Chemical Analysis Report

WQAP-2016-06-22-03

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

Event Description: **East Drainage Ditch, Munson Slough, Megginnis Arm Run**
Request ID: **RQ-2016-06-20-52**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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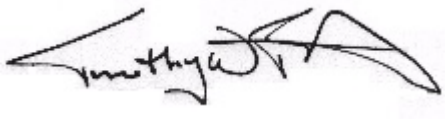
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 13-JUL-2016 11:24



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: Megginnis Arm Run @ Meridian Woods Driveway **Collection Date/Time: 06/22/2016 08:40**

Field ID: G1WA0009 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810299	EPA 180.1 Rev. 2.0	Turbidity	1.4	A	NTU	P306764	
	EPA 300.0 Rev. 2.1	Chloride	9.2	A	mg Cl/L	P307180	
	SM 2120 B	Color (true)	7.7		PCU	P306770	
	SM 2320 B-97	Total Alkalinity	47	A	mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	76		mg/L	P307302	
	SM 2540 D-97	TSS	2	I	mg/L	P307306	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P307285	
1810302	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P306815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P307132	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P306804	
	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P307064	
1810305	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P306756	

Sample Location: Megginnis Arm Run @ Meridian Woods Driveway **Collection Date/Time: 06/22/2016 08:40**

Field ID: G1WA0009 Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810311	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P306764	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P307179	
	SM 2120 B	Color (true)	2.5	U	PCU	P306770	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	15	U	mg/L	P307299	
	SM 2540 D-97	TSS	2	U	mg/L	P307303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307285	
1810312	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P307087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P306817	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307254	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P306804	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P307064	
1810313	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306756	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 07/05/2016.

Sample Location: East Drainage Ditch @ Ridge Rd. **Collection Date/Time: 06/22/2016 10:40**

Field ID: G1WA0039 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810300	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P306764	
	EPA 300.0 Rev. 2.1	Chloride	4.8	A	mg Cl/L	P307179	
	SM 2120 B	Color (true)	26	A	PCU	P306770	

Field ID: G1WA0039 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810300	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	88		mg/L	P307302	
	SM 2540 D-97	TSS	10		mg/L	P307306	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P307285	
1810303	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P307355	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P306815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P307132	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P306804	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P307064	
1810306	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P306756	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: The result was confirmed on 06/29/2016.

Sample Location: East Drainage Ditch @ Ridge Rd. **Collection Date/Time: 06/22/2016 10:40**

Field ID: G1WA0039 D Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810308	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P306764	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P307179	
	SM 2120 B	Color (true)	25		PCU	P306770	
	SM 2320 B-97	Total Alkalinity	67		mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	82	A	mg/L	P307302	
	SM 2540 D-97	TSS	11	A	mg/L	P307306	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P307285	
1810309	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P307355	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P306817	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P307132	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P306804	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P307064	
1810310	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P306756	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: The result was confirmed on 06/29/2016.

Sample Location: Munson Slough @ CR 2204 **Collection Date/Time: 06/22/2016 13:00**

Field ID: G1WA0035 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810301	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P306764	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P307179	
	SM 2120 B	Color (true)	44		PCU	P306770	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	58		mg/L	P307302	
	SM 2540 D-97	TSS	12		mg/L	P307306	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P307285	
1810304	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P307087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P306815	

Field ID: G1WA0035 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810304	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P307132	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P306804	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P307064	
1810307	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P306756	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: 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: P306764

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307179

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307180

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307087

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307355

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306817

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307132

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307254

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306804

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306756

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

Reference Method: SM 2120 B
Batch ID: P306770

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307280

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

Reference Method: SM 2540 C-97
Batch ID: P307299

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P307302

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P307303

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307306

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307064

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: P307179

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307180

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	91.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307355

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307132

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307254

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: P306804

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306756

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

Reference Method: SM 2320 B-97
Batch ID: P307280

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

Reference Method: SM 4500 F-C-97
Batch ID: P307285

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P307064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810300	Chloride	106		P	90 - 110
1810301	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810299	Chloride	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810161	Ammonia-N	92.9	94.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810364	Ammonia-N	98.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810304	Kjeldahl Nitrogen	95.6	91.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810309	Kjeldahl Nitrogen	100	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810204	NO2NO3-N	99.5	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812257	NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810302	Total-P	97.9	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810305	O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810299	Fluoride	99.0	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810334	Organic Carbon	96.7	97.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Turbidity	7.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810300	Chloride	0.207	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Chloride	1.00	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810161	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810333	Ammonia-N	0.770	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810364	Ammonia-N	0.119	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810304	Kjeldahl Nitrogen	2.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810309	Kjeldahl Nitrogen	2.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810204	NO2NO3-N	1.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812257	NO2NO3-N	1.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810302	Total-P	0.677	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810305	O-Phosphate-P	0.448	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810300	Color (true)	1.52	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Total Alkalinity	0.168	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809861	TDS	4.39	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P307302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810308	TDS	3.68	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P307306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810308	TSS	3.51	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810334	Organic Carbon	0.604	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A70196
Included Lab Sample IDs: 1810305, 1810306, 1810307, 1810310, 1810313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	99.1	P/P	90 - 110
O-Phosphate-P	98.8	101	P/P	90 - 110
O-Phosphate-P	99.3	97.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70197
Included Lab Sample IDs: 1810299, 1810300, 1810301, 1810308, 1810311

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

Reference Method: SM 2120 B
Run ID: A70198
Included Lab Sample IDs: 1810299, 1810300, 1810301, 1810308, 1810311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70236
Included Lab Sample IDs: 1810303, 1810304, 1810309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70240
Included Lab Sample IDs: 1810302, 1810312

