

Chemical Analysis Report

CEN-DIST-2016-06-07-01

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

Event Description: **Tiger/Kiss+D&B**
Request ID: **RQ-2016-06-06-50**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 29-JUN-2016 12:53

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored 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: Tiger Creek 660 M Downstream of Lake Kissimmee

Collection Date/Time: 06/06/2016 11:40

Field ID: G4CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806218	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P305759	
	EPA 300.0 Rev. 2.1	Chloride	13	A	mg Cl/L	P305967	
		Sulfate	8.7	A	mg SO4/L	P305969	
	SM 2120 B	Color (true)	96	A	PCU	P305735	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	86		mg/L	P306516	
	SM 2540 D-97	TSS	10	I	mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P305982	
1806225	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P306123	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P305800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P306207	
1806232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P305704	

Ref. Method and Comment:

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

Sample Location: Tiger Creek 915 M Downstream of Lake Kissimmee

Collection Date/Time: 06/06/2016 11:30

Field ID: G4CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806219	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P305759	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P305967	
		Sulfate	8.6		mg SO4/L	P305969	
	SM 2120 B	Color (true)	100		PCU	P305736	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	87		mg/L	P306516	
	SM 2540 D-97	TSS	9	I	mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P305982	
1806226	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P306123	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P305800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P306207	
1806233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P305704	

Ref. Method and Comment:

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

Sample Location: Tiger Creek 1.2 KM Downstream of Lake Kissimmee

Collection Date/Time: 06/06/2016 11:25

Field ID: G4CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806220	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P305759	

Field ID: G4CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806220	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P305967	
		Sulfate	8.7		mg SO4/L	P305969	
	SM 2120 B	Color (true)	96		PCU	P305736	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	80		mg/L	P306516	
	SM 2540 D-97	TSS	10		mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P305982	
1806227	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P306123	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P305800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.047		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P306207	
1806234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P305704	

Ref. Method and Comment:

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

Sample Location: Tiger Creek 1.45 KM Downstream of Lake Kissimmee

Collection Date/Time: 06/06/2016 11:20

Field ID: G4CE0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806221	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P305760	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P305967	
		Sulfate	8.7		mg SO4/L	P305969	
	SM 2120 B	Color (true)	94		PCU	P305736	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	87		mg/L	P306516	
	SM 2540 D-97	TSS	8	I	mg/L	P306442	
1806228	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P305982	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.082		mg N/L	P306123	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P305800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P306140	
1806235	SM 5310 B-00	Organic Carbon	12		mg C/L	P306207	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P305704	

Ref. Method and Comment:

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

Sample Location: Kissimmee River 1.5 Miles Upstream of Lake Kissimmee

Collection Date/Time: 06/06/2016 12:05

Field ID: G4CE0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806222	EPA 180.1 Rev. 2.0	Turbidity	5.9	A	NTU	P305760	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P305967	
		Sulfate	7.2		mg SO4/L	P305969	

Field ID: G4CE0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806222	SM 2120 B	Color (true)	110		PCU	P305736	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	114		mg/L	P306516	
	SM 2540 D-97	TSS	8	I	mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P305982	
1806229	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P306124	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P305800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P306207	
1806236	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305704	

Ref. Method and Comment:

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

Sample Location: Kissimmee River 1.5 Miles Upstream of Lake Kissimmee (DUPLICATE) **Collection Date/Time: 06/06/2016 12:05**

Field ID: G4CE0055_D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806223	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P305760	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P305967	
		Sulfate	7.2		mg SO4/L	P305969	
	SM 2120 B	Color (true)	110		PCU	P305736	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P305979	
	SM 2540 C-97	TDS	118	A	mg/L	P306516	
	SM 2540 D-97	TSS	8	I	mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P305982	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P306124	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P306192	
1806230	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P306207	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P305704	

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: Field Blank **Collection Date/Time: 06/06/2016 12:45**

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806224	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P305760	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P305967	
		Sulfate	0.20	U	mg SO4/L	P305969	
	SM 2120 B	Color (true)	2.5	U	PCU	P305736	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305979	

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1806224	SM 2540 C-97	TDS	15	U	mg/L	P306516	
	SM 2540 D-97	TSS	2	U	mg/L	P306442	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305982	
1806231	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306124	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305960	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305809	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P306140	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P306207	
1806238	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305704	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P305759

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P305760

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305967

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305969

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P306123

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P306124

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305800

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305960

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305809

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306140

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305704

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

Reference Method: SM 2120 B
Batch ID: P305735

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P305736

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305979

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P306516

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306442

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305982

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306207

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: P305967

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305969

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306124

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305800

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: P305800

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305809

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306140

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305704

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

Reference Method: SM 2320 B-97
Batch ID: P305979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P305982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806218	Chloride	101		P	90 - 110
1806219	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806218	Sulfate	99.2		P	90 - 110
1806219	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806201	Ammonia-N	98.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806280	Ammonia-N	98.2	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806203	Kjeldahl Nitrogen	99.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806230	Kjeldahl Nitrogen	107	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806225	NO2NO3-N	97.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806206	Total-P	101	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806217	O-Phosphate-P	95.9	96.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P305982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806185	Fluoride	95.9	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P306207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806386	Organic Carbon	94.9	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806190	Turbidity	0.755	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806222	Turbidity	4.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806218	Chloride	0.311	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806218	Sulfate	0.862	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806201	Ammonia-N	1.60	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806280	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806203	Kjeldahl Nitrogen	0.937	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806230	Kjeldahl Nitrogen	7.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807463	Kjeldahl Nitrogen	4.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806225	NO2NO3-N	1.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806206	Total-P	0.847	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806217	O-Phosphate-P	0.934	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806218	Color (true)	0.834	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P305736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806279	Color (true)	1.47	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806185	Total Alkalinity	0.806	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806223	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806185	Fluoride	1.48	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P306207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806386	Organic Carbon	0.609	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 365.1 Rev. 2.0 dissolved
Run ID: A69887
Included Lab Sample IDs: 1806232, 1806233, 1806234, 1806235, 1806236, 1806237, 1806238

