

Chemical Analysis Report

WQAP-2017-05-11-01

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

Event Description: **SMP 2016 Marine Kit B, _dup & field blank**
Request ID: **RQ-2017-05-08-44**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Michael Eckles

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 06-JUN-2017 11:01



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: Gulf of Mexico Middle of WBID (Steinhatchee River)

Collection Date/Time: 05/10/2017 11:50

Field ID: G1TLHR0061-2017-02

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898344	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P325127	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P325591	
	SM 2540 D-97	TSS	19	A	mg/L	P325534	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P325882	
1898348	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P325392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325271	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P325248	MS
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P326081	
1898352	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325170	

Sample Location: Middle of WBID

Collection Date/Time: 05/10/2017 12:20

Field ID: G1TLHR0072-2017-02

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898345	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P325127	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P325592	
	SM 2540 D-97	TSS	18		mg/L	P325534	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P325882	
1898349	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P325392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325271	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P325248	MS
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P326081	
1898353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325170	

Sample Location: Middle of WBID-dup

Collection Date/Time: 05/10/2017 12:20

Field ID: G1TLHR0072-2017-02 dup

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898346	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P325127	
	SM 2320 B-97	Total Alkalinity	130		mg CaCO3/L	P325592	
	SM 2540 D-97	TSS	18		mg/L	P325534	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P325882	
1898350	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P325392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325271	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P325249	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P326081	
1898354	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325170	

Sample Location: Field Blank # 1

Collection Date/Time: 05/10/2017 14:00

Field ID: Field Blank # 1

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898347	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P325127	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325592	
	SM 2540 D-97	TSS	2	U	mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325595	
1898351	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325121	RPD
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P325391	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P325516	
1898355	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325170	

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

Quality Assurance Report
 Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P325127

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325120

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325121

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325391

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325392

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325271

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325248

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325249

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325170

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

Reference Method: SM 2320 B-97
Batch ID: P325591

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 2540 D-97
Batch ID: P325533

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325534

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P325516

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

Reference Method: SM 5310 B-00
Batch ID: P326081

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: P325120

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325121

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: P325391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325271

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325271

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325248

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325249

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325170

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

Reference Method: SM 2320 B-97
Batch ID: P325591

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	89.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898348	Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898477	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898371	Kjeldahl Nitrogen	93.9	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898433	Kjeldahl Nitrogen	94.0	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898126	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898383	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898285	Total-P	97.2	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898070	Total-P	89.6	92.7	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898350	Total-P	94.6	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898352	O-Phosphate-P	99.3	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898380	Fluoride	95.5	99.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898426	Fluoride	92.2	93.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898243	Organic Carbon	86.1	88.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898069	Organic Carbon	94.1	94.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Turbidity	4.81	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898348	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898477	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898371	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898433	Kjeldahl Nitrogen	0.114	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898126	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898383	NO2NO3-N	0.971	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898285	Total-P	1.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898070	Total-P	3.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898350	Total-P	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898352	O-Phosphate-P	0.502	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898378	Total Alkalinity	3.21	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P325534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898344	TSS	2.15	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Fluoride	3.58	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898426	Fluoride	0.483	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P325516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898243	Organic Carbon	1.33	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898069	Organic Carbon	0.148	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 350.1 Rev. 2.0
Run ID: A76358
Included Lab Sample IDs: 1898348, 1898349, 1898350, 1898351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	103	P/P	90 - 110
Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76360
Included Lab Sample IDs: 1898344, 1898345, 1898346, 1898347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76368
Included Lab Sample IDs: 1898352, 1898353, 1898354, 1898355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.9	98.1	P/P	90 - 110
O-Phosphate-P	99.4	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76414
Included Lab Sample IDs: 1898348, 1898349, 1898350

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76427
Included Lab Sample IDs: 1898351

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: A76427

Included Lab Sample IDs: 1898351

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76447

Included Lab Sample IDs: 1898351

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76456

Included Lab Sample IDs: 1898348, 1898349, 1898350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76527

