Chemical Analysis Report

NE-DIST-2016-10-05-01

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

Event Description: **Nassau Mid West**
Request ID: **RQ-2016-09-26-29**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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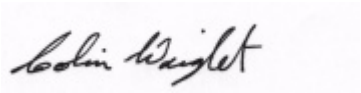
Certified by: Colin Wright, Environmental Administrator

Date Certified: 31-OCT-2016 13:23



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: BRANDY BR @ 121 **Collection Date/Time: 10/04/2016 11:10**

Field ID: 19010063 10042016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838307	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P312568	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P313074	
		Sulfate	5.5		mg SO4/L	P313077	
	SM 2120 B	Color (true)	620		PCU	P312542	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P312765	
	SM 2540 C-97	TDS	139		mg/L	P313254	
	SM 2540 D-97	TSS	3	I	mg/L	P313278	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P312769	
1838311	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P313471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P313196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312969	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P313370	
	SM 5310 B-00	Organic Carbon	51		mg C/L	P312729	
1838315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P312536	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BRANDY BR @ 121 DUPLICATE **Collection Date/Time: 10/04/2016 11:15**

Field ID: 19010063 10042016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838308	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P312568	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P313074	
		Sulfate	5.5		mg SO4/L	P313077	
	SM 2120 B	Color (true)	640		PCU	P312542	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P312765	
	SM 2540 C-97	TDS	135		mg/L	P313254	
	SM 2540 D-97	TSS	3	I	mg/L	P313278	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P312769	
1838312	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P313471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P313197	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312969	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P313370	
	SM 5310 B-00	Organic Carbon	51		mg C/L	P312729	
1838316	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P312536	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: UNNAMED STREAM @ CR 121 **Collection Date/Time: 10/04/2016 12:00**

Field ID: 19010127 10042016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838309	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P312569	

Field ID: 19010127 10042016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838309	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P313074	
		Sulfate	6.5		mg SO4/L	P313077	
	SM 2120 B	Color (true)	73		PCU	P312542	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P312765	
	SM 2540 C-97	TDS	103	A	mg/L	P313255	
	SM 2540 D-97	TSS	3	I	mg/L	P313279	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P312769	
1838313	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P313471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P313197	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P312970	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P313370	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P312729	
1838317	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312536	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: CALKINS TRIB AT HAMP REGISTER RD. **Collection Date/Time: 10/04/2016 09:45**

Field ID: 19010042 10042016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1838310	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P312569	
	EPA 300.0 Rev. 2.1	Chloride	8.5	A	mg Cl/L	P313074	
		Sulfate	0.96	A	mg SO4/L	P313077	
	SM 2120 B	Color (true)	140	A	PCU	P312542	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P312765	
	SM 2540 C-97	TDS	58		mg/L	P313255	
	SM 2540 D-97	TSS	2	U	mg/L	P313279	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P312769	
1838314	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P313471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P313197	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P312970	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P313371	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P312729	
1838318	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P312537	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312568

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312568

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312569

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313074

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313077

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313471

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313196

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313197

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312969

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312970

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313370

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313371

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312536

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312537

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

Reference Method: SM 2120 B
Batch ID: P312542

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P312765

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

Reference Method: SM 2540 C-97
Batch ID: P313254

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P313255

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P313278

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P313279

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312769

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312729

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: P313074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313471

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313196

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313197

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312969

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312969

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312970

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312536

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: P312537

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

Reference Method: SM 2320 B-97
Batch ID: P312765

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

Reference Method: SM 4500 F-C-97
Batch ID: P312769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P312729

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838310	Chloride	102		P	90 - 110
1838411	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838310	Sulfate	98.8		P	90 - 110
1838411	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838314	Ammonia-N	97.4	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838263	Kjeldahl Nitrogen	97.1	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838291	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838313	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838263	Total-P	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838314	Total-P	98.1	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838270	O-Phosphate-P	98.8	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838338	O-Phosphate-P	99.0	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P312769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838655	Fluoride	101	101	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838254	Turbidity	0.406	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838290	Turbidity	2.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838310	Chloride	0.732	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838310	Sulfate	3.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838314	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838263	Kjeldahl Nitrogen	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P313197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838336	Kjeldahl Nitrogen	3.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838291	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838313	NO2NO3-N	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838263	Total-P	2.67	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838314	Total-P	3.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838270	O-Phosphate-P	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838338	O-Phosphate-P	0.905	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P312542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838310	Color (true)	1.31	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838655	Total Alkalinity	0.988	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P313254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838290	TDS	2.93	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P313255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838309	TDS	3.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P312769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838655	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838311	Organic Carbon	0.789	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: A72038
Included Lab Sample IDs: 1838315, 1838316, 1838317, 1838318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	97.6	P/P	90 - 110
O-Phosphate-P	98.6	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A72039
Included Lab Sample IDs: 1838307, 1838308, 1838309, 1838310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115
Color (true)	105	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72045
Included Lab Sample IDs: 1838307, 1838308, 1838309, 1838310

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

Reference Method: SM 5310 B-00
Run ID: A72091
Included Lab Sample IDs: 1838311, 1838312, 1838313, 1838314

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

Reference Method: SM 2320 B-97
Run ID: A72105
Included Lab Sample IDs: 1838307, 1838308, 1838309, 1838310

