

Chemical Analysis Report

SO-DIST-2019-01-17-02

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **2019 SMP : P Riv**
Request ID: **RQ-2019-01-28-54**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 07-FEB-2019 14:14



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Alligator N@JonesLoopRd

Collection Date/Time: 01/16/2019 08:30

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2055234	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P357472	
	EPA 300.0 Rev. 2.1	Chloride	58		mg Cl/L	P357691	
		Sulfate	37		mg SO4/L	P357692	
	SM 2120 B	Color (true)	22		PCU	P357476	
	SM 2320 B-97	Total Alkalinity	244		mg CaCO3/L	P357951	
	SM 2540 C-97	TDS	430	A	mg/L	P357678	
	SM 2540 D-97	TSS	3	IA	mg/L	P357697	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P357954	
2055235	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P358015	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P357623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P357735	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P357643	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P357653	
2055236	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P357461	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: ClevelandCemeteryDitch

Collection Date/Time: 01/16/2019 09:45

Field ID: G3SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2055237	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P357472	
	EPA 300.0	Bromide	7.4		mg Br/L	P358168	
	SM 2320 B-97	Total Alkalinity	223		mg CaCO3/L	P357951	
	SM 2540 D-97	TSS	2	U	mg/L	P357697	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P357954	
2055238	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P357689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P357625	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P357615	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P357644	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P357653	
2055239	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P357460	
2055274	EPA 200.7 Rev. 4.4	Iron	150		ug/L	P357638	
		Manganese	11.2		ug/L	P357638	
		Zinc	5.0	U	ug/L	P357638	
	EPA 200.8 Rev. 5.4	Aluminum	36		ug/L	P357638	
		Antimony	0.11	I	ug/L	P357638	
		Arsenic	1.95		ug/L	P357638	
		Cadmium	0.020	U	ug/L	P357638	
		Chromium	0.72	I	ug/L	P357638	
		Copper	0.40	U	ug/L	P357638	
		Lead	0.20	U	ug/L	P357638	
		Nickel	0.50	U	ug/L	P357638	
		Selenium	0.20	U	ug/L	P357638	
		Silver	0.010	U	ug/L	P357638	
		Thallium	0.10	U	ug/L	P357638	

Ref. Method and Comment:

EPA 300.0: Bromide: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Peace River Estuary

Collection Date/Time: 01/16/2019 10:30

Field ID: G3SD0148

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2055240	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P357472	
	EPA 300.0	Bromide	4.0		mg Br/L	P358168	
	SM 2320 B-97	Total Alkalinity	72		mg CaCO3/L	P357951	
	SM 2540 D-97	TSS	6	I	mg/L	P357697	
	SM 4500 F-C-97	Fluoride	0.55		mg F/L	P357954	
2055241	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P357689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P357625	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P357615	
	EPA 365.1 Rev. 2.0	Total-P	0.59		mg P/L	P357645	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P357653	
2055242	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.43		mg P/L	P357460	

Ref. Method and Comment:

EPA 300.0: Bromide: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: PeaceRiverAboveHorseCrk

Collection Date/Time: 01/16/2019 12:30

Field ID: G3SD0147

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2055243	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P357472	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P357691	
		Sulfate	47		mg SO4/L	P357692	
	SM 2120 B	Color (true)	110		PCU	P357476	
	SM 2320 B-97	Total Alkalinity	76		mg CaCO3/L	P357951	
	SM 2540 C-97	TDS	226	A	mg/L	P357679	
	SM 2540 D-97	TSS	9	IA	mg/L	P357698	
	SM 4500 F-C-97	Fluoride	0.58		mg F/L	P357954	
2055244	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P358015	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P357623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.61		mg N/L	P357735	
	EPA 365.1 Rev. 2.0	Total-P	0.81		mg P/L	P357643	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357653	
2055245	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.61		mg P/L	P357461	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357472

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357638

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357638

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P358168

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357691

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357692

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357689

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358015

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357623

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357625

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357615

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357735

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357643

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357644

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357645

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357460

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357461

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B
Batch ID: P357476

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357951

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P357678

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P357679

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357697

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357698

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357954

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357653

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Manganese	103		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	109		P	85 - 115
Arsenic	109		P	85 - 115
Cadmium	112		P	85 - 115
Chromium	111		P	85 - 115
Copper	105		P	85 - 115
Lead	112		P	85 - 115
Nickel	105		P	85 - 115
Selenium	110		P	85 - 115
Silver	108		P	85 - 115
Thallium	108		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P358168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357691

