

Chemical Analysis Report

WQAP-2017-11-28-01

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-2017-11-20-17**

Customer: **WQAP**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2295 Victoria Ave
#364
Fort Myers, FL 33901
Attn: Maryann Dugan

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

Certified by: Colin Wright, Program Administrator

Date Certified: 13-DEC-2017 15:22

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: Drainage Ditch @ CR 850

Collection Date/Time: 11/27/2017 09:40

Field ID: G1SD112717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1948487	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P335983	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P336265	
		Sulfate	26		mg SO4/L	P336269	
	SM 2120 B	Color (true)	73	A	PCU	P335989	
	SM 2320 B-97	Total Alkalinity	204		mg CaCO3/L	P336463	
	SM 2540 C-97	TDS	322		mg/L	P336389	
	SM 2540 D-97	TSS	11		mg/L	P336362	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P336467	
1948491	EPA 350.1 Rev. 2.0	Ammonia-N	0.37		mg N/L	P336626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P336287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P336138	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P336204	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P336198	
1948495	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P336023	

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: C-139 - SE

Collection Date/Time: 11/27/2017 10:45

Field ID: G1SD112717-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1948488	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P335983	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P336266	
		Sulfate	5.1		mg SO4/L	P336270	
	SM 2120 B	Color (true)	160		PCU	P335989	
	SM 2320 B-97	Total Alkalinity	141		mg CaCO3/L	P336463	
	SM 2540 C-97	TDS	262		mg/L	P336389	
	SM 2540 D-97	TSS	3	I	mg/L	P336362	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P336467	
1948492	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P336410	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P336287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P336138	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P336205	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P336198	
1948496	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P336023	

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: C-139 Annex @ Half Bridge Rd.

Collection Date/Time: 11/27/2017 11:25

Field ID: G1SD112717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1948489	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P335983	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P336266	
		Sulfate	4.9		mg SO4/L	P336270	

Field ID: G1SD112717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1948489	SM 2120 B	Color (true)	120		PCU	P335989	
	SM 2320 B-97	Total Alkalinity	175		mg CaCO3/L	P336463	
	SM 2540 C-97	TDS	268		mg/L	P336389	
	SM 2540 D-97	TSS	4	I	mg/L	P336362	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P336467	
1948493	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P336410	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P336287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P336138	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P336205	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P336198	
1948497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P336023	

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: L-28 Tieback @ I-75

Collection Date/Time: 11/27/2017 11:55

Field ID: G1SD112717-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1948490	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P335983	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P336266	
		Sulfate	3.6		mg SO4/L	P336270	
	SM 2120 B	Color (true)	79		PCU	P335989	
	SM 2320 B-97	Total Alkalinity	215		mg CaCO3/L	P336463	
	SM 2540 C-97	TDS	293		mg/L	P336389	
	SM 2540 D-97	TSS	3	I	mg/L	P336362	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P336467	
1948494	EPA 350.1 Rev. 2.0	Ammonia-N	0.092		mg N/L	P336410	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P336287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P336138	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P336205	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P336198	
1948498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P336023	

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: P335983

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P336265

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336265

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336269

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336410

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336626

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336138

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336204

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: P336205

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336023

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

Reference Method: SM 2120 B
Batch ID: P335989

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336463

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

Reference Method: SM 2540 C-97
Batch ID: P336389

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336362

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336467

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336198

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: P336265

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336269

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336410

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336626

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336204

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336205

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: P336023

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

Reference Method: SM 2320 B-97
Batch ID: P336463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P336467

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

Reference Method: SM 5310 B-00
Batch ID: P336198

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: P336265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948312	Chloride	93.7		P	90 - 110
1948318	Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Chloride	95.0		P	90 - 110
1949218	Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948312	Sulfate	94.8		P	90 - 110
1948318	Sulfate	95.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Sulfate	96.2		P	90 - 110
1949218	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948605	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949221	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948470	Kjeldahl Nitrogen	91.7	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948491	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948452	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948618	Total-P	100	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948446	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P336467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948507	Fluoride	96.6	97.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P336198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948469	Organic Carbon	94.8	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948444	Turbidity	6.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948318	Chloride	0.844	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Chloride	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948318	Sulfate	0.820	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Sulfate	0.750	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948605	Ammonia-N	0.277	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949221	Ammonia-N	2.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948470	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948491	NO2NO3-N	0.354	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948452	Total-P	0.569	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948618	Total-P	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948446	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P335989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948487	Color (true)	1.75	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948507	Total Alkalinity	0.353	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P336389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948451	TDS	2.61	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P336467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948507	Fluoride	0.948	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P336198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948469	Organic Carbon	1.41	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: A80557
Included Lab Sample IDs: 1948487, 1948488, 1948489, 1948490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A80558
Included Lab Sample IDs: 1948487, 1948488, 1948489, 1948490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	85 - 115
Color (true)	99.0	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80571
Included Lab Sample IDs: 1948495, 1948496, 1948497, 1948498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	99.3	P/P	90 - 110
O-Phosphate-P	99.4	99.5	P/P	90 - 110
O-Phosphate-P	99.5	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80610

