

Chemical Analysis Report

NE-DIST-2016-07-06-02

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

Event Description: **Nassau East (Boat Run)**

Request ID: **RQ-2016-07-04-10**

Customer: **NE-DIST**

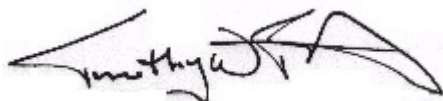
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
Jacksonville, FL 32256
Attn: Nicole Frederick

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: 25-JUL-2016 11:03

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: THOMAS CR. 6MI BELOW PRISON

Collection Date/Time: 07/05/2016 11:25

Field ID: THOMAS CR. 6MI BELOW PRISON

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813489	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P307438	
	SM 2320 B-97	Total Alkalinity	30	A	mg CaCO3/L	P307895	
	SM 2540 D-97	TSS	31		mg/L	P308075	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307898	
1813491	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P307640	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P307604	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307569	
	EPA 365.1 Rev. 2.0	Total-P	0.093		mg P/L	P307554	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P308049	
1813493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P307399	

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: THOMAS CR. 6MI BELOW PRISON(DUPLICATE)

Collection Date/Time: 07/05/2016 11:30

Field ID: THOMAS CR. 6MI BELOW PRISON(DU

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813490	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P307438	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P307895	
	SM 2540 D-97	TSS	29		mg/L	P308075	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307898	
1813492	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P307640	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P307604	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307569	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P307554	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P308049	
1813494	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P307399	

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: FIELD BLANK

Collection Date/Time: 07/05/2016 11:45

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813495	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P307447	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P308025	
		Sulfate	0.20	U	mg SO4/L	P308031	
	SM 2120 B	Color (true)	2.5	U	PCU	P307402	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	15	U	mg/L	P308084	
	SM 2540 D-97	TSS	2	U	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813496	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P307640	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813496	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P307600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307762	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P307557	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P307769	
1813497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307399	

Ref. Method and Comment:

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

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307438

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307447

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308025

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307640

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307600

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307604

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307569

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307762

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307554

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307557

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307399

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

Reference Method: SM 2120 B
Batch ID: P307402

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307628

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

Reference Method: SM 2320 B-97
Batch ID: P307895

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

Reference Method: SM 2540 C-97
Batch ID: P308084

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P308072

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P308075

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P307898

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307769

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

Reference Method: SM 5310 B-00
Batch ID: P308049

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: P308025

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307640

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307640

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: P307600

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307569

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: P307762

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307399

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

Reference Method: SM 2320 B-97
Batch ID: P307628

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P307895

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

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P307898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307769

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

Reference Method: SM 5310 B-00
Batch ID: P308049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812263	Chloride	99.2		P	90 - 110
1812688	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812263	Sulfate	100		P	90 - 110
1812688	Sulfate	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813491	Kjeldahl Nitrogen	98.6	93.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813431	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813479	NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813321	Total-P	96.0	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813513	Total-P	99.7	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813500	O-Phosphate-P	94.4	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1814122	Fluoride	97.3	97.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P307898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813489	Fluoride	99.1	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813438	Organic Carbon	98.8	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P308049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813459	Organic Carbon	88.9	92.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813383	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813498	Turbidity	3.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Chloride	0.287	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Sulfate	1.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813459	Ammonia-N	0.557	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813448	Kjeldahl Nitrogen	6.68	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813491	Kjeldahl Nitrogen	4.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813431	NO2NO3-N	0.562	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813479	NO2NO3-N	2.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813321	Total-P	0.776	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813513	Total-P	2.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813500	O-Phosphate-P	3.13	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813511	Color (true)	0.567	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Total Alkalinity	0.0450	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P307895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813489	Total Alkalinity	0.282	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P308084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813364	TDS	4.15	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P307898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813489	Fluoride	0.467	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813438	Organic Carbon	0.711	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P308049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813459	Organic Carbon	3.09	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: A70414
Included Lab Sample IDs: 1813493, 1813494, 1813497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	99.9	P/P	90 - 110
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A70415
Included Lab Sample IDs: 1813495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.2	95.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70428
Included Lab Sample IDs: 1813489, 1813490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70429

Included Lab Sample IDs: 1813495

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70459

Included Lab Sample IDs: 1813491, 1813492

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

Reference Method: SM 2320 B-97

Run ID: A70476

Included Lab Sample IDs: 1813495

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

Reference Method: SM 4500 F-C-97

Run ID: A70476

Included Lab Sample IDs: 1813495

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70478

Included Lab Sample IDs: 1813491, 1813492, 1813496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70498

