

Chemical Analysis Report

NE-DIST-2018-03-21-01

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

Event Description: **Ocklawaha lakes**
Request ID: **RQ-2018-03-19-13**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 25-APR-2018 12:01



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: Rice CR @ SR 309

Collection Date/Time: 03/20/2018 09:00

Field ID: 20030254

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976144	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P341951	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P342136	
		Sulfate	8.4		mg SO4/L	P342140	
	SM 2120 B	Color (true)	230		PCU	P341941	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P342475	
	SM 2540 C-97	TDS	128		mg/L	P342545	
	SM 2540 D-97	TSS	3	I	mg/L	P342560	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P342297	
1976147	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P342524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P341986	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P341998	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P342036	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P342552	
1976150	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P341968	
1976163	EPA 200.7 Rev. 4.4	Calcium	14.7		mg/L	P342052	
		Iron	780		ug/L	P342052	
		Magnesium	4.79		mg/L	P342052	
		Potassium	0.84	I	mg/L	P342052	
		Sodium	14.8		mg/L	P342052	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P342052	
		Arsenic	0.33		ug/L	P342052	
		Cadmium	0.020	U	ug/L	P342052	
		Chromium	0.49	I	ug/L	P342052	
		Copper	0.20	U	ug/L	P342052	
		Lead	0.31		ug/L	P342052	
		Nickel	0.32	I	ug/L	P342052	
		Silver	0.010	U	ug/L	P342052	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Pegram Lake Center

Collection Date/Time: 03/20/2018 10:55

Field ID: G1NE0866

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976138	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P341951	
	EPA 300.0 Rev. 2.1	Chloride	9.9		mg Cl/L	P342136	
		Sulfate	3.1		mg SO4/L	P342140	
	SM 2120 B	Color (true)	40		PCU	P341941	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P342531	RPD
	SM 2540 C-97	TDS	50		mg/L	P342545	
	SM 2540 D-97	TSS	3	I	mg/L	P342560	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342405	MS, RPD
1976140	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P342302	

Field ID: G1NE0866

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976140	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P341986	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341997	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P342036	
	SM 5310 B-00	Organic Carbon	9.0		mg C/L	P342552	
1976142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341968	

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: Penner Pond Center

Collection Date/Time: 03/20/2018 10:05

Field ID: G1NE0864

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976145	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P341951	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P342136	
		Sulfate	0.21	I	mg SO4/L	P342140	
	SM 2120 B	Color (true)	130		PCU	P341941	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342475	
	SM 2540 C-97	TDS	41		mg/L	P342545	
	SM 2540 D-97	TSS	2	I	mg/L	P342560	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342297	
1976148	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P342524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P341986	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P341998	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P342036	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P342553	
1976151	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341968	
1976164	EPA 200.7 Rev. 4.4	Calcium	0.91		mg/L	P342052	
		Iron	370		ug/L	P342052	
		Magnesium	0.63		mg/L	P342052	
		Potassium	0.30	U	mg/L	P342052	
		Sodium	3.1		mg/L	P342052	
		Zinc	5.5	I	ug/L	P342052	
		Arsenic	0.22		ug/L	P342052	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P342052	
		Chromium	0.40	U	ug/L	P342052	
		Copper	0.20	U	ug/L	P342052	
		Lead	0.15	I	ug/L	P342052	
		Nickel	0.20	U	ug/L	P342052	
		Silver	0.010	U	ug/L	P342052	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Penner Pond Center

Collection Date/Time: 03/20/2018 10:00

Field ID: G1NE0864DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976146	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P341951	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P342136	
		Sulfate	0.20	U	mg SO4/L	P342140	
	SM 2120 B	Color (true)	130		PCU	P341941	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342475	
	SM 2540 C-97	TDS	44		mg/L	P342545	
	SM 2540 D-97	TSS	2	I	mg/L	P342560	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342297	
1976149	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P342524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P341986	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P341998	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P342036	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342553	
1976152	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341968	
1976165	EPA 200.7 Rev. 4.4	Calcium	0.90		mg/L	P342052	
		Iron	360		ug/L	P342052	
		Magnesium	0.62		mg/L	P342052	
		Potassium	0.30	U	mg/L	P342052	
		Sodium	3.0		mg/L	P342052	
		Zinc	5.0	U	ug/L	P342052	
	EPA 200.8 Rev. 5.4	Arsenic	0.24		ug/L	P342052	
		Cadmium	0.020	U	ug/L	P342052	
		Chromium	0.40	U	ug/L	P342052	
		Copper	0.20	U	ug/L	P342052	
		Lead	0.15	I	ug/L	P342052	
		Nickel	0.24	I	ug/L	P342052	
		Silver	0.010	U	ug/L	P342052	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Hewitt Lake Center

