

Chemical Analysis Report

NW-DIST-2018-03-22-02

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

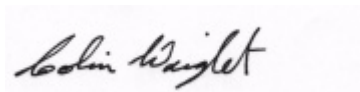
Event Description: **Baker Run**
Request ID: **RQ-2018-03-19-23**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Certified by: Colin Wright, Program Administrator

Date Certified: 12-APR-2018 09:12



NON-CONFORMANCE REPORT INCLUDED

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: Big Horse Creek Upstream

Collection Date/Time: 03/20/2018 10:25

Field ID: G4NW0298

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976751	EPA 180.1 Rev. 2.0	Turbidity	12	Q	NTU	P342044	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P342311	
		Sulfate	1.2		mg SO4/L	P342313	
	SM 2120 B	Color (true)	68	Q	PCU	P342054	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P342532	
	SM 2540 C-97	TDS	31		mg/L	P342381	
	SM 2540 D-97	TSS	10		mg/L	P342222	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P342477	
1976756	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P342676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P342072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P342164	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P342184	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P342554	
1976761	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016	Q	mg P/L	P342084	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Panther Creek Above Sher

Collection Date/Time: 03/20/2018 11:05

Field ID: G4NW0417

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976752	EPA 180.1 Rev. 2.0	Turbidity	8.0	Q	NTU	P342044	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P342311	
		Sulfate	1.1		mg SO4/L	P342313	
	SM 2120 B	Color (true)	67	Q	PCU	P342054	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P342532	
	SM 2540 C-97	TDS	34		mg/L	P342381	
	SM 2540 D-97	TSS	4	I	mg/L	P342222	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342477	
1976757	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P342676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P342072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P342164	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P342184	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P342554	
1976762	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P342084	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Bear Creek @ Forest Rd 0.7

Collection Date/Time: 03/20/2018 11:45

Field ID: G4NW0380

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976753	EPA 180.1 Rev. 2.0	Turbidity	1.8	Q	NTU	P342045	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P342311	
		Sulfate	0.51		mg SO4/L	P342313	
	SM 2120 B	Color (true)	43	Q	PCU	P342054	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P342532	
	SM 2540 C-97	TDS	19	I	mg/L	P342381	
	SM 2540 D-97	TSS	2	U	mg/L	P342222	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342477	
1976758	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P342676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P342072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P342164	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P342184	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P342554	
1976763	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P342085	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Sweetwater Creek Off Dirt

Collection Date/Time: 03/20/2018 12:05

Field ID: G4NW0419

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976754	EPA 180.1 Rev. 2.0	Turbidity	4.0	Q	NTU	P342044	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P342311	
		Sulfate	0.72		mg SO4/L	P342313	
	SM 2120 B	Color (true)	55	Q	PCU	P342023	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342532	
	SM 2540 C-97	TDS	23	I	mg/L	P342381	
	SM 2540 D-97	TSS	5	I	mg/L	P342222	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342477	
1976759	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P342676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P342072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P342164	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P342184	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P342761	
1976764	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P342085	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Ates Creek NE of Bryant

Collection Date/Time: 03/20/2018 12:30

Field ID: G4NW0332

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4NW0332

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976755	EPA 180.1 Rev. 2.0	Turbidity	3.1	Q	NTU	P342044	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P342311	
		Sulfate	0.78		mg SO4/L	P342313	
	SM 2120 B	Color (true)	19	Q	PCU	P342023	
	SM 2320 B-97	Total Alkalinity	9.1		mg CaCO3/L	P342531	RPD
	SM 2540 C-97	TDS	30		mg/L	P342381	
	SM 2540 D-97	TSS	2	I	mg/L	P342222	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342536	
1976760	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P342676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P342072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P342164	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P342184	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P342761	
1976765	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P342085	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 6940

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2018-03-22-02			
NCR Type:	SHIPPING/RECEIVING	NCR Category:	Samples arrived late
Observation:	Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range. Tracking number: 7907 9124 4407, 7907 9124 4418		
Resolution:	Michael King, James Pitts, and Nathan Mulkey were contacted, email correspondence attached to sample submittal forms. Samples will be qualified as appropriate.		

