Chemical Analysis Report

NE-DIST-2017-05-10-01

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

Event Description: **Melrose Lakes-5/9/17**
Request ID: **RQ-2017-05-08-23**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 05-JUN-2017 13:44

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 group are included in this report: 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: Lake Rowan Center **Collection Date/Time: 05/09/2017 12:45**

Field ID: G2NE0931 03082017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898024	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P325038	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P325826	
		Sulfate	2.9	A	mg SO4/L	P325830	
	SM 2120 B	Color (true)	95		PCU	P325029	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325590	
	SM 2540 C-97	TDS	104		mg/L	P325630	
	SM 2540 D-97	TSS	3	I	mg/L	P325668	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P325593	
1898028	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P325054	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P325346	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325200	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P325098	
	SM 5310 B-00	Organic Carbon	35		mg C/L	P325359	
1898032	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

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: South Bull Pond Center **Collection Date/Time: 05/09/2017 10:50**

Field ID: G1NE0861 03082017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898025	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P325038	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P325826	
		Sulfate	7.4		mg SO4/L	P325830	
	SM 2120 B	Color (true)	30		PCU	P325029	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325466	
	SM 2540 C-97	TDS	47		mg/L	P325630	
	SM 2540 D-97	TSS	2	I	mg/L	P325668	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P325468	
1898029	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325054	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P325346	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325200	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P325098	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P325359	
1898033	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

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: Lake Rosa Center **Collection Date/Time: 05/09/2017 14:10**

Field ID: G2NE1130 03082017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898026	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P325825	
		Sulfate	9.4		mg SO4/L	P325829	

Field ID: G2NE1130 03082017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898026	SM 2120 B	Color (true)	4.9	I	PCU	P325029	
	SM 2320 B-97	Total Alkalinity	2.5		mg CaCO3/L	P325590	
	SM 2540 C-97	TDS	35		mg/L	P325630	
	SM 2540 D-97	TSS	3	I	mg/L	P325668	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P325593	
1898030	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325054	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325201	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P325098	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P325359	
1898034	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

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: Lake Rosa Center dup **Collection Date/Time: 05/09/2017 14:20**

Field ID: G2NE1130 03082017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898027	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P325826	
		Sulfate	9.4		mg SO4/L	P325830	
	SM 2120 B	Color (true)	3.0	I	PCU	P325029	
	SM 2320 B-97	Total Alkalinity	2.4	I	mg CaCO3/L	P325590	
	SM 2540 C-97	TDS	41		mg/L	P325630	
	SM 2540 D-97	TSS	2	I	mg/L	P325668	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P325593	
1898031	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325054	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325201	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P325098	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P325359	
1898035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325041	

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: P325038

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325039

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325039

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325829

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325830

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325054

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325200

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325201

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325098

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325043

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

Reference Method: SM 2120 B
Batch ID: P325029

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325466

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

Reference Method: SM 2320 B-97
Batch ID: P325590

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

Reference Method: SM 2540 C-97
Batch ID: P325630

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325668

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P325359

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325830

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325098

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: P325041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325043

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

Reference Method: SM 2320 B-97
Batch ID: P325466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P325590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897280	Chloride	97.5		P	90 - 110
1898026	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898024	Chloride	101		P	90 - 110
1898025	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897280	Sulfate	93.1		P	90 - 110
1898026	Sulfate	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898024	Sulfate	98.7		P	90 - 110
1898025	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897954	Ammonia-N	108	107	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897955	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898030	Kjeldahl Nitrogen	93.4	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897963	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898054	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898031	Total-P	98.9	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897732	O-Phosphate-P	95.9	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897966	O-Phosphate-P	96.2	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897159	Fluoride	97.9	99.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898370	Fluoride	99.0	100	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P325359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897954	Organic Carbon	89.0	92.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897790	Turbidity	5.17	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898044	Turbidity	2.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897280	Chloride	0.385	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898024	Chloride	0.249	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897280	Sulfate	1.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898024	Sulfate	6.13	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897954	Ammonia-N	0.697	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897955	Kjeldahl Nitrogen	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898030	Kjeldahl Nitrogen	1.37	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897963	NO2NO3-N	0.777	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898054	NO2NO3-N	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898031	Total-P	0.370	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897732	O-Phosphate-P	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897966	O-Phosphate-P	2.39	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P325029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898053	Color (true)	1.58	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897159	Total Alkalinity	0.405	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898370	Total Alkalinity	0.201	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897739	TDS	2.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897159	Fluoride	1.02	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898370	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897954	Organic Carbon	3.19	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: SM 2120 B
Run ID: A76330
Included Lab Sample IDs: 1898024, 1898025, 1898026, 1898027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	105	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76333
Included Lab Sample IDs: 1898032, 1898033, 1898034, 1898035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76334
Included Lab Sample IDs: 1898024, 1898025, 1898026, 1898027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76336
Included Lab Sample IDs: 1898028, 1898029, 1898030, 1898031