Included Lab Sample IDs: 1948491, 1948492, 1948493, 1948494

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80632

Included Lab Sample IDs: 1948487, 1948488, 1948489, 1948490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	99.9	101	P/P	90 - 110
Sulfate	99.2	99.9	P/P	90 - 110
Sulfate	99.6	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A80635

Included Lab Sample IDs: 1948491, 1948492, 1948493, 1948494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.3	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80667

Included Lab Sample IDs: 1948491, 1948492

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80677

Included Lab Sample IDs: 1948493, 1948494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80711

Included Lab Sample IDs: 1948492, 1948493, 1948494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80724

Included Lab Sample IDs: 1948491, 1948492, 1948493, 1948494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A80732

Included Lab Sample IDs: 1948487, 1948488, 1948489, 1948490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80732

Included Lab Sample IDs: 1948487, 1948488, 1948489, 1948490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80773

Included Lab Sample IDs: 1948491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	104	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				6.87	
EPA 300.0 Rev. 2.1	Chloride	95.0	94.8 93.7		0.844	
	Chloride	94.2	95.0 95.3		0.664	
	Sulfate	95.4	95.7 94.8		0.820	
	Sulfate	94.5	96.2 95.4		0.750	
EPA 350.1 Rev. 2.0	Ammonia-N	104	105 105			0.277
	Ammonia-N	105	105 102			2.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	91.7 97.1			4.75
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104 104			0.354
EPA 365.1 Rev. 2.0	Total-P	99.5	101 100			0.569
	Total-P	99.2	100 98.9			1.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	100 100			0.0
SM 2120 B	Color (true)				1.75	
SM 2320 B-97	Total Alkalinity	102			0.353	
SM 2540 C-97	TDS				2.61	
SM 4500 F-C-97	Fluoride	95.4	96.6 97.6			0.948
SM 5310 B-00	Organic Carbon	100	94.8 96.2			1.41

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1948487, 1948488, 1948489, 1948490
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1948487, 1948488, 1948489, 1948490

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1948487, 1948488, 1948489, 1948490
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1948491, 1948492, 1948493, 1948494
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1948491, 1948492, 1948493, 1948494
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1948491, 1948492, 1948493, 1948494
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1948491, 1948492, 1948493, 1948494
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1948495, 1948496, 1948497, 1948498
SM 2120 B / E31780	True Color measured at 450 nm	1948487, 1948488, 1948489, 1948490
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1948487, 1948488, 1948489, 1948490
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1948487, 1948488, 1948489, 1948490
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1948487, 1948488, 1948489, 1948490
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1948487, 1948488, 1948489, 1948490
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1948491, 1948492, 1948493, 1948494

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	11/28/2017			11/28/2017 15:59	DeAsia Armster	1948487, 1948488, 1948489, 1948490
EPA 300.0 Rev. 2.1	11/28/2017			12/02/2017	Julia Storbeck	1948487, 1948488, 1948489, 1948490
EPA 350.1 Rev. 2.0	11/28/2017			12/05/2017	Sofia Elnemr	1948492, 1948493, 1948494
	11/28/2017			12/07/2017	Sofia Elnemr	1948491
EPA 351.2 Rev. 2.0	11/28/2017	12/04/2017	Adrian Shelby	12/06/2017	Joseph Suarez	1948491, 1948492, 1948493, 1948494
EPA 353.2 Rev. 2.0	11/28/2017			11/30/2017	Lauren Bottorf	1948491, 1948492, 1948493, 1948494
EPA 365.1 Rev. 2.0	11/28/2017	12/01/2017	Sima Feizi	12/04/2017	Lipi Saha	1948491, 1948492, 1948493, 1948494
EPA 365.1 Rev. 2.0 dissolved	11/28/2017			11/28/2017 15:07	Megan Treadwell	1948496
	11/28/2017			11/28/2017 15:08	Megan Treadwell	1948497
	11/28/2017			11/28/2017 15:35	Megan Treadwell	1948498
	11/28/2017			11/28/2017 15:44	Megan Treadwell	1948495
SM 2120 B	11/28/2017			11/28/2017 15:29	Tanya Welborn	1948487
	11/28/2017			11/28/2017 15:30	Tanya Welborn	1948489
	11/28/2017			11/28/2017 15:31	Tanya Welborn	1948490
	11/28/2017			11/28/2017 16:08	Tanya Welborn	1948488
SM 2320 B-97	11/28/2017			12/05/2017	Dale L. Simmons	1948487, 1948488, 1948489, 1948490
SM 2540 C-97	11/28/2017			12/01/2017	Yijie Li	1948487, 1948488, 1948489, 1948490
SM 2540 D-97	11/28/2017			12/01/2017	Yijie Li	1948487, 1948488, 1948489, 1948490
SM 4500 F-C-97	11/28/2017			12/05/2017	Dale L. Simmons	1948487, 1948488, 1948489, 1948490
SM 5310 B-00	11/28/2017			11/30/2017	Ping Hua	1948491, 1948492, 1948493, 1948494