AM	A35153
Potassium	15	1.0		mg/L	1	6/22/2016 4:00:39 PM	A35085
Sodium	12000	500		mg/L	500	6/24/2016 10:11:08 AM	A35153

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	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1 1606A15-001		MW-3 1606A15-002		MW-2 1606A15-003		
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L meq/L
Sodium	3300	143.54	1700	73.95	12000	521.97	
Potassium	5.8	0.15	3.9	0.10	15	0.38	
Calcium	640	31.94	740	36.93	690	34.43	
Magnesium	980	80.66	430	35.39	5000	411.52	
Total Cations		256.28		146.36		968.30	
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L meq/L
Sulfate	5600	116.59	3100	64.54	26000	541.33	
Chloride	3700	104.37	2500	70.52	17000	479.55	
Bicarbonate (CaCO3)	368.2	7.36	210.9	4.21	399.4	7.98	
Carbonate (CaCO3)							
Phosphate (P)							
Nitrite (N)	18	1.28			40	2.86	
Nitrate (N)	2.7	0.14			6.8	0.36	
Fluoride	4.4	0.06			15	0.19	
Bromide							
Total Anions		229.81		139.28		1032.26	
Elect. Cond. (µMhos/cm)	21000		12000		100000		
CATION/ANION RATIO		1.12		1.05		0.94	
% Difference		5		2		3	
TOTAL DISSOLVED SOLIDS RATIOS							
TDS (measured)	14000		8590		61400		
TDS (calculated)	14534		8600		61144		
Ratio meas TDS:calc TDS		1.0		1.0		1.0	
Ratio Meas. TDS:EC		0.67		0.72		0.61	
Ratio Calc. TDS:EC		0.69		0.72		0.61	
Ratio of anion sum:EC		1.1		1.2		1.0	
Ratio of cation sum:EC		1.2		1.2		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A35085	RunNo:	35085					
Prep Date:		Analysis Date:	6/22/2016	SeqNo:	1085137	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A35085	RunNo:	35085					
Prep Date:		Analysis Date:	6/22/2016	SeqNo:	1085138	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	51	1.0	50.00	0	101	85	115			
Potassium	49	1.0	50.00	0	97.7	85	115			

Sample ID	LLLCS-A	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A35085	RunNo:	35085					
Prep Date:		Analysis Date:	6/22/2016	SeqNo:	1085139	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	ND	1.0	0.5000	0	109	50	150			
Potassium	ND	1.0	0.5000	0	95.6	50	150			

Sample ID	1606A15-003BMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	MW-2	Batch ID:	A35085	RunNo:	35085					
Prep Date:		Analysis Date:	6/22/2016	SeqNo:	1085517	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	72	1.0	50.00	15.27	113	70	130			

Sample ID	1606A15-003BMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	MW-2	Batch ID:	A35085	RunNo:	35085					
Prep Date:		Analysis Date:	6/22/2016	SeqNo:	1085521	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	73	1.0	50.00	15.27	115	70	130	1.76	20	

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A35153	RunNo:	35153					
Prep Date:		Analysis Date:	6/24/2016	SeqNo:	1087393	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								

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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A35153	RunNo:	35153					
Prep Date:		Analysis Date:	6/24/2016	SeqNo:	1087393	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A35153	RunNo:	35153					
Prep Date:		Analysis Date:	6/24/2016	SeqNo:	1087394	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.9	85	115			
Magnesium	49	1.0	50.00	0	98.6	85	115			
Sodium	49	1.0	50.00	0	97.6	85	115			

Sample ID	LLCS-A	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A35153	RunNo:	35153					
Prep Date:		Analysis Date:	6/24/2016	SeqNo:	1087396	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	109	50	150			
Magnesium	ND	1.0	0.5000	0	108	50	150			
Sodium	ND	1.0	0.5000	0	104	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB	SampType: mblk			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: A35015			RunNo: 35015					
Prep Date:		Analysis Date: 6/18/2016			SeqNo: 1082346		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
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								

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A35015	RunNo:	35015					
Prep Date:		Analysis Date:	6/18/2016	SeqNo:	1082347	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.5	90	110			
Bromide	2.6	0.10	2.500	0	104	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.9	90	110			

