

Chemical Analysis Report

NE-DIST-2016-05-03-01

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

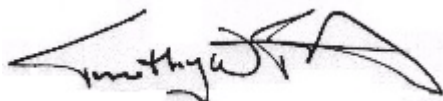
Event Description: **NASSAU EAST**
Request ID: **RQ-2016-05-02-38**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jann Gruentzel

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: 31-MAY-2016 14:15

A handwritten signature in black ink, appearing to read 'Timothy W. 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: 19020069 UNNMTRIB TO LIL MILLS

Collection Date/Time: 05/02/2016 09:30

Field ID: 19020069 UNNMTRIB TO LIL MILLS

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1794891	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P303474	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P304062	
		Sulfate	4.4		mg SO4/L	P304063	
	SM 2120 B	Color (true)	460		PCU	P303436	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P304113	
	SM 2540 C-97	TDS	196		mg/L	P303937	
	SM 2540 D-97	TSS	9	I	mg/L	P303897	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P304120	
1794893	EPA 350.1 Rev. 2.0	Ammonia-N	0.39		mg N/L	P304023	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P304361	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304164	
	EPA 365.1 Rev. 2.0	Total-P	1.3		mg P/L	P304347	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P304744	
1794895	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.86		mg P/L	P303431	

Ref. Method and Comment:

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

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4NE0008 6MI BELOW CITY PRISON

Collection Date/Time: 05/02/2016 10:50

Field ID: G4NE0008 6MI BELOW CITY PRISON

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1794897	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P303474	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P304113	
	SM 2540 D-97	TSS	10	I	mg/L	P303900	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P304120	
1794899	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P304020	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P304359	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P303634	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P304319	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P304744	
1794901	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P303433	

Ref. Method and Comment:

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

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19020003 LOFTON CR @ A1A

Collection Date/Time: 05/02/2016 10:15

Field ID: 19020003 LOFTON CR @ A1A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1794892	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P303474	
	EPA 300.0 Rev. 2.1	Chloride	250		mg Cl/L	P304062	
		Sulfate	34		mg SO4/L	P304063	
	SM 2120 B	Color (true)	340		PCU	P303436	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P304113	

Field ID: 19020003 LOFTON CR @ A1A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1794892	SM 2540 C-97	TDS	543		mg/L	P303937	
	SM 2540 D-97	TSS	5	I	mg/L	P303897	
	SM 4500 F-C-97	Fluoride	0.094	I	mg F/L	P304120	
1794894	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P304023	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P304361	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P304047	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P304347	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P304744	
1794896	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P303431	

Ref. Method and Comment:

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

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4NE0002 SAWPIT CR BOAT RAMP

Collection Date/Time: 05/02/2016 11:10

Field ID: G4NE0002 SAWPIT CR BOAT RAMP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1794898	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P303474	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P303817	
	SM 2540 D-97	TSS	24		mg/L	P303901	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P303822	
1794900	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P304020	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P304359	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303635	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P304319	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P304745	
1794902	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P303433	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303474

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304062

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304063

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304020

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304023

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304359

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304361

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303634

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303635

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304047

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304164

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304319

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304347

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303431

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303433

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

Reference Method: SM 2120 B
Batch ID: P303436

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303817

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

Reference Method: SM 2320 B-97
Batch ID: P304113

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

Reference Method: SM 2540 C-97
Batch ID: P303937

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303897

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303900

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P303901

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P304120

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304744

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

Reference Method: SM 5310 B-00
Batch ID: P304745

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: P304062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304063

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304020

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304023

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: P304023

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304359

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: P304361

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303634

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: P303635

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304047

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304347

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303431

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303433

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

Reference Method: SM 2320 B-97
Batch ID: P303817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P304113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P304120

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304744

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

Reference Method: SM 5310 B-00
Batch ID: P304745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304062