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76377
Included Lab Sample IDs: 1898028, 1898029, 1898030, 1898031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76417
Included Lab Sample IDs: 1898028, 1898029, 1898030, 1898031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A76450
Included Lab Sample IDs: 1898028, 1898029, 1898030, 1898031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.7	93.8	P/P	90 - 110
Organic Carbon	93.8	93.7	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76498
Included Lab Sample IDs: 1898025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A76498
Included Lab Sample IDs: 1898025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	107	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A76498
Included Lab Sample IDs: 1898025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76520
Included Lab Sample IDs: 1898028, 1898029, 1898030, 1898031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.7	P/P	90 - 110
Kjeldahl Nitrogen	96.5	103	P/P	90 - 110
Kjeldahl Nitrogen	98.0	96.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76561
Included Lab Sample IDs: 1898024, 1898026, 1898027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A76561
Included Lab Sample IDs: 1898024, 1898026, 1898027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.7	95.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A76672
Included Lab Sample IDs: 1898024, 1898025, 1898026, 1898027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Chloride	104	103	P/P	90 - 110
Sulfate	106	98.3	P/P	90 - 110
Sulfate	96.0	97.9	P/P	90 - 110
Sulfate	96.8	100	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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.17	
	Turbidity					2.79	
EPA 300.0 Rev. 2.1	Chloride	101	97.5	98.8		0.385	
	Chloride	103	101	101		0.249	
	Sulfate	96.6	93.1	94.6		1.38	
	Sulfate	99.9	98.7	97.6		6.13	
EPA 350.1 Rev. 2.0	Ammonia-N	106	108	107			0.697
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.0	101			1.76
	Kjeldahl Nitrogen	97.2	93.4	95.0			1.37
EPA 353.2 Rev. 2.0	NO2NO3-N	105	104				0.777
	NO2NO3-N	106	102	104			1.04
EPA 365.1 Rev. 2.0	Total-P	102	98.9	99.3			0.370
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	95.9	97.1			1.16
	O-Phosphate-P	101	96.2	98.7			2.39
SM 2120 B	Color (true)					1.58	
SM 2320 B-97	Total Alkalinity	103				0.405	
	Total Alkalinity	103				0.201	
SM 2540 C-97	TDS					2.31	
SM 4500 F-C-97	Fluoride	94.0	97.9	99.1			1.02
	Fluoride	92.7	99.0	100			1.00
SM 5310 B-00	Organic Carbon	92.2	89.0	92.2			3.19

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1898024, 1898025, 1898026, 1898027
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1898024, 1898025, 1898026, 1898027
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1898024, 1898025, 1898026, 1898027
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898028, 1898029, 1898030, 1898031
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898028, 1898029, 1898030, 1898031
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898028, 1898029, 1898030, 1898031
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898028, 1898029, 1898030, 1898031
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898032, 1898033, 1898034, 1898035
SM 2120 B / E31780	True Color measured at 450 nm	1898024, 1898025, 1898026, 1898027
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1898024, 1898025, 1898026, 1898027
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1898024, 1898025, 1898026, 1898027
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898024, 1898025, 1898026, 1898027
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898024, 1898025, 1898026, 1898027
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898028, 1898029, 1898030, 1898031

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	05/10/2017			05/10/2017 15:36	Sima Feizi	1898024, 1898025, 1898026, 1898027
EPA 300.0 Rev. 2.1	05/10/2017			05/24/2017	Ping Hua	1898024, 1898025, 1898026
	05/10/2017			05/25/2017	Ping Hua	1898027
EPA 350.1 Rev. 2.0	05/10/2017			05/10/2017	Julie Michelle Frank	1898028, 1898029, 1898030, 1898031
EPA 351.2 Rev. 2.0	05/10/2017	05/16/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1898028, 1898029
	05/10/2017	05/17/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1898030, 1898031
EPA 353.2 Rev. 2.0	05/10/2017			05/12/2017	Beverly Y. Sanders	1898028, 1898029, 1898030, 1898031
EPA 365.1 Rev. 2.0	05/10/2017	05/11/2017	Adrian Shelby	05/15/2017	Lipi Saha	1898028, 1898029, 1898030, 1898031
EPA 365.1 Rev. 2.0 dissolved	05/10/2017			05/10/2017 15:26	Anthony C. Onicha	1898032
	05/10/2017			05/10/2017 15:27	Anthony C. Onicha	1898033
	05/10/2017			05/10/2017 15:28	Anthony C. Onicha	1898034
	05/10/2017			05/10/2017 15:29	Anthony C. Onicha	1898035
SM 2120 B	05/10/2017			05/10/2017 15:27	Julia Storbeck	1898024
	05/10/2017			05/10/2017 15:28	Julia Storbeck	1898025
	05/10/2017			05/10/2017 15:29	Julia Storbeck	1898026
	05/10/2017			05/10/2017 15:30	Julia Storbeck	1898027
SM 2320 B-97	05/10/2017			05/18/2017	Dale L. Simmons	1898025
	05/10/2017			05/19/2017	Dale L. Simmons	1898024
	05/10/2017			05/20/2017	Dale L. Simmons	1898026, 1898027
SM 2540 C-97	05/10/2017			05/12/2017	Yijie Li	1898024, 1898025, 1898026, 1898027
SM 2540 D-97	05/10/2017			05/12/2017	Yijie Li	1898024, 1898025, 1898026, 1898027
SM 4500 F-C-97	05/10/2017			05/18/2017	Dale L. Simmons	1898025
	05/10/2017			05/19/2017	Dale L. Simmons	1898024
	05/10/2017			05/20/2017	Dale L. Simmons	1898026, 1898027
SM 5310 B-00	05/10/2017			05/15/2017	Christopher Armour	1898028, 1898029, 1898030, 1898031