Sample ID	MB	SampType: mblk			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: B35156			RunNo: 35156					
Prep Date:		Analysis Date: 6/23/2016			SeqNo: 1087554		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								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: B35156			RunNo: 35156					
Prep Date:		Analysis Date: 6/23/2016			SeqNo: 1087555		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	102	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Bromide	2.4	0.10	2.500	0	96.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.6	90	110			
Sulfate	9.7	0.50	10.00	0	97.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	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

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R35229		RunNo:	35229					
Prep Date:		Analysis Date:	6/27/2016		SeqNo:	1089261	Units:	mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N		ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions						
Client ID:	LCSW	Batch ID:	R35229	RunNo:	35229						
Prep Date:		Analysis Date:	6/27/2016	SeqNo:	1089262	Units:	mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N		3.4	0.20	3.500	0	97.1	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R35035	RunNo:	35035					
Prep Date:		Analysis Date:	6/20/2016	SeqNo:	1083274	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	ics-1	SampType:	ics	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R35035	RunNo:	35035					
Prep Date:		Analysis Date:	6/20/2016	SeqNo:	1083275	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.36	20.00	80.00	0	91.7	90	110			

Sample ID	mb-2	SampType:	mbk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW	Batch ID:	R35035		RunNo:	35035				
Prep Date:		Analysis Date:	6/20/2016		SeqNo:	1083298	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	ics-2	SampType:	ics	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R35035	RunNo:	35035					
Prep Date:		Analysis Date:	6/20/2016	SeqNo:	1083299	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A15

14-Jul-16

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB-25988	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	25988	RunNo:	35130					
Prep Date:	6/22/2016	Analysis Date:	6/23/2016	SeqNo:	1086842	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-25988	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	25988	RunNo:	35130					
Prep Date:	6/22/2016	Analysis Date:	6/23/2016	SeqNo:	1086843	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	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 | W Sample container temperature is out of limit as specified |

Sample Log-In Check List

Client Name: Safety Env Solutions

Work Order Number: 1606A15

RcptNo: 1

Received by/date:

Logged By:

Ashley Gallegos

6/17/2016 9:40:00 AM

Completed By:

Ashley Gallegos

6/17/2016 3:15:29 PM

Reviewed By:

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° 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 ☐

of preserved
bottles checked
for pH:

6 (2 or >12 unless noted)

Adjusted? No

Checked by: AS

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

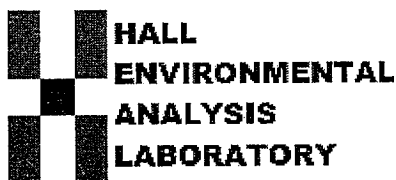
Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

November 15, 2016

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 397-0510
FAX (575) 393-4388

RE: Yates Composite SWD

OrderNo.: 1610275

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/6/2016 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 1610275

Date Reported: 11/15/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Composite SWD

Collection Date: 10/4/2016 11:50:00 AM

Lab ID: 1610275-001

Matrix: AQUEOUS

Received Date: 10/6/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	2.0		mg/L	20	10/7/2016 1:41:14 AM	A37783
Chloride	13000	500		mg/L	1E	10/11/2016 12:45:52 AM	R37839
Bromide	10	2.0		mg/L	20	10/7/2016 1:41:14 AM	A37783
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	10/7/2016 1:41:14 AM	A37783
Sulfate	7500	500		mg/L	1E	10/11/2016 12:45:52 AM	R37839
Nitrate+Nitrite as N	17	10	*	mg/L	50	10/11/2016 12:08:39 AM	R37839
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	57000	10		µmhos/cm	10	10/13/2016 3:44:27 PM	R37951
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	487.6	20.00		mg/L CaCO3	1	10/11/2016 1:58:37 PM	R37875
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/11/2016 1:58:37 PM	R37875
Total Alkalinity (as CaCO3)	487.6	20.00		mg/L CaCO3	1	10/11/2016 1:58:37 PM	R37875
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	31200	200	*D	mg/L	1	10/11/2016 4:42:00 PM	27979
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	730	10		mg/L	10	10/14/2016 10:56:58 AM	A37950
Magnesium	2300	50		mg/L	50	10/14/2016 11:01:25 AM	A37950
Potassium	14	1.0		mg/L	1	10/7/2016 3:49:59 PM	A37793
Sodium	7800	100		mg/L	100	10/14/2016 11:08:47 AM	A37950

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 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	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-3

