

Chemical Analysis Report

WQAP-2018-06-06-01

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

Event Description: **2017 SMP Kit Template 1**

Request ID: **RQ-2018-05-28-10**

Customer: **WQAP**

Project ID: **SMP**

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Date Certified: 28-JUN-2018 13:30



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: Imperial River Marine CM

Collection Date/Time: 06/05/2018 09:30

Field ID: G1SD0069

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997726	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P346497	
	SM 2320 B-97	Total Alkalinity	211	AJ	mg CaCO3/L	P347002	RPD
	SM 2540 D-97	TSS	4	I	mg/L	P347023	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P347003	
1997728	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P347050	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P346858	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346565	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P346763	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P346787	
1997730	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P346524	

Ref. Method and Comment:

SM 2320 B-97: Refer to the narrative for an explanation of QC Codes.

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

Sample Location: Billy Creek CM

Collection Date/Time: 06/05/2018 11:10

Field ID: G3SD0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997727	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P346497	
	SM 2320 B-97	Total Alkalinity	209		mg CaCO3/L	P346670	
	SM 2540 D-97	TSS	5	I	mg/L	P347023	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P346673	
1997729	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P347049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P346858	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P346682	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P346806	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346787	
1997731	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P346522	

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: Billy Creek CM

Collection Date/Time: 06/05/2018 11:15

Field ID: BLANK_05062018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997732	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P346498	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P346670	
	SM 2540 D-97	TSS	2	U	mg/L	P347024	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P346673	
1997733	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P347049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P347329	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346682	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P346764	
	SM 5310 B-00	Organic Carbon	0.63	I	mg C/L	P346787	
1997734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346522	

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 06/15/2018.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 06/20/2018.

SM 5310 B-00: The result was confirmed on 06/18/2018.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346497

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346498

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347049

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347050

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346858

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347329

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346565

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346682

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346763

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: P346764

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346806

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346522

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346524

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

Reference Method: SM 2320 B-97
Batch ID: P346670

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

Reference Method: SM 2320 B-97
Batch ID: P347002

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

Reference Method: SM 2540 D-97
Batch ID: P347023

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P347024

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P347003

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346787

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: P347049

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347050

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346858

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347329

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346565

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346682

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346763

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346764

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346522

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346524

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

Reference Method: SM 2320 B-97
Batch ID: P346670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P347002

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

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346787

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997694	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997728	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997421	Kjeldahl Nitrogen	87.8	93.8	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999690	Kjeldahl Nitrogen	93.3	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997415	NO2NO3-N	98.6	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346682

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997719	NO2NO3-N	97.3	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997417	Total-P	97.1	91.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997686	Total-P	98.1	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997947	Total-P	97.5	97.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346522

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997919	O-Phosphate-P	98.8	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997730	O-Phosphate-P	97.1	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997945	Fluoride	98.5	97.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997726	Fluoride	94.8	94.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997096	Organic Carbon	95.9	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997681	Turbidity	6.17	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997808	Turbidity	0.248	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997694	Ammonia-N	0.841	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997728	Ammonia-N	0.600	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997421	Kjeldahl Nitrogen	4.88	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999690	Kjeldahl Nitrogen	0.416	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997415	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997719	NO2NO3-N	0.501	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997417	Total-P	6.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997686	Total-P	0.371	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997947	Total-P	0.358	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997919	O-Phosphate-P	0.404	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997730	O-Phosphate-P	0.247	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Total Alkalinity	0.723	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P347002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997726	Total Alkalinity	7.20	Sample	F	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Fluoride	0.513	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P347003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997726	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997096	Organic Carbon	0.595	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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84396

Included Lab Sample IDs: 1997726, 1997727, 1997732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84413

Included Lab Sample IDs: 1997730, 1997731, 1997734

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	100	P/P	90 - 110
O-Phosphate-P	99.4	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84434

Included Lab Sample IDs: 1997728

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

Reference Method: SM 2320 B-97

Run ID: A84489

Included Lab Sample IDs: 1997727, 1997732

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

Reference Method: SM 4500 F-C-97

Run ID: A84489

Included Lab Sample IDs: 1997727, 1997732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84493

Included Lab Sample IDs: 1997729, 1997733

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

Reference Method: SM 5310 B-00

Run ID: A84530

Included Lab Sample IDs: 1997728, 1997729, 1997733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84598

Included Lab Sample IDs: 1997728, 1997733

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84598
Included Lab Sample IDs: 1997728, 1997733

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84621
Included Lab Sample IDs: 1997729