Collection Date/Time: 03/20/2018 11:35

Field ID: G1NE0865

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976139	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P341951	
	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P342136	
		Sulfate	7.9		mg SO4/L	P342140	
	SM 2120 B	Color (true)	9.5	A	PCU	P341942	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P342531	RPD
	SM 2540 C-97	TDS	39		mg/L	P342545	
	SM 2540 D-97	TSS	3	I	mg/L	P342560	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342405	MS, RPD
1976141	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P342524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P341986	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341997	

Field ID: G1NE0865

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976141	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P342036	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P342552	
1976143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341968	

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: P341951

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P342052

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P342052

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P342136

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P342140

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P342302

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: P342524

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341986

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341997

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341998

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342036

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341968

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

Reference Method: SM 2120 B
Batch ID: P341941

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P341942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P342475

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P342531

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

Reference Method: SM 2540 C-97
Batch ID: P342545

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P342560

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P342297

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P342405

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342552

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

Reference Method: SM 5310 B-00
Batch ID: P342553

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: P342052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	105		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	103		P	85 - 115
Sodium	106		P	85 - 115
Zinc	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	105		P	85 - 115
Copper	105		P	85 - 115
Lead	103		P	85 - 115
Nickel	105		P	85 - 115
Silver	94.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342136

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341997

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342036

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: P341968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P342475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P342531

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.9		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P342553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P342052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P342052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975866	Calcium	105		P	80 - 120
1975866	Iron	107		P	80 - 120
1975866	Magnesium	104		P	80 - 120
1975866	Potassium	103		P	80 - 120
1975866	Sodium	105		P	80 - 120
1975866	Zinc	100		P	80 - 120
1976448	Calcium	95.0		P	80 - 120
1976448	Iron	103	106	P/P	80 - 120
1976448	Magnesium	100		P	80 - 120
1976448	Potassium	101	105	P/P	80 - 120
1976448	Sodium	104	108	P/P	80 - 120
1976448	Zinc	98.8	99.3	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975866	Arsenic	103		P	80 - 120
1975866	Cadmium	105		P	80 - 120
1975866	Chromium	99.4		P	80 - 120
1975866	Copper	98.2		P	80 - 120
1975866	Lead	101		P	80 - 120
1975866	Nickel	98.0		P	80 - 120
1975866	Silver	95.5		P	80 - 120
1976448	Arsenic	105	104	P/P	80 - 120
1976448	Cadmium	103	105	P/P	80 - 120
1976448	Chromium	101	98.7	P/P	80 - 120
1976448	Copper	99.5	98.2	P/P	80 - 120
1976448	Lead	103	103	P/P	80 - 120
1976448	Nickel	99.7	98.0	P/P	80 - 120
1976448	Silver	94.6	97.1	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976045	Chloride	97.1		P	90 - 110
1976144	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976045	Sulfate	99.5		P	90 - 110
1976144	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975809	Ammonia-N	97.3	98.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976141	Ammonia-N	97.7	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976115	Kjeldahl Nitrogen	100	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976054	NO2NO3-N	98.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976147	NO2NO3-N	98.2	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976115	Total-P	99.4	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976117	O-Phosphate-P	95.0	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P342405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976044	Fluoride	133	95.9	F/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974186	Organic Carbon	106	96.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P342553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976148	Organic Carbon	108	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976114	Turbidity	2.87	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P342052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976448	Calcium	1.77	Spike	P	0 - 20
1976448	Iron	3.11	Spike	P	0 - 20
1976448	Magnesium	3.34	Spike	P	0 - 20
1976448	Potassium	3.29	Spike	P	0 - 20
1976448	Sodium	2.16	Spike	P	0 - 20
1976448	Zinc	0.508	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976448	Arsenic	0.835	Spike	P	0 - 20
1976448	Cadmium	1.43	Spike	P	0 - 20
1976448	Chromium	2.09	Spike	P	0 - 20
1976448	Copper	1.28	Spike	P	0 - 20
1976448	Lead	0.0385	Spike	P	0 - 20
1976448	Nickel	1.79	Spike	P	0 - 20
1976448	Silver	2.62	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976045	Chloride	0.705	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976045	Sulfate	1.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975809	Ammonia-N	0.513	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976141	Ammonia-N	1.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976115	Kjeldahl Nitrogen	0.864	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976054	NO2NO3-N	1.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976147	NO2NO3-N	0.388	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976115	Total-P	0.584	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976117	O-Phosphate-P	1.15	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976113	Color (true)	4.80	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976139	Color (true)	2.69	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P342475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976526	Total Alkalinity	0.0786	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P342531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977936	Total Alkalinity	4.10	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P342545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976114	TDS	2.99	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976526	Fluoride	0.974	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P342405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976044	Fluoride	25.7	Spike	F	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974186	Organic Carbon	5.62	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P342553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976148	Organic Carbon	1.20	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82750