Project: Yates Composite SWD

Collection Date: 10/4/2016 1:22:00 PM

Lab ID: 1610275-002

Matrix: AQUEOUS

Received Date: 10/6/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	2.0		mg/L	20	10/7/2016 2:06:03 AM	A37783
Chloride	2700	100		mg/L	200	10/11/2016 12:58:17 AM	R37839
Bromide	0.73	0.10		mg/L	1	10/7/2016 1:53:39 AM	A37783
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	10/7/2016 2:06:03 AM	A37783
Sulfate	3300	100		mg/L	200	10/11/2016 12:58:17 AM	R37839
Nitrate+Nitrite as N	ND	4.0		mg/L	20	10/11/2016 12:21:03 AM	R37839
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	14000	5.0		µmhos/cm	5	10/13/2016 3:48:48 PM	R37951
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	214.4	20.00		mg/L CaCO3	1	10/11/2016 3:10:29 PM	R37875
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	10/11/2016 3:10:29 PM	R37875
Total Alkalinity (as CaCO3)	214.4	20.00		mg/L CaCO3	1	10/11/2016 3:10:29 PM	R37875
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	9580	200	*D	mg/L	1	10/11/2016 4:42:00 PM	27979
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	680	10		mg/L	10	10/14/2016 11:02:54 AM	A37950
Magnesium	440	5.0		mg/L	5	10/7/2016 3:55:40 PM	A37793
Potassium	4.3	1.0		mg/L	1	10/7/2016 3:53:53 PM	A37793
Sodium	1700	50		mg/L	50	10/14/2016 11:04:23 AM	A37950

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 2 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	W	Sample container temperature is out of limit as specified	

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

Lab Order 1610275

Date Reported: 11/15/2016

CLIENT: Safety & Environmental Solutions**Client Sample ID:** MW-2**Project:** Yates Composite SWD**Collection Date:** 10/4/2016 3:32:00 PM**Lab ID:** 1610275-003**Matrix:** AQUEOUS**Received Date:** 10/6/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	8.8	2.0	*	mg/L	20	10/7/2016 2:30:53 AM	A37783
Chloride	19000	500		mg/L	1E	10/11/2016 1:10:42 AM	R37839
Bromide	12	2.0		mg/L	20	10/7/2016 2:30:53 AM	A37783
Phosphorus, Orthophosphate (As P)	ND	25	H	mg/L	50	10/11/2016 5:00:13 PM	R37876
Sulfate	29000	500		mg/L	1E	10/11/2016 1:10:42 AM	R37839
Nitrate+Nitrite as N	43	10	*	mg/L	50	10/11/2016 12:33:28 AM	R37839
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	88000	10		µmhos/cm	10	10/13/2016 3:53:08 PM	R37951
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	400.0	20.00		mg/L CaCO ₃	1	10/11/2016 3:22:49 PM	R37875
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	10/11/2016 3:22:49 PM	R37875
Total Alkalinity (as CaCO ₃)	400.0	20.00		mg/L CaCO ₃	1	10/11/2016 3:22:49 PM	R37875
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	63700	200	*D	mg/L	1	10/11/2016 4:42:00 PM	27979
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Calcium	520	10		mg/L	10	10/14/2016 11:05:45 AM	A37950
Magnesium	4700	50		mg/L	50	10/14/2016 11:07:17 AM	A37950
Potassium	22	1.0		mg/L	1	10/7/2016 3:57:31 PM	A37793
Sodium	14000	500		mg/L	500	10/14/2016 11:22:08 AM	A37950

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	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1		MW-3		MW-2				
CATIONS	1610275-001		1610275-002		1610275-003		mg/L	meq/L	mg/L
Sodium	7800	339.28	1700	73.95	14000	608.96			
Potassium	14	0.36	4.3	0.11	22	0.56			
Calcium	730	36.43	680	33.93	520	25.95			
Magnesium	2300	189.30	440	36.21	4700	386.83			
Total Cations		565.36	144.20		1022.30				
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L
Sulfate	7500	156.15	3300	68.71	29000	603.79			
Chloride	13000	366.71	2700	76.16	19000	535.97			
Bicarbonate (CaCO3)	487.6	9.74	214.4	4.28	400.0	7.99			
Carbonate (CaCO3)									
Phosphate (P)									
Nitrite (N)	17	1.21			43	3.07			
Nitrate (N)					8.8	0.46			
Fluoride					12	0.15			
Bromide	10	0.13	0.73	0.01					
Total Anions		533.95	149.16		1151.43				
Elect. Cond. (µMhos/cm)	57000		14000		88000				
CATION/ANION RATIO		1.06	0.97		0.89				
% Difference		3	2		6				
TOTAL DISSOLVED SOLIDS RATIOS									
TDS (measured)	31200		9580		63700				
TDS (calculated)	31722		8954		67693				
Ratio meas TDS:calc TDS		1.0		1.1		0.9			
Ratio Meas. TDS:EC		0.55		0.68		0.72			
Ratio Calc. TDS:EC		0.56		0.64		0.77			
Ratio of anion sum:EC		0.9		1.1		1.3			
Ratio of cation sum:EC		1.0		1.0		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 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610275

