

Chemical Analysis Report

NE-DIST-2016-09-07-01

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

Event Description: **Hawthorne/ Suwannee Lakes**

Request ID: **RQ-2016-09-05-20**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
Jacksonville, FL 32256
Attn: Nicole Frederick

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 26-SEP-2016 15:18



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 Sampson near E shore

Collection Date/Time: 09/06/2016 12:45

Field ID: G1NE0511 09062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829230	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P310766	
	EPA 300.0 Rev. 2.1	Chloride	19	A	mg Cl/L	P311399	
		Sulfate	6.8	A	mg SO4/L	P311405	
	SM 2120 B	Color (true)	28		PCU	P310748	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P311189	
	SM 2540 C-97	TDS	102		mg/L	P311299	
	SM 2540 D-97	TSS	3	I	mg/L	P311294	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P311194	
1829234	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P311075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P310961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P311276	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P311219	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P311103	
1829238	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310742	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Holdens Pond Center

Collection Date/Time: 09/06/2016 12:15

Field ID: G1NE0199 09062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829231	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P310766	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P311399	
		Sulfate	0.31	I	mg SO4/L	P311405	
	SM 2120 B	Color (true)	250		PCU	P310748	
	SM 2320 B-97	Total Alkalinity	3.7		mg CaCO3/L	P311189	
	SM 2540 C-97	TDS	71		mg/L	P311299	
	SM 2540 D-97	TSS	5	I	mg/L	P311294	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P311194	
1829235	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P311075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P310961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P311276	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P311219	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P311104	
1829239	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P310742	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Orange Lake Center

Collection Date/Time: 09/06/2016 11:30

Field ID: G1NE0040 09062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829232	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P310766	

Field ID: G1NE0040 09062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829232	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P311399	
		Sulfate	0.97		mg SO4/L	P311405	
	SM 2120 B	Color (true)	280	A	PCU	P310750	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P311189	
	SM 2540 C-97	TDS	68		mg/L	P311299	
	SM 2540 D-97	TSS	3	I	mg/L	P311294	
	SM 4500 F-C-97	Fluoride	0.082	I	mg F/L	P311194	
1829236	EPA 350.1 Rev. 2.0	Ammonia-N	0.083		mg N/L	P311075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P310961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P311276	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P311219	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P311104	
1829240	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P310742	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 09/06/2016 11:45

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1829233	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P310766	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P311399	
		Sulfate	0.20	U	mg SO4/L	P311405	
	SM 2120 B	Color (true)	2.5	U	PCU	P310750	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311189	
	SM 2540 C-97	TDS	15	U	mg/L	P311299	
	SM 2540 D-97	TSS	2	U	mg/L	P311294	
1829237	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311194	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P311075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P310961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P311276	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P311219	
1829241	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P311104	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310742	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P310766

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311399

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311405

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310961

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311276

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311219

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310742

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

Reference Method: SM 2120 B
Batch ID: P310748

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P310750

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P311189

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

Reference Method: SM 2540 C-97
Batch ID: P311299

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311294

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P311194

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P311103

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

Reference Method: SM 5310 B-00
Batch ID: P311104

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: P311399

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311075

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310961

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311276

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310742

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

Reference Method: SM 2320 B-97
Batch ID: P311189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P311194

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P311103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311104

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829230	Chloride	98.6		P	90 - 110
1829350	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829230	Sulfate	99.3		P	90 - 110
1829350	Sulfate	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829261	Kjeldahl Nitrogen	106	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829234	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829234	Total-P	100	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829238	O-Phosphate-P	98.9	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P311194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829410	Fluoride	96.4	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P311103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829090	Organic Carbon	109	108	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829235	Organic Carbon	108		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829199	Turbidity	1.54	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829230	Chloride	0.0970	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829230	Sulfate	2.49	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829201	Ammonia-N	0.732	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829261	Kjeldahl Nitrogen	6.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829234	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P311219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829234	Total-P	3.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829238	O-Phosphate-P	0.906	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P310748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829196	Color (true)	1.82	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829232	Color (true)	1.05	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P311189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829410	Total Alkalinity	1.96	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P311299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829199	TDS	1.40	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P311194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829410	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P311103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829090	Organic Carbon	0.819	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P311104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829235	Organic Carbon	0.113	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 365.1 Rev. 2.0 dissolved

Run ID: A71465

Included Lab Sample IDs: 1829238, 1829239, 1829240, 1829241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A71467

Included Lab Sample IDs: 1829230, 1829231, 1829232, 1829233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.2	94.5	P/P	85 - 115
Color (true)	94.4	93.6	P/P	85 - 115
Color (true)	94.5	96.2	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71470