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794891	Chloride	95.4		P	90 - 110
1794971	Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794891	Sulfate	93.4		P	90 - 110
1794971	Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794848	Ammonia-N	103	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794877	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794704	Kjeldahl Nitrogen	99.7	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794847	Kjeldahl Nitrogen	113	101	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794698	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794900	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794877	NO2NO3-N	97.5	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794893	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794702	Total-P	95.8	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794878	Total-P	99.3	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794939	O-Phosphate-P	98.5	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794901	O-Phosphate-P	97.1	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793834	Fluoride	97.5	98.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P304120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794729	Fluoride	95.8	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793683	Organic Carbon	91.4	92.4	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794843	Turbidity	3.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794971	Chloride	0.0809	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794971	Sulfate	1.46	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794848	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794877	Ammonia-N	0.853	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794704	Kjeldahl Nitrogen	0.165	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794847	Kjeldahl Nitrogen	6.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794698	NO2NO3-N	0.985	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794900	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794877	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794893	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794702	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794878	Total-P	0.755	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794939	O-Phosphate-P	0.583	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794901	O-Phosphate-P	1.71	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794921	Color (true)	0.671	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P303817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793834	Total Alkalinity	0.401	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P304113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794729	Total Alkalinity	0.468	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794812	TDS	3.03	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P303901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794845	TSS	5.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P303822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793834	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P304120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794729	Fluoride	0.487	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794893	Organic Carbon	0.789	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793683	Organic Carbon	1.04	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: A69241

Included Lab Sample IDs: 1794895, 1794896, 1794901, 1794902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	99.5	98.9	P/P	90 - 110
O-Phosphate-P	99.6	99.5	P/P	90 - 110
O-Phosphate-P	99.9	101	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A69244

Included Lab Sample IDs: 1794891, 1794892

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69253

Included Lab Sample IDs: 1794891, 1794892, 1794897, 1794898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69298

Included Lab Sample IDs: 1794899, 1794900

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

Reference Method: SM 2320 B-97

Run ID: A69345

Included Lab Sample IDs: 1794898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69345

Included Lab Sample IDs: 1794898

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69388

Included Lab Sample IDs: 1794893, 1794894, 1794899, 1794900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	101	P/P	90 - 110
Ammonia-N	99.6	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69415

Included Lab Sample IDs: 1794894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69423

Included Lab Sample IDs: 1794891, 1794892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	98.5	P/P	90 - 110
Chloride	99.7	99.4	P/P	90 - 110
Sulfate	98.6	96.2	P/P	90 - 110
Sulfate	98.6	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69434

Included Lab Sample IDs: 1794891, 1794892, 1794897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.3	P/P	90 - 110
Total Alkalinity	98.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69434

Included Lab Sample IDs: 1794891, 1794892, 1794897

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69443

Included Lab Sample IDs: 1794893

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69502

Included Lab Sample IDs: 1794893, 1794894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110
Total-P	99.8	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69513
Included Lab Sample IDs: 1794899, 1794900

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69548
Included Lab Sample IDs: 1794899, 1794900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69562
Included Lab Sample IDs: 1794893, 1794894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	94.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69609
Included Lab Sample IDs: 1794893, 1794894, 1794899, 1794900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.0	93.4	P/P	90 - 110
Organic Carbon	98.4	99.2	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				3.83	
EPA 300.0 Rev. 2.1	Chloride	99.3	97.4 95.4		0.0809	
	Sulfate	96.5	94.2 93.4		1.46	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103 105			1.12
	Ammonia-N	99.8	101 102			0.853
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.7 99.9			0.165
	Kjeldahl Nitrogen	99.7	113 101			6.33
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101 102			0.985
	NO2NO3-N	103	100 102			0.990
	NO2NO3-N	101	97.5 98.5			1.02
	NO2NO3-N	106	98.5 99.5			1.01
EPA 365.1 Rev. 2.0	Total-P	100	95.8 94.3			1.30
	Total-P	102	99.3 98.5			0.755
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.5 99.1			0.583
	O-Phosphate-P	102	97.1 99.7			1.71
SM 2120 B	Color (true)				0.671	
SM 2320 B-97	Total Alkalinity	101			0.401	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2320 B-97	Total Alkalinity	101				0.468	
SM 2540 C-97	TDS					3.03	
SM 2540 D-97	TSS					5.13	
SM 4500 F-C-97	Fluoride	96.5	97.5	98.2			0.483
	Fluoride	97.6	95.8	96.4			0.487
SM 5310 B-00	Organic Carbon	97.4					0.789
	Organic Carbon	97.6	91.4	92.4			1.04

