

Chemical Analysis Report

NW-DIST-2016-09-29-01

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

Event Description: **ENR B WBID778A 843 786 874A 754**
Request ID: **RQ-2016-09-26-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-OCT-2016 10:04

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: CHOCTAWHATCHEE BAY SEC B BACKGRN

Collection Date/Time: 09/27/2016 12:10

Field ID: G3NW0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836075	EPA 180.1 Rev. 2.0	Turbidity	0.60	Q	NTU	P312159	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P312271	
	SM 2540 D-97	TSS	5	I	mg/L	P312927	
	SM 4500 F-C-97	Fluoride	0.76		mg F/L	P312275	
1836079	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P312900	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P312779	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312700	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P312910	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P312548	
1836083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P312157	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: LAKE EARL CENTER

Collection Date/Time: 09/27/2016 12:25

Field ID: G3NW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836076	EPA 180.1 Rev. 2.0	Turbidity	2.0	Q	NTU	P312159	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P312272	
	SM 2540 D-97	TSS	5	I	mg/L	P312927	
	SM 4500 F-C-97	Fluoride	0.73		mg F/L	P312276	
1836080	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P313469	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P312779	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P312700	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P312910	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P312548	
1836084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P312157	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: LAKE EARL CENTER

Collection Date/Time: 09/27/2016 12:30

Field ID: G3NW0090DUPLICATE

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836077	EPA 180.1 Rev. 2.0	Turbidity	1.8	Q	NTU	P312159	
	SM 2320 B-97	Total Alkalinity	85	A	mg CaCO3/L	P312272	
	SM 2540 D-97	TSS	5	I	mg/L	P312927	
	SM 4500 F-C-97	Fluoride	0.73		mg F/L	P312276	
1836081	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P313469	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P312779	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312700	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P313108	

Field ID: G3NW0090DUPLICATE

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836081	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P312548	
1836085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P312157	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: POQUITO BAYOU

Collection Date/Time: 09/27/2016 11:50

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836078	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P312159	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P312352	
	SM 2540 D-97	TSS	2	U	mg/L	P312925	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P312354	
1836082	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P312901	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P312696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312517	MS
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P312912	
	SM 5310 B-00	Organic Carbon	0.62	I	mg C/L	P312873	
1836086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P312157	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-00: The result was confirmed on 10/14/2016.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P312159

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P312900

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P312901

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P313469

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313469

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312696

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312779

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312517

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: P312700

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: P312910

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313108

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312157

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P312271

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

Reference Method: SM 2320 B-97
Batch ID: P312272

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

Reference Method: SM 2320 B-97
Batch ID: P312352

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

Reference Method: SM 2540 D-97
Batch ID: P312925

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P312927

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312275

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P312276

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312548

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P312873

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P312900

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P312901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P313469

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P312696

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: P312779

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P312517

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P312700

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P312910

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313108

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312157

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

Reference Method: SM 2320 B-97
Batch ID: P312271

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P312272

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

Reference Method: SM 2320 B-97
Batch ID: P312352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P312275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P312276

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P312354

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

Reference Method: SM 5310 B-00
Batch ID: P312548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835656	Ammonia-N	95.3	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835304	Ammonia-N	96.5	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1838560	Ammonia-N	96.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836057	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835788	Kjeldahl Nitrogen	98.4	94.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836035	NO2NO3-N	88.2	88.7	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834498	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835788	Total-P	90.1	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835981	Total-P	104	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835638	Total-P	90.7	91.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836083	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P312275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835048	Fluoride	96.7	98.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P312276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836077	Fluoride	98.3	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835978	Fluoride	96.4	96.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P312548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835789	Organic Carbon	95.9	97.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835731	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836055	Turbidity	7.00	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835656	Ammonia-N	2.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835304	Ammonia-N	1.88	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P313469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1838560	Ammonia-N	3.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836057	Kjeldahl Nitrogen	0.984	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835788	Kjeldahl Nitrogen	3.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836035	NO2NO3-N	0.542	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834498	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835788	Total-P	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835981	Total-P	3.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835638	Total-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836083	O-Phosphate-P	0.597	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835048	Total Alkalinity	0.0309	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P312272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836077	Total Alkalinity	0.537	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P312352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835978	Total Alkalinity	0.0310	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P312275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835048	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P312276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836077	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835978	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835789	Organic Carbon	1.12	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P312873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835731	Organic Carbon	0.266	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71924

Included Lab Sample IDs: 1836083, 1836084, 1836085, 1836086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.4	P/P	90 - 110
O-Phosphate-P	98.1	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71925

Included Lab Sample IDs: 1836075, 1836076, 1836077, 1836078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A71961

Included Lab Sample IDs: 1836075, 1836076, 1836077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71961

Included Lab Sample IDs: 1836075, 1836076, 1836077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	100	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71991