Included Lab Sample IDs: 1829230, 1829231, 1829232, 1829233

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71576

Included Lab Sample IDs: 1829230, 1829231, 1829232, 1829233

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71588

Included Lab Sample IDs: 1829234, 1829235, 1829236, 1829237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	106	P/P	90 - 110
Kjeldahl Nitrogen	99.4	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71596

Included Lab Sample IDs: 1829234, 1829235, 1829236, 1829237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71605

Included Lab Sample IDs: 1829234, 1829235, 1829236, 1829237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	106	P/P	90 - 110
Organic Carbon	106	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A71639

Included Lab Sample IDs: 1829230, 1829231, 1829232, 1829233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71639

Included Lab Sample IDs: 1829230, 1829231, 1829232, 1829233

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71651

Included Lab Sample IDs: 1829234, 1829235, 1829236, 1829237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71678

Included Lab Sample IDs: 1829235, 1829236

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71709

Included Lab Sample IDs: 1829234, 1829237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.54	
EPA 300.0 Rev. 2.1	Chloride	100	98.6	99.2	0.0970	
	Sulfate	99.6	99.3	98.3	2.49	
EPA 350.1 Rev. 2.0	Ammonia-N	101				0.732
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	106	95.0		6.96
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	102		0.477
EPA 365.1 Rev. 2.0	Total-P	94.7	100	96.9		3.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.9	99.8		0.906
SM 2120 B	Color (true)				1.82	
	Color (true)				1.05	
SM 2320 B-97	Total Alkalinity	104			1.96	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2540 C-97	TDS				1.40	
SM 4500 F-C-97	Fluoride	99.8	96.4	97.0		0.470
SM 5310 B-00	Organic Carbon	107	109	108		0.819
	Organic Carbon	106	108			0.113

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1829230, 1829231, 1829232, 1829233
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1829230, 1829231, 1829232, 1829233
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1829230, 1829231, 1829232, 1829233
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1829234, 1829235, 1829236, 1829237
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1829234, 1829235, 1829236, 1829237
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1829234, 1829235, 1829236, 1829237
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1829234, 1829235, 1829236, 1829237
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1829238, 1829239, 1829240, 1829241
SM 2120 B / E31780	True Color measured at 450 nm	1829230, 1829231, 1829232, 1829233
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1829230, 1829231, 1829232, 1829233
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1829230, 1829231, 1829232, 1829233
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1829230, 1829231, 1829232, 1829233
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1829230, 1829231, 1829232, 1829233
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1829234, 1829235, 1829236, 1829237

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	09/07/2016			09/07/2016 15:52	Sima Feizi	1829230, 1829231, 1829232, 1829233
EPA 300.0 Rev. 2.1	09/07/2016			09/15/2016	Ping Hua	1829230, 1829231, 1829232, 1829233
EPA 350.1 Rev. 2.0	09/07/2016			09/08/2016	Joseph Suarez	1829234, 1829235, 1829236, 1829237
EPA 351.2 Rev. 2.0	09/07/2016	09/12/2016	Adrian Shelby	09/13/2016	Christopher Armour	1829234, 1829235, 1829236, 1829237
EPA 353.2 Rev. 2.0	09/07/2016			09/15/2016	Peter D. Kaus	1829234, 1829235, 1829236, 1829237
EPA 365.1 Rev. 2.0	09/07/2016	09/15/2016	Vijayalakshmi Reddy	09/16/2016	Lipi Saha	1829234, 1829235, 1829236, 1829237
EPA 365.1 Rev. 2.0 dissolved	09/07/2016			09/07/2016 15:30	Julia Storbeck	1829238
	09/07/2016			09/07/2016 15:41	Julia Storbeck	1829241
	09/07/2016			09/07/2016 15:44	Julia Storbeck	1829239
	09/07/2016			09/07/2016 15:45	Julia Storbeck	1829240
	09/07/2016			09/07/2016 15:13	Blanca Fach	1829230
	09/07/2016			09/07/2016 15:29	Blanca Fach	1829232
	09/07/2016			09/07/2016 15:30	Blanca Fach	1829233
SM 2120 B	09/07/2016			09/07/2016 15:38	Blanca Fach	1829231
	09/07/2016			09/14/2016	Dale L. Simmons	1829230, 1829231, 1829232, 1829233
	09/07/2016			09/09/2016	Yijie Li	1829230, 1829231, 1829232, 1829233
	09/07/2016			09/09/2016	Yijie Li	1829230, 1829231, 1829232, 1829233
	09/07/2016			09/14/2016	Dale L. Simmons	1829230, 1829231, 1829232, 1829233
SM 2320 B-97	09/07/2016			09/14/2016	Sofia Elnemr	1829234, 1829235, 1829236, 1829237
SM 2540 C-97	09/07/2016					
SM 2540 D-97	09/07/2016					
SM 4500 F-C-97	09/07/2016					
SM 5310 B-00	09/07/2016					