Chemical Analysis Report

NW-DIST-2017-01-26-01

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

Event Description: **Crestview run WBID 336 275 30G 83 50**
Request ID: **RQ-2017-01-23-31**
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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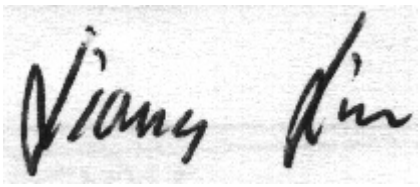
Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-FEB-2017 16:19



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: BAGGETT CREEK UPSTREAM OF HWY 90 **Collection Date/Time: 01/25/2017 11:20**

Field ID: G4NW0336 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866768	EPA 180.1 Rev. 2.0	Turbidity	4.9	A	NTU	P318844	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P319155	
		Sulfate	1.2		mg SO4/L	P319157	
	SM 2120 B	Color (true)	44		PCU	P318812	
	SM 2320 B-97	Total Alkalinity	6.1		mg CaCO3/L	P318980	
	SM 2540 C-97	TDS	24	I	mg/L	P319523	
	SM 2540 D-97	TSS	4	I	mg/L	P319304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318985	
1866773	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P319006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P318898	
1866778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318805	

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: WILKINSON CREEK UPSTREAM OF WILKINSON BLUFF ROAD **Collection Date/Time: 01/25/2017 11:40**

Field ID: G4NW0357 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866769	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P318844	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P319156	
		Sulfate	1.1		mg SO4/L	P319158	
	SM 2120 B	Color (true)	32		PCU	P318812	
	SM 2320 B-97	Total Alkalinity	1.1	I	mg CaCO3/L	P318980	
	SM 2540 C-97	TDS	15	U	mg/L	P319523	
	SM 2540 D-97	TSS	9	I	mg/L	P319304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318985	
1866774	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P319006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P318898	
1866779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318805	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The sample was reanalyzed on 02/07/2015. The result was 2.5 Q NTU.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: WILKINSON CREEK UPSTREAM OF WILKINSON BLUFF ROAD **Collection Date/Time: 01/25/2017 11:45**

Field ID: G4NW0357DUPLICATE Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G4NW0357DUPLICATE Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866770	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P318844	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P319156	
		Sulfate	1.1		mg SO4/L	P319158	
	SM 2120 B	Color (true)	30		PCU	P318812	
	SM 2320 B-97	Total Alkalinity	1.1	I	mg CaCO3/L	P318980	
	SM 2540 C-97	TDS	15	U	mg/L	P319523	
	SM 2540 D-97	TSS	9	I	mg/L	P319304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318985	
1866775	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P319006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P318898	
1866780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318805	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The result was confirmed on 02/07/2015.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FIELD BLANK **Collection Date/Time: 01/25/2017 11:50**

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866771	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P318844	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P319155	
		Sulfate	0.20	U	mg SO4/L	P319157	
	SM 2120 B	Color (true)	2.5	U	PCU	P318812	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P318980	
	SM 2540 C-97	TDS	15	U	mg/L	P319523	
	SM 2540 D-97	TSS	2	U	mg/L	P319304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318985	
1866776	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P318953	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P318898	
1866781	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318805	

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: OAK CREEK BELOW TOMMY STEEL RD. **Collection Date/Time: 01/25/2017 13:00**

Field ID: G4NW0395 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866772	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P318844	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P319155	

Field ID: G4NW0395 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866772	EPA 300.0 Rev. 2.1	Sulfate	1.9		mg SO4/L	P319157	
	SM 2120 B	Color (true)	50	A	PCU	P318812	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P318980	
	SM 2540 C-97	TDS	15	I	mg/L	P319523	
	SM 2540 D-97	TSS	6	I	mg/L	P319304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318985	
1866777	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P319007	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P318953	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P318898	
1866782	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P318805	

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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318844

