

Chemical Analysis Report

NW-DIST-2016-12-08-02

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

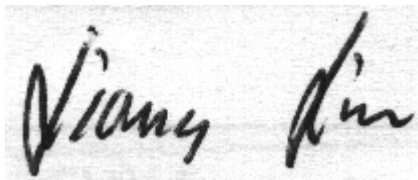
Event Description: **Baker Run WBID 21 167A**
Request ID: **RQ-2016-11-07-30**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-DEC-2016 11:01

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Bridge Creek at Bridge Creek Rd

Collection Date/Time: 12/07/2016 10:10

Field ID: G5NW0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856201	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P316444	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P316975	
		Sulfate	14	A	mg SO4/L	P316978	
	SM 2120 B	Color (true)	62		PCU	P316451	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	74		mg/L	P317007	
	SM 2540 D-97	TSS	3	I	mg/L	P317030	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
1856208	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P317036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P316540	
1856215	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316525	

Ref. Method and Comment:

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

Sample Location: Rest Area Run below Beaver Pond Creek

Collection Date/Time: 12/07/2016 11:00

Field ID: G5NW0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856202	EPA 180.1 Rev. 2.0	Turbidity	27		NTU	P316444	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P316975	
		Sulfate	15		mg SO4/L	P316978	
	SM 2120 B	Color (true)	110		PCU	P316452	
	SM 2320 B-97	Total Alkalinity	95		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	223	A	mg/L	P317008	
	SM 2540 D-97	TSS	15	A	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P316900	
1856209	EPA 350.1 Rev. 2.0	Ammonia-N	0.34		mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.83		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P316540	
1856216	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P316525	

Sample Location: Ten Mile Creek Pine Forest Road

Collection Date/Time: 12/07/2016 11:25

Field ID: G5NW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856203	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P316980	
		Sulfate	4.4		mg SO4/L	P316977	
	SM 2120 B	Color (true)	59		PCU	P316452	

Field ID: G5NW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856203	SM 2320 B-97	Total Alkalinity	8.9		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	36		mg/L	P317008	
	SM 2540 D-97	TSS	3	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
1856210	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P317036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P316540	
1856217	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316525	

Sample Location: Perididio River At Ruby's Landing Hwy 90

Collection Date/Time: 12/07/2016 12:00

Field ID: G5NW0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856204	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P316980	
		Sulfate	4.6		mg SO4/L	P316977	
	SM 2120 B	Color (true)	92		PCU	P316452	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	48		mg/L	P317008	
	SM 2540 D-97	TSS	9	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P316799	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P316540	
1856218	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316525	

Sample Location: Perididio River At Ruby's Landing Hwy 90

Collection Date/Time: 12/07/2016 12:05

Field ID: G5NW0033DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856205	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P316980	
		Sulfate	4.7		mg SO4/L	P316977	
	SM 2120 B	Color (true)	94		PCU	P316452	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	47		mg/L	P317008	
	SM 2540 D-97	TSS	9	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P316799	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P316942	

Field ID: G5NW0033DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856212	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P316540	
1856219	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316525	

Sample Location: Boggy Creek at SR 97A

Collection Date/Time: 12/07/2016 13:40

Field ID: G5NW0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856206	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P316980	
		Sulfate	2.8		mg SO4/L	P316977	
	SM 2120 B	Color (true)	47		PCU	P316452	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	30		mg/L	P317008	
	SM 2540 D-97	TSS	2	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
1856213	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P316799	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P316540	
1856220	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316529	

Sample Location: Perididio River At Ruby's Landing Hwy 90

Collection Date/Time: 12/07/2016 13:40

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856207	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P316980	
		Sulfate	0.20	U	mg SO4/L	P316977	
	SM 2120 B	Color (true)	2.5	U	PCU	P316452	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	15	U	mg/L	P317008	
	SM 2540 D-97	TSS	2	U	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
1856214	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P316652	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P316540	
1856221	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316529	

**Quality Assurance Report
 Method Blank Results**

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316444

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316445

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316977

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316799

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316652

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316525

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

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

Reference Method: SM 2120 B
Batch ID: P316451

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P316452

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316897

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

Reference Method: SM 2540 C-97
Batch ID: P317007

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P317008

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317030

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317031

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316540

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: P316975

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

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: P316980

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316799

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316652

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316525

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P316897

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P316540

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855959	Chloride	102		P	90 - 110
1856201	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856156	Sulfate	98.8		P	90 - 110
1856295	Sulfate	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855959	Sulfate	93.9		P	90 - 110
1856201	Sulfate	94.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856156	Chloride	102		P	90 - 110
1856295	Chloride	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856180	Ammonia-N	101	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856296	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856179	Ammonia-N	97.4	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856210	Kjeldahl Nitrogen	106	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856296	NO2NO3-N	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856208	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856297	O-Phosphate-P	96.3	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856185	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856655	Fluoride	97.9	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856208	Organic Carbon	96.4	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856166	Turbidity	1.94	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856203	Turbidity	2.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856201	Chloride	0.447	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856156	Sulfate	0.772	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856201	Sulfate	0.219	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856156	Chloride	0.973	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856180	Ammonia-N	2.31	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856296	Ammonia-N	1.06	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856179	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856210	Kjeldahl Nitrogen	5.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856296	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856208	Total-P	1.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856297	O-Phosphate-P	2.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856185	O-Phosphate-P	0.957	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856168	Color (true)	2.39	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856280	Color (true)	1.21	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P316897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856655	Total Alkalinity	0.179	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P317007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856175	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P317008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856202	TDS	1.79	Sample	P	0 - 10

