Chemical Analysis Report

NW-DIST-2017-07-28-02

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

Event Description: **Eglin Run East WBID 351 361 432 445 476**
Request ID: **RQ-2017-07-24-18**
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

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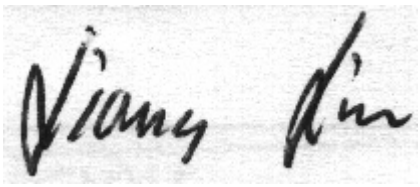
Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-AUG-2017 10:51



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: Open Branch @ 214/374 C-72 **Collection Date/Time: 07/27/2017 12:20**

Field ID: G3NW0105 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917345	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P329345	
	EPA 300.0 Rev. 2.1	Chloride	1.7		mg Cl/L	P329389	
		Sulfate	0.51		mg SO4/L	P329388	
	SM 2120 B	Color (true)	9.9		PCU	P329348	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329522	
	SM 2540 C-97	TDS	15	U	mg/L	P329770	
	SM 2540 D-97	TSS	2	I	mg/L	P329861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329529	RPD
1917349	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P329494	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.099	I	mg N/L	P329444	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P329440	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P329462	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P329612	
1917353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329355	

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

Sample Location: Little Alaqua Creek @ 200/201 **Collection Date/Time: 07/27/2017 11:50**

Field ID: G3NW0063 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917346	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P329345	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P329389	
		Sulfate	0.54		mg SO4/L	P329388	
	SM 2120 B	Color (true)	130		PCU	P329348	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329522	
	SM 2540 C-97	TDS	37		mg/L	P329770	
	SM 2540 D-97	TSS	2	I	mg/L	P329861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329529	RPD
1917350	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P329494	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P329444	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P329440	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P329462	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P329612	
1917354	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329355	

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

Sample Location: Rocky Creek @ 200/201 **Collection Date/Time: 07/27/2017 12:40**

Field ID: G3NW0059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917347	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P329345	

Field ID: G3NW0059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917347	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P329389	
		Sulfate	0.67		mg SO4/L	P329388	
	SM 2120 B	Color (true)	23		PCU	P329349	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329522	
	SM 2540 C-97	TDS	19	I	mg/L	P329770	
	SM 2540 D-97	TSS	3	I	mg/L	P329861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329529	RPD
1917351	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P329494	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P329444	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P329440	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P329462	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P329612	
1917355	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329355	

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

Sample Location: Little Rocky Creek @ 200 **Collection Date/Time: 07/27/2017 13:15**

Field ID: G3NW0103 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917348	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P329345	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P329389	
		Sulfate	0.76		mg SO4/L	P329388	
	SM 2120 B	Color (true)	39	A	PCU	P329349	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329527	
	SM 2540 C-97	TDS	18	I	mg/L	P329770	
	SM 2540 D-97	TSS	3	I	mg/L	P329861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329530	
1917352	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P329494	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P329444	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P329440	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P329462	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P329612	
1917356	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329356	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329345

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329388

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329389

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329494

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329444

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329440

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329462

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329355

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329356

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

Reference Method: SM 2120 B
Batch ID: P329348

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P329349

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P329522

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

Reference Method: SM 2320 B-97
Batch ID: P329527

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

Reference Method: SM 2540 C-97
Batch ID: P329770

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329861

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329529

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P329530

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329612

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: P329388

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329388

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329444

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329440

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: P329462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329355

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329356

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

Reference Method: SM 2320 B-97
Batch ID: P329522

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P329527

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

Reference Method: SM 4500 F-C-97
Batch ID: P329529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P329530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P329612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917284	Sulfate	94.5		P	90 - 110
1917345	Sulfate	94.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917284	Chloride	96.1		P	90 - 110
1917345	Chloride	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917293	Ammonia-N	96.5	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917332	NO2NO3-N	99.0	98.5	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917414	Total-P	99.0	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917297	O-Phosphate-P	95.4	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329356

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917356	O-Phosphate-P	97.6	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P329529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917301	Fluoride	97.5	94.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P329530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917482	Fluoride	99.5	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329612

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916832	Organic Carbon	93.4	93.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917331	Turbidity	3.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917284	Sulfate	0.813	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917284	Chloride	0.577	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917293	Ammonia-N	0.590	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917412	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917332	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917414	Total-P	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917297	O-Phosphate-P	1.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917356	O-Phosphate-P	0.205	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P329348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917302	Color (true)	1.89	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P329349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917348	Color (true)	0.784	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P329522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917301	Total Alkalinity	0.554	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P329527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917482	Total Alkalinity	0.0694	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917407	TDS	5.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917301	Fluoride	3.04	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P329530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917482	Fluoride	2.44	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916832	Organic Carbon	0.357	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 300.0 Rev. 2.1
Run ID: A77948
Included Lab Sample IDs: 1917345, 1917346, 1917347, 1917348

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78030
Included Lab Sample IDs: 1917345, 1917346, 1917347, 1917348

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A78031
Included Lab Sample IDs: 1917345, 1917346, 1917347, 1917348