15-Nov-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB	SampType:	mblk		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBW	Batch ID:	A37783		RunNo:	37783				
Prep Date:		Analysis Date:	10/6/2016		SeqNo:	1177036		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:	ics	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A37783	RunNo:	37783					
Prep Date:		Analysis Date:	10/6/2016	SeqNo:	1177037	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	101	90	110			
Bromide	2.3	0.10	2.500	0	90.8	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.2	90	110			

Sample ID	MB	SampType: mblk			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R37839			RunNo: 37839					
Prep Date:		Analysis Date: 10/10/2016			SeqNo: 1178830		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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType: Ics			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: R37839			RunNo: 37839					
Prep Date:		Analysis Date: 10/10/2016			SeqNo: 1178832		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	94.4	90	110			
Sulfate	9.7	0.50	10.00	0	96.8	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.1	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R37876	RunNo:	37876					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179756	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610275

15-Nov-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R37876	RunNo:	37876					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179757	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.2	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

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610275

15-Nov-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A37793	RunNo:	37793					
Prep Date:		Analysis Date:	10/7/2016	SeqNo:	1177220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	ND	1.0								
Potassium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A37793	RunNo:	37793					
Prep Date:		Analysis Date:	10/7/2016	SeqNo:	1177221	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	51	1.0	50.00	0	102	80	120			
Potassium	49	1.0	50.00	0	98.3	80	120			

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A37950	RunNo:	37950					
Prep Date:		Analysis Date:	10/14/2016	SeqNo:	1182695	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								
Sodium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A37950	RunNo:	37950					
Prep Date:		Analysis Date:	10/14/2016	SeqNo:	1182696	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	101	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Sodium	51	1.0	50.00	0	103	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610275

15-Nov-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	mb-1	SampType:	mbk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW	Batch ID:	R37875		RunNo:	37875				
Prep Date:		Analysis Date:	10/11/2016		SeqNo:	1179650		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:	R37875		RunNo:	37875				
Prep Date:			Analysis Date:	10/11/2016		SeqNo:	1179651		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	77.36	20.00	80.00	0	96.7	90	110				

Sample ID	1610275-001ams	SampType:	ms	TestCode:	SM2320B: Alkalinity					
Client ID:	MW-1	Batch ID:	R37875	RunNo:	37875					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179655	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	557.9	20.00	80.00	487.6	87.9	19.8	126			

Sample ID	1610275-001amsd	SampType:	msd	TestCode:	SM2320B: Alkalinity					
Client ID:	MW-1	Batch ID:	R37875	RunNo:	37875					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179656	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	558.6	20.00	80.00	487.6	88.8	19.8	126	0.129	20	

Sample ID	mb-2	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R37875	RunNo:	37875					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179678	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	Ics-2	SampType:	Ics	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R37875	RunNo:	37875					
Prep Date:		Analysis Date:	10/11/2016	SeqNo:	1179679	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81.08	20.00	80.00	0	101	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610275

15-Nov-16

Client: Safety & Environmental Solutions

Project: Yates Composite SWD

Sample ID	MB-27979	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	PBW	Batch ID:	27979	RunNo:	37859
Prep Date:	10/10/2016	Analysis Date:	10/11/2016	SeqNo:	1179209 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-27979	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	LCSW	Batch ID:	27979	RunNo:	37859
Prep Date:	10/10/2016	Analysis Date:	10/11/2016	SeqNo:	1179210 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 | W Sample container temperature is out of limit as specified |



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: 1610275

RcptNo: 1

Received by/date:

AS

10/06/16

Logged By:

Lindsay Mangin

10/6/2016 9:30:00 AM

Lindsay Mangin

Completed By:

Lindsay Mangin

10/6/2016 2:37:34 PM

Lindsay Mangin

Reviewed By:

IO

10/06/16

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?