Reference Method: SM 2540 D-97
 Batch ID: P317031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856202	TSS	2.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P316900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856655	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P316540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856208	Organic Carbon	0.171	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: A73258
 Included Lab Sample IDs: 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A73259

Included Lab Sample IDs: 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	85 - 115
Color (true)	102	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A73279

Included Lab Sample IDs: 1856215, 1856216, 1856217, 1856218, 1856219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	98.4	P/P	90 - 110
O-Phosphate-P	99.3	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A73280

Included Lab Sample IDs: 1856220, 1856221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A73284

Included Lab Sample IDs: 1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73375

Included Lab Sample IDs: 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	105	P/P	90 - 110
Chloride	103	104	P/P	90 - 110
Chloride	105	103	P/P	90 - 110
Sulfate	103	99.0	P/P	90 - 110
Sulfate	99.3	103	P/P	90 - 110
Sulfate	99.9	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73377

Included Lab Sample IDs: 1856211, 1856212, 1856213

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73402

Included Lab Sample IDs: 1856209, 1856214

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73402

Included Lab Sample IDs: 1856209, 1856214

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73405

Included Lab Sample IDs: 1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	94.4	P/P	90 - 110
Kjeldahl Nitrogen	97.5	97.7	P/P	90 - 110
Kjeldahl Nitrogen	98.5	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73410

Included Lab Sample IDs: 1856208, 1856210, 1856211, 1856212, 1856213, 1856214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A73415

Included Lab Sample IDs: 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73415

Included Lab Sample IDs: 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73417

Included Lab Sample IDs: 1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110
NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73418

Included Lab Sample IDs: 1856209

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73473
Included Lab Sample IDs: 1856208, 1856210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	98.2	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				1.94	
	Turbidity				2.12	
EPA 300.0 Rev. 2.1	Chloride	104	102 102		0.447	
	Chloride	104	102 98.7		0.973	
	Sulfate	99.3	98.8 95.7		0.772	
	Sulfate	98.6	94.4 93.9		0.219	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101 105			2.31
	Ammonia-N	103	104 103			1.06
	Ammonia-N	99.1	97.4 95.1			1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106 99.4			5.19
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.5 101			1.50
EPA 365.1 Rev. 2.0	Total-P	104	102 101			1.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	96.3 98.4			2.16
	O-Phosphate-P	102	101 102			0.957
SM 2120 B	Color (true)				2.39	
	Color (true)				1.21	
SM 2320 B-97	Total Alkalinity	98.4			0.179	
SM 2540 C-97	TDS				0.0	
	TDS				1.79	
SM 2540 D-97	TSS				2.74	
SM 4500 F-C-97	Fluoride	98.9	97.9 99.7			0.946
SM 5310 B-00	Organic Carbon	101	96.4 96.2			0.171

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780 SM 2120 B / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L True Color measured at 450 nm	1856215, 1856216, 1856217, 1856218, 1856219, 1856220, 1856221 1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214

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	12/08/2016			12/08/2016 16:30	Sima Feizi	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
EPA 300.0 Rev. 2.1	12/08/2016			12/16/2016	Ping Hua	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
EPA 350.1 Rev. 2.0	12/08/2016			12/13/2016	Sofia Elnemr	1856211, 1856212, 1856213
	12/08/2016			12/14/2016	Sofia Elnemr	1856209, 1856214
	12/08/2016			12/19/2016	Sofia Elnemr	1856208, 1856210
EPA 351.2 Rev. 2.0	12/08/2016	12/14/2016	Adrian Shelby	12/15/2016	Joseph Suarez	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 353.2 Rev. 2.0	12/08/2016			12/15/2016	Beverly Y. Sanders	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 365.1 Rev. 2.0	12/08/2016	12/13/2016	Vijayalakshmi Reddy	12/14/2016	Beverly Y. Sanders	1856209
	12/08/2016	12/13/2016	Vijayalakshmi Reddy	12/14/2016	Lipi Saha	1856208, 1856210, 1856211, 1856212, 1856213, 1856214
EPA 365.1 Rev. 2.0 dissolved	12/08/2016			12/08/2016 15:13	Julia Storbeck	1856218
	12/08/2016			12/08/2016 15:14	Julia Storbeck	1856219
	12/08/2016			12/08/2016 15:38	Julia Storbeck	1856215
	12/08/2016			12/08/2016 15:39	Julia Storbeck	1856216
	12/08/2016			12/08/2016 15:40	Julia Storbeck	1856217
	12/08/2016			12/09/2016 13:09	Julia Storbeck	1856220
	12/08/2016			12/09/2016 13:10	Julia Storbeck	1856221
SM 2120 B	12/08/2016			12/08/2016 16:20	Jared I. Manley	1856201
	12/08/2016			12/08/2016 16:25	Jared I. Manley	1856202, 1856203
	12/08/2016			12/08/2016 16:26	Jared I. Manley	1856204
	12/08/2016			12/08/2016 16:27	Jared I. Manley	1856205
	12/08/2016			12/08/2016 16:28	Jared I. Manley	1856206
	12/08/2016			12/08/2016 16:29	Jared I. Manley	1856207
SM 2320 B-97	12/08/2016			12/15/2016	Dale L. Simmons	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 2540 C-97	12/08/2016			12/12/2016	Sima Feizi	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 2540 D-97	12/08/2016			12/12/2016	Sima Feizi	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 4500 F-C-97	12/08/2016			12/15/2016	Dale L. Simmons	1856201, 1856202, 1856203, 1856204, 1856205, 1856206, 1856207
SM 5310 B-00	12/08/2016			12/09/2016	Julie Michelle Frank	1856208, 1856209, 1856210, 1856211, 1856212, 1856213, 1856214