Chemical Analysis Report

NE-DIST-2016-11-10-01

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

Event Description: **Suwanee 3422**
Request ID: **RQ-2016-11-07-20**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 05-DEC-2016 12:58

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: Trail Spring at Vent **Collection Date/Time: 11/09/2016 11:05**

Field ID: G1NE0815 11082016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1849087	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P315006	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P315509	
		Sulfate	25		mg SO4/L	P315502	
	SM 2120 B	Color (true)	2.5	U	PCU	P315008	
	SM 2320 B-97	Total Alkalinity	156	A	mg CaCO3/L	P315212	
	SM 2540 C-97	TDS	216		mg/L	P315778	
	SM 2540 D-97	TSS	2	U	mg/L	P315559	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P315215	
1849090	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P315656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	5.3		mg N/L	P315709	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P315332	
	SM 5310 B-00	Organic Carbon	1.0		mg C/L	P315273	
1849093	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P315014	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Suwannee River at CR 340 **Collection Date/Time: 11/09/2016 11:30**

Field ID: G1NE0356 11082016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1849088	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P315006	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P315509	
		Sulfate	28		mg SO4/L	P315502	
	SM 2120 B	Color (true)	14		PCU	P315008	
	SM 2320 B-97	Total Alkalinity	166	A	mg CaCO3/L	P315213	
	SM 2540 C-97	TDS	216	A	mg/L	P315778	
	SM 2540 D-97	TSS	2	I	mg/L	P315559	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P315216	
1849091	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P315197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P315656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.4		mg N/L	P315536	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P315332	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P315383	
1849094	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.067		mg P/L	P315014	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Guaranto Spring Vent **Collection Date/Time: 11/09/2016 12:05**

Field ID: 22051012 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1849089	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P315006	

Field ID: 22051012 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1849089	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P315509	
		Sulfate	13		mg SO4/L	P315502	
	SM 2120 B	Color (true)	2.5	U	PCU	P315009	
	SM 2320 B-97	Total Alkalinity	192		mg CaCO3/L	P315212	
	SM 2540 C-97	TDS	237		mg/L	P315778	
	SM 2540 D-97	TSS	2	U	mg/L	P315559	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P315215	
1849092	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P315197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P315656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.9		mg N/L	P315536	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P315332	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P315383	
1849095	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P315015	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315006

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315197

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315656

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: P315536

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315709

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315332

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315014

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315015

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

Reference Method: SM 2120 B
Batch ID: P315008

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P315009

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P315212

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

Reference Method: SM 2320 B-97
Batch ID: P315213

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P315778

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315559

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P315215

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P315216

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P315273

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

Reference Method: SM 5310 B-00
Batch ID: P315383

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: P315502

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315197

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315197

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315656

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315709

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: P315332

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315014

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315015

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

Reference Method: SM 2320 B-97
Batch ID: P315212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P315213

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P315215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P315216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P315273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P315383

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Sulfate	94.4		P	90 - 110
1848093	Sulfate	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Chloride	102		P	90 - 110
1848093	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848700	Ammonia-N	103	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849053	Kjeldahl Nitrogen	97.4	94.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848595	NO2NO3-N	94.5	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1850308	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849090	Total-P	100	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849061	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849095	O-Phosphate-P	96.1	98.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P315215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849087	Fluoride	97.1	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P315216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849088	Fluoride	99.1	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P315273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849051	Organic Carbon	97.7	98.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P315383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849091	Organic Carbon	98.2	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849089	Turbidity	8.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847117	Chloride	0.0198	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848700	Ammonia-N	2.55	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849053	Kjeldahl Nitrogen	2.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848595	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1850308	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849090	Total-P	3.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849061	O-Phosphate-P	1.96	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849095	O-Phosphate-P	2.13	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P315008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849043	Color (true)	0.947	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P315212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849087	Total Alkalinity	0.0687	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P315213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849088	Total Alkalinity	0.768	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P315778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849088	TDS	1.39	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P315215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849087	Fluoride	1.56	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P315216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849088	Fluoride	1.48	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P315273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849051	Organic Carbon	0.470	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P315383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849091	Organic Carbon	0.916	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 180.1 Rev. 2.0
Run ID: A72761
Included Lab Sample IDs: 1849087, 1849088, 1849089

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

Reference Method: SM 2120 B
Run ID: A72762
Included Lab Sample IDs: 1849087, 1849088, 1849089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72763
Included Lab Sample IDs: 1849093, 1849094, 1849095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.8	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72816
Included Lab Sample IDs: 1849090, 1849091, 1849092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	97.3	P/P	90 - 110
Ammonia-N	99.1	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72821
Included Lab Sample IDs: 1849087, 1849088, 1849089