Client

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?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

6

(2 or >12 unless noted)

Adjusted?

No

Checked by:

AS

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	1.1	Good	Yes			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

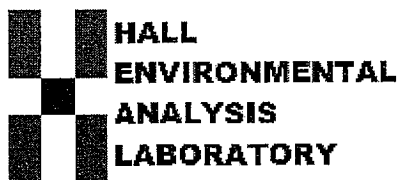
Analysis Request

[illegible]

Remarks:

Chain-of-Custody Record						
Client:	Safety & ENVIA Solutions Inc.	Standard	☒ Standard ☐ Rush			
Mailing Address:	P.O. Box 1613 Hobbs NM 88241	Project Name:	yates compromise SWD			
Phone #:	575 397-0510	Project #:	yate-15-001			
Email or Fax#:	dboyer@res-nm.com	Project Manager:	D Boyer			
A/QC Package:	☒ Level 4 (Full Validation)	Sampler:	[Signature]			
Creditation:	NELAP ☐ Other _____	On Ice:	☒ Yes ☐ No			
EDD (Type)		Sample Temperature:	11°C			
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
2/6						1610275
2/4	11:50 AM	H ₂ O	MW-1	3 Plastic	HOSEA	-001
2/4	13:27 PM	H ₂ O	MW-3	" "	" "	-002
2/4	15:32 PM	H ₂ O	MW-2	" "	" "	-003
Relinquished by:	Time:	Received by:	Date	Time		
5/16 16:00 [Signature]		aun/Aunw	10/6/16	0930		
Relinquished by:	Time:	Received by:	Date	Time		

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 notated on the analytical report.



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

January 03, 2017

Dave Boyer
Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 397-0510
FAX (575) 393-4388

RE: Yates Compromise SWD

OrderNo.: 1612874

Dear Dave Boyer:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 30, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1612874

Date Reported: 1/3/2017

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-1

Project: Yates Compromise SWD

Collection Date: 12/13/2016 1:25:00 PM

Lab ID: 1612874-001

Matrix: AQUEOUS

Received Date: 12/15/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	2.0		mg/L	20	12/22/2016 2:21:13 AM	A39593
Chloride	14000	500	*	mg/L	1E	12/23/2016 2:37:30 AM	A39625
Bromide	8.6	2.0		mg/L	20	12/22/2016 2:21:13 AM	A39593
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	12/22/2016 2:21:13 AM	A39593
Sulfate	9000	500	*	mg/L	1E	12/23/2016 2:37:30 AM	A39625
Nitrate+Nitrite as N	32	10	*	mg/L	50	12/28/2016 2:44:52 AM	R39678
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	52000	10		µmhos/cm	10	12/21/2016 9:54:22 PM	R39580
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	446.0	20.00		mg/L CaCO ₃	1	12/19/2016 5:46:48 PM	R39516
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	12/19/2016 5:46:48 PM	R39516
Total Alkalinity (as CaCO ₃)	446.0	20.00		mg/L CaCO ₃	1	12/19/2016 5:46:48 PM	R39516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	29000	2000	*D	mg/L	1	12/21/2016 9:42:00 PM	29306
EPA METHOD 6010B: DISSOLVED METALS							Analyst: pmf
Calcium	760	100		mg/L	100	12/21/2016 2:27:06 PM	A39566
Magnesium	1900	20		mg/L	20	12/21/2016 2:45:01 PM	A39566
Potassium	11	1.0		mg/L	1	12/21/2016 1:14:22 PM	A39566
Sodium	6400	100		mg/L	100	12/21/2016 2:27:06 PM	A39566

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	W	Sample container temperature is out of limit as specified

