

Chemical Analysis Report

NW-DIST-2018-02-23-02

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

Event Description: **Shoal River**
Request ID: **RQ-2018-02-12-42**
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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 16-MAR-2018 11:52



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: Shoal River below Juniper Creek

Collection Date/Time: 02/22/2018 10:50

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970065	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P340517	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P340797	
		Sulfate	1.2		mg SO4/L	P340801	
	SM 2120 B	Color (true)	76	A	PCU	P340505	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P340920	
	SM 2540 C-97	TDS	26		mg/L	P340839	
	SM 2540 D-97	TSS	6	I	mg/L	P341043	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341124	MS
1970066	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P340970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P340683	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P340716	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P340719	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P340633	
1970067	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340518	

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: SHOAL RIVER BELOW TITI CR

Collection Date/Time: 02/22/2018 11:30

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970056	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P340517	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P340797	
		Sulfate	1.2		mg SO4/L	P340801	
	SM 2120 B	Color (true)	74	A	PCU	P340504	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P340920	
	SM 2540 C-97	TDS	20	I	mg/L	P340839	
	SM 2540 D-97	TSS	7	I	mg/L	P341043	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341124	MS
1970059	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P340969	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P340613	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P340716	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P340719	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P340633	
1970062	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340518	

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: SHOAL RIVER BELOW TITI CR

Collection Date/Time: 02/22/2018 11:45

Field ID: G4NW0410DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970057	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P340517	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P340797	
		Sulfate	1.3		mg SO4/L	P340801	

Field ID: G4NW0410DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970057	SM 2120 B	Color (true)	75		PCU	P340504	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P340920	
	SM 2540 C-97	TDS	29		mg/L	P340839	
	SM 2540 D-97	TSS	6	I	mg/L	P341043	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341124	MS
1970060	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P340969	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P340613	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P340716	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P340719	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P340633	
1970063	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340518	

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: PENSACOLA CJB ICE ROOM

Collection Date/Time: 02/22/2018 12:00

Field ID: BLANK_02222018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970058	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P340517	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P340797	
		Sulfate	0.20	U	mg SO4/L	P340801	
	SM 2120 B	Color (true)	2.5	U	PCU	P340505	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P340920	
	SM 2540 C-97	TDS	15	U	mg/L	P340839	
	SM 2540 D-97	TSS	2	U	mg/L	P341043	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341124	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P340970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P340613	
1970061	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P340716	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P340719	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P340633	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340518	

Ref. Method and Comment:

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: P340517

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P340797

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340797

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340801

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340969

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340970

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340613

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340683

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340716

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340719

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340518

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: P340504

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P340505

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340920

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

Reference Method: SM 2540 C-97
Batch ID: P340839

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341043

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P341124

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340633

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: P340797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340801

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: P340801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340613

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340683

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340719

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340518

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

Reference Method: SM 2320 B-97
Batch ID: P340920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P341124

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

Reference Method: SM 5310 B-00
Batch ID: P340633

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969914	Chloride	97.1		P	90 - 110
1969917	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969914	Sulfate	97.7		P	90 - 110
1969917	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969903	Ammonia-N	94.1	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970066	Ammonia-N	92.1	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970059	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970179	Kjeldahl Nitrogen	93.3	89.5	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970066	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970167	Total-P	98.8	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969905	O-Phosphate-P	97.0	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P341124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969914	Fluoride	91.0	92.1	F/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969879	Organic Carbon	106		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969901	Turbidity	7.48	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969914	Chloride	0.0588	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969914	Sulfate	0.293	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969903	Ammonia-N	3.65	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970066	Ammonia-N	3.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970059	Kjeldahl Nitrogen	0.890	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970179	Kjeldahl Nitrogen	3.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970066	NO2NO3-N	0.253	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970167	Total-P	4.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969905	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P340504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970056	Color (true)	0.689	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P340505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970065	Color (true)	3.05	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969914	Total Alkalinity	2.85	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P340839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969901	TDS	1.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P341124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969914	Fluoride	1.05	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969879	Organic Carbon	0.322	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: A82259
Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.2	98.3	P/P	85 - 115
Color (true)	98.3	99.0	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82260
Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82262

Included Lab Sample IDs: 1970062, 1970063, 1970064, 1970067

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

Reference Method: SM 5310 B-00

Run ID: A82301

Included Lab Sample IDs: 1970059, 1970060, 1970061, 1970066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	95.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82322

Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	96.9	P/P	90 - 110
Sulfate	99.4	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82330