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

Reference Method: SM 4500 F-C-97
Run ID: A72105
Included Lab Sample IDs: 1838307, 1838308, 1838309, 1838310

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72155
Included Lab Sample IDs: 1838311, 1838312, 1838313, 1838314

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72200
Included Lab Sample IDs: 1838307, 1838308, 1838309, 1838310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.9	P/P	90 - 110
Chloride	96.9	99.1	P/P	90 - 110
Sulfate	100	99.9	P/P	90 - 110
Sulfate	101	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72298
Included Lab Sample IDs: 1838311, 1838312

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72311
Included Lab Sample IDs: 1838311, 1838312, 1838313, 1838314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72326
Included Lab Sample IDs: 1838312, 1838313, 1838314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.3	P/P	90 - 110
Kjeldahl Nitrogen	99.3	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72330
Included Lab Sample IDs: 1838311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.8	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72345
Included Lab Sample IDs: 1838313, 1838314

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.406	
	Turbidity					2.78	
EPA 300.0 Rev. 2.1	Chloride	99.9	102	101		0.732	
	Sulfate	98.0	98.8	98.4		3.14	
EPA 350.1 Rev. 2.0	Ammonia-N	103	97.4	99.9			1.45
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.1	97.1			0.0
	Kjeldahl Nitrogen	106					3.92
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	102			0.0
	NO2NO3-N	104	106	104			1.31
EPA 365.1 Rev. 2.0	Total-P	96.9	100	103			2.67

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0	Total-P	99.6	98.1	102			3.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	98.8	100			1.16
	O-Phosphate-P	101	99.0	99.9			0.905
SM 2120 B	Color (true)					1.31	
SM 2320 B-97	Total Alkalinity	103				0.988	
SM 2540 C-97	TDS					2.93	
	TDS					3.88	
SM 4500 F-C-97	Fluoride	100	101	101			0.0
SM 5310 B-00	Organic Carbon	99.0					0.789

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1838307, 1838308, 1838309, 1838310
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1838307, 1838308, 1838309, 1838310
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1838307, 1838308, 1838309, 1838310
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1838311, 1838312, 1838313, 1838314
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1838311, 1838312, 1838313, 1838314
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1838311, 1838312, 1838313, 1838314
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1838311, 1838312, 1838313, 1838314
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1838315, 1838316, 1838317, 1838318
SM 2120 B / E31780	True Color measured at 450 nm	1838307, 1838308, 1838309, 1838310
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1838307, 1838308, 1838309, 1838310
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1838307, 1838308, 1838309, 1838310
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1838307, 1838308, 1838309, 1838310
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1838307, 1838308, 1838309, 1838310
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1838311, 1838312, 1838313, 1838314

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	10/05/2016			10/05/2016 16:18	Sima Feizi	1838307, 1838308, 1838309, 1838310
EPA 300.0 Rev. 2.1	10/05/2016			10/12/2016	Ping Hua	1838308, 1838309, 1838310
	10/05/2016			10/13/2016	Ping Hua	1838307
EPA 350.1 Rev. 2.0	10/05/2016			10/18/2016	Sofia Elnemr	1838311, 1838312, 1838313, 1838314
EPA 351.2 Rev. 2.0	10/05/2016	10/14/2016	Adrian Shelby	10/18/2016	Joseph Suarez	1838312, 1838313, 1838314
	10/05/2016	10/14/2016	Adrian Shelby	10/19/2016	Joseph Suarez	1838311
EPA 353.2 Rev. 2.0	10/05/2016			10/11/2016	Beverly Y. Sanders	1838311, 1838312, 1838313, 1838314
EPA 365.1 Rev. 2.0	10/05/2016	10/18/2016	Vijayalakshmi Reddy	10/18/2016	Lipi Saha	1838311, 1838312
	10/05/2016	10/18/2016	Vijayalakshmi Reddy	10/20/2016	Lipi Saha	1838313, 1838314
EPA 365.1 Rev. 2.0 dissolved	10/05/2016			10/05/2016 15:19	Julia Storbeck	1838315
	10/05/2016			10/05/2016 15:20	Julia Storbeck	1838316
	10/05/2016			10/05/2016 15:44	Julia Storbeck	1838317
	10/05/2016			10/05/2016 15:45	Julia Storbeck	1838318
SM 2120 B	10/05/2016			10/05/2016 17:08	Julie Michelle Frank	1838309
	10/05/2016			10/05/2016 17:10	Julie Michelle Frank	1838310
	10/05/2016			10/05/2016 17:32	Julie Michelle Frank	1838307
	10/05/2016			10/05/2016 17:33	Julie Michelle Frank	1838308
SM 2320 B-97	10/05/2016			10/09/2016	Dale L. Simmons	1838307, 1838308, 1838309, 1838310
SM 2540 C-97	10/05/2016			10/08/2016	Yijie Li	1838307, 1838308, 1838309, 1838310
SM 2540 D-97	10/05/2016			10/08/2016	Yijie Li	1838307, 1838308, 1838309, 1838310
SM 4500 F-C-97	10/05/2016			10/09/2016	Dale L. Simmons	1838307, 1838308, 1838309, 1838310
SM 5310 B-00	10/05/2016			10/07/2016	Julie Michelle Frank	1838311, 1838312, 1838313, 1838314