

Chemical Analysis Report

NE-DIST-2016-04-05-01

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

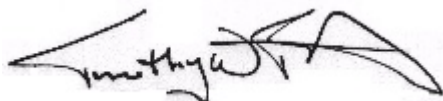
Event Description: **NASSAU EAST**
Request ID: **RQ-2016-04-04-24**
Customer: **NE-DIST**
Project ID: **SMP**

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: 28-APR-2016 10:25

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: G4NE0005THOMASCR3.5 BLW PRISON

Collection Date/Time: 04/04/2016 10:40

Field ID: G4NE0005THOMASCR3.5 BLW PRISON

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1786349	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P301668	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P301933	
	SM 2540 D-97	TSS	12		mg/L	P302210	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P301936	
1786351	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P301897	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P302239	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P301915	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P302046	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P301927	
1786353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P301605	

Ref. Method and Comment:

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

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: 19020069 UNNMTRIB TO LIL MILLS

Collection Date/Time: 04/04/2016 12:15

Field ID: 19020069 UNNMTRIB TO LIL MILLS

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1786343	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P301668	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P301852	
		Sulfate	15		mg SO4/L	P301855	
	SM 2120 B	Color (true)	470		PCU	P301638	
	SM 2320 B-97	Total Alkalinity	46		mg CaCO3/L	P301933	
	SM 2540 C-97	TDS	243		mg/L	P302203	
	SM 2540 D-97	TSS	7	I	mg/L	P302208	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P301936	
1786345	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P301897	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P302239	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P301915	
	EPA 365.1 Rev. 2.0	Total-P	0.31		mg P/L	P302046	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P301927	
1786347	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P301604	

Ref. Method and Comment:

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

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: 19020003 LOFTON CR @ A1A

Collection Date/Time: 04/04/2016 12:55

Field ID: 19020003 LOFTON CR @ A1A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1786344	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P301668	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P301852	
		Sulfate	4.6		mg SO4/L	P301855	

Field ID: 19020003 LOFTON CR @ A1A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1786344	SM 2120 B	Color (true)	510		PCU	P301638	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P301933	
	SM 2540 C-97	TDS	149		mg/L	P302203	
	SM 2540 D-97	TSS	6	I	mg/L	P302208	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P301936	
1786346	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P301897	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P302239	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P301915	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P302046	
	SM 5310 B-00	Organic Carbon	39		mg C/L	P301927	
1786348	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.080		mg P/L	P301605	

Ref. Method and Comment:

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

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: G4NE0002 SAWPIT CR BOAT RAMP

Collection Date/Time: 04/04/2016 14:15

Field ID: G4NE0002 SAWPIT CR BOAT RAMP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1786350	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P301668	
	SM 2320 B-97	Total Alkalinity	110		mg CaCO3/L	P301939	
	SM 2540 D-97	TSS	12		mg/L	P302210	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P301938	
1786352	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P301899	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P302240	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301809	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P302046	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P301822	
1786354	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P301607	

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: P301668

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301852

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301855

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301897

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301899

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302239

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302240

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301809

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301915

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302046

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301604

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301605

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301607

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

Reference Method: SM 2120 B
Batch ID: P301638

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P301933

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

Reference Method: SM 2320 B-97
Batch ID: P301939

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

Reference Method: SM 2540 C-97
Batch ID: P302203

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302208

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302210

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P301936

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P301938

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P301822

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

Reference Method: SM 5310 B-00
Batch ID: P301927

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: P301852

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301855

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301897

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301899

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302239

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302240

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302240

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301809

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: P301915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	95.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301604

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301605

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: P301607

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

Reference Method: SM 2320 B-97
Batch ID: P301933

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

Reference Method: SM 2320 B-97
Batch ID: P301939

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P301936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P301938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P301822

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

Reference Method: SM 5310 B-00
 Batch ID: P301927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786383	Chloride	99.8		P	90 - 110
1786431	Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786383	Sulfate	98.9		P	90 - 110
1786431	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P301899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786352	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P302240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786262	Kjeldahl Nitrogen	101	97.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786262	NO2NO3-N	99.2	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786340	NO2NO3-N	93.0	92.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786345	Total-P	101	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786062	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786378	O-Phosphate-P	98.3	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786354	O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P301938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786536	Fluoride	97.4	98.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P301822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1784377	Organic Carbon	93.4	92.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P301927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1785898	Organic Carbon	92.6	94.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P301668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786327	Turbidity	1.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786383	Chloride	0.0281	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786383	Sulfate	0.595	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786377	Ammonia-N	0.576	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786352	Ammonia-N	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786345	Kjeldahl Nitrogen	5.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786262	Kjeldahl Nitrogen	2.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786262	NO2NO3-N	2.06	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786340	NO2NO3-N	0.288	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786345	Total-P	2.64	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786062	O-Phosphate-P	1.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786378	O-Phosphate-P	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786354	O-Phosphate-P	1.09	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P301638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786339	Color (true)	1.91	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P301933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786872	Total Alkalinity	0.606	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P301939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786536	Total Alkalinity	0.0176	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P302203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786055	TDS	2.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P301936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786872	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
 Batch ID: P301938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786536	Fluoride	0.476	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P301822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1784377	Organic Carbon	0.639	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P301927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1785898	Organic Carbon	1.77	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A68637
 Included Lab Sample IDs: 1786343, 1786344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	101	99.0	P/P	90 - 110
Sulfate	99.0	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A68657

