

Chemical Analysis Report

WQAP-2017-02-28-01

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

Event Description: **RUN 2**
Request ID: **RQ-2017-02-27-68**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 24-MAR-2017 10:54



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: MASON CREEK

Collection Date/Time: 02/27/2017 10:55

Field ID: G5SW0005

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875877	EPA 180.1 Rev. 2.0	Turbidity	3.3	A	NTU	P320676	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P321322	
	SM 2540 D-97	TSS	7	I	mg/L	P321061	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P321706	
1875882	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P320794	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P320715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P320721	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P320708	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P320854	
1875887	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320682	

Sample Location: MUD RIVER

Collection Date/Time: 02/27/2017 13:00

Field ID: G5SW0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875878	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P320676	
	SM 2320 B-97	Total Alkalinity	157		mg CaCO3/L	P320784	
	SM 2540 D-97	TSS	5	I	mg/L	P321059	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P320786	
1875883	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P320997	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P320715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P320721	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P320724	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P320852	
1875888	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320682	

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: WEEKI WACHEE

Collection Date/Time: 02/27/2017 13:15

Field ID: G5SW0020

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875879	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P320676	
	SM 2320 B-97	Total Alkalinity	159		mg CaCO3/L	P320784	
	SM 2540 D-97	TSS	4	I	mg/L	P321061	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P320786	
1875884	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P320997	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P320715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P320721	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P320724	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P320854	
1875889	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320682	

Sample Location: MASON CREEK (DUPLICATE)

Collection Date/Time: 02/27/2017 11:00

Field ID: G5SW0005

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875880	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P320676	
	SM 2320 B-97	Total Alkalinity	153		mg CaCO3/L	P321322	
	SM 2540 D-97	TSS	6	I	mg/L	P321062	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P321706	
1875885	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P320997	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P320816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P320721	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P320724	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P320854	
1875890	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P320682	
	dissolved						

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: BLANK

Collection Date/Time: 02/27/2017 11:30

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875881	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P320676	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P321207	
	SM 2540 D-97	TSS	2	U	mg/L	P321059	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P321042	
1875886	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P320996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P320716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321075	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P320723	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320852	
1875891	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P320679	
	dissolved						

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: P320676

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P320794

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P320996

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320997

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320816

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320721

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321075

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320708

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

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: P320724

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320682

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

Reference Method: SM 2320 B-97
Batch ID: P320784

Component	Result	Code	Units
Total Alkalinity	0.95	I	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P321207

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

Reference Method: SM 2320 B-97
Batch ID: P321322

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

Reference Method: SM 2540 D-97
Batch ID: P321059

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321061

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321062

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P320786

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321706

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320852

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

Reference Method: SM 5310 B-00
Batch ID: P320854

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: P320794

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: P320996

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320997

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: P320715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320715

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: P320716

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320816

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320721

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: P321075

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320708

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320724

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320682

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

Reference Method: SM 2320 B-97
Batch ID: P320784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	107		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P321207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P321322

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

Reference Method: SM 4500 F-C-97
Batch ID: P320786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P321706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P320854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875768	Ammonia-N	102	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875862	Ammonia-N	95.8	94.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875883	Ammonia-N	98.7	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875884	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875850	Kjeldahl Nitrogen	98.0	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876379	Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875394	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874746	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875771	Total-P	90.8	91.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875850	Total-P	95.6	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875883	Total-P	92.9	91.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875786	O-Phosphate-P	95.5	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320682

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875797	O-Phosphate-P	98.1	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P320786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875983	Fluoride	95.9	97.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875792	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P321706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879745	Fluoride	97.0	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875758	Organic Carbon	101	97.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P320854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875768	Organic Carbon	94.8	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875877	Turbidity	7.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875768	Ammonia-N	2.80	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875862	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875883	Ammonia-N	0.403	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875884	Kjeldahl Nitrogen	0.541	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875850	Kjeldahl Nitrogen	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876379	Kjeldahl Nitrogen	2.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875394	NO2NO3-N	2.42	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874746	NO2NO3-N	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875771	Total-P	0.207	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875850	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875883	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875786	O-Phosphate-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875797	O-Phosphate-P	1.42	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875983	Total Alkalinity	0.503	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P321207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876211	Total Alkalinity	0.106	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P321322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877747	Total Alkalinity	0.498	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P321061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875767	TSS	5.97	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875983	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875792	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P321706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879745	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875758	Organic Carbon	3.49	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P320854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875768	Organic Carbon	0.385	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: A74781

Included Lab Sample IDs: 1875877, 1875878, 1875879, 1875880, 1875881

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74782

Included Lab Sample IDs: 1875887, 1875888, 1875889, 1875890, 1875891

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.7	P/P	90 - 110
O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74796

Included Lab Sample IDs: 1875882, 1875883, 1875884, 1875885

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: A74820

Included Lab Sample IDs: 1875878, 1875879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	107	P/P	90 - 110
Total Alkalinity	108	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74820

Included Lab Sample IDs: 1875878, 1875879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74822

Included Lab Sample IDs: 1875882

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74823

Included Lab Sample IDs: 1875882

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74838

Included Lab Sample IDs: 1875883, 1875884, 1875885, 1875886

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: A74838

Included Lab Sample IDs: 1875883, 1875884, 1875885, 1875886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.5	P/P	90 - 110
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A74852