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319155

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319156

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319157

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319158

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319006

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318953

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318805

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

Reference Method: SM 2120 B
Batch ID: P318812

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P318980

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: P319523

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319304

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318985

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318898

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: P319155

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319156

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319157

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319006

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: P319006

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319007

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: P318822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318953

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318805

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P318980

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

Reference Method: SM 4500 F-C-97
Batch ID: P318985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P318898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866900	Chloride	102		P	90 - 110
1867038	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867209	Chloride	104		P	90 - 110
1867210	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866900	Sulfate	99.5		P	90 - 110
1867038	Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867209	Sulfate	99.1		P	90 - 110
1867210	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866773	Ammonia-N	102	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866799	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866773	Kjeldahl Nitrogen	97.8	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866729	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866715	Total-P	92.6	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866826	Total-P	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866782	O-Phosphate-P	97.2	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866900	Fluoride	97.4	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866773	Organic Carbon	96.6	98.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866768	Turbidity	1.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867038	Chloride	0.309	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867209	Chloride	0.237	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867209	Sulfate	0.402	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866773	Ammonia-N	1.46	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866799	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866773	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866729	NO2NO3-N	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866715	Total-P	3.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866826	Total-P	1.26	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866782	O-Phosphate-P	0.0981	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866772	Color (true)	1.19	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866900	Total Alkalinity	0.732	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866819	TDS	0.521	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866900	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866773	Organic Carbon	1.21	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 365.1 Rev. 2.0 dissolved
Run ID: A74133
Included Lab Sample IDs: 1866778, 1866779, 1866780, 1866781, 1866782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.7	P/P	90 - 110
O-Phosphate-P	99.9	99.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A74134
Included Lab Sample IDs: 1866768, 1866769, 1866770, 1866771, 1866772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74142
Included Lab Sample IDs: 1866768, 1866769, 1866770, 1866771, 1866772

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

Reference Method: SM 5310 B-00
Run ID: A74153
Included Lab Sample IDs: 1866773, 1866774, 1866775, 1866776, 1866777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74168
Included Lab Sample IDs: 1866773, 1866774, 1866775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74173
Included Lab Sample IDs: 1866773, 1866774, 1866775, 1866776, 1866777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	92.5	P/P	90 - 110
Kjeldahl Nitrogen	94.6	96.9	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A74180
Included Lab Sample IDs: 1866768, 1866769, 1866770, 1866771, 1866772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A74180
Included Lab Sample IDs: 1866768, 1866769, 1866770, 1866771, 1866772

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74188
Included Lab Sample IDs: 1866776, 1866777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74193
Included Lab Sample IDs: 1866773, 1866774, 1866775, 1866776, 1866777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.3	P/P	90 - 110
Ammonia-N	99.5	99.9	P/P	90 - 110
Ammonia-N	99.9	98.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74206
Included Lab Sample IDs: 1866768, 1866769, 1866770, 1866771, 1866772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	96.9	92.4	P/P	90 - 110
Sulfate	97.3	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74209
Included Lab Sample IDs: 1866773, 1866774, 1866775, 1866776, 1866777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.64	
EPA 300.0 Rev. 2.1	Chloride	101	102	102		0.309	
	Chloride	105	104	105		0.237	
	Sulfate	96.3	96.7	99.5			
	Sulfate	99.4	99.1	99.1		0.402	
EPA 350.1 Rev. 2.0	Ammonia-N	105	102	99.8			1.46
	Ammonia-N	106	105	102			1.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.8	100			2.09
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	101			0.409
EPA 365.1 Rev. 2.0	Total-P	94.6	92.6	96.5			3.65
	Total-P	100	99.5	101			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	97.2	97.3			0.0981
SM 2120 B	Color (true)					1.19	
SM 2320 B-97	Total Alkalinity	103				0.732	
SM 2540 C-97	TDS					0.521	
SM 4500 F-C-97	Fluoride	99.0	97.4	96.3			0.996
SM 5310 B-00	Organic Carbon	98.4	96.6	98.0			1.21

