

Chemical Analysis Report

WQAP-2016-03-01-02

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

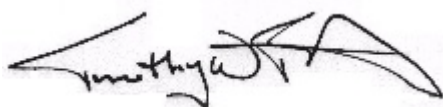
Event Description: **Sally Ward Spring, East Drainage Ditch, Black Creek, Eight Mile Pond, Godby Ditch**
Request ID: **RQ-2016-02-29-57**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Attn: Benjamin Ralys

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 21-MAR-2016 15:21

A handwritten signature in black ink, appearing to read "Timothy Fitzpatrick", with a stylized flourish at the end.

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: BLACK CREEK UPSTREAM OF BLOXHAM CUTOFF

Collection Date/Time: 03/01/2016 08:33

Field ID: G1WA0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775801	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.003	U	mg N/L	P299642	
	SM 2120 B	Color (true)	480		PCU	P299600	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300009	
	SM 2540 C-97	TDS	68		mg/L	P300118	
	SM 2540 D-97	TSS	2	U	mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300013	
1775808	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P299863	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P299931	
1775815	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: SALLY WARD SPRING AT WAKULLA PARK DR.

Collection Date/Time: 03/01/2016 09:10

Field ID: G1WA0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775802	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.002	U	mg N/L	P299621	
	SM 2120 B	Color (true)	2.5	U	PCU	P299600	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	190	A	mg/L	P300118	
	SM 2540 D-97	TSS	2	I	mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P300251	
1775809	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	0.54	I	mg C/L	P299931	
1775816	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: EIGHT MILE POND MIDDLE

Collection Date/Time: 03/01/2016 10:00

Field ID: G1WA0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1WA0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775803	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.007		mg N/L	P299642	
	SM 2120 B	Color (true)	55		PCU	P299600	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	45		mg/L	P300118	
	SM 2540 D-97	TSS	2	I	mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P300251	
1775810	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.047		mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	8.6		mg C/L	P299931	
1775817	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: EAST DRAINAGE DITCH AT RIDGE ROAD

Collection Date/Time: 03/01/2016 10:55

Field ID: G1WA0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775804	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	4.8	A	mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.003	U	mg N/L	P299642	
	SM 2120 B	Color (true)	49	A	PCU	P299600	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	71		mg/L	P300118	
	SM 2540 D-97	TSS	6	I	mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P300251	
1775811	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P299931	
1775818	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: CENTRAL DRAINAGE DITCH DOWNSTREAM OF ORANGE AVE.

Collection Date/Time: 03/01/2016 12:30

Field ID: G1WA0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775805	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	9.5		mg Cl/L	P299741	

Field ID: G1WA0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775805	EPA 353.2 Rev. 2.0	Nitrite-N	0.003	U	mg N/L	P299642	
	SM 2120 B	Color (true)	13		PCU	P299600	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	117		mg/L	P300118	
	SM 2540 D-97	TSS	12		mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P300251	
1775812	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P299931	
1775819	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: GODBY DRAINAGE DITCH AT VEGA AVE

Collection Date/Time: 03/01/2016 14:00

Field ID: G1WA0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775806	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.002	U	mg N/L	P299621	
	SM 2120 B	Color (true)	10		PCU	P299600	
	SM 2320 B-97	Total Alkalinity	74		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	89		mg/L	P300118	
	SM 2540 D-97	TSS	2	I	mg/L	P299998	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P300251	
1775813	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P299931	
1775820	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P299562	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

**Sample Location: LAKE LAFAYETTE DRAINAGE 205 METERS
DOWNSTREAM OF WEEMS RD**

Collection Date/Time: 03/01/2016 15:25

Field ID: G1WA0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775807	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P299612	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P299741	
	EPA 353.2 Rev. 2.0	Nitrite-N	0.002	U	mg N/L	P299621	
	SM 2120 B	Color (true)	4.7	I	PCU	P299600	

Field ID: G1WA0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775807	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P300247	
	SM 2540 C-97	TDS	58		mg/L	P300119	
	SM 2540 D-97	TSS	2	I	mg/L	P299999	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P300251	
1775814	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P299864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P299931	
1775821	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299562	