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A72821
Included Lab Sample IDs: 1849087, 1849088, 1849089

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72830
Included Lab Sample IDs: 1849087, 1849088, 1849089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.2	P/P	90 - 110
Sulfate	96.1	96.9	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72839
Included Lab Sample IDs: 1849090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72867
Included Lab Sample IDs: 1849091, 1849092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72917
Included Lab Sample IDs: 1849091

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72925
Included Lab Sample IDs: 1849091, 1849092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.0	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72933
Included Lab Sample IDs: 1849090, 1849092

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72992
Included Lab Sample IDs: 1849090

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72992
Included Lab Sample IDs: 1849090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73052
Included Lab Sample IDs: 1849090, 1849091, 1849092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	97.6	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					8.85	
EPA 300.0 Rev. 2.1	Chloride	103	102	101		0.0198	
	Sulfate	99.0	94.4	95.0			
EPA 350.1 Rev. 2.0	Ammonia-N	106	103	106			2.55
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	97.4	94.1			2.99
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	94.5	94.5			0.0
	NO2NO3-N	104	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	101	100	96.4			3.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	103			1.96
	O-Phosphate-P	99.6	96.1	98.4			2.13
SM 2120 B	Color (true)					0.947	
SM 2320 B-97	Total Alkalinity	101				0.0687	
	Total Alkalinity	102				0.768	
SM 2540 C-97	TDS					1.39	
SM 4500 F-C-97	Fluoride	97.1	97.1	98.9			1.56
	Fluoride	96.6	99.1	101			1.48
SM 5310 B-00	Organic Carbon	97.8	97.7	98.2			0.470
	Organic Carbon	99.0	98.2	97.2			0.916

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1849087, 1849088, 1849089
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1849087, 1849088, 1849089
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1849087, 1849088, 1849089
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1849090, 1849091, 1849092
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1849090, 1849091, 1849092

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1849090, 1849091, 1849092
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1849090, 1849091, 1849092
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1849093, 1849094, 1849095
SM 2120 B / E31780	True Color measured at 450 nm	1849087, 1849088, 1849089
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1849087, 1849088, 1849089
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1849087, 1849088, 1849089
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1849087, 1849088, 1849089
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1849087, 1849088, 1849089
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1849090, 1849091, 1849092

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	11/10/2016			11/10/2016 14:16	Sima Feizi	1849087, 1849088, 1849089
EPA 300.0 Rev. 2.1	11/10/2016			11/18/2016	Ping Hua	1849087, 1849088, 1849089
EPA 350.1 Rev. 2.0	11/10/2016			11/15/2016	Julie Michelle Frank	1849090, 1849091, 1849092
EPA 351.2 Rev. 2.0	11/10/2016	11/23/2016	Adrian Shelby	11/29/2016	Joseph Suarez	1849090, 1849091, 1849092
EPA 353.2 Rev. 2.0	11/10/2016			11/21/2016	Beverly Y. Sanders	1849091, 1849092
	11/10/2016			11/23/2016	Beverly Y. Sanders	1849090
EPA 365.1 Rev. 2.0	11/10/2016	11/17/2016	Christopher Armour	11/18/2016	Lipi Saha	1849091
	11/10/2016	11/17/2016	Christopher Armour	11/21/2016	Lipi Saha	1849090, 1849092
EPA 365.1 Rev. 2.0 dissolved	11/10/2016			11/10/2016 15:05	Julia Storbeck	1849095
	11/10/2016			11/10/2016 15:59	Julia Storbeck	1849093
	11/10/2016			11/10/2016 16:00	Julia Storbeck	1849094
SM 2120 B	11/10/2016			11/10/2016 15:14	Jared I. Manley	1849087
	11/10/2016			11/10/2016 15:15	Jared I. Manley	1849088
	11/10/2016			11/10/2016 15:19	Jared I. Manley	1849089
SM 2320 B-97	11/10/2016			11/15/2016	Dale L. Simmons	1849087
	11/10/2016			11/16/2016	Dale L. Simmons	1849088, 1849089
SM 2540 C-97	11/10/2016			11/14/2016	Sima Feizi	1849087, 1849088, 1849089
SM 2540 D-97	11/10/2016			11/14/2016	Sima Feizi	1849087, 1849088, 1849089
SM 4500 F-C-97	11/10/2016			11/15/2016	Dale L. Simmons	1849087
	11/10/2016			11/16/2016	Dale L. Simmons	1849088, 1849089
SM 5310 B-00	11/10/2016			11/16/2016	Julie Michelle Frank	1849090, 1849091, 1849092