

Chemical Analysis Report

NW-DIST-2017-11-21-01

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

Event Description: **Shoal/Gum 2 WBID 246 683 167A**
Request ID: **RQ-2017-11-20-52**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government st
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Colin Wright, Program Administrator

Date Certified: 18-DEC-2017 11:12

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: HUCKLEBERRY CREEK ABV HWY 1883

Collection Date/Time: 11/20/2017 10:55

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947808	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P335793	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P336017	
		Sulfate	0.52		mg SO4/L	P336019	
	SM 2120 B	Color (true)	58	A	PCU	P335736	
	SM 2320 B-97	Total Alkalinity	5.5		mg CaCO3/L	P336241	
	SM 2540 C-97	TDS	25		mg/L	P335827	
	SM 2540 D-97	TSS	3	I	mg/L	P335960	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336330	
1947813	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P336255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	J	mg N/L	P336177	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.070		mg N/L	P336037	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P336062	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P336099	
1947818	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P335743	

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: Refer to the narrative for an explanation of QC Codes.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: GUM CREEK

Collection Date/Time: 11/20/2017 11:40

Field ID: G4NW0381

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947809	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P335793	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P336017	
		Sulfate	0.78		mg SO4/L	P336019	
	SM 2120 B	Color (true)	37		PCU	P335736	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P336241	
	SM 2540 C-97	TDS	25		mg/L	P335827	
	SM 2540 D-97	TSS	2	I	mg/L	P335960	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336330	
1947814	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P336256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P336177	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.58		mg N/L	P336037	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P336062	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P336099	
1947819	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335744	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEST HEAD DEAN CREEK @ NATALIE LANE

Collection Date/Time: 11/20/2017 13:00

Field ID: G4NW0278

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947810	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P335793	

Field ID: G4NW0278

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947810	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P336017	
		Sulfate	1.4		mg SO4/L	P336019	
	SM 2120 B	Color (true)	20		PCU	P335736	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P336241	
	SM 2540 C-97	TDS	16	I	mg/L	P335827	
	SM 2540 D-97	TSS	3	I	mg/L	P335960	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336330	
1947815	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P336256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P336177	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P336037	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P336062	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P336195	
1947820	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335743	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEST HEAD DEAN CREEK @ NATALIE LANE Collection Date/Time: 11/20/2017 13:05

Field ID: G4NW0278DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947811	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P335793	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P336017	
		Sulfate	1.4		mg SO4/L	P336019	
	SM 2120 B	Color (true)	22		PCU	P335736	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P336241	
	SM 2540 C-97	TDS	15	U	mg/L	P335827	
	SM 2540 D-97	TSS	2	I	mg/L	P335960	
1947816	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336330	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P336256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P336177	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P336037	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P336282	
1947821	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P336195	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335743	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEST HEAD DEAN CREEK @ NATALIE LANE Collection Date/Time: 11/20/2017 13:10

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947812	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P335793	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P336017	
		Sulfate	0.20	U	mg SO4/L	P336019	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947812	SM 2120 B	Color (true)	2.5	U	PCU	P335736	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P336241	
	SM 2540 C-97	TDS	15	U	mg/L	P335826	
	SM 2540 D-97	TSS	2	U	mg/L	P335959	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336330	
1947817	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P336256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P336177	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P336037	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P336282	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P336195	
1947822	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335743	

Ref. Method and Comment:
 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: Total-P: 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: P335793

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P336017

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P336019

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336255

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336256

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P336177

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: P336037

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336282

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335743

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335744

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

Reference Method: SM 2120 B
Batch ID: P335736

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336241

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

Reference Method: SM 2540 C-97
Batch ID: P335826

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P335827

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P335959

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P335960

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P336330

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P336099

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

Reference Method: SM 5310 B-00
 Batch ID: P336195

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: P336017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P336019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336255

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: P336256

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: P336256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336177

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336037

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: P336062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336282

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335743

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335744

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

Reference Method: SM 2320 B-97
Batch ID: P336241

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

Reference Method: SM 4500 F-C-97
Batch ID: P336330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P336099

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P336195

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947761	Chloride	93.4		P	90 - 110
1947809	Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947761	Sulfate	93.0		P	90 - 110
1947809	Sulfate	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947554	Ammonia-N	99.3	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947814	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947813	Kjeldahl Nitrogen	88.2	90.8	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947813	NO2NO3-N	104	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947740	O-Phosphate-P	91.4	90.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947819	O-Phosphate-P	101	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P336330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947907	Fluoride	95.2	95.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947596	Organic Carbon	94.2	96.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P336195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947826	Organic Carbon	96.6	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947762	Turbidity	3.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947761	Chloride	0.343	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947761	Sulfate	0.224	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947554	Ammonia-N	0.592	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947814	Ammonia-N	1.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947813	Kjeldahl Nitrogen	2.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947813	NO2NO3-N	0.358	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947826	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948764	Total-P	0.649	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947740	O-Phosphate-P	0.518	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947819	O-Phosphate-P	3.84	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P335736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947808	Color (true)	5.95	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947907	Total Alkalinity	0.147	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947758	TDS	6.57	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P335827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947829	TDS	2.46	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P336330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947907	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P336099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947596	Organic Carbon	0.939	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P336195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947826	Organic Carbon	2.09	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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A80442

Included Lab Sample IDs: 1947808, 1947809, 1947810, 1947811, 1947812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A80443

Included Lab Sample IDs: 1947818, 1947819, 1947820, 1947821, 1947822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.3	98.4	P/P	90 - 110
O-Phosphate-P	99.0	94.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A80463

