

Chemical Analysis Report

NE-DIST-2016-06-22-01

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

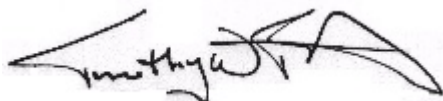
Event Description: **Ichetucknee**
Request ID: **RQ-2016-06-20-08**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 18-JUL-2016 13:47

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: 21030050 ICHETUCKNEE R @ US 27

Collection Date/Time: 06/21/2016 10:00

Field ID: 21030050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810105	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P306704	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P307575	
		Sulfate	11		mg SO4/L	P307576	
	SM 2120 B	Color (true)	2.5	U	PCU	P307075	
	SM 2540 C-97	TDS	185		mg/L	P307301	
	SM 2540 D-97	TSS	3	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P307681	
1810110	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P306931	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P306712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P306943	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P307117	
	SM 5310 B-00	Organic Carbon	0.74	I	mg C/L	P307063	
1810115	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P306677	

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: 21030050 ICHETUCKNEE@US 27 DUP

Collection Date/Time: 06/21/2016 10:05

Field ID: 21030050 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810106	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P306704	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P307575	
		Sulfate	11		mg SO4/L	P307576	
	SM 2120 B	Color (true)	2.5	U	PCU	P307075	
	SM 2540 C-97	TDS	191		mg/L	P307301	
	SM 2540 D-97	TSS	3	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P307681	
1810111	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P307355	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.088	I	mg N/L	P306786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.53		mg N/L	P307133	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P306802	
	SM 5310 B-00	Organic Carbon	0.72	I	mg C/L	P307063	
1810116	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P306677	

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: 21030104 COFFEE SPRINGS

Collection Date/Time: 06/21/2016 11:05

Field ID: 21030104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810107	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P306704	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P307575	
		Sulfate	11		mg SO4/L	P307576	
	SM 2120 B	Color (true)	2.5	U	PCU	P307075	
	SM 2540 C-97	TDS	172		mg/L	P307301	

Field ID: 21030104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810107	SM 2540 D-97	TSS	2	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P307681	
1810112	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P307085	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P306786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P307133	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P306802	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P307063	
1810117	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P306677	

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.

Sample Location: 21030081 DEVILS EYE SPRING

Collection Date/Time: 06/21/2016 12:00

Field ID: 21030081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810108	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P306704	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P307575	
		Sulfate	12		mg SO4/L	P307576	
	SM 2120 B	Color (true)	2.5	U	PCU	P307075	
	SM 2540 C-97	TDS	189		mg/L	P307301	
	SM 2540 D-97	TSS	3	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P307681	
1810113	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P306813	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.59		mg N/L	P307133	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P306802	
	SM 5310 B-00	Organic Carbon	0.58	I	mg C/L	P307063	
1810118	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P306677	

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: 21030131 ICHETUCKNEE HEAD SPRG

Collection Date/Time: 06/21/2016 12:25

Field ID: 21030131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810109	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P306704	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P307575	
		Sulfate	9.7		mg SO4/L	P307576	
	SM 2120 B	Color (true)	2.5	U	PCU	P307075	
	SM 2540 C-97	TDS	189		mg/L	P307301	
	SM 2540 D-97	TSS	2	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.094	I	mg F/L	P307681	
1810114	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.089	I	mg N/L	P306813	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.79		mg N/L	P307380	

Field ID: 21030131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810114	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P306803	
	SM 5310 B-00	Organic Carbon	0.51	I	mg C/L	P307063	
1810119	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P306678	

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: P306704

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307575

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307576

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P306931

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P307085

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/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: P307355

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P306712

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306786

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306813

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306943

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307133

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307380

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306802

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307117

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306677

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

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

Reference Method: SM 2120 B
Batch ID: P307075

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 C-97
Batch ID: P307301

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307305

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307681

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307063

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: P307575

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306931

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.4		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: 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: P306712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306786

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306813

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307133

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: P307380

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: P306802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307117

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306677

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

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

Reference Method: SM 4500 F-C-97
Batch ID: P307681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307063