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	91.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357625

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357735

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.2		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P357476

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P357951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P357954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055283	Iron	108		P	80 - 120
2055283	Manganese	99.7		P	80 - 120
2055283	Zinc	100		P	80 - 120
2055554	Iron	108	107	P/P	80 - 120
2055554	Manganese	104	100	P/P	80 - 120
2055554	Zinc	101	98.0	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055283	Aluminum	106		P	80 - 120
2055283	Antimony	114		P	80 - 120
2055283	Arsenic	113		P	80 - 120
2055283	Cadmium	113		P	80 - 120
2055283	Chromium	107		P	80 - 120
2055283	Copper	103		P	80 - 120
2055283	Lead	114		P	80 - 120
2055283	Nickel	106		P	80 - 120
2055283	Selenium	114		P	80 - 120
2055283	Silver	107		P	80 - 120
2055283	Thallium	113		P	80 - 120
2055554	Aluminum	102	101	P/P	80 - 120
2055554	Antimony	111	111	P/P	80 - 120
2055554	Arsenic	108	108	P/P	80 - 120
2055554	Cadmium	110	110	P/P	80 - 120
2055554	Chromium	105	105	P/P	80 - 120
2055554	Copper	97.8	98.8	P/P	80 - 120
2055554	Lead	107	108	P/P	80 - 120
2055554	Nickel	103	102	P/P	80 - 120
2055554	Selenium	108	109	P/P	80 - 120
2055554	Silver	106	106	P/P	80 - 120
2055554	Thallium	105	104	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P358168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058121	Bromide	92.8	96.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055093	Chloride	98.2		P	90 - 110
2055414	Chloride	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055093	Sulfate	95.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055414	Sulfate	92.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055053	Ammonia-N	93.7	91.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055244	Ammonia-N	99.6	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055287	Kjeldahl Nitrogen	102	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055196	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055194	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055089	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055287	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055026	Total-P	95.9	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055491	Total-P	94.8	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055173	O-Phosphate-P	91.7	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055091	O-Phosphate-P	90.8	92.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P357954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055094	Fluoride	96.9	96.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055054	Organic Carbon	96.4	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055234	Turbidity	1.87	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055554	Iron	1.13	Spike	P	0 - 20
2055554	Manganese	3.12	Spike	P	0 - 20
2055554	Zinc	2.76	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055554	Aluminum	0.547	Spike	P	0 - 20
2055554	Antimony	0.339	Spike	P	0 - 20
2055554	Arsenic	0.0424	Spike	P	0 - 20
2055554	Cadmium	0.703	Spike	P	0 - 20
2055554	Chromium	0.558	Spike	P	0 - 20
2055554	Copper	1.00	Spike	P	0 - 20
2055554	Lead	0.772	Spike	P	0 - 20
2055554	Nickel	0.672	Spike	P	0 - 20
2055554	Selenium	1.02	Spike	P	0 - 20
2055554	Silver	0.00296	Spike	P	0 - 20
2055554	Thallium	0.547	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P358168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058121	Bromide	2.27	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055414	Chloride	0.921	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055414	Sulfate	0.779	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055053	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055244	Ammonia-N	1.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055287	Kjeldahl Nitrogen	2.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055196	Kjeldahl Nitrogen	1.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055194	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055089	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055287	Total-P	0.257	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055026	Total-P	3.55	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055491	Total-P	2.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055173	O-Phosphate-P	2.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055091	O-Phosphate-P	1.96	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055191	Color (true)	1.77	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055094	Total Alkalinity	0.187	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055234	TDS	0.465	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P357679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055243	TDS	2.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P357954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055094	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00

Batch ID: P357653

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055054	Organic Carbon	0.729	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88882

Included Lab Sample IDs: 2055236, 2055239, 2055242, 2055245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.2	P/P	90 - 110
O-Phosphate-P	99.6	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88883

Included Lab Sample IDs: 2055234, 2055237, 2055240, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A88884

Included Lab Sample IDs: 2055234, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88931

Included Lab Sample IDs: 2055234, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	100	P/P	90 - 110
Chloride	100	100	P/P	90 - 110
Sulfate	97.8	98.1	P/P	90 - 110
Sulfate	98.1	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88937

Included Lab Sample IDs: 2055238, 2055241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A88948

Included Lab Sample IDs: 2055235, 2055238, 2055241, 2055244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	101	P/P	90 - 110
Organic Carbon	98.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88964

Included Lab Sample IDs: 2055238, 2055241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88976