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70260
Included Lab Sample IDs: 1810302, 1810303, 1810304, 1810309, 1810312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	96.2	P/P	90 - 110
Kjeldahl Nitrogen	96.2	96.1	P/P	90 - 110
Kjeldahl Nitrogen	98.4	96.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70299
Included Lab Sample IDs: 1810302, 1810303, 1810304, 1810309, 1810312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70306
Included Lab Sample IDs: 1810302, 1810304, 1810312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	93.5	93.7	P/P	90 - 110
Ammonia-N	94.8	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70307
Included Lab Sample IDs: 1810302, 1810303, 1810304, 1810309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70313
Included Lab Sample IDs: 1810299, 1810300, 1810301, 1810308, 1810311

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70364
Included Lab Sample IDs: 1810312

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: A70372
Included Lab Sample IDs: 1810299, 1810300, 1810301, 1810308, 1810311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70372
Included Lab Sample IDs: 1810299, 1810300, 1810301, 1810308, 1810311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	99.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70390
Included Lab Sample IDs: 1810303, 1810309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.8	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					7.83	
EPA 300.0 Rev. 2.1	Chloride	104	106	104		0.207	
	Chloride	106	105			1.00	
EPA 350.1 Rev. 2.0	Ammonia-N	93.3	92.9	94.1			1.14
	Ammonia-N	91.7					0.770
	Ammonia-N	95.9	98.6	98.8			0.119
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.6	91.8			2.10
	Kjeldahl Nitrogen	98.6	100	95.8			2.88
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.5	102			1.19
	NO2NO3-N	102	99.5	102			1.43
EPA 365.1 Rev. 2.0	Total-P	96.6	97.9	97.2			0.677
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.3	98.8			0.448
SM 2120 B	Color (true)					1.52	
SM 2320 B-97	Total Alkalinity	103				0.168	
SM 2540 C-97	TDS					4.39	
	TDS					3.68	
SM 2540 D-97	TSS					3.51	
SM 4500 F-C-97	Fluoride	98.9	99.0	99.0			0.0
SM 5310 B-00	Organic Carbon	98.6	96.7	97.4			0.604

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1810299, 1810300, 1810301, 1810308, 1810311
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1810299, 1810300, 1810301, 1810308, 1810311
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1810302, 1810303, 1810304, 1810309, 1810312
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1810302, 1810303, 1810304, 1810309, 1810312
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1810302, 1810303, 1810304, 1810309, 1810312
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1810302, 1810303, 1810304, 1810309, 1810312
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1810305, 1810306, 1810307, 1810310, 1810313
SM 2120 B / E31780	True Color measured at 450 nm	1810299, 1810300, 1810301, 1810308, 1810311

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1810299, 1810300, 1810301, 1810308, 1810311
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1810299, 1810300, 1810301, 1810308, 1810311
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1810299, 1810300, 1810301, 1810308, 1810311
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1810299, 1810300, 1810301, 1810308, 1810311
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1810302, 1810303, 1810304, 1810309, 1810312

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	06/22/2016			06/23/2016 15:44	Sima Feizi	1810299, 1810300, 1810301, 1810308, 1810311
EPA 300.0 Rev. 2.1	06/22/2016			06/30/2016	Ping Hua	1810299, 1810300, 1810301, 1810308, 1810311
EPA 350.1 Rev. 2.0	06/22/2016			06/29/2016	Diana M. Turner	1810302, 1810304, 1810312
	06/22/2016			07/05/2016	Diana M. Turner	1810303, 1810309
EPA 351.2 Rev. 2.0	06/22/2016	06/24/2016	Sofia Elnemr	06/27/2016	Christopher Armour	1810302, 1810303, 1810304, 1810309, 1810312
EPA 353.2 Rev. 2.0	06/22/2016			06/29/2016	Beverly Y. Sanders	1810302, 1810303, 1810304, 1810309
	06/22/2016			07/01/2016	Beverly Y. Sanders	1810312
EPA 365.1 Rev. 2.0	06/22/2016	06/24/2016	Vijayalakshmi Reddy	06/27/2016	Lipi Saha	1810302, 1810303, 1810304, 1810309, 1810312
EPA 365.1 Rev. 2.0 dissolved	06/22/2016			06/23/2016 14:00	Julia Storbeck	1810305
	06/22/2016			06/23/2016 14:40	Julia Storbeck	1810307
	06/22/2016			06/23/2016 14:41	Julia Storbeck	1810313
	06/22/2016			06/23/2016 14:49	Julia Storbeck	1810306
	06/22/2016			06/23/2016 14:50	Julia Storbeck	1810310
SM 2120 B	06/22/2016			06/23/2016 16:13	Rochelle Y Jackson	1810299
	06/22/2016			06/23/2016 16:15	Rochelle Y Jackson	1810300
	06/22/2016			06/23/2016 16:16	Rochelle Y Jackson	1810301, 1810308
	06/22/2016			06/23/2016 16:17	Rochelle Y Jackson	1810311
SM 2320 B-97	06/22/2016			07/02/2016	Dale L. Simmons	1810299, 1810300, 1810301, 1810308, 1810311
SM 2540 C-97	06/22/2016			06/24/2016	Yijie Li	1810299, 1810300, 1810301, 1810308, 1810311
SM 2540 D-97	06/22/2016			06/24/2016	Yijie Li	1810299, 1810300, 1810301, 1810308, 1810311
SM 4500 F-C-97	06/22/2016			07/02/2016	Dale L. Simmons	1810299, 1810300, 1810301, 1810308, 1810311
SM 5310 B-00	06/22/2016			06/29/2016	Diana M. Turner	1810302, 1810303, 1810304, 1810309, 1810312