Included Lab Sample IDs: 1976138, 1976139, 1976144, 1976145, 1976146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	94.5	95.2	P/P	90 - 110
Chloride	96.6	94.5	P/P	90 - 110
Sulfate	94.9	97.2	P/P	90 - 110
Sulfate	99.5	94.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A82761

Included Lab Sample IDs: 1976138, 1976139, 1976144, 1976145, 1976146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	85 - 115
Color (true)	99.6	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82763

Included Lab Sample IDs: 1976138, 1976139, 1976144, 1976145, 1976146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82774

Included Lab Sample IDs: 1976142, 1976143, 1976150, 1976151, 1976152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82782

Included Lab Sample IDs: 1976140, 1976141, 1976147, 1976148, 1976149

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82813

Included Lab Sample IDs: 1976147

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82824

Included Lab Sample IDs: 1976163, 1976164, 1976165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.1	98.6	P/P	90 - 110
Iron	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82824

Included Lab Sample IDs: 1976163, 1976164, 1976165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	101	101	P/P	90 - 110
Potassium	100	99.6	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82848

Included Lab Sample IDs: 1976140, 1976141, 1976147, 1976148, 1976149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	98.4	P/P	90 - 110
Kjeldahl Nitrogen	97.8	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82879

Included Lab Sample IDs: 1976140, 1976141, 1976148, 1976149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82888

Included Lab Sample IDs: 1976144, 1976145, 1976146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82889

Included Lab Sample IDs: 1976140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82926

Included Lab Sample IDs: 1976138, 1976139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	97.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82950

Included Lab Sample IDs: 1976144, 1976145, 1976146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82966

Included Lab Sample IDs: 1976141, 1976147, 1976148, 1976149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82967

Included Lab Sample IDs: 1976138, 1976139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82980

Included Lab Sample IDs: 1976140, 1976141, 1976147, 1976148, 1976149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	101	P/P	90 - 110
Organic Carbon	105	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83096

Included Lab Sample IDs: 1976163, 1976164, 1976165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	105	P/P	90 - 110
Arsenic	103	102	P/P	90 - 110
Cadmium	99.1	99.0	P/P	90 - 110
Cadmium	99.9	99.1	P/P	90 - 110
Chromium	101	97.2	P/P	90 - 110
Chromium	97.2	97.6	P/P	90 - 110
Copper	101	104	P/P	90 - 110
Copper	104	101	P/P	90 - 110
Lead	101	99.4	P/P	90 - 110
Lead	99.4	99.8	P/P	90 - 110
Nickel	103	99.8	P/P	90 - 110
Nickel	99.8	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83238