Included Lab Sample IDs: 2055235, 2055244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88981

Included Lab Sample IDs: 2055274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	102	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Zinc	100	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88990

Included Lab Sample IDs: 2055235, 2055238, 2055241, 2055244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	98.2	P/P	90 - 110
Kjeldahl Nitrogen	98.2	97.5	P/P	90 - 110
Kjeldahl Nitrogen	99.3	97.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89012

Included Lab Sample IDs: 2055274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	102	P/P	90 - 110
Antimony	106	107	P/P	90 - 110
Arsenic	105	104	P/P	90 - 110
Cadmium	104	105	P/P	90 - 110
Chromium	102	104	P/P	90 - 110
Copper	99.7	99.7	P/P	90 - 110
Lead	105	105	P/P	90 - 110
Selenium	107	106	P/P	90 - 110
Silver	100	101	P/P	90 - 110
Thallium	99.8	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89014

Included Lab Sample IDs: 2055235, 2055238, 2055241, 2055244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110
Total-P	103	101	P/P	90 - 110
Total-P	103	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89058

Included Lab Sample IDs: 2055234, 2055237, 2055240, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A89058

Included Lab Sample IDs: 2055234, 2055237, 2055240, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89058

Included Lab Sample IDs: 2055234, 2055237, 2055240, 2055243

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89078

Included Lab Sample IDs: 2055235, 2055244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A89080

Included Lab Sample IDs: 2055237, 2055240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	90.8	96.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89155

Included Lab Sample IDs: 2055274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	101	102	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					1.87	
EPA 200.7 Rev. 4.4	Iron	107	108	108	107		1.13
	Manganese	103	99.7	104	100		3.12
	Zinc	103	100	101	98.0		2.76
EPA 200.8 Rev. 5.4	Aluminum	103	106	102	101		0.547
	Antimony	109	114	111	111		0.339
	Arsenic	109	113	108	108		0.0424
	Cadmium	112	113	110	110		0.703
	Chromium	111	107	105	105		0.558
	Copper	105	103	97.8	98.8		1.00
	Lead	112	114	107	108		0.772
	Nickel	105	106	103	102		0.672
	Selenium	110	114	108	109		1.02
	Silver	108	107	106	106		0.0029
	Thallium	108	113	105	104		0.547
EPA 300.0	Bromide	99.5	92.8	96.2			2.27
EPA 300.0 Rev. 2.1	Chloride	100	96.4	98.2		0.921	
	Sulfate	91.4	92.7	95.8		0.779	
EPA 350.1 Rev. 2.0	Ammonia-N	95.3	93.7	91.9			1.12
	Ammonia-N	99.4	99.6	102			1.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	102	99.1			2.48
	Kjeldahl Nitrogen	104	103	101			1.54
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	97.5	97.5			0.0
	NO ₂ NO ₃ -N	102	102	102			0.491
EPA 365.1 Rev. 2.0	Total-P	97.6	104	104			0.257
	Total-P	101	95.9	99.5			3.55
	Total-P	102	94.8	97.0			2.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	91.7	94.5			2.83
	O-Phosphate-P	96.2	90.8	92.6			1.96
SM 2120 B	Color (true)	104				1.77	
SM 2320 B-97	Total Alkalinity	101				0.187	
SM 2540 C-97	TDS					0.465	
	TDS					2.65	
SM 4500 F-C-97	Fluoride	97.9	96.9	96.9			0.0
SM 5310 B-00	Organic Carbon	97.3	96.4	95.2			0.729

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2055234, 2055237, 2055240, 2055243
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2055274
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2055274
EPA 300.0 / E31780	Bromide in aqueous matrices	2055237, 2055240
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2055234, 2055243
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2055234, 2055243
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2055235, 2055238, 2055241, 2055244
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2055235, 2055238, 2055241, 2055244

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2055235, 2055238, 2055241, 2055244
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2055235, 2055238, 2055241, 2055244
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2055236, 2055239, 2055242, 2055245
SM 2120 B / E31780	True Color measured at 450 nm	2055234, 2055243
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2055234, 2055237, 2055240, 2055243
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2055234, 2055243
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2055234, 2055237, 2055240, 2055243
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2055234, 2055237, 2055240, 2055243
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2055235, 2055238, 2055241, 2055244