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110
O-Phosphate-P	99.6	102	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A69896
Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

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

Reference Method: SM 2120 B

Run ID: A69896

Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69908

Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	98.5	P/P	95 - 105
Turbidity	99.0	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69924

Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	98.6	99.8	P/P	90 - 110
Sulfate	99.6	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69925

Included Lab Sample IDs: 1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69961

Included Lab Sample IDs: 1806225, 1806226, 1806227, 1806228, 1806229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	99.9	P/P	90 - 110
Kjeldahl Nitrogen	97.2	95.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69968

Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69968

Included Lab Sample IDs: 1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69999

Included Lab Sample IDs: 1806231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70016

Included Lab Sample IDs: 1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	100	P/P	90 - 110
Ammonia-N	99.5	99.5	P/P	90 - 110
Ammonia-N	100	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70044

Included Lab Sample IDs: 1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70049

Included Lab Sample IDs: 1806225, 1806226, 1806227, 1806228, 1806229, 1806230

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70091

Included Lab Sample IDs: 1806231

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70094

Included Lab Sample IDs: 1806230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	93.1	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				0.755	
	Turbidity				4.25	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Chloride	102	101	102	0.311	
	Sulfate	100	99.2	99.7	0.862	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	98.5	100		1.60
	Ammonia-N	98.1	98.2	102		1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.9	101		0.937
	Kjeldahl Nitrogen	95.8	107	94.5		7.07
	Kjeldahl Nitrogen	95.5				4.69
EPA 353.2 Rev. 2.0	NO2NO3-N	101	97.8	99.8		1.65
EPA 365.1 Rev. 2.0	Total-P	105	101	99.8		0.847
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	95.9	96.8		0.934
SM 2120 B	Color (true)				0.834	
	Color (true)				1.47	
SM 2320 B-97	Total Alkalinity	103			0.806	
SM 2540 C-97	TDS				5.08	
SM 4500 F-C-97	Fluoride	98.9	95.9	97.7		1.48
SM 5310 B-00	Organic Carbon	96.7	94.9	96.0		0.609

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1806232, 1806233, 1806234, 1806235, 1806236, 1806237, 1806238
SM 2120 B / E31780	True Color measured at 450 nm	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/07/2016			06/07/2016 16:52	Rochelle Y Jackson	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
EPA 300.0 Rev. 2.1	06/07/2016			06/09/2016	Julia Storbeck	1806218, 1806219, 1806220, 1806221
	06/07/2016			06/10/2016	Julia Storbeck	1806222, 1806223, 1806224
EPA 350.1 Rev. 2.0	06/07/2016			06/13/2016	Diana M. Turner	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 351.2 Rev. 2.0	06/07/2016	06/08/2016	Sofia Elnemr	06/10/2016	Christopher Armour	1806225, 1806226, 1806227, 1806228, 1806229
	06/07/2016	06/10/2016	Sofia Elnemr	06/13/2016	Christopher Armour	1806231
	06/07/2016	06/15/2016	Sofia Elnemr	06/16/2016	Christopher Armour	1806230
EPA 353.2 Rev. 2.0	06/07/2016			06/08/2016	Beverly Y. Sanders	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231
EPA 365.1 Rev. 2.0	06/07/2016	06/14/2016	Vijayalakshmi Reddy	06/15/2016	Lipi Saha	1806225, 1806226, 1806227, 1806228, 1806229, 1806230
	06/07/2016	06/14/2016	Vijayalakshmi Reddy	06/16/2016	Lipi Saha	1806231
EPA 365.1 Rev. 2.0 dissolved	06/07/2016			06/07/2016 14:00	Julia Storbeck	1806236
	06/07/2016			06/07/2016 14:01	Julia Storbeck	1806237
	06/07/2016			06/07/2016 14:03	Julia Storbeck	1806238
	06/07/2016			06/07/2016 14:16	Julia Storbeck	1806232
	06/07/2016			06/07/2016 14:21	Julia Storbeck	1806233
	06/07/2016			06/07/2016 14:22	Julia Storbeck	1806234
	06/07/2016			06/07/2016 14:23	Julia Storbeck	1806235
SM 2120 B	06/07/2016			06/07/2016 16:24	Chrisoulla Rakowski	1806218
	06/07/2016			06/07/2016 16:27	Chrisoulla Rakowski	1806219
	06/07/2016			06/07/2016 16:28	Chrisoulla Rakowski	1806220
	06/07/2016			06/07/2016 16:29	Chrisoulla Rakowski	1806221, 1806222
	06/07/2016			06/07/2016 16:30	Chrisoulla Rakowski	1806223
	06/07/2016			06/07/2016 16:31	Chrisoulla Rakowski	1806224
SM 2320 B-97	06/07/2016			06/10/2016	Dale L. Simmons	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 2540 C-97	06/07/2016			06/10/2016	Yijie Li	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 2540 D-97	06/07/2016			06/10/2016	Yijie Li	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 4500 F-C-97	06/07/2016			06/10/2016	Dale L. Simmons	1806218, 1806219, 1806220, 1806221, 1806222, 1806223, 1806224
SM 5310 B-00	06/07/2016			06/15/2016	Diana M. Turner	1806225, 1806226, 1806227, 1806228, 1806229, 1806230, 1806231