Authorized by/Date: Colin Wright 4/12/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342044

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342045

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342311

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342313

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342676

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342072

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342164

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: P342184

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342084

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342085

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P342023

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P342054

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P342531

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

Reference Method: SM 2320 B-97
Batch ID: P342532

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

Reference Method: SM 2540 C-97
Batch ID: P342381

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P342222

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P342536

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342554

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P342761

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: P342311

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342072

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342164

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: P342184

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: P342084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342085

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342085

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

Reference Method: SM 2320 B-97
Batch ID: P342531

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P342532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.2		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P342761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976685	Chloride	101	98.4	P/P	90 - 110
1976751	Chloride	95.4		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976685	Sulfate	101	97.9	P/P	90 - 110
1976751	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976756	Ammonia-N	98.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976696	Kjeldahl Nitrogen	95.9	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976756	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976696	Total-P	96.8	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976519	O-Phosphate-P	97.2	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976792	O-Phosphate-P	97.4	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977074	Fluoride	95.4	97.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977936	Fluoride	97.3	97.8	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P342554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976690	Organic Carbon	109	113	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P342761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976534	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P342044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976682	Turbidity	3.40	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P342045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976437	Turbidity	2.51	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976685	Chloride	2.16	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976685	Sulfate	3.39	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976756	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976696	Kjeldahl Nitrogen	0.235	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976756	NO2NO3-N	0.396	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976696	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976519	O-Phosphate-P	0.615	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976792	O-Phosphate-P	0.920	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976681	Color (true)	0.531	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976842	Color (true)	1.64	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P342531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977936	Total Alkalinity	4.10	Sample	F	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P342532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Total Alkalinity	0.336	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P342381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976842	TDS	0.468	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Fluoride	1.39	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P342536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977936	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976690	Organic Carbon	2.56	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P342761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976534	Organic Carbon	0.655	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: SM 2120 B
Run ID: A82789
Included Lab Sample IDs: 1976754, 1976755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.0	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82792

Included Lab Sample IDs: 1976751, 1976752, 1976753, 1976754, 1976755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A82793

Included Lab Sample IDs: 1976751, 1976752, 1976753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82801

Included Lab Sample IDs: 1976761, 1976762, 1976763, 1976764, 1976765

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82832

Included Lab Sample IDs: 1976756, 1976757, 1976758, 1976759, 1976760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82880

Included Lab Sample IDs: 1976756, 1976757, 1976758, 1976759, 1976760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	97.6	P/P	90 - 110
Kjeldahl Nitrogen	98.0	97.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82892

Included Lab Sample IDs: 1976751, 1976752, 1976753, 1976754, 1976755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.2	P/P	90 - 110
Chloride	99.2	101	P/P	90 - 110
Sulfate	98.6	99.1	P/P	90 - 110
Sulfate	99.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82945

Included Lab Sample IDs: 1976756, 1976757, 1976758, 1976759, 1976760

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A82950

Included Lab Sample IDs: 1976751, 1976752, 1976753, 1976754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82967

Included Lab Sample IDs: 1976751, 1976752, 1976753, 1976754, 1976755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	99.7	P/P	90 - 110
Total Alkalinity	98.3	101	P/P	90 - 110
Total Alkalinity	99.7	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82967

Included Lab Sample IDs: 1976755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82980

Included Lab Sample IDs: 1976756, 1976757, 1976758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83017

Included Lab Sample IDs: 1976756, 1976757, 1976758, 1976759, 1976760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83038

Included Lab Sample IDs: 1976759, 1976760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	97.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.40	
	Turbidity				2.51	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 300.0 Rev. 2.1	Chloride	95.8	101	98.4	95.4		2.16
	Sulfate	97.0	101	97.9	97.9		3.39
EPA 350.1 Rev. 2.0	Ammonia-N	95.3	98.6	100			1.25
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.3	95.9	96.2			0.235
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102			0.396
EPA 365.1 Rev. 2.0	Total-P	101	96.8	98.6			1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	97.2	97.8			0.615
	O-Phosphate-P	98.8	97.4	98.3			0.920
SM 2120 B	Color (true)					0.531	
	Color (true)					1.64	
SM 2320 B-97	Total Alkalinity	100				4.10	
	Total Alkalinity	100				0.336	
SM 2540 C-97	TDS					0.468	
SM 4500 F-C-97	Fluoride	95.2	95.4	97.3			1.39
	Fluoride	95.6	97.3	97.8			0.479
SM 5310 B-00	Organic Carbon	103	109	113			2.56
	Organic Carbon	98.9	102	103			0.655