Included Lab Sample IDs: 1976163, 1976164, 1976165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	101	101	P/P	90 - 110
Silver	101	101	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					2.87	
EPA 200.7 Rev. 4.4	Calcium	103	105	95.0			1.77
	Iron	105	107	103	106		3.11
	Magnesium	103	104	100			3.34
	Potassium	103	103	101	105		3.29
	Sodium	106	105	104	108		2.16
	Zinc	101	100	98.8	99.3		0.508
EPA 200.8 Rev. 5.4	Arsenic	105	103	105	104		0.835
	Cadmium	105	105	103	105		1.43
	Chromium	105	99.4	101	98.7		2.09
	Copper	105	98.2	99.5	98.2		1.28
	Lead	103	101	103	103		0.0385
	Nickel	105	98.0	99.7	98.0		1.79
	Silver	94.4	95.5	94.6	97.1		2.62
EPA 300.0 Rev. 2.1	Chloride	100	97.1	104		0.705	
	Sulfate	103	99.5	105		1.61	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	97.3	98.0			0.513
	Ammonia-N	97.3	97.7	99.6			1.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.3	100	99.1			0.864
EPA 353.2 Rev. 2.0	NO2NO3-N	103	98.0	96.5			1.18
	NO2NO3-N	104	98.2	97.8			0.388
EPA 365.1 Rev. 2.0	Total-P	102	99.4	98.8			0.584
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	95.0	96.1			1.15
SM 2120 B	Color (true)					4.80	
	Color (true)					2.69	
SM 2320 B-97	Total Alkalinity	99.1				0.0786	
	Total Alkalinity	100				4.10	
SM 2540 C-97	TDS					2.99	
SM 4500 F-C-97	Fluoride	93.9					0.974
	Fluoride	95.3	133	95.9			25.7
SM 5310 B-00	Organic Carbon	100	106	96.3			5.62
	Organic Carbon	101	108	105			1.20

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1976138, 1976139, 1976144, 1976145, 1976146
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1976163, 1976164, 1976165
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1976163, 1976164, 1976165
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1976138, 1976139, 1976144, 1976145, 1976146
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1976138, 1976139, 1976144, 1976145, 1976146
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1976140, 1976141, 1976147, 1976148, 1976149
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1976140, 1976141, 1976147, 1976148, 1976149
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1976140, 1976141, 1976147, 1976148, 1976149
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1976140, 1976141, 1976147, 1976148, 1976149

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780 SM 2120 B / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L True Color measured at 450 nm	1976142, 1976143, 1976150, 1976151, 1976152 1976138, 1976139, 1976144, 1976145, 1976146
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1976138, 1976139, 1976144, 1976145, 1976146
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1976138, 1976139, 1976144, 1976145, 1976146
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1976138, 1976139, 1976144, 1976145, 1976146
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1976138, 1976139, 1976144, 1976145, 1976146
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1976140, 1976141, 1976147, 1976148, 1976149