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

Lab Order 1612874

Date Reported: 1/3/2017

CLIENT: Safety & Environmental Solutions**Client Sample ID:** MW-3**Project:** Yates Compromise SWD**Collection Date:** 12/13/2016 2:30:00 PM**Lab ID:** 1612874-002**Matrix:** AQUEOUS**Received Date:** 12/15/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	2.0		mg/L	20	12/22/2016 2:46:02 AM	A39593
Chloride	2600	100	*	mg/L	200	12/23/2016 2:49:55 AM	A39625
Bromide	ND	2.0		mg/L	20	12/22/2016 2:46:02 AM	A39593
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	12/22/2016 2:46:02 AM	A39593
Sulfate	3000	100	*	mg/L	200	12/23/2016 2:49:55 AM	A39625
Nitrate+Nitrite as N	ND	2.0		mg/L	10	12/23/2016 3:39:34 AM	A39625
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	13000	2.0		µmhos/cm	2	12/21/2016 9:58:54 PM	R39580
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	212.2	20.00		mg/L CaCO ₃	1	12/19/2016 6:08:08 PM	R39516
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	12/19/2016 6:08:08 PM	R39516
Total Alkalinity (as CaCO ₃)	212.2	20.00		mg/L CaCO ₃	1	12/19/2016 6:08:08 PM	R39516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	9400	200	*D	mg/L	1	12/21/2016 9:42:00 PM	29306
EPA METHOD 6010B: DISSOLVED METALS							Analyst: pmf
Calcium	750	100		mg/L	100	12/21/2016 2:29:02 PM	A39566
Magnesium	450	20		mg/L	20	12/21/2016 2:46:56 PM	A39566
Potassium	3.9	1.0		mg/L	1	12/21/2016 1:16:22 PM	A39566
Sodium	1600	20		mg/L	20	12/21/2016 2:46:56 PM	A39566

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	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1612874

Date Reported: 1/3/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions

Client Sample ID: MW-2

Project: Yates Compromise SWD

Collection Date: 12/13/2016 3:55:00 PM

Lab ID: 1612874-003

Matrix: AQUEOUS

Received Date: 12/15/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	2.0		mg/L	20	12/22/2016 3:35:41 AM	A39593
Chloride	15000	1000	*	mg/L	2E	12/23/2016 3:02:19 AM	A39625
Bromide	11	2.0		mg/L	20	12/22/2016 3:35:41 AM	A39593
Phosphorus, Orthophosphate (As P)	ND	25	H	mg/L	50	12/23/2016 3:14:44 AM	A39625
Sulfate	23000	1000	*	mg/L	2E	12/23/2016 3:02:19 AM	A39625
Nitrate+Nitrite as N	48	10	*	mg/L	50	12/23/2016 3:51:59 AM	A39625
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	110000	50		µmhos/cm	50	12/21/2016 10:05:32 PM	R39580
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	404.6	20.00		mg/L CaCO3	1	12/19/2016 6:21:02 PM	R39516
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/19/2016 6:21:02 PM	R39516
Total Alkalinity (as CaCO3)	404.6	20.00		mg/L CaCO3	1	12/19/2016 6:21:02 PM	R39516
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	62300	2000	*D	mg/L	1	12/21/2016 9:42:00 PM	29306
EPA METHOD 6010B: DISSOLVED METALS							Analyst: pmf
Calcium	580	100		mg/L	100	12/21/2016 2:31:00 PM	A39566
Magnesium	4600	100		mg/L	100	12/21/2016 2:31:00 PM	A39566
Potassium	18	1.0		mg/L	1	12/21/2016 1:18:11 PM	A39566
Sodium	13000	200		mg/L	200	12/21/2016 2:51:29 PM	A39566

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	W	Sample container temperature is out of limit as specified	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	MW-1		MW-3		MW-2				
	1612874-001		1612874-002		1612874-003		mg/L	meq/L	mg/L meq/L
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L meq/L
Sodium	6400	278.38	1600	69.60	13000	565.46			
Potassium	11	0.28	3.9	0.10	18	0.46			
Calcium	760	37.92	750	37.43	580	28.94			
Magnesium	1900	156.38	450	37.04	4600	378.60			
Total Cations		472.97		144.16		973.47			
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L meq/L
Sulfate	9000	187.38	3000	62.46	23000	478.87			
Chloride	14000	394.92	2600	73.34	15000	423.13			
Bicarbonate (CaCO ₃)	446.0	8.91	212.2	4.24	404.6	8.09			
Carbonate (CaCO ₃)									
Phosphate (P)									
Nitrite (N)									
Nitrate (N)	32	2.28			48	3.43			
Fluoride									
Bromide	8.6	0.11			11	0.14			
Total Anions		593.61		140.04		913.65			
Elect. Cond. (µMhos/cm)	52000		13000		110000				
CATION/ANION RATIO		0.80		1.03		1.07			
% Difference		11		1		3			
TOTAL DISSOLVED SOLIDS RATIOS									
TDS (measured)	29000		9400		62300				
TDS (calculated)	32489		8531		56664				
Ratio meas TDS:calc TDS		0.9		1.1		1.1			
Ratio Meas. TDS:EC		0.56		0.72		0.57			
Ratio Calc. TDS:EC		0.62		0.66		0.52			
Ratio of anion sum:EC		1.1		1.1		0.8			
Ratio of cation sum:EC		0.9		1.1		0.9			