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1976751, 1976752, 1976753, 1976754, 1976755
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1976751, 1976752, 1976753, 1976754, 1976755
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1976751, 1976752, 1976753, 1976754, 1976755
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1976756, 1976757, 1976758, 1976759, 1976760
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1976756, 1976757, 1976758, 1976759, 1976760
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1976756, 1976757, 1976758, 1976759, 1976760
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1976756, 1976757, 1976758, 1976759, 1976760
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1976761, 1976762, 1976763, 1976764, 1976765
SM 2120 B / E31780	True Color measured at 450 nm	1976751, 1976752, 1976753, 1976754, 1976755
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1976751, 1976752, 1976753, 1976754, 1976755
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1976751, 1976752, 1976753, 1976754, 1976755
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1976751, 1976752, 1976753, 1976754, 1976755
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1976751, 1976752, 1976753, 1976754, 1976755
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1976756, 1976757, 1976758, 1976759, 1976760

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	03/22/2018			03/22/2018 16:28	DeAsia Armster	1976751, 1976752, 1976753, 1976754, 1976755
EPA 300.0 Rev. 2.1	03/22/2018			03/26/2018	Lipi Saha	1976751, 1976752, 1976753, 1976754, 1976755
EPA 350.1 Rev. 2.0	03/22/2018			04/03/2018	Ping Hua	1976756, 1976757, 1976758, 1976759, 1976760
EPA 351.2 Rev. 2.0	03/22/2018	03/23/2018	Adrian Shelby	03/27/2018	Joseph Suarez	1976756, 1976757, 1976758, 1976759, 1976760
EPA 353.2 Rev. 2.0	03/22/2018			03/23/2018	Beverly Y. Sanders	1976756, 1976757, 1976758, 1976759, 1976760
EPA 365.1 Rev. 2.0	03/22/2018	03/26/2018	Sima Feizi	03/29/2018	Beverly Y. Sanders	1976756, 1976757, 1976758, 1976759, 1976760
EPA 365.1 Rev. 2.0 dissolved	03/22/2018			03/22/2018 15:17	Megan Treadwell	1976761
	03/22/2018			03/22/2018 15:18	Megan Treadwell	1976762
	03/22/2018			03/22/2018 15:19	Megan Treadwell	1976763
	03/22/2018			03/22/2018 15:20	Megan Treadwell	1976764, 1976765
SM 2120 B	03/22/2018			03/22/2018 12:37	Tanya Welborn	1976755
	03/22/2018			03/22/2018 12:38	Tanya Welborn	1976754
	03/22/2018			03/22/2018 16:51	Tanya Welborn	1976751
	03/22/2018			03/22/2018 16:52	Tanya Welborn	1976752, 1976753
SM 2320 B-97	03/22/2018			03/31/2018	Lauren Bottorf	1976751, 1976752, 1976753, 1976754, 1976755
SM 2540 C-97	03/22/2018			03/23/2018	DeAsia Armster	1976751, 1976752, 1976753, 1976754, 1976755
SM 2540 D-97	03/22/2018			03/23/2018	DeAsia Armster	1976751, 1976752, 1976753, 1976754, 1976755
SM 4500 F-C-97	03/22/2018			03/29/2018	Dale L. Simmons	1976751, 1976752, 1976753, 1976754
	03/22/2018			03/31/2018	Lauren Bottorf	1976755
SM 5310 B-00	03/22/2018			03/31/2018	Megan Treadwell	1976756, 1976757, 1976758
	03/22/2018			04/03/2018	Megan Treadwell	1976759, 1976760