

Chemical Analysis Report

NW-DIST-2017-08-10-02

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

Event Description: **Shoal/Gum WBID 246 269 160 167 167A Blank/DUP**
Request ID: **RQ-2017-08-07-28**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 01-SEP-2017 09:55

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored 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: West Sandy above Kidd Rd

Collection Date/Time: 08/09/2017 10:30

Field ID: G3NW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920590	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P330067	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P330085	
		Sulfate	1.3		mg SO4/L	P330087	
	SM 2120 B	Color (true)	75		PCU	P330049	
	SM 2320 B-97	Total Alkalinity	6.7		mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	32		mg/L	P330442	
	SM 2540 D-97	TSS	6	I	mg/L	P330302	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920597	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P330216	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P330209	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P330409	
1920604	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P330055	

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: Huckleberry Creek

Collection Date/Time: 08/09/2017 10:45

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920591	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P330067	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P330085	
		Sulfate	0.39	I	mg SO4/L	P330087	
	SM 2120 B	Color (true)	77		PCU	P330049	
	SM 2320 B-97	Total Alkalinity	4.8		mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	23	I	mg/L	P330442	
	SM 2540 D-97	TSS	3	I	mg/L	P330302	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920598	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P330216	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P330209	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P330409	
1920605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P330055	

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: Huckleberry Creek

Collection Date/Time: 08/09/2017 10:55

Field ID: G3NW0135DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920592	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P330067	

Field ID: G3NW0135DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920592	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P330085	
		Sulfate	0.39	I	mg SO4/L	P330087	
	SM 2120 B	Color (true)	78		PCU	P330049	
	SM 2320 B-97	Total Alkalinity	4.8		mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	31		mg/L	P330443	
	SM 2540 D-97	TSS	3	I	mg/L	P330303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920599	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P330216	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P330209	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P330409	
1920606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P330055	

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: Huckleberry Creek

Collection Date/Time: 08/09/2017 11:00

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920593	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P330068	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P330085	
		Sulfate	0.20	U	mg SO4/L	P330087	
	SM 2120 B	Color (true)	2.5	U	PCU	P330050	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	15	U	mg/L	P330443	
	SM 2540 D-97	TSS	2	U	mg/L	P330303	
1920600	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330216	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P330209	
1920607	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P330409	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P330055	

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: Gum Creek above Hwy 83

Collection Date/Time: 08/09/2017 11:20

Field ID: G4NW0322

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920594	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P330068	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P330085	
		Sulfate	0.20	U	mg SO4/L	P330087	

Field ID: G4NW0322

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920594	SM 2120 B	Color (true)	220		PCU	P330050	
	SM 2320 B-97	Total Alkalinity	1.0	I	mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	59		mg/L	P330443	
	SM 2540 D-97	TSS	4	I	mg/L	P330303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920601	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P330217	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P330209	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P330409	
1920608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P330056	

Ref. Method and Comment:

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

EPA 353.2 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: Gum Creek

Collection Date/Time: 08/09/2017 12:15

Field ID: G4NW0381

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920595	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P330068	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P330085	
		Sulfate	0.63		mg SO4/L	P330087	
	SM 2120 B	Color (true)	74		PCU	P330050	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	30		mg/L	P330443	
	SM 2540 D-97	TSS	4	I	mg/L	P330303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920602	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P330127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P330217	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P330209	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P330409	
1920609	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P330056	

Ref. Method and Comment:

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

EPA 353.2 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: Shoal River

Collection Date/Time: 08/09/2017 12:45

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920596	EPA 180.1 Rev. 2.0	Turbidity	26		NTU	P330068	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P330085	
		Sulfate	1.1		mg SO4/L	P330087	
	SM 2120 B	Color (true)	56	A	PCU	P330053	

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920596	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P330296	
	SM 2540 C-97	TDS	43		mg/L	P330443	
	SM 2540 D-97	TSS	27		mg/L	P330303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330611	
1920603	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P330159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P330128	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P330217	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P330211	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P330409	
1920610	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P330056	

Ref. Method and Comment:

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

EPA 353.2 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: P330067

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P330068

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P330085

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P330087

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P330159

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P330127

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330128

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330216

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330217

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330209

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330211

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330055

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330056

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

Reference Method: SM 2120 B
Batch ID: P330049

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P330050

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P330053

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330296

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

Reference Method: SM 2540 C-97
Batch ID: P330442

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P330443

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330302

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330303

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330611

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330409

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: P330085

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330085

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330087

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330159

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330127

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330128

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: P330216

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: P330217

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: P330209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330055

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330056

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

Reference Method: SM 2320 B-97
Batch ID: P330296

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

Reference Method: SM 4500 F-C-97
Batch ID: P330611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330409

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920584	Chloride	104		P	90 - 110
1920590	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920584	Sulfate	104		P	90 - 110
1920590	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920571	Ammonia-N	95.7	94.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920599	Kjeldahl Nitrogen	96.2	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920644	Kjeldahl Nitrogen	96.9	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920561	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920571	Total-P	97.0	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920644	Total-P	91.6	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920551	O-Phosphate-P	93.9	93.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920647	O-Phosphate-P	90.8	93.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P330611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921152	Fluoride	97.1	97.1	P/P	91 - 105