Included Lab Sample IDs: 1875882, 1875883, 1875884, 1875885, 1875886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	94.7	P/P	90 - 110
Organic Carbon	98.0	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74858

Included Lab Sample IDs: 1875886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74867

Included Lab Sample IDs: 1875882, 1875883, 1875884

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.7	P/P	90 - 110
Kjeldahl Nitrogen	99.7	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74890

Included Lab Sample IDs: 1875885

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	96.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74904

Included Lab Sample IDs: 1875883, 1875884, 1875885, 1875886

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

Reference Method: SM 4500 F-C-97

Run ID: A74917

Included Lab Sample IDs: 1875881

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74934

Included Lab Sample IDs: 1875886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74976

Included Lab Sample IDs: 1875881

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	109	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75009

Included Lab Sample IDs: 1875877, 1875880

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75152

Included Lab Sample IDs: 1875877, 1875880

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				7.19	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102 98.5			2.80
	Ammonia-N	99.8	95.8 94.7			1.11
	Ammonia-N	102	98.7 98.2			0.403
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103 103			0.541
	Kjeldahl Nitrogen	107	98.0 94.9			1.58
	Kjeldahl Nitrogen	104	100 97.4			2.40
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102 104			2.42
	NO2NO3-N	104	102 103			1.07
EPA 365.1 Rev. 2.0	Total-P	91.8	90.8 91.0			0.207
	Total-P	94.6	95.6 94.3			1.36
	Total-P	91.8	92.9 91.9			1.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	95.5 97.3			1.87
	O-Phosphate-P	100	98.1 99.5			1.42
SM 2320 B-97	Total Alkalinity	107			0.503	
	Total Alkalinity	103			0.106	
	Total Alkalinity	104			0.498	
SM 2540 D-97	TSS				5.97	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	94.7	95.9	97.3		1.00
	Fluoride	97.3	102	101		0.480
	Fluoride	97.1	97.0	97.8		0.470
SM 5310 B-00	Organic Carbon	97.5	101	97.2		3.49
	Organic Carbon	98.1	94.8	94.4		0.385

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1875877, 1875878, 1875879, 1875880, 1875881
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1875882, 1875883, 1875884, 1875885, 1875886
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1875882, 1875883, 1875884, 1875885, 1875886
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1875882, 1875883, 1875884, 1875885, 1875886
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1875882, 1875883, 1875884, 1875885, 1875886
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1875887, 1875888, 1875889, 1875890, 1875891
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1875877, 1875878, 1875879, 1875880, 1875881
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1875877, 1875878, 1875879, 1875880, 1875881
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1875877, 1875878, 1875879, 1875880, 1875881
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1875882, 1875883, 1875884, 1875885, 1875886

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	02/28/2017			02/28/2017 14:48	Sima Feizi	1875877, 1875878, 1875879, 1875880, 1875881
EPA 350.1 Rev. 2.0	02/28/2017			03/01/2017	Sofia Elnemr	1875882
	02/28/2017			03/02/2017	Sofia Elnemr	1875883, 1875884, 1875885, 1875886
EPA 351.2 Rev. 2.0	02/28/2017	03/01/2017	Adrian Shelby	03/02/2017	Joseph Suarez	1875886
	02/28/2017	03/01/2017	Adrian Shelby	03/03/2017	Joseph Suarez	1875882, 1875883, 1875884
	02/28/2017	03/02/2017	Adrian Shelby	03/03/2017	Joseph Suarez	1875885
EPA 353.2 Rev. 2.0	02/28/2017			03/01/2017	Beverly Y. Sanders	1875882, 1875883, 1875884, 1875885
	02/28/2017			03/07/2017	Beverly Y. Sanders	1875886
EPA 365.1 Rev. 2.0	02/28/2017	03/01/2017	Vijayalakshmi Reddy	03/01/2017	Lipi Saha	1875882
	02/28/2017	03/01/2017	Vijayalakshmi Reddy	03/02/2017	Lipi Saha	1875883, 1875884, 1875885, 1875886
EPA 365.1 Rev. 2.0 dissolved	02/28/2017			02/28/2017 15:41	Julia Storbeck	1875891
	02/28/2017			02/28/2017 15:46	Julia Storbeck	1875887
	02/28/2017			02/28/2017 15:47	Julia Storbeck	1875890
	02/28/2017			02/28/2017 16:09	Julia Storbeck	1875888
	02/28/2017			02/28/2017 16:10	Julia Storbeck	1875889
SM 2320 B-97	02/28/2017			03/01/2017	Dale L. Simmons	1875878, 1875879
	02/28/2017			03/09/2017	Dale L. Simmons	1875881
	02/28/2017			03/10/2017	Dale L. Simmons	1875877, 1875880
SM 2540 D-97	02/28/2017			03/01/2017	Yijie Li	1875877, 1875878, 1875879, 1875880, 1875881
SM 4500 F-C-97	02/28/2017			03/01/2017	Dale L. Simmons	1875878, 1875879
	02/28/2017			03/04/2017	Dale L. Simmons	1875881
	02/28/2017			03/16/2017	Dale L. Simmons	1875877, 1875880
SM 5310 B-00	02/28/2017			03/01/2017	Julie Michelle Frank	1875883, 1875886
	02/28/2017			03/02/2017	Julie Michelle Frank	1875882, 1875884, 1875885