

Chemical Analysis Report

CEN-DIST-2016-10-11-01

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

Event Description: **Lake Blue Springs+D&B**
Request ID: **RQ-2016-10-10-54**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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

Certified by: Colin Wright, Environmental Administrator

Date Certified: 02-NOV-2016 16:38

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light gray rectangular background.

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: Blue Springs (Lake Co.) @ Weir

Collection Date/Time: 10/10/2016 11:40

Field ID: G1CE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1839403	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P312972	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P313654	
		Sulfate	9.8		mg SO4/L	P313657	
	SM 2120 B	Color (true)	2.5	U	PCU	P312920	
	SM 2320 B-97	Total Alkalinity	104	A	mg CaCO3/L	P313058	
	SM 2540 C-97	TDS	136		mg/L	P313423	
	SM 2540 D-97	TSS	2	I	mg/L	P313431	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P313061	
1839406	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P313503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P313446	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P313219	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P313753	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P313092	
1839409	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P312915	

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: Blue Springs (Lake Co.) @ Weir

Collection Date/Time: 10/10/2016 11:43

Field ID: G1CE0024_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1839404	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P312972	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P313654	
		Sulfate	9.6		mg SO4/L	P313657	
	SM 2120 B	Color (true)	2.5	U	PCU	P312920	
	SM 2320 B-97	Total Alkalinity	105	A	mg CaCO3/L	P313059	
	SM 2540 C-97	TDS	145		mg/L	P313423	
	SM 2540 D-97	TSS	2	I	mg/L	P313431	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P313062	
1839407	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P313503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P313446	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P313219	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P313753	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P313092	
1839410	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P312915	

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: Blue Springs (Lake Co.) @ Weir

Collection Date/Time: 10/10/2016 11:30

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1839405	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P312972	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P313654	
		Sulfate	0.20	U	mg SO4/L	P313657	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1839405	SM 2120 B	Color (true)	2.5	U	PCU	P312920	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313058	
	SM 2540 C-97	TDS	15	U	mg/L	P313420	
	SM 2540 D-97	TSS	2	U	mg/L	P313428	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P313061	
1839408	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P313503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P313446	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313219	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P313753	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P313092	
1839411	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312915	

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: The result was confirmed on 10/19/2016.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P312972

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P313654

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P313657

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P313503

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P313446

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P313219

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313753

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312915

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

Reference Method: SM 2120 B
Batch ID: P312920

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313058

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

Reference Method: SM 2320 B-97
Batch ID: P313059

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

Reference Method: SM 2540 C-97
Batch ID: P313420

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P313423

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P313428

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P313431

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P313061

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P313062

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313092

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: P313654

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313503

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313446

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313219

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: P313753

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P313753

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P312915

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

Reference Method: SM 2320 B-97

Batch ID: P313058

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

Reference Method: SM 2320 B-97

Batch ID: P313059

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

Reference Method: SM 4500 F-C-97

Batch ID: P313061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 4500 F-C-97

Batch ID: P313062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00

Batch ID: P313092

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P313654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839458	Chloride	98.2		P	90 - 110
1839459	Chloride	99.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839458	Sulfate	97.9		P	90 - 110
1839459	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839380	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839366	Kjeldahl Nitrogen	92.9	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839379	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839366	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839325	O-Phosphate-P	98.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839403	Fluoride	98.4	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P313062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839404	Fluoride	98.9	99.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1839314	Organic Carbon	95.8	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839361	Turbidity	1.68	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839458	Chloride	0.139	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839458	Sulfate	0.332	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839380	Ammonia-N	0.697	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839366	Kjeldahl Nitrogen	4.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839379	NO2NO3-N	0.252	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839366	Total-P	0.0978	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839325	O-Phosphate-P	1.81	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P312920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839460	Color (true)	0.797	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839403	Total Alkalinity	0.331	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P313059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839404	Total Alkalinity	0.0740	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P313420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839090	TDS	7.79	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P313423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839460	TDS	7.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839403	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P313062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839404	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1839314	Organic Carbon	0.161	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72157
Included Lab Sample IDs: 1839409, 1839410, 1839411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A72158
Included Lab Sample IDs: 1839403, 1839404, 1839405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72177
Included Lab Sample IDs: 1839403, 1839404, 1839405