Ref. Method and Comment:
 SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
 SM 4500 F-C-97: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P299612

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P299741

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P300074

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299863

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299864

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P299621

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299642

Component	Result	Code	Units
Nitrite-N	0.003	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299562

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

Reference Method: SM 2120 B
Batch ID: P299600

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300009

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

Reference Method: SM 2320 B-97
Batch ID: P300247

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

Reference Method: SM 2540 C-97
Batch ID: P300118

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P300119

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P299998

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299999

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P300251

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299931

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: P299741

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299863

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: P299864

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: P299864

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: P299621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nitrite-N	92.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299642

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299562

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

Reference Method: SM 2320 B-97
Batch ID: P300009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P300247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	94 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P300251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	88.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775804	Chloride	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775811	Ammonia-N	98.7	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775810	Kjeldahl Nitrogen	95.7	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775802	Nitrite-N	90.5	92.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775803	Nitrite-N	92.3	91.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775635	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775635	Total-P	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775816	O-Phosphate-P	99.2	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775515	Fluoride	93.8	95.5	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775809	Organic Carbon	85.8	87.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775801	Turbidity	5.41	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775804	Chloride	0.157	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775811	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775587	Kjeldahl Nitrogen	0.0265	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775810	Kjeldahl Nitrogen	0.331	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775802	Nitrite-N	2.55	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775803	Nitrite-N	1.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775635	NO2NO3-N	0.385	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775635	Total-P	0.964	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775816	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775804	Color (true)	1.32	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775515	Total Alkalinity	3.58	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P300247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776011	Total Alkalinity	0.363	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775802	TDS	4.21	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P300119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775849	TDS	7.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775515	Fluoride	1.52	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P300251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776011	Fluoride	0.470	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775809	Organic Carbon	1.51	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 300.0 Rev. 2.1
Run ID: A67933
Included Lab Sample IDs: 1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67935

Included Lab Sample IDs: 1775815, 1775816, 1775817, 1775818, 1775819, 1775820, 1775821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.7	P/P	90 - 110
O-Phosphate-P	99.7	98.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A67948

Included Lab Sample IDs: 1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	97.3	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67951

Included Lab Sample IDs: 1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67953

Included Lab Sample IDs: 1775802, 1775806, 1775807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nitrite-N	105	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67965

Included Lab Sample IDs: 1775801, 1775803, 1775804, 1775805

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nitrite-N	100	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68011

Included Lab Sample IDs: 1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

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

Reference Method: SM 5310 B-00

Run ID: A68077

Included Lab Sample IDs: 1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	94.4	P/P	90 - 110
Organic Carbon	94.4	95.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68093

Included Lab Sample IDs: 1775801

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

Reference Method: SM 2320 B-97
Run ID: A68093
Included Lab Sample IDs: 1775801

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68094
Included Lab Sample IDs: 1775801

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68108
Included Lab Sample IDs: 1775810, 1775811, 1775812, 1775813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68112
Included Lab Sample IDs: 1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.8	P/P	90 - 110
Ammonia-N	99.8	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68133
Included Lab Sample IDs: 1775808, 1775809, 1775814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A68179
Included Lab Sample IDs: 1775802, 1775803, 1775804, 1775805, 1775806, 1775807

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

Reference Method: SM 4500 F-C-97
Run ID: A68179
Included Lab Sample IDs: 1775802, 1775803, 1775804, 1775805, 1775806, 1775807

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68247
Included Lab Sample IDs: 1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68247