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1794891, 1794892, 1794897, 1794898
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1794891, 1794892
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1794891, 1794892
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1794893, 1794894, 1794899, 1794900
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1794893, 1794894, 1794899, 1794900
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1794893, 1794894, 1794899, 1794900
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1794893, 1794894, 1794899, 1794900
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1794895, 1794896, 1794901, 1794902
SM 2120 B / E31780	True Color measured at 450 nm	1794891, 1794892
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1794891, 1794892, 1794897, 1794898
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1794891, 1794892
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1794891, 1794892, 1794897, 1794898
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1794891, 1794892, 1794897, 1794898
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1794893, 1794894, 1794899, 1794900

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	05/03/2016			05/03/2016 17:32	Blanca Fach	1794891, 1794892, 1794897, 1794898
EPA 300.0 Rev. 2.1	05/03/2016			05/10/2016	Elisa J Lutz	1794891, 1794892
EPA 350.1 Rev. 2.0	05/03/2016			05/10/2016	Diana M. Turner	1794893, 1794894, 1794899, 1794900
EPA 351.2 Rev. 2.0	05/03/2016	05/16/2016	Sofia Elnemr	05/18/2016	Christopher Armour	1794893, 1794894, 1794899, 1794900
EPA 353.2 Rev. 2.0	05/03/2016			05/05/2016	Peter D. Kaus	1794899, 1794900
	05/03/2016			05/11/2016	Peter D. Kaus	1794894
	05/03/2016			05/12/2016	Peter D. Kaus	1794893
EPA 365.1 Rev. 2.0	05/03/2016	05/16/2016	Vijayalakshmi Reddy	05/16/2016	Lipi Saha	1794893, 1794894
	05/03/2016	05/16/2016	Vijayalakshmi Reddy	05/17/2016	Lipi Saha	1794899, 1794900
EPA 365.1 Rev. 2.0 dissolved	05/03/2016			05/03/2016 15:16	Julia Storbeck	1794901
	05/03/2016			05/03/2016 15:54	Julia Storbeck	1794895
	05/03/2016			05/03/2016 16:14	Julia Storbeck	1794902
	05/03/2016			05/03/2016 16:30	Julia Storbeck	1794896
SM 2120 B	05/03/2016			05/03/2016 17:23	Chrisoulla Rakowski	1794891
	05/03/2016			05/03/2016 17:24	Chrisoulla Rakowski	1794892
SM 2320 B-97	05/03/2016			05/07/2016	Dale L. Simmons	1794898
	05/03/2016			05/11/2016	Dale L. Simmons	1794891, 1794892, 1794897
SM 2540 C-97	05/03/2016			05/04/2016	Yijie Li	1794891, 1794892
SM 2540 D-97	05/03/2016			05/04/2016	Yijie Li	1794891, 1794892, 1794897, 1794898
SM 4500 F-C-97	05/03/2016			05/07/2016	Dale L. Simmons	1794898
	05/03/2016			05/11/2016	Dale L. Simmons	1794891, 1794892, 1794897
SM 5310 B-00	05/03/2016			05/20/2016	Ping Hua	1794893
	05/03/2016			05/21/2016	Ping Hua	1794894, 1794899, 1794900