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

Reference Method: SM 2320 B-97
Run ID: A72195
Included Lab Sample IDs: 1839403, 1839404, 1839405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A72195
Included Lab Sample IDs: 1839403, 1839404, 1839405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	100	99.1	P/P	90 - 110
Fluoride	99.1	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72203
Included Lab Sample IDs: 1839406, 1839407, 1839408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72235

Included Lab Sample IDs: 1839406, 1839407, 1839408

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72305

Included Lab Sample IDs: 1839403, 1839404, 1839405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	98.0	98.1	P/P	90 - 110
Sulfate	98.1	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72319

Included Lab Sample IDs: 1839406, 1839407, 1839408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72400

Included Lab Sample IDs: 1839406, 1839407, 1839408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72422

Included Lab Sample IDs: 1839406, 1839407, 1839408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	102	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.68	
EPA 300.0 Rev. 2.1	Chloride	103	98.2 99.2		0.139	
	Sulfate	98.2	97.9 93.6		0.332	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103 102			0.697
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	92.9 96.7			4.01
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104 104			0.252

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0	Total-P	99.2	101	101			0.0978
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.3	100			1.81
SM 2120 B	Color (true)					0.797	
SM 2320 B-97	Total Alkalinity	104				0.331	
	Total Alkalinity	104				0.0740	
SM 2540 C-97	TDS					7.79	
	TDS					7.14	
SM 4500 F-C-97	Fluoride	98.6	98.4	99.0			0.477
	Fluoride	98.6	98.9	99.5			0.477
SM 5310 B-00	Organic Carbon	100	95.8	96.0			0.161

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1839403, 1839404, 1839405
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1839403, 1839404, 1839405
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1839403, 1839404, 1839405
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1839406, 1839407, 1839408
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1839406, 1839407, 1839408
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1839406, 1839407, 1839408
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1839406, 1839407, 1839408
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1839409, 1839410, 1839411
SM 2120 B / E31780	True Color measured at 450 nm	1839403, 1839404, 1839405
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1839403, 1839404, 1839405
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1839403, 1839404, 1839405
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1839403, 1839404, 1839405
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1839403, 1839404, 1839405
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1839406, 1839407, 1839408

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	10/11/2016			10/11/2016 15:51	Blanca Fach	1839403, 1839404, 1839405
EPA 300.0 Rev. 2.1	10/11/2016			10/21/2016	Ping Hua	1839403, 1839404, 1839405
EPA 350.1 Rev. 2.0	10/11/2016			10/19/2016	Sofia Elnemr	1839406, 1839407, 1839408
EPA 351.2 Rev. 2.0	10/11/2016	10/19/2016	Adrian Shelby	10/24/2016	Joseph Suarez	1839406, 1839407, 1839408
EPA 353.2 Rev. 2.0	10/11/2016			10/14/2016	Beverly Y. Sanders	1839406, 1839407, 1839408
EPA 365.1 Rev. 2.0	10/11/2016	10/24/2016	Vijayalakshmi Reddy	10/25/2016	Lipi Saha	1839406, 1839407, 1839408
EPA 365.1 Rev. 2.0 dissolved	10/11/2016			10/11/2016 14:37	Julia Storbeck	1839409
	10/11/2016			10/11/2016 14:38	Julia Storbeck	1839410
	10/11/2016			10/11/2016 14:44	Julia Storbeck	1839411
SM 2120 B	10/11/2016			10/11/2016 14:37	Julie Michelle Frank	1839403
	10/11/2016			10/11/2016 14:38	Julie Michelle Frank	1839404
	10/11/2016			10/11/2016 14:39	Julie Michelle Frank	1839405
SM 2320 B-97	10/11/2016			10/13/2016	Dale L. Simmons	1839403, 1839404, 1839405
SM 2540 C-97	10/11/2016			10/12/2016	Yijie Li	1839403, 1839404, 1839405
SM 2540 D-97	10/11/2016			10/12/2016	Yijie Li	1839403, 1839404, 1839405
SM 4500 F-C-97	10/11/2016			10/13/2016	Dale L. Simmons	1839403, 1839404, 1839405
SM 5310 B-00	10/11/2016			10/12/2016	Julie Michelle Frank	1839406, 1839407, 1839408