Included Lab Sample IDs: 1836078

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: A71991

Included Lab Sample IDs: 1836078

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72032

Included Lab Sample IDs: 1836082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A72041

Included Lab Sample IDs: 1836079, 1836080, 1836081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72083

Included Lab Sample IDs: 1836079, 1836080, 1836081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A72148

Included Lab Sample IDs: 1836082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72156

Included Lab Sample IDs: 1836079, 1836082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110
Ammonia-N	99.1	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72164

Included Lab Sample IDs: 1836082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72178

Included Lab Sample IDs: 1836079, 1836080, 1836082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110
Total-P	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72188

Included Lab Sample IDs: 1836079, 1836080, 1836081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	99.4	P/P	90 - 110
Kjeldahl Nitrogen	99.6	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72233

Included Lab Sample IDs: 1836081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72311

Included Lab Sample IDs: 1836080, 1836081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	97.3	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				7.00	
EPA 350.1 Rev. 2.0	Ammonia-N	101	95.3 98.5			2.23
	Ammonia-N	98.8	96.5 98.7			1.88
	Ammonia-N	102	96.9 101			3.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	102 104			0.984
	Kjeldahl Nitrogen	101	98.4 94.3			3.94
EPA 353.2 Rev. 2.0	NO2NO3-N	100	88.2 88.7			0.542
	NO2NO3-N	102	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	96.7	90.1 91.2			1.16
	Total-P	102	104 99.9			3.41
	Total-P	97.2	90.7 91.7			1.01
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	100 101			0.597
SM 2320 B-97	Total Alkalinity	104			0.0309	
	Total Alkalinity	103			0.537	
	Total Alkalinity	102			0.0310	
SM 4500 F-C-97	Fluoride	97.5	96.7 98.0			0.946
	Fluoride	97.9	98.3 98.9			0.473
	Fluoride	97.8	96.4 96.4			0.0
SM 5310 B-00	Organic Carbon	105	95.9 97.0			1.12
	Organic Carbon	95.6	101			0.266

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1836075, 1836076, 1836077, 1836078
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1836079, 1836080, 1836081, 1836082
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1836079, 1836080, 1836081, 1836082
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1836079, 1836080, 1836081, 1836082

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1836079, 1836080, 1836081, 1836082
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1836083, 1836084, 1836085, 1836086
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1836075, 1836076, 1836077, 1836078
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1836075, 1836076, 1836077, 1836078
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1836075, 1836076, 1836077, 1836078
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1836079, 1836080, 1836081, 1836082

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	09/29/2016			09/29/2016 15:56	Sima Feizi	1836075, 1836076, 1836077, 1836078
EPA 350.1 Rev. 2.0	09/29/2016			10/07/2016	Sofia Elnemr	1836079, 1836082
	09/29/2016			10/18/2016	Sofia Elnemr	1836080, 1836081
EPA 351.2 Rev. 2.0	09/29/2016	10/07/2016	Adrian Shelby	10/11/2016	Christopher Armour	1836082
	09/29/2016	10/10/2016	Adrian Shelby	10/12/2016	Joseph Suarez	1836079, 1836080, 1836081
EPA 353.2 Rev. 2.0	09/29/2016			10/04/2016	Beverly Y. Sanders	1836082
	09/29/2016			10/07/2016	Beverly Y. Sanders	1836079, 1836080, 1836081
EPA 365.1 Rev. 2.0	09/29/2016	10/11/2016	Vijayalakshmi Reddy	10/12/2016	Lipi Saha	1836079, 1836080, 1836082
	09/29/2016	10/13/2016	Vijayalakshmi Reddy	10/14/2016	Lipi Saha	1836081
EPA 365.1 Rev. 2.0 dissolved	09/29/2016			09/29/2016 15:18	Julia Storbeck	1836083
	09/29/2016			09/29/2016 15:30	Julia Storbeck	1836084, 1836085
	09/29/2016			09/29/2016 15:33	Julia Storbeck	1836086
SM 2320 B-97	09/29/2016			09/30/2016	Dale L. Simmons	1836075
	09/29/2016			10/01/2016	Dale L. Simmons	1836076, 1836077
	09/29/2016			10/03/2016	Dale L. Simmons	1836078
SM 2540 D-97	09/29/2016			10/03/2016	Sima Feizi	1836075, 1836076, 1836077, 1836078
SM 4500 F-C-97	09/29/2016			09/30/2016	Dale L. Simmons	1836075, 1836077
	09/29/2016			10/01/2016	Dale L. Simmons	1836076
	09/29/2016			10/03/2016	Dale L. Simmons	1836078
SM 5310 B-00	09/29/2016			10/05/2016	Julie Michelle Frank	1836079, 1836080, 1836081
	09/29/2016			10/10/2016	Julie Michelle Frank	1836082