Included Lab Sample IDs: 1970059, 1970060, 1970061, 1970066

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82367

Included Lab Sample IDs: 1970059, 1970060, 1970061, 1970066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82386

Included Lab Sample IDs: 1970059, 1970060, 1970061

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82401

Included Lab Sample IDs: 1970066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82421

Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A82421

Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82430

Included Lab Sample IDs: 1970059, 1970060, 1970061, 1970066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82484

Included Lab Sample IDs: 1970056, 1970057, 1970058, 1970065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.0	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					7.48	
EPA 300.0 Rev. 2.1	Chloride	96.7	97.1	97.5		0.0588	
	Sulfate	97.7	97.7	97.7		0.293	
EPA 350.1 Rev. 2.0	Ammonia-N	97.1	94.1	98.8			3.65
	Ammonia-N	96.7	92.1	95.6			3.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	101	102			0.890
	Kjeldahl Nitrogen	98.0	93.3	89.5			3.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	103	102			0.253
EPA 365.1 Rev. 2.0	Total-P	103	98.8	104			4.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	97.0	98.7			1.23
SM 2120 B	Color (true)					0.689	
	Color (true)					3.05	
SM 2320 B-97	Total Alkalinity	99.1				2.85	
SM 2540 C-97	TDS					1.17	
SM 4500 F-C-97	Fluoride	96.6	91.0	92.1			1.05
SM 5310 B-00	Organic Carbon	95.0	106				0.322

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1970056, 1970057, 1970058, 1970065
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1970056, 1970057, 1970058, 1970065

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1970056, 1970057, 1970058, 1970065
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1970059, 1970060, 1970061, 1970066
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1970059, 1970060, 1970061, 1970066
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1970059, 1970060, 1970061, 1970066
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1970059, 1970060, 1970061, 1970066
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1970062, 1970063, 1970064, 1970067
SM 2120 B / E31780	True Color measured at 450 nm	1970056, 1970057, 1970058, 1970065
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1970056, 1970057, 1970058, 1970065
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1970056, 1970057, 1970058, 1970065
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1970056, 1970057, 1970058, 1970065
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1970056, 1970057, 1970058, 1970065
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1970059, 1970060, 1970061, 1970066

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	02/23/2018			02/23/2018 13:31	Tanya Welborn	1970056, 1970057, 1970058, 1970065
EPA 300.0 Rev. 2.1	02/23/2018			03/01/2018	Julia Storbeck	1970056, 1970057, 1970058, 1970065
EPA 350.1 Rev. 2.0	02/23/2018			03/05/2018	Ping Hua	1970059, 1970060, 1970061, 1970066
EPA 351.2 Rev. 2.0	02/23/2018	02/27/2018	Adrian Shelby	03/02/2018	Joseph Suarez	1970059, 1970060, 1970061
	02/23/2018	02/28/2018	Adrian Shelby	03/02/2018	Joseph Suarez	1970066
EPA 353.2 Rev. 2.0	02/23/2018			02/28/2018	Beverly Y. Sanders	1970059, 1970060, 1970061, 1970066
EPA 365.1 Rev. 2.0	02/23/2018	02/28/2018	Sima Feizi	03/01/2018	Lipi Saha	1970059, 1970060, 1970061, 1970066
EPA 365.1 Rev. 2.0 dissolved	02/23/2018			02/23/2018 15:54	Megan Treadwell	1970062, 1970063
	02/23/2018			02/23/2018 15:55	Megan Treadwell	1970064
	02/23/2018			02/23/2018 15:56	Megan Treadwell	1970067
SM 2120 B	02/23/2018			02/23/2018 14:46	Tanya Welborn	1970056
	02/23/2018			02/23/2018 14:47	Tanya Welborn	1970057
	02/23/2018			02/23/2018 14:50	Tanya Welborn	1970058
	02/23/2018			02/23/2018 14:51	Tanya Welborn	1970065
SM 2320 B-97	02/23/2018			03/04/2018	Dale L. Simmons	1970056, 1970057, 1970058, 1970065
SM 2540 C-97	02/23/2018			02/26/2018	Ping Hua	1970056, 1970057, 1970058, 1970065
SM 2540 D-97	02/23/2018			02/26/2018	Ping Hua	1970056, 1970057, 1970058, 1970065
SM 4500 F-C-97	02/23/2018			03/08/2018	Dale L. Simmons	1970056, 1970057, 1970058, 1970065
SM 5310 B-00	02/23/2018			02/27/2018	Megan Treadwell	1970059, 1970060, 1970061, 1970066