Included Lab Sample IDs: 1898351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.4	93.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76529

Included Lab Sample IDs: 1898348, 1898349, 1898350, 1898351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76561

Included Lab Sample IDs: 1898344, 1898345, 1898346, 1898347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76561

Included Lab Sample IDs: 1898347

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A76685

Included Lab Sample IDs: 1898344, 1898345, 1898346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76794

Included Lab Sample IDs: 1898348, 1898349, 1898350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	97.4	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				4.81	
EPA 350.1 Rev. 2.0	Ammonia-N	106	105 104			1.31
	Ammonia-N	102	105 106			1.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	93.9 95.5			1.45
	Kjeldahl Nitrogen	95.9	94.0 93.9			0.114
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104 104			0.0
	NO2NO3-N	101	104 102			0.971
EPA 365.1 Rev. 2.0	Total-P	95.6	97.2 98.6			1.39
	Total-P	99.6	89.6 92.7			3.26
	Total-P	102	94.6 95.1			0.501
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.4	99.3 99.8			0.502
SM 2320 B-97	Total Alkalinity	104			3.21	
	Total Alkalinity	104			0.354	
SM 2540 D-97	TSS				2.15	
SM 4500 F-C-97	Fluoride	99.1	95.5 99.7			3.58
	Fluoride	96.3	92.2 93.0			0.483
SM 5310 B-00	Organic Carbon	89.8	86.1 88.0			1.33
	Organic Carbon	93.8	94.1 94.0			0.148

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1898344, 1898345, 1898346, 1898347
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898348, 1898349, 1898350, 1898351
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898348, 1898349, 1898350, 1898351
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898348, 1898349, 1898350, 1898351
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898348, 1898349, 1898350, 1898351

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898352, 1898353, 1898354, 1898355
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1898344, 1898345, 1898346, 1898347
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898344, 1898345, 1898346, 1898347
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898344, 1898345, 1898346, 1898347
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898348, 1898349, 1898350, 1898351

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/11/2017			05/11/2017 15:50	Sima Feizi	1898344, 1898345, 1898346, 1898347
EPA 350.1 Rev. 2.0	05/11/2017			05/11/2017	Julie Michelle Frank	1898348, 1898349, 1898350, 1898351
EPA 351.2 Rev. 2.0	05/11/2017	05/17/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1898348, 1898349, 1898350, 1898351
EPA 353.2 Rev. 2.0	05/11/2017			05/15/2017	Beverly Y. Sanders	1898348, 1898349, 1898350
	05/11/2017			05/16/2017	Beverly Y. Sanders	1898351
EPA 365.1 Rev. 2.0	05/11/2017	05/12/2017	Vijayalakshmi Reddy	05/15/2017	Lipi Saha	1898351
	05/11/2017	05/15/2017	Vijayalakshmi Reddy	05/16/2017	Lipi Saha	1898348, 1898349, 1898350
EPA 365.1 Rev. 2.0 dissolved	05/11/2017			05/11/2017 14:43	Anthony C. Onicha	1898352
	05/11/2017			05/11/2017 15:20	Anthony C. Onicha	1898353
	05/11/2017			05/11/2017 15:21	Anthony C. Onicha	1898354, 1898355
SM 2320 B-97	05/11/2017			05/20/2017	Dale L. Simmons	1898344, 1898345, 1898346, 1898347
SM 2540 D-97	05/11/2017			05/15/2017	Sima Feizi	1898344, 1898345, 1898346, 1898347
SM 4500 F-C-97	05/11/2017			05/20/2017	Dale L. Simmons	1898347
	05/11/2017			05/26/2017	Dale L. Simmons	1898344, 1898345, 1898346
SM 5310 B-00	05/11/2017			05/16/2017	Christopher Armour	1898351
	05/11/2017			06/01/2017	Julie Michelle Frank	1898348, 1898349, 1898350