

Chemical Analysis Report

CEN-DIST-2018-01-17-01

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

Event Description: **Mosquito Lagoon + D&B**

Request ID: **RQ-2018-01-15-36**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 08-FEB-2018 15:56



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: Indian River at ICWW Channel Marker #51

Collection Date/Time: 01/16/2018 11:26

Field ID: G5CE0095

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959600	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P338369	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P338927	
	SM 2540 D-97	TSS	16		mg/L	P338900	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P339308	
1959601	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P338643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P338481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P338630	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P338414	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P338528	
1959602	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P338373	

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 01/23/2018.

Sample Location: Indian River at ICWW Channel Marker #51

Collection Date/Time: 01/16/2018 11:29

Field ID: G5CE0095DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959603	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P338369	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P338927	
	SM 2540 D-97	TSS	15		mg/L	P338900	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P339308	
1959605	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P338643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P338481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P338630	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P338414	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P338528	
1959607	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P338373	

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 01/23/2018.

Sample Location: Field Blank

Collection Date/Time: 01/16/2018 11:57

Field ID: Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959604	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P338369	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P338674	
	SM 2540 D-97	TSS	2	U	mg/L	P338898	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339050	
1959606	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P338642	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P338379	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P338404	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P338423	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P338526	

Field ID: Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1959608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338372	

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P338369

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338642

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338643

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338379

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338481

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P338404

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P338630

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P338414

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338423

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338372

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338373

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

Reference Method: SM 2320 B-97
Batch ID: P338674

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

Reference Method: SM 2320 B-97
Batch ID: P338927

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

Reference Method: SM 2540 D-97
Batch ID: P338898

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338900

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339050

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P338526

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

Reference Method: SM 5310 B-00
Batch ID: P338528

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338642

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338643

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: P338379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338404

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: P338630

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338414

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338414

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338423

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338373

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

Reference Method: SM 2320 B-97
Batch ID: P338674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P338927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P338526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P338528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P338642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959564	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P338643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959601	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P338379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959565	Kjeldahl Nitrogen	95.1	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P338481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959705	Kjeldahl Nitrogen	95.1	92.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P338404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959668	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P338630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958982	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P338414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959557	Total-P	94.4	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P338423

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P338423

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959667	Total-P	97.3	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P338372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959528	O-Phosphate-P	97.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P338373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959558	O-Phosphate-P	94.2	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P339308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961888	Fluoride	96.5	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P338526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959527	Organic Carbon	95.7	96.8	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P338528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959557	Organic Carbon	91.9	92.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959562	Turbidity	0.803	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P338642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959564	Ammonia-N	0.728	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959601	Ammonia-N	0.660	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959565	Kjeldahl Nitrogen	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959705	Kjeldahl Nitrogen	2.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959668	NO2NO3-N	0.578	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958982	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959557	Total-P	2.80	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959667	Total-P	0.932	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959528	O-Phosphate-P	0.617	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959558	O-Phosphate-P	0.855	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P338674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960002	Total Alkalinity	1.01	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P338927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959556	Total Alkalinity	0.0367	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P339050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960002	Fluoride	1.96	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961888	Fluoride	0.993	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P338526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959527	Organic Carbon	0.938	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P338528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959557	Organic Carbon	0.472	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 180.1 Rev. 2.0

Run ID: A81498

Included Lab Sample IDs: 1959600, 1959603, 1959604

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A81499

Included Lab Sample IDs: 1959602, 1959607, 1959608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81512

Included Lab Sample IDs: 1959606

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81556

Included Lab Sample IDs: 1959601, 1959605, 1959606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81564

Included Lab Sample IDs: 1959601, 1959605, 1959606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.7	94.0	P/P	90 - 110
Organic Carbon	95.3	94.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81569

Included Lab Sample IDs: 1959606

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81588

Included Lab Sample IDs: 1959601, 1959605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81606

Included Lab Sample IDs: 1959601, 1959605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A81606
 Included Lab Sample IDs: 1959601, 1959605

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A81608
 Included Lab Sample IDs: 1959601, 1959605, 1959606

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

Reference Method: SM 2320 B-97
 Run ID: A81614
 Included Lab Sample IDs: 1959604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.1	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97
 Run ID: A81689
 Included Lab Sample IDs: 1959600, 1959603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Run ID: A81747
 Included Lab Sample IDs: 1959604

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

Reference Method: SM 4500 F-C-97
 Run ID: A81839
 Included Lab Sample IDs: 1959600, 1959603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	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				0.803	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	102		0.728
	Ammonia-N	101	104	103		0.660

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	95.1	96.3		1.11
	Kjeldahl Nitrogen	95.5	95.1	92.5		2.48
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	102	104		0.578
	NO ₂ NO ₃ -N	103	103	104		0.484
EPA 365.1 Rev. 2.0	Total-P	101	94.4	97.2		2.80
	Total-P	101	97.3	98.2		0.932
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	97.0	97.6		0.617
	O-Phosphate-P	102	94.2	95.4		0.855
SM 2320 B-97	Total Alkalinity	98.8			1.01	
	Total Alkalinity	99.5			0.0367	
SM 4500 F-C-97	Fluoride	95.4				1.96
	Fluoride	96.6	96.5	97.9		0.993
SM 5310 B-00	Organic Carbon	92.4	95.7	96.8		0.938
	Organic Carbon	93.4	91.9	92.5		0.472

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1959600, 1959603, 1959604
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1959601, 1959605, 1959606
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1959601, 1959605, 1959606
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1959601, 1959605, 1959606
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1959601, 1959605, 1959606
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1959602, 1959607, 1959608
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1959600, 1959603, 1959604
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1959600, 1959603, 1959604
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1959600, 1959603, 1959604
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1959601, 1959605, 1959606

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/17/2018			01/17/2018 16:19	DeAsia Armster	1959600, 1959603, 1959604
EPA 350.1 Rev. 2.0	01/17/2018			01/23/2018	Ping Hua	1959601, 1959605, 1959606
EPA 351.2 Rev. 2.0	01/17/2018	01/18/2018	Adrian Shelby	01/22/2018	Joseph Suarez	1959606
	01/17/2018	01/19/2018	Adrian Shelby	01/23/2018	Joseph Suarez	1959601, 1959605
EPA 353.2 Rev. 2.0	01/17/2018			01/18/2018	Beverly Y. Sanders	1959606
	01/17/2018			01/23/2018	Lauren Bottorf	1959601, 1959605
EPA 365.1 Rev. 2.0	01/17/2018	01/18/2018	Sima Feizi	01/19/2018	Lipi Saha	1959601, 1959605, 1959606
EPA 365.1 Rev. 2.0 dissolved	01/17/2018			01/17/2018 16:08	Megan Treadwell	1959602
	01/17/2018			01/17/2018 16:09	Megan Treadwell	1959607
	01/17/2018			01/17/2018 16:10	Megan Treadwell	1959608
SM 2320 B-97	01/17/2018			01/23/2018	Dale L. Simmons	1959604
	01/17/2018			01/27/2018	Lauren Bottorf	1959600, 1959603
SM 2540 D-97	01/17/2018			01/19/2018	Yijie Li	1959600, 1959603, 1959604
SM 4500 F-C-97	01/17/2018			01/30/2018	Lauren Bottorf	1959604
	01/17/2018			02/03/2018	Dale L. Simmons	1959600, 1959603
SM 5310 B-00	01/17/2018			01/19/2018	Megan Treadwell	1959606
	01/17/2018			01/20/2018	Megan Treadwell	1959601, 1959605