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810758	Chloride	103	103	P/P	90 - 110
1810759	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810758	Sulfate	99.8	100	P/P	90 - 110
1810759	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810110	Ammonia-N	98.1	96.6	P/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: P306712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809862	Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810111	Kjeldahl Nitrogen	102	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810113	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810088	NO2NO3-N	95.2	95.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810634	NO2NO3-N	98.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810615	NO2NO3-N	99.2	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810088	Total-P	109	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810114	Total-P	97.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811392	Total-P	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810040	O-Phosphate-P	99.1	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810119	O-Phosphate-P	96.2	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810108	Fluoride	101	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810144	Organic Carbon	96.2	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810138	Turbidity	1.27	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810758	Chloride	0.321	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810758	Sulfate	0.181	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810110	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809579	Ammonia-N	0.865	Spike	P	0 - 20

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: 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: P306712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809862	Kjeldahl Nitrogen	4.86	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810111	Kjeldahl Nitrogen	3.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810113	Kjeldahl Nitrogen	0.426	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810088	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810634	NO2NO3-N	1.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810615	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810088	Total-P	12.4	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810114	Total-P	0.408	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811392	Total-P	2.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810040	O-Phosphate-P	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810119	O-Phosphate-P	2.52	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810087	Color (true)	3.19	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P307301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810079	TDS	3.38	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810108	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810144	Organic Carbon	0.816	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: A70171
Included Lab Sample IDs: 1810115, 1810116, 1810117, 1810118, 1810119

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A70171

Included Lab Sample IDs: 1810115, 1810116, 1810117, 1810118, 1810119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70179

Included Lab Sample IDs: 1810105, 1810106, 1810107, 1810108, 1810109

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

Reference Method: SM 2120 B

Run ID: A70182

Included Lab Sample IDs: 1810105, 1810106, 1810107, 1810108, 1810109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	100	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70231

Included Lab Sample IDs: 1810110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70236

Included Lab Sample IDs: 1810111, 1810113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.1	P/P	90 - 110
Total-P	99.1	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70240

Included Lab Sample IDs: 1810112, 1810114

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70249

Included Lab Sample IDs: 1810110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70250

Included Lab Sample IDs: 1810110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70260

Included Lab Sample IDs: 1810111, 1810112, 1810113, 1810114

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	97.6	96.8	P/P	90 - 110
Kjeldahl Nitrogen	99.6	97.6	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70299

Included Lab Sample IDs: 1810110, 1810111, 1810112, 1810113, 1810114

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70306

Included Lab Sample IDs: 1810112, 1810113, 1810114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.8	93.5	P/P	90 - 110
Ammonia-N	96.1	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70307

Included Lab Sample IDs: 1810111, 1810112, 1810113

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70368

Included Lab Sample IDs: 1810110

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70390

Included Lab Sample IDs: 1810111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70411

Included Lab Sample IDs: 1810114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70443

Included Lab Sample IDs: 1810105, 1810106, 1810107, 1810108, 1810109

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

Reference Method: SM 4500 F-C-97

Run ID: A70489

Included Lab Sample IDs: 1810105, 1810106, 1810107, 1810108, 1810109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.0	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				1.27	
EPA 300.0 Rev. 2.1	Chloride	104	103 103 106			0.321
	Sulfate	101	99.8 100 102			0.181
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.1 96.6			1.31
	Ammonia-N	92.4				0.865
	Ammonia-N	93.3	92.9 94.1			1.14
	Ammonia-N	95.9	98.6 98.8			0.119
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.0 102			4.86
	Kjeldahl Nitrogen	96.1	102 98.5			3.46
	Kjeldahl Nitrogen	98.3	103 104			0.426
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	95.2 95.7			0.509
	NO2NO3-N	102	98.2 100			1.70
	NO2NO3-N	102	99.2 97.7			1.45
EPA 365.1 Rev. 2.0	Total-P	93.4	109 95.8			12.4
	Total-P	96.8	97.6 98.0			0.408
	Total-P	102	106 104			2.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	99.1 101			1.50
	O-Phosphate-P	101	96.2 99.2			2.52
SM 2120 B	Color (true)				3.19	
SM 2540 C-97	TDS				3.38	
SM 4500 F-C-97	Fluoride	97.9	101 99.8			0.470
SM 5310 B-00	Organic Carbon	101	96.2 97.3			0.816