* 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1612874

03-Jan-17

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBW	Batch ID:	A39593		RunNo:	39593				
Prep Date:		Analysis Date:	12/21/2016		SeqNo:	1240131	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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: A39593			RunNo: 39593					
Prep Date:		Analysis Date: 12/21/2016			SeqNo: 1240132		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.58	0.10	0.5000	0	116	90	110			S
Bromide	2.7	0.10	2.500	0	109	90	110			
Phosphorus, Orthophosphate (As P	5.4	0.50	5.000	0	108	90	110			

Sample ID	MB	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBW	Batch ID:	A39625		RunNo:	39625				
Prep Date:		Analysis Date:	12/23/2016		SeqNo:	1241295	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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: A39625			RunNo: 39625					
Prep Date:		Analysis Date: 12/23/2016			SeqNo: 1241296		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	94.2	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.5	0.50	10.00	0	95.5	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.9	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R39678	RunNo:	39678					
Prep Date:		Analysis Date:	12/27/2016	SeqNo:	1243308	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. | 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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1612874

03-Jan-17

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R39678	RunNo:	39678					
Prep Date:		Analysis Date:	12/27/2016	SeqNo:	1243309	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	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1612874

03-Jan-17

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A39566	RunNo:	39566					
Prep Date:		Analysis Date:	12/21/2016	SeqNo:	1239139	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-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A39566	RunNo:	39566					
Prep Date:		Analysis Date:	12/21/2016	SeqNo:	1239140	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			
Potassium	51	1.0	50.00	0	102	80	120			
Sodium	50	1.0	50.00	0	99.9	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1612874

03-Jan-17

Client: Safety & Environmental Solutions

Project: Yates Compromise SWD

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R39516	RunNo:	39516					
Prep Date:		Analysis Date:	12/19/2016	SeqNo:	1237543	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:	R39516		RunNo:	39516				
Prep Date:			Analysis Date:	12/19/2016		SeqNo:	1237544		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	77.48	20.00	80.00	0	96.8	90	110				

Sample ID	mb-2	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R39516	RunNo:	39516					
Prep Date:		Analysis Date:	12/19/2016	SeqNo:	1237567	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:	R39516		RunNo:	39516				
Prep Date:			Analysis Date:	12/19/2016		SeqNo:	1237568		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	76.88	20.00	80.00	0	96.1	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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1612874

03-Jan-17

Client: Safety & Environmental Solutions

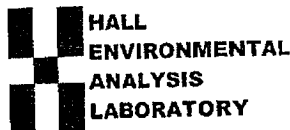
Project: Yates Compromise SWD

Sample ID	MB-29306	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	29306	RunNo:	39571					
Prep Date:	12/20/2016	Analysis Date:	12/21/2016	SeqNo:	1239259	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-29306	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	29306	RunNo:	39571					
Prep Date:	12/20/2016	Analysis Date:	12/21/2016	SeqNo:	1239260	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1050	20.0	1000	0	105	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 | W Sample container temperature is out of limit as specified |



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: 1612874

RcptNo: 1

Received by/date:

AG

12/15/16

Logged By: Lindsay Mangin

12/15/2016 9:00:00 AM

Completed By: Lindsay Mangin

12/15/2016 2:58:08 PM

Reviewed By:

AG

12/16/16

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?

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 ✓

of preserved bottles checked for pH:

6

12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody)

Yes ✓

No

(<2 or >12 unless noted)

13. Are matrices correctly identified on Chain of Custody?

Yes ✓

No

Adjusted?

NO

14. Is it clear what analyses were requested?

Yes ✓

No

15. Were all holding times able to be met?

Yes ✓

No

Checked by:

Re

(If no, notify customer for authorization.)

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	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]

Remarks:	
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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 notated on the analytical report.