Included Lab Sample IDs: 1786347, 1786348, 1786353, 1786354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.6	98.2	P/P	90 - 110
O-Phosphate-P	99.8	98.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A68676

Included Lab Sample IDs: 1786343, 1786344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.3	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68679

Included Lab Sample IDs: 1786343, 1786344, 1786349, 1786350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68722

Included Lab Sample IDs: 1786352

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

Reference Method: SM 5310 B-00

Run ID: A68728

Included Lab Sample IDs: 1786352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.6	92.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68756

Included Lab Sample IDs: 1786345, 1786346, 1786351, 1786352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68762

Included Lab Sample IDs: 1786345, 1786346, 1786351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.5	94.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A68767

Included Lab Sample IDs: 1786345, 1786346, 1786351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68768

Included Lab Sample IDs: 1786343, 1786344, 1786349, 1786350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	101	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68768

Included Lab Sample IDs: 1786343, 1786344, 1786349, 1786350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68837

Included Lab Sample IDs: 1786345, 1786346, 1786351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68849

Included Lab Sample IDs: 1786352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68934

Included Lab Sample IDs: 1786352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68962

Included Lab Sample IDs: 1786345, 1786346, 1786351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.0	P/P	90 - 110
Kjeldahl Nitrogen	103	101	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	MS
EPA 180.1 Rev. 2.0	Turbidity				1.40	
EPA 300.0 Rev. 2.1	Chloride	101	99.8	98.7	0.0281	
	Sulfate	99.3	98.9	97.8	0.595	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5				0.576
	Ammonia-N	101	104	103		1.76
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100				5.70
	Kjeldahl Nitrogen	96.1	101	97.3		2.80
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.2	102		2.06
	NO2NO3-N	95.5	93.0	92.5		0.288
EPA 365.1 Rev. 2.0	Total-P	99.4	101	96.1		2.64
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	101	103		1.20
	O-Phosphate-P	104	98.3	99.1		0.519
	O-Phosphate-P	104	99.3	100		1.09
SM 2120 B	Color (true)				1.91	
SM 2320 B-97	Total Alkalinity	102			0.606	
	Total Alkalinity	102			0.0176	
SM 2540 C-97	TDS				2.64	
SM 4500 F-C-97	Fluoride	97.8				0.0
	Fluoride	98.3	97.4	98.1		0.476
SM 5310 B-00	Organic Carbon	96.7	93.4	92.6		0.639
	Organic Carbon	93.5	92.6	94.3		1.77

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1786343, 1786344, 1786349, 1786350
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1786343, 1786344
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1786343, 1786344
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1786345, 1786346, 1786351, 1786352
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1786345, 1786346, 1786351, 1786352
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1786345, 1786346, 1786351, 1786352
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1786345, 1786346, 1786351, 1786352
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1786347, 1786348, 1786353, 1786354
SM 2120 B / E31780	True Color measured at 450 nm	1786343, 1786344
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1786343, 1786344, 1786349, 1786350
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1786343, 1786344
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1786343, 1786344, 1786349, 1786350
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1786343, 1786344, 1786349, 1786350
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1786345, 1786346, 1786351, 1786352

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	04/05/2016			04/05/2016 18:39	Sima Feizi	1786343, 1786344, 1786349, 1786350
EPA 300.0 Rev. 2.1	04/05/2016			04/07/2016	Julia Storbeck	1786343, 1786344
EPA 350.1 Rev. 2.0	04/05/2016			04/07/2016	Diana M. Turner	1786345, 1786346, 1786351, 1786352
EPA 351.2 Rev. 2.0	04/05/2016	04/14/2016	Sofia Elnemr	04/15/2016	Christopher Armour	1786345, 1786346, 1786351
	04/05/2016	04/14/2016	Sofia Elnemr	04/18/2016	Virginia P. Brown	1786352
EPA 353.2 Rev. 2.0	04/05/2016			04/07/2016	Peter D. Kaus	1786352
	04/05/2016			04/08/2016	Diana M. Turner	1786345, 1786346, 1786351
EPA 365.1 Rev. 2.0	04/05/2016	04/12/2016	Christopher Armour	04/12/2016	Lipi Saha	1786345, 1786346, 1786351
	04/05/2016	04/12/2016	Christopher Armour	04/13/2016	Lipi Saha	1786352
EPA 365.1 Rev. 2.0 dissolved	04/05/2016			04/05/2016 14:58	Ping Hua	1786354
	04/05/2016			04/05/2016 15:21	Ping Hua	1786347
	04/05/2016			04/05/2016 15:22	Ping Hua	1786348
	04/05/2016			04/05/2016 15:48	Ping Hua	1786353
SM 2120 B	04/05/2016			04/05/2016 17:30	Blanca Fach	1786343, 1786344
SM 2320 B-97	04/05/2016			04/08/2016	Dale L. Simmons	1786343, 1786344, 1786349, 1786350
SM 2540 C-97	04/05/2016			04/07/2016	Yijie Li	1786343, 1786344
SM 2540 D-97	04/05/2016			04/07/2016	Yijie Li	1786343, 1786344, 1786349, 1786350
SM 4500 F-C-97	04/05/2016			04/08/2016	Dale L. Simmons	1786343, 1786344, 1786349, 1786350
SM 5310 B-00	04/05/2016			04/07/2016	Sofia Elnemr	1786345, 1786346, 1786351, 1786352