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1810105, 1810106, 1810107, 1810108, 1810109

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1810105, 1810106, 1810107, 1810108, 1810109
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1810105, 1810106, 1810107, 1810108, 1810109
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1810110, 1810111, 1810112, 1810113, 1810114
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1810110, 1810111, 1810112, 1810113, 1810114
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1810110, 1810111, 1810112, 1810113, 1810114
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1810110, 1810111, 1810112, 1810113, 1810114
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1810115, 1810116, 1810117, 1810118, 1810119
SM 2120 B / E31780	True Color measured at 450 nm	1810105, 1810106, 1810107, 1810108, 1810109
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1810105, 1810106, 1810107, 1810108, 1810109
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1810105, 1810106, 1810107, 1810108, 1810109
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1810105, 1810106, 1810107, 1810108, 1810109
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1810110, 1810111, 1810112, 1810113, 1810114

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			06/22/2016 15:56	Sima Feizi	1810105, 1810106, 1810107, 1810108, 1810109
EPA 300.0 Rev. 2.1	06/22/2016			07/07/2016	Ping Hua	1810105, 1810106, 1810107, 1810108, 1810109
EPA 350.1 Rev. 2.0	06/22/2016			06/27/2016	Diana M. Turner	1810110
	06/22/2016			06/29/2016	Diana M. Turner	1810112, 1810113, 1810114
	06/22/2016			07/05/2016	Diana M. Turner	1810111
EPA 351.2 Rev. 2.0	06/22/2016	06/23/2016	Sofia Elnemr	06/24/2016	Christopher Armour	1810110
	06/22/2016	06/23/2016	Sofia Elnemr	06/27/2016	Christopher Armour	1810111, 1810112
	06/22/2016	06/24/2016	Sofia Elnemr	06/27/2016	Christopher Armour	1810113, 1810114
EPA 353.2 Rev. 2.0	06/22/2016			06/27/2016	Beverly Y. Sanders	1810110
	06/22/2016			06/29/2016	Beverly Y. Sanders	1810111, 1810112, 1810113
	06/22/2016			07/06/2016	Beverly Y. Sanders	1810114
EPA 365.1 Rev. 2.0	06/22/2016	06/24/2016	Vijayalakshmi Reddy	06/27/2016	Lipi Saha	1810111, 1810112, 1810113, 1810114
	06/22/2016	06/30/2016	Vijayalakshmi Reddy	07/01/2016	Lipi Saha	1810110
EPA 365.1 Rev. 2.0 dissolved	06/22/2016			06/22/2016 14:19	Julia Storbeck	1810119
	06/22/2016			06/22/2016 14:34	Julia Storbeck	1810115
	06/22/2016			06/22/2016 14:35	Julia Storbeck	1810116
	06/22/2016			06/22/2016 14:48	Julia Storbeck	1810117
	06/22/2016			06/22/2016 14:49	Julia Storbeck	1810118
SM 2120 B	06/22/2016			06/22/2016 17:47	Chrisoulla Rakowski	1810105, 1810106
	06/22/2016			06/22/2016 17:48	Chrisoulla Rakowski	1810107
	06/22/2016			06/22/2016 17:49	Chrisoulla Rakowski	1810108
	06/22/2016			06/22/2016 17:50	Chrisoulla Rakowski	1810109
SM 2540 C-97	06/22/2016			06/24/2016	Yijie Li	1810105, 1810106, 1810107, 1810108, 1810109
SM 2540 D-97	06/22/2016			06/24/2016	Yijie Li	1810105, 1810106, 1810107, 1810108, 1810109
SM 4500 F-C-97	06/22/2016			07/11/2016	Dale L. Simmons	1810105, 1810106, 1810107, 1810108, 1810109
SM 5310 B-00	06/22/2016			06/29/2016	Diana M. Turner	1810110, 1810111, 1810112, 1810113, 1810114