Included Lab Sample IDs: 1813491, 1813492, 1813496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.0	P/P	90 - 110
Total-P	98.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70499

Included Lab Sample IDs: 1813496

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: A70509

Included Lab Sample IDs: 1813496

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70512

Included Lab Sample IDs: 1813491, 1813492, 1813496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110
Kjeldahl Nitrogen	98.0	100	P/P	90 - 110
Kjeldahl Nitrogen	98.7	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70540

Included Lab Sample IDs: 1813495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	99.6	P/P	90 - 110
Sulfate	95.1	99.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70542

Included Lab Sample IDs: 1813489, 1813490

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

Reference Method: SM 4500 F-C-97

Run ID: A70542

Included Lab Sample IDs: 1813489, 1813490

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

Reference Method: SM 5310 B-00

Run ID: A70583

Included Lab Sample IDs: 1813491, 1813492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	92.2	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				1.01	
	Turbidity				3.55	
EPA 300.0 Rev. 2.1	Chloride	99.1	99.2 99.2		0.287	
	Sulfate	99.0	99.0 100		1.61	
EPA 350.1 Rev. 2.0	Ammonia-N	101				0.557
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8				6.68
	Kjeldahl Nitrogen	94.7	98.6 93.2			4.05
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100 102			0.562

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 353.2 Rev. 2.0	NO2NO3-N	103	99.5			2.35
EPA 365.1 Rev. 2.0	Total-P	97.1	96.0	96.8		0.776
	Total-P	98.2	99.7	102		2.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	94.4	97.4		3.13
SM 2120 B	Color (true)					0.567
SM 2320 B-97	Total Alkalinity	103				0.0450
	Total Alkalinity	103				0.282
SM 2540 C-97	TDS					4.15
SM 4500 F-C-97	Fluoride	98.6	97.3	97.3		0.0
	Fluoride	99.3	99.1	99.7		0.467
SM 5310 B-00	Organic Carbon	97.3	98.8	100		0.711
	Organic Carbon	98.3	88.9	92.8		3.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1813489, 1813490, 1813495
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1813495
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1813495
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1813491, 1813492, 1813496
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1813491, 1813492, 1813496
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1813491, 1813492, 1813496
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1813491, 1813492, 1813496
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1813493, 1813494, 1813497
SM 2120 B / E31780	True Color measured at 450 nm	1813495
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1813489, 1813490, 1813495
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1813495
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1813489, 1813490, 1813495
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1813489, 1813490, 1813495
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1813491, 1813492, 1813496

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	07/06/2016			07/06/2016 16:07	Sima Feizi	1813489, 1813490
	07/06/2016			07/06/2016 16:41	Blanca Fach	1813495
EPA 300.0 Rev. 2.1	07/06/2016			07/15/2016	Ping Hua	1813495
EPA 350.1 Rev. 2.0	07/06/2016			07/08/2016	Diana M. Turner	1813491, 1813492, 1813496
EPA 351.2 Rev. 2.0	07/06/2016	07/11/2016	Sofia Elnemr	07/12/2016	Christopher Armour	1813491, 1813492, 1813496
EPA 353.2 Rev. 2.0	07/06/2016			07/08/2016	Beverly Y. Sanders	1813491, 1813492
	07/06/2016			07/12/2016	Beverly Y. Sanders	1813496
EPA 365.1 Rev. 2.0	07/06/2016	07/08/2016	Vijayalakshmi Reddy	07/12/2016	Lipi Saha	1813491, 1813492, 1813496
EPA 365.1 Rev. 2.0 dissolved	07/06/2016			07/06/2016 14:43	Julia Storbeck	1813497
	07/06/2016			07/06/2016 14:51	Julia Storbeck	1813493
	07/06/2016			07/06/2016 14:52	Julia Storbeck	1813494
SM 2120 B	07/06/2016			07/06/2016 15:14	Rochelle Y Jackson	1813495
SM 2320 B-97	07/06/2016			07/09/2016	Dale L. Simmons	1813495
	07/06/2016			07/13/2016	Dale L. Simmons	1813489, 1813490
SM 2540 C-97	07/06/2016			07/08/2016	Yijie Li	1813495
SM 2540 D-97	07/06/2016			07/08/2016	Yijie Li	1813489, 1813490, 1813495
SM 4500 F-C-97	07/06/2016			07/09/2016	Dale L. Simmons	1813495
	07/06/2016			07/13/2016	Dale L. Simmons	1813489, 1813490
SM 5310 B-00	07/06/2016			07/12/2016	Diana M. Turner	1813496
	07/06/2016			07/15/2016	Sofia Elnemr	1813491, 1813492