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/17/2019			01/17/2019 16:08	Sima Feizi	2055234, 2055237, 2055240, 2055243
EPA 200.7 Rev. 4.4	01/17/2019	01/22/2019 15:50	Elliott D. Healy	01/23/2019 18:36	Betina Topolski	2055274
EPA 200.8 Rev. 5.4	01/17/2019	01/22/2019 15:50	Elliott D. Healy	01/24/2019 07:39	Allison Taylor	2055274
	01/17/2019	01/22/2019 15:50	Elliott D. Healy	02/01/2019 21:08	Allison Taylor	2055274
EPA 300.0	01/17/2019			01/31/2019 17:08	Lipi Saha	2055237
	01/17/2019			01/31/2019 17:25	Lipi Saha	2055240
EPA 300.0 Rev. 2.1	01/17/2019			01/22/2019 18:37	Lipi Saha	2055234
	01/17/2019			01/22/2019 19:14	Lipi Saha	2055243
EPA 350.1 Rev. 2.0	01/17/2019			01/22/2019 13:20	Ping Hua	2055238
	01/17/2019			01/22/2019 13:21	Ping Hua	2055241
	01/17/2019			01/29/2019 13:05	Ping Hua	2055244
	01/17/2019			01/29/2019 13:11	Ping Hua	2055235
EPA 351.2 Rev. 2.0	01/17/2019	01/22/2019 12:00	Adrian Shelby	01/24/2019 09:49	Joseph Suarez	2055235
	01/17/2019	01/22/2019 12:00	Adrian Shelby	01/24/2019 09:50	Joseph Suarez	2055244
	01/17/2019	01/22/2019 12:00	Adrian Shelby	01/24/2019 10:12	Joseph Suarez	2055238
	01/17/2019	01/22/2019 12:00	Adrian Shelby	01/24/2019 10:17	Joseph Suarez	2055241
EPA 353.2 Rev. 2.0	01/17/2019			01/22/2019 12:00	Beverly Y. Sanders	2055238
	01/17/2019			01/22/2019 12:01	Beverly Y. Sanders	2055241
	01/17/2019			01/23/2019 11:25	Beverly Y. Sanders	2055235
	01/17/2019			01/23/2019 11:26	Beverly Y. Sanders	2055244
EPA 365.1 Rev. 2.0	01/17/2019	01/22/2019 11:40	Sima Feizi	01/24/2019 15:46	Rosalyn Ballman	2055235
	01/17/2019	01/22/2019 11:40	Sima Feizi	01/24/2019 15:48	Rosalyn Ballman	2055244
	01/17/2019	01/22/2019 11:40	Sima Feizi	01/24/2019 16:11	Rosalyn Ballman	2055238
	01/17/2019	01/22/2019 11:40	Sima Feizi	01/24/2019 16:20	Rosalyn Ballman	2055241
EPA 365.1 Rev. 2.0 dissolved	01/17/2019			01/17/2019 14:42	Jhamieka S. Greenwood	2055236
	01/17/2019			01/17/2019 14:47	Jhamieka S. Greenwood	2055245
	01/17/2019			01/17/2019 14:49	Jhamieka S. Greenwood	2055239
	01/17/2019			01/17/2019 14:50	Jhamieka S. Greenwood	2055242
SM 2120 B	01/17/2019			01/17/2019 15:59	Chelsea Hernandez	2055234
	01/17/2019			01/17/2019 16:00	Chelsea Hernandez	2055243
SM 2320 B-97	01/17/2019			01/24/2019 10:10	Dale L. Simmons	2055234
	01/17/2019			01/24/2019 10:22	Dale L. Simmons	2055243
	01/17/2019			01/24/2019 13:10	Dale L. Simmons	2055240
	01/17/2019			01/24/2019 13:39	Dale L. Simmons	2055237
SM 2540 C-97	01/17/2019			01/18/2019 20:10	Mariam Hanna	2055234, 2055243
SM 2540 D-97	01/17/2019			01/18/2019 20:10	Mariam Hanna	2055234, 2055237, 2055240, 2055243
SM 4500 F-C-97	01/17/2019			01/24/2019 10:10	Dale L. Simmons	2055234
	01/17/2019			01/24/2019 10:22	Dale L. Simmons	2055243
	01/17/2019			01/24/2019 13:10	Dale L. Simmons	2055240
	01/17/2019			01/24/2019 13:39	Dale L. Simmons	2055237

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	01/17/2019			01/22/2019 18:06	Megan Treadwell	2055235
	01/17/2019			01/22/2019 18:43	Megan Treadwell	2055238
	01/17/2019			01/22/2019 18:55	Megan Treadwell	2055241
	01/17/2019			01/22/2019 19:08	Megan Treadwell	2055244