Included Lab Sample IDs: 1947808, 1947809, 1947810, 1947811, 1947812

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80566

Included Lab Sample IDs: 1947808, 1947809, 1947810, 1947811, 1947812

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80575

Included Lab Sample IDs: 1947813, 1947814, 1947815, 1947816, 1947817

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

Reference Method: SM 5310 B-00

Run ID: A80598

Included Lab Sample IDs: 1947813, 1947814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80609

Included Lab Sample IDs: 1947813, 1947814, 1947815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A80633

Included Lab Sample IDs: 1947815, 1947816, 1947817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A80654

Included Lab Sample IDs: 1947808, 1947809, 1947810, 1947811, 1947812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80655

Included Lab Sample IDs: 1947813, 1947814, 1947815, 1947816, 1947817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.1	P/P	90 - 110
Ammonia-N	98.1	100	P/P	90 - 110
Ammonia-N	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80689

Included Lab Sample IDs: 1947808, 1947809, 1947810, 1947811, 1947812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80699

Included Lab Sample IDs: 1947813, 1947814, 1947815, 1947816, 1947817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80716

Included Lab Sample IDs: 1947816

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80764

Included Lab Sample IDs: 1947817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	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				3.78	
EPA 300.0 Rev. 2.1	Chloride	94.9	93.4	96.0	0.343	
	Sulfate	95.6	93.0	96.1	0.224	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.3	98.5		0.592
	Ammonia-N	98.6	102	101		1.59
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	88.2	90.8		2.16
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	105		0.358
EPA 365.1 Rev. 2.0	Total-P	100				1.11
	Total-P	102				0.649
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	91.4	90.9		0.518
	O-Phosphate-P	101	101	97.0		3.84
SM 2120 B	Color (true)				5.95	
SM 2320 B-97	Total Alkalinity	102			0.147	
SM 2540 C-97	TDS				6.57	
	TDS				2.46	
SM 4500 F-C-97	Fluoride	94.8	95.2	95.9		0.477
SM 5310 B-00	Organic Carbon	95.4	94.2	96.0		0.939
	Organic Carbon	101	96.6	100		2.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1947808, 1947809, 1947810, 1947811, 1947812
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1947808, 1947809, 1947810, 1947811, 1947812
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1947808, 1947809, 1947810, 1947811, 1947812
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1947813, 1947814, 1947815, 1947816, 1947817
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1947813, 1947814, 1947815, 1947816, 1947817
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1947813, 1947814, 1947815, 1947816, 1947817
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1947813, 1947814, 1947815, 1947816, 1947817
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1947818, 1947819, 1947820, 1947821, 1947822
SM 2120 B / E31780	True Color measured at 450 nm	1947808, 1947809, 1947810, 1947811, 1947812
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1947808, 1947809, 1947810, 1947811, 1947812
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1947808, 1947809, 1947810, 1947811, 1947812
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1947808, 1947809, 1947810, 1947811, 1947812
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1947808, 1947809, 1947810, 1947811, 1947812
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1947813, 1947814, 1947815, 1947816, 1947817

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	11/21/2017			11/21/2017 16:18	DeAsia Armster	1947808, 1947809, 1947810, 1947811, 1947812
EPA 300.0 Rev. 2.1	11/21/2017			11/28/2017	Julia Storbeck	1947809
	11/21/2017			11/29/2017	Julia Storbeck	1947808, 1947810, 1947811, 1947812
EPA 350.1 Rev. 2.0	11/21/2017			12/01/2017	Sofia Elnemr	1947813, 1947814, 1947815, 1947816, 1947817
EPA 351.2 Rev. 2.0	11/21/2017	12/01/2017	Adrian Shelby	12/04/2017	Joseph Suarez	1947813, 1947814, 1947815, 1947816, 1947817
EPA 353.2 Rev. 2.0	11/21/2017			11/29/2017	Beverly Y. Sanders	1947813, 1947814, 1947815, 1947816, 1947817
EPA 365.1 Rev. 2.0	11/21/2017	11/29/2017	Sima Feizi	11/30/2017	Lipi Saha	1947813, 1947814, 1947815
	11/21/2017	12/04/2017	Sima Feizi	12/05/2017	Beverly Y. Sanders	1947816
	11/21/2017	12/04/2017	Sima Feizi	12/07/2017	Lipi Saha	1947817
EPA 365.1 Rev. 2.0 dissolved	11/21/2017			11/21/2017 13:48	Megan Treadwell	1947819
	11/21/2017			11/21/2017 14:46	Megan Treadwell	1947818
	11/21/2017			11/21/2017 14:47	Megan Treadwell	1947820
	11/21/2017			11/21/2017 14:48	Megan Treadwell	1947821
	11/21/2017			11/21/2017 14:49	Megan Treadwell	1947822
SM 2120 B	11/21/2017			11/21/2017 15:07	Tanya Welborn	1947808
	11/21/2017			11/21/2017 15:08	Tanya Welborn	1947809
	11/21/2017			11/21/2017 15:09	Tanya Welborn	1947810
	11/21/2017			11/21/2017 15:10	Tanya Welborn	1947811, 1947812
SM 2320 B-97	11/21/2017			12/02/2017	Dale L. Simmons	1947808, 1947809, 1947810, 1947811, 1947812
SM 2540 C-97	11/21/2017			11/22/2017	Yijie Li	1947808, 1947809, 1947810, 1947811, 1947812
SM 2540 D-97	11/21/2017			11/22/2017	Yijie Li	1947808, 1947809, 1947810, 1947811, 1947812
SM 4500 F-C-97	11/21/2017			12/04/2017	Dale L. Simmons	1947808, 1947809, 1947810, 1947811, 1947812
SM 5310 B-00	11/21/2017			11/29/2017	Ping Hua	1947813, 1947814, 1947815, 1947816, 1947817