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	03/21/2018			03/21/2018 16:20	DeAsia Armster	1976138, 1976139, 1976144, 1976145, 1976146
EPA 200.7 Rev. 4.4	03/21/2018	03/22/2018 17:00	Elliott D. Healy	03/23/2018 17:16	Betina Topolski	1976163
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	03/23/2018 17:24	Betina Topolski	1976164
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	03/23/2018 17:29	Betina Topolski	1976165
EPA 200.8 Rev. 5.4	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/09/2018 02:44	Robert K Palmer	1976163
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/09/2018 02:52	Robert K Palmer	1976164
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/09/2018 03:19	Robert K Palmer	1976165
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/14/2018 12:19	Robert K Palmer	1976163
	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/14/2018 12:25	Robert K Palmer	1976164
EPA 300.0 Rev. 2.1	03/21/2018	03/22/2018 17:00	Elliott D. Healy	04/14/2018 12:31	Robert K Palmer	1976165
	03/21/2018			03/22/2018 22:15	Julia Storbeck	1976144
	03/21/2018			03/23/2018 00:26	Julia Storbeck	1976138
	03/21/2018			03/23/2018 00:38	Julia Storbeck	1976139
	03/21/2018			03/23/2018 00:50	Julia Storbeck	1976145
EPA 350.1 Rev. 2.0	03/21/2018			03/23/2018 01:02	Julia Storbeck	1976146
	03/21/2018			03/27/2018 12:52	Ping Hua	1976140
	03/21/2018			03/30/2018 10:14	Ping Hua	1976141
	03/21/2018			03/30/2018 10:20	Ping Hua	1976147
	03/21/2018			03/30/2018 10:22	Ping Hua	1976148
EPA 351.2 Rev. 2.0	03/21/2018			03/30/2018 10:23	Ping Hua	1976149
	03/21/2018	03/22/2018 10:50	Adrian Shelby	03/23/2018 15:40	Joseph Suarez	1976140
	03/21/2018	03/22/2018 10:50	Adrian Shelby	03/23/2018 15:42	Joseph Suarez	1976141
	03/21/2018	03/22/2018 10:50	Adrian Shelby	03/23/2018 15:47	Joseph Suarez	1976147
	03/21/2018	03/22/2018 10:50	Adrian Shelby	03/23/2018 15:48	Joseph Suarez	1976148
EPA 353.2 Rev. 2.0	03/21/2018	03/22/2018 10:50	Adrian Shelby	03/23/2018 15:50	Joseph Suarez	1976149
	03/21/2018			03/22/2018 11:12	Beverly Y. Sanders	1976140
	03/21/2018			03/22/2018 11:13	Beverly Y. Sanders	1976141
	03/21/2018			03/22/2018 11:20	Beverly Y. Sanders	1976147
	03/21/2018			03/22/2018 11:35	Beverly Y. Sanders	1976148
EPA 365.1 Rev. 2.0	03/21/2018			03/22/2018 11:36	Beverly Y. Sanders	1976149
	03/21/2018	03/22/2018 13:24	Sima Feizi	03/23/2018 12:18	Lipi Saha	1976147
	03/21/2018	03/22/2018 13:24	Sima Feizi	03/23/2018 18:31	Lipi Saha	1976140
	03/21/2018	03/22/2018 13:24	Sima Feizi	03/23/2018 18:39	Lipi Saha	1976141, 1976148
	03/21/2018	03/22/2018 13:24	Sima Feizi	03/23/2018 18:40	Lipi Saha	1976149
EPA 365.1 Rev. 2.0 dissolved	03/21/2018			03/21/2018 16:08	Megan Treadwell	1976142
	03/21/2018			03/21/2018 16:09	Megan Treadwell	1976143, 1976150
	03/21/2018			03/21/2018 16:15	Megan Treadwell	1976151, 1976152
SM 2120 B	03/21/2018			03/21/2018 16:02	Tanya Welborn	1976138
	03/21/2018			03/21/2018 16:03	Tanya Welborn	1976145

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	03/21/2018			03/21/2018 16:04	Tanya Welborn	1976146
	03/21/2018			03/21/2018 16:09	Tanya Welborn	1976139
	03/21/2018			03/21/2018 16:12	Tanya Welborn	1976144
SM 2320 B-97	03/21/2018			03/29/2018 23:15	Dale L. Simmons	1976144
	03/21/2018			03/29/2018 23:22	Dale L. Simmons	1976145
	03/21/2018			03/29/2018 23:29	Dale L. Simmons	1976146
	03/21/2018			03/31/2018 03:28	Lauren Bottorf	1976138
	03/21/2018			03/31/2018 03:37	Lauren Bottorf	1976139
SM 2540 C-97	03/21/2018			03/24/2018 22:01	Yijie Li	1976138, 1976139, 1976144, 1976145, 1976146
SM 2540 D-97	03/21/2018			03/24/2018 22:01	Yijie Li	1976138, 1976139, 1976144, 1976145, 1976146
SM 4500 F-C-97	03/21/2018			03/27/2018 19:51	Dale L. Simmons	1976144
	03/21/2018			03/27/2018 20:02	Dale L. Simmons	1976145
	03/21/2018			03/27/2018 20:13	Dale L. Simmons	1976146
	03/21/2018			03/28/2018 18:45	Dale L. Simmons	1976138
	03/21/2018			03/28/2018 18:57	Dale L. Simmons	1976139
SM 5310 B-00	03/21/2018			03/31/2018 00:58	Megan Treadwell	1976140
	03/21/2018			03/31/2018 01:13	Megan Treadwell	1976141
	03/21/2018			03/31/2018 01:27	Megan Treadwell	1976147
	03/21/2018			03/31/2018 02:12	Megan Treadwell	1976148
	03/21/2018			03/31/2018 03:43	Megan Treadwell	1976149