Included Lab Sample IDs: 1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	105	P/P	90 - 110
Kjeldahl Nitrogen	107	106	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				5.41	
EPA 300.0 Rev. 2.1	Chloride	106	106		0.157	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	98.7 99.8			1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103				0.0265
	Kjeldahl Nitrogen	101	95.7 95.2			0.331
EPA 353.2 Rev. 2.0	Nitrite-N	92.8	90.5 92.8			2.55
	Nitrite-N	95.0	92.3 91.0			1.28
	NO2NO3-N	102	103 102			0.385
EPA 365.1 Rev. 2.0	Total-P	97.0	99.6 101			0.964
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.2 101			1.22
SM 2120 B	Color (true)				1.32	
SM 2320 B-97	Total Alkalinity	102			3.58	
	Total Alkalinity	100			0.363	
SM 2540 C-97	TDS				4.21	
	TDS				7.62	
SM 4500 F-C-97	Fluoride	96.9	93.8 95.5			1.52
	Fluoride	97.5				0.470
SM 5310 B-00	Organic Carbon	88.6	85.8 87.2			1.51

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 353.2 Rev. 2.0 / E31780	Nitrite in aqueous matrices as mg N/L	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1775815, 1775816, 1775817, 1775818, 1775819, 1775820, 1775821

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2120 B / E31780	True Color measured at 450 nm	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814

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	03/01/2016			03/02/2016 15:05	Sima Feizi	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
EPA 300.0 Rev. 2.1	03/01/2016			03/04/2016	Ping Hua	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
EPA 350.1 Rev. 2.0	03/01/2016			03/09/2016	Diana M. Turner	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 351.2 Rev. 2.0	03/01/2016	03/07/2016	Sofia Elnemr	03/08/2016	Rochelle Y Jackson	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 353.2 Rev. 2.0	03/01/2016			03/02/2016 14:10	Virginia P. Brown	1775803
	03/01/2016			03/02/2016 14:14	Virginia P. Brown	1775801
	03/01/2016			03/02/2016 14:16	Virginia P. Brown	1775804
	03/01/2016			03/02/2016 14:17	Virginia P. Brown	1775805
	03/01/2016			03/02/2016 17:28	Rochelle Y Jackson	1775806, 1775807
	03/01/2016			03/02/2016 17:29	Rochelle Y Jackson	1775802
	03/01/2016			03/04/2016	Virginia P. Brown	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 365.1 Rev. 2.0	03/01/2016	03/08/2016	Lipi Saha	03/09/2016	Lipi Saha	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814
EPA 365.1 Rev. 2.0 dissolved	03/01/2016			03/02/2016 10:57	Julia Storbeck	1775816
	03/01/2016			03/02/2016 11:00	Julia Storbeck	1775815
	03/01/2016			03/02/2016 11:01	Julia Storbeck	1775817, 1775818
	03/01/2016			03/02/2016 11:02	Julia Storbeck	1775819
	03/01/2016			03/02/2016 11:03	Julia Storbeck	1775820
	03/01/2016			03/02/2016 11:08	Julia Storbeck	1775821
SM 2120 B	03/01/2016			03/02/2016 13:42	Rochelle Y Jackson	1775801
	03/01/2016			03/02/2016 13:43	Rochelle Y Jackson	1775802
	03/01/2016			03/02/2016 13:44	Rochelle Y Jackson	1775803
	03/01/2016			03/02/2016 13:45	Rochelle Y Jackson	1775804
	03/01/2016			03/02/2016 13:46	Rochelle Y Jackson	1775805
	03/01/2016			03/02/2016 13:47	Rochelle Y Jackson	1775806
	03/01/2016			03/02/2016 13:48	Rochelle Y Jackson	1775807
SM 2320 B-97	03/01/2016			03/08/2016	Dale L. Simmons	1775801
	03/01/2016			03/10/2016	Dale L. Simmons	1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 2540 C-97	03/01/2016			03/04/2016	Yijie Li	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 2540 D-97	03/01/2016			03/04/2016	Yijie Li	1775801, 1775802, 1775803, 1775804, 1775805, 1775806, 1775807
SM 4500 F-C-97	03/01/2016			03/07/2016	Dale L. Simmons	1775801
	03/01/2016			03/10/2016	Dale L. Simmons	1775802, 1775803, 1775804, 1775805, 1775806, 1775807

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	03/01/2016			03/07/2016	Sofia Elnemr	1775808, 1775809, 1775810, 1775811, 1775812, 1775813, 1775814