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920549	Turbidity	5.62	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920625	Turbidity	2.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920584	Chloride	0.503	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920584	Sulfate	1.71	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920571	Ammonia-N	1.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920599	Kjeldahl Nitrogen	8.30	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920644	Kjeldahl Nitrogen	6.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920561	NO2NO3-N	0.830	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920602	NO2NO3-N	0.165	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920571	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920644	Total-P	2.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920551	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920647	O-Phosphate-P	2.50	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920564	Color (true)	0.0821	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920596	Color (true)	1.40	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920596	Color (true)	0.463	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P330296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921152	Total Alkalinity	0.440	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P330442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920584	TDS	1.17	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P330443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920784	TDS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P330611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921152	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P330409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920401	Organic Carbon	0.654	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A78270
 Included Lab Sample IDs: 1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Chloride	104	105	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A78336

Included Lab Sample IDs: 1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115
Color (true)	100	101	P/P	85 - 115
Color (true)	101	104	P/P	85 - 115
Color (true)	101	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A78337

Included Lab Sample IDs: 1920604, 1920605, 1920606, 1920607, 1920608, 1920609, 1920610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.2	P/P	90 - 110
O-Phosphate-P	98.6	99.1	P/P	90 - 110
O-Phosphate-P	99.1	98.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78339

Included Lab Sample IDs: 1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78369

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78407

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603

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

Reference Method: SM 2320 B-97

Run ID: A78427

Included Lab Sample IDs: 1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78432

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78432

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.4	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78436

Included Lab Sample IDs: 1920603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78451

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	100	P/P	90 - 110
Total-P	102	99.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78471

Included Lab Sample IDs: 1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78552

Included Lab Sample IDs: 1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	103	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				5.62	
	Turbidity				2.07	
EPA 300.0 Rev. 2.1	Chloride	102	104 103		0.503	
	Sulfate	103	104 103		1.71	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	95.7 94.1			1.39
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	96.2 107			8.30
	Kjeldahl Nitrogen	101	96.9 107			6.12
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101 102			0.830
	NO2NO3-N	104				0.165

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0	Total-P	96.6	97.0	95.6		1.38
	Total-P	95.7	91.6	94.2		2.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	93.9	93.9		0.0
	O-Phosphate-P	100	90.8	93.1		2.50
SM 2120 B	Color (true)				0.0821	
	Color (true)				1.40	
	Color (true)				0.463	
SM 2320 B-97	Total Alkalinity	102			0.440	
SM 2540 C-97	TDS				1.17	
	TDS				3.64	
SM 4500 F-C-97	Fluoride	97.2	97.1	97.1		0.0
SM 5310 B-00	Organic Carbon	94.1				0.654

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1920604, 1920605, 1920606, 1920607, 1920608, 1920609, 1920610
SM 2120 B / E31780	True Color measured at 450 nm	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603

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	08/10/2017			08/10/2017 16:33	DeAsia Armster	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
EPA 300.0 Rev. 2.1	08/10/2017			08/10/2017	Julia Storbeck	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
EPA 350.1 Rev. 2.0	08/10/2017			08/11/2017	Sofia Elnemr	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 351.2 Rev. 2.0	08/10/2017	08/14/2017	Adrian Shelby	08/16/2017	Joseph Suarez	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 353.2 Rev. 2.0	08/10/2017			08/15/2017	Beverly Y. Sanders	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 365.1 Rev. 2.0	08/10/2017	08/15/2017	Sima Feizi	08/16/2017	Lipi Saha	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
EPA 365.1 Rev. 2.0 dissolved	08/10/2017			08/10/2017 15:23	Anthony C. Onicha	1920609
	08/10/2017			08/10/2017 15:24	Anthony C. Onicha	1920610
	08/10/2017			08/10/2017 15:38	Anthony C. Onicha	1920604, 1920605
	08/10/2017			08/10/2017 15:39	Anthony C. Onicha	1920606
	08/10/2017			08/10/2017 15:44	Anthony C. Onicha	1920607
	08/10/2017			08/10/2017 15:45	Anthony C. Onicha	1920608
	08/10/2017			08/10/2017 15:15	Tanya Welborn	1920590
	08/10/2017			08/10/2017 15:16	Tanya Welborn	1920591
SM 2120 B	08/10/2017			08/10/2017 15:17	Tanya Welborn	1920592
	08/10/2017			08/10/2017 15:20	Tanya Welborn	1920593
	08/10/2017			08/10/2017 15:21	Tanya Welborn	1920595
	08/10/2017			08/10/2017 15:32	Tanya Welborn	1920594
	08/10/2017			08/10/2017 16:16	Tanya Welborn	1920596
	08/10/2017			08/15/2017	Dale L. Simmons	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
	08/10/2017			08/11/2017	DeAsia Armster	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
	08/10/2017			08/11/2017	DeAsia Armster	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 2320 B-97	08/10/2017			08/18/2017	Dale L. Simmons	1920590, 1920591, 1920592, 1920593, 1920594, 1920595, 1920596
SM 2540 C-97	08/10/2017			08/16/2017	Ping Hua	1920597, 1920598, 1920599, 1920600, 1920601, 1920602, 1920603
SM 2540 D-97	08/10/2017					
SM 4500 F-C-97	08/10/2017					
SM 5310 B-00	08/10/2017					