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	85 - 115
Color (true)	102	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78036
Included Lab Sample IDs: 1917353, 1917354, 1917355, 1917356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.7	P/P	90 - 110
O-Phosphate-P	98.6	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78075
Included Lab Sample IDs: 1917349, 1917350, 1917351, 1917352

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78091
Included Lab Sample IDs: 1917349, 1917350, 1917351, 1917352

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

Reference Method: SM 2320 B-97
Run ID: A78103
Included Lab Sample IDs: 1917345, 1917346, 1917347, 1917348

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	104	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A78103
Included Lab Sample IDs: 1917345, 1917346, 1917347, 1917348

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	99.5	P/P	90 - 110
Fluoride	99.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78118
Included Lab Sample IDs: 1917349, 1917350, 1917351, 1917352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78134
Included Lab Sample IDs: 1917349, 1917350, 1917351, 1917352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	99.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A78156
Included Lab Sample IDs: 1917349, 1917350, 1917351, 1917352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	98.8	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.03	
EPA 300.0 Rev. 2.1	Chloride	93.7	96.1	96.1		0.577	
	Sulfate	92.4	94.5	94.4		0.813	
EPA 350.1 Rev. 2.0	Ammonia-N	105	96.5	97.3			0.590
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6					1.05
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.0	98.5			0.506
EPA 365.1 Rev. 2.0	Total-P	96.3	99.0	97.9			1.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	95.4	97.1			1.77
	O-Phosphate-P	101	97.6	97.8			0.205
SM 2120 B	Color (true)					1.89	
	Color (true)					0.784	
SM 2320 B-97	Total Alkalinity	103				0.554	
	Total Alkalinity	103				0.0694	
SM 2540 C-97	TDS					5.19	
SM 4500 F-C-97	Fluoride	95.4	97.5	94.2			3.04
	Fluoride	95.4	99.5	96.3			2.44

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 5310 B-00	Organic Carbon	97.6	93.4	93.0			0.357

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1917345, 1917346, 1917347, 1917348
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1917345, 1917346, 1917347, 1917348
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1917345, 1917346, 1917347, 1917348
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1917349, 1917350, 1917351, 1917352
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1917349, 1917350, 1917351, 1917352
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1917349, 1917350, 1917351, 1917352
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1917349, 1917350, 1917351, 1917352
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1917353, 1917354, 1917355, 1917356
SM 2120 B / E31780	True Color measured at 450 nm	1917345, 1917346, 1917347, 1917348
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1917345, 1917346, 1917347, 1917348
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1917345, 1917346, 1917347, 1917348
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1917345, 1917346, 1917347, 1917348
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1917345, 1917346, 1917347, 1917348
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1917349, 1917350, 1917351, 1917352

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	07/28/2017			07/28/2017 15:25	DeAsia Armster	1917345, 1917346, 1917347, 1917348
EPA 300.0 Rev. 2.1	07/28/2017			07/28/2017	Julia Storbeck	1917345, 1917346, 1917347, 1917348
EPA 350.1 Rev. 2.0	07/28/2017			08/01/2017	Sofia Elnemr	1917349, 1917350, 1917351, 1917352
EPA 351.2 Rev. 2.0	07/28/2017	08/01/2017	Adrian Shelby	08/02/2017	Joseph Suarez	1917349, 1917350, 1917351, 1917352
EPA 353.2 Rev. 2.0	07/28/2017			08/01/2017	Beverly Y. Sanders	1917349, 1917350, 1917351, 1917352
EPA 365.1 Rev. 2.0	07/28/2017	08/01/2017	Sima Feizi	08/02/2017	Lipi Saha	1917349, 1917350, 1917351, 1917352
EPA 365.1 Rev. 2.0 dissolved	07/28/2017			07/28/2017 15:24	Ping Hua	1917356
	07/28/2017			07/28/2017 15:49	Ping Hua	1917353
	07/28/2017			07/28/2017 15:50	Ping Hua	1917354
	07/28/2017			07/28/2017 15:51	Ping Hua	1917355
SM 2120 B	07/28/2017			07/28/2017 15:06	Tanya Welborn	1917345
	07/28/2017			07/28/2017 15:07	Tanya Welborn	1917346
	07/28/2017			07/28/2017 15:10	Tanya Welborn	1917347
	07/28/2017			07/28/2017 15:12	Tanya Welborn	1917348
SM 2320 B-97	07/28/2017			08/01/2017	Dale L. Simmons	1917345, 1917346, 1917347
	07/28/2017			08/02/2017	Dale L. Simmons	1917348
SM 2540 C-97	07/28/2017			08/01/2017	Yijie Li	1917345, 1917346, 1917347, 1917348
SM 2540 D-97	07/28/2017			08/01/2017	Yijie Li	1917345, 1917346, 1917347, 1917348
SM 4500 F-C-97	07/28/2017			08/01/2017	Dale L. Simmons	1917345, 1917346, 1917347
	07/28/2017			08/02/2017	Dale L. Simmons	1917348
SM 5310 B-00	07/28/2017			08/03/2017	Ping Hua	1917349, 1917350, 1917351, 1917352