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1866768, 1866769, 1866770, 1866771, 1866772
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1866768, 1866769, 1866770, 1866771, 1866772
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1866768, 1866769, 1866770, 1866771, 1866772
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1866773, 1866774, 1866775, 1866776, 1866777
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1866773, 1866774, 1866775, 1866776, 1866777
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1866773, 1866774, 1866775, 1866776, 1866777
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1866773, 1866774, 1866775, 1866776, 1866777
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1866778, 1866779, 1866780, 1866781, 1866782
SM 2120 B / E31780	True Color measured at 450 nm	1866768, 1866769, 1866770, 1866771, 1866772
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1866768, 1866769, 1866770, 1866771, 1866772
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1866768, 1866769, 1866770, 1866771, 1866772
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1866768, 1866769, 1866770, 1866771, 1866772
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1866768, 1866769, 1866770, 1866771, 1866772
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1866773, 1866774, 1866775, 1866776, 1866777

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	01/26/2017			01/26/2017 15:52	Sima Feizi	1866768, 1866769, 1866770, 1866771, 1866772
EPA 300.0 Rev. 2.1	01/26/2017			02/01/2017	Ping Hua	1866768, 1866769, 1866770, 1866771, 1866772
EPA 350.1 Rev. 2.0	01/26/2017			01/30/2017	Sofia Elnemr	1866773, 1866774, 1866775, 1866776, 1866777
EPA 351.2 Rev. 2.0	01/26/2017	01/27/2017	Adrian Shelby	01/30/2017	Joseph Suarez	1866773, 1866774, 1866775, 1866776, 1866777
EPA 353.2 Rev. 2.0	01/26/2017			02/01/2017	Beverly Y. Sanders	1866773, 1866774, 1866775, 1866776, 1866777
EPA 365.1 Rev. 2.0	01/26/2017	01/27/2017	Vijayalakshmi Reddy	01/30/2017	Lipi Saha	1866773, 1866774, 1866775
	01/26/2017	01/30/2017	Vijayalakshmi Reddy	01/31/2017	Lipi Saha	1866776, 1866777
EPA 365.1 Rev. 2.0 dissolved	01/26/2017			01/26/2017 15:12	Julie Michelle Frank	1866782
	01/26/2017			01/26/2017 15:36	Julie Michelle Frank	1866781
	01/26/2017			01/26/2017 15:37	Julie Michelle Frank	1866779
	01/26/2017			01/26/2017 15:38	Julie Michelle Frank	1866780
	01/26/2017			01/26/2017 15:39	Julie Michelle Frank	1866778
SM 2120 B	01/26/2017			01/26/2017 17:26	Jared I. Manley	1866772
	01/26/2017			01/26/2017 17:28	Jared I. Manley	1866768
	01/26/2017			01/26/2017 17:29	Jared I. Manley	1866769, 1866770
	01/26/2017			01/26/2017 17:30	Jared I. Manley	1866771
SM 2320 B-97	01/26/2017			01/30/2017	Dale L. Simmons	1866768, 1866769, 1866770
	01/26/2017			01/31/2017	Dale L. Simmons	1866771, 1866772
SM 2540 C-97	01/26/2017			01/30/2017	Sima Feizi	1866768, 1866769, 1866770, 1866771, 1866772
SM 2540 D-97	01/26/2017			01/30/2017	Sima Feizi	1866768, 1866769, 1866770, 1866771, 1866772
SM 4500 F-C-97	01/26/2017			01/30/2017	Dale L. Simmons	1866768, 1866769, 1866770
	01/26/2017			01/31/2017	Dale L. Simmons	1866771, 1866772
SM 5310 B-00	01/26/2017			01/26/2017	Jared I. Manley	1866773, 1866774, 1866775
	01/26/2017			01/27/2017	Jared I. Manley	1866776, 1866777