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84633
Included Lab Sample IDs: 1997728, 1997729

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

Reference Method: SM 2320 B-97
Run ID: A84635
Included Lab Sample IDs: 1997726

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A84635
Included Lab Sample IDs: 1997726

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84650
Included Lab Sample IDs: 1997728, 1997729, 1997733

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84827
Included Lab Sample IDs: 1997733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					6.17	
	Turbidity					0.248	
EPA 350.1 Rev. 2.0	Ammonia-N	103	100	101			0.841
	Ammonia-N	104	103	102			0.600
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	87.8	93.8			4.88
	Kjeldahl Nitrogen	106	93.3	94.0			0.416
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.6	99.6			1.01
	NO2NO3-N	99.0	97.3	97.8			0.501
EPA 365.1 Rev. 2.0	Total-P	100	97.1	91.0			6.35
	Total-P	102	98.1	98.7			0.371
	Total-P	97.8	97.5	97.8			0.358
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.8	99.2			0.404
	O-Phosphate-P	101	97.1	97.4			0.247
SM 2320 B-97	Total Alkalinity	104				0.723	
	Total Alkalinity	99.1				7.20	
SM 4500 F-C-97	Fluoride	95.9	98.5	97.7			0.513
	Fluoride	92.7	94.8	94.8			0.0
SM 5310 B-00	Organic Carbon	96.8	95.9	96.6			0.595

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1997726, 1997727, 1997732
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1997728, 1997729, 1997733
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1997728, 1997729, 1997733
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1997728, 1997729, 1997733
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1997728, 1997729, 1997733
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1997730, 1997731, 1997734
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1997726, 1997727, 1997732
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1997726, 1997727, 1997732
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1997726, 1997727, 1997732
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1997728, 1997729, 1997733

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	06/06/2018			06/06/2018 17:13	William L. Brown IV	1997726, 1997727, 1997732
EPA 350.1 Rev. 2.0	06/06/2018			06/15/2018 10:00	Ping Hua	1997729
	06/06/2018			06/15/2018 10:03	Ping Hua	1997733
	06/06/2018			06/15/2018 10:07	Ping Hua	1997728
EPA 351.2 Rev. 2.0	06/06/2018	06/13/2018 10:30	Adrian Shelby	06/15/2018 17:41	Joseph Suarez	1997728
	06/06/2018	06/13/2018 10:30	Adrian Shelby	06/15/2018 17:43	Joseph Suarez	1997729
	06/06/2018	06/22/2018 10:30	Adrian Shelby	06/26/2018 09:47	Joseph Suarez	1997733
EPA 353.2 Rev. 2.0	06/06/2018			06/07/2018 13:46	Lauren Bottorf	1997728
	06/06/2018			06/11/2018 11:45	Lauren Bottorf	1997733
	06/06/2018			06/11/2018 11:50	Lauren Bottorf	1997729
EPA 365.1 Rev. 2.0	06/06/2018	06/12/2018 12:15	Lipi Saha	06/14/2018 14:55	Beverly Y. Sanders	1997728
	06/06/2018	06/12/2018 12:15	Lipi Saha	06/14/2018 15:03	Beverly Y. Sanders	1997733
	06/06/2018	06/13/2018 11:22	Sima Feizi	06/15/2018 11:32	Beverly Y. Sanders	1997729
EPA 365.1 Rev. 2.0 dissolved	06/06/2018			06/06/2018 15:52	Megan Treadwell	1997730
	06/06/2018			06/06/2018 16:03	Megan Treadwell	1997731
	06/06/2018			06/06/2018 16:04	Megan Treadwell	1997734
SM 2320 B-97	06/06/2018			06/08/2018 02:50	Dale L. Simmons	1997727
	06/06/2018			06/08/2018 02:59	Dale L. Simmons	1997732
	06/06/2018			06/15/2018 11:21	Dale L. Simmons	1997726
SM 2540 D-97	06/06/2018			06/07/2018 17:38	Yijie Li	1997726, 1997727, 1997732
SM 4500 F-C-97	06/06/2018			06/08/2018 02:50	Dale L. Simmons	1997727
	06/06/2018			06/08/2018 02:59	Dale L. Simmons	1997732
	06/06/2018			06/15/2018 10:55	Dale L. Simmons	1997726
SM 5310 B-00	06/06/2018			06/11/2018 21:52	Megan Treadwell	1997728
	06/06/2018			06/11/2018 22:07	Megan Treadwell	1997729
	06/06/2018			06/11/2018 22:21	Megan Treadwell	1997733