

Chemical Analysis Report

NW-DIST-2019-05-17-01

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

Event Description: **NW RUN**
Request ID: **RQ-2019-05-06-37**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 04-JUN-2019 14:25



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: McDavid Creek 100 m upstream SR99

Collection Date/Time: 05/16/2019 10:30

Field ID: G5NW0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087256	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P364160	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P364491	
		Sulfate	0.58	I	mg SO4/L	P364493	
	SM 2120 B	Color (true)	54		PCU	P364164	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P364425	
	SM 2540 C-97	TDS	24	I	mg/L	P364723	
	SM 2540 D-97	TSS	3	I	mg/L	P364709	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364428	
2087260	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P364685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P364450	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P364596	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P364290	
2087264	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364177	

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: Little Pine Barren Creek above CR99

Collection Date/Time: 05/16/2019 11:00

Field ID: G4NW0420

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087257	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P364161	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P364491	
		Sulfate	0.86		mg SO4/L	P364493	
	SM 2120 B	Color (true)	36		PCU	P364164	
	SM 2320 B-97	Total Alkalinity	7.1		mg CaCO3/L	P364425	
	SM 2540 C-97	TDS	31		mg/L	P364723	
	SM 2540 D-97	TSS	2	I	mg/L	P364709	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364428	
2087261	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P364549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P364685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.78		mg N/L	P364450	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P364596	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P364290	
2087265	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364177	

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: Big Escambia Creek downstream of Fannie Rd Collection Date/Time: 05/16/2019 11:40

Field ID: G4NW0421

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087258	EPA 180.1 Rev. 2.0	Turbidity	7.9	A	NTU	P364161	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P364491	
		Sulfate	1.2		mg SO4/L	P364493	
	SM 2120 B	Color (true)	48		PCU	P364164	
	SM 2320 B-97	Total Alkalinity	3.9		mg CaCO3/L	P364425	
	SM 2540 C-97	TDS	33		mg/L	P364723	
	SM 2540 D-97	TSS	9	I	mg/L	P364709	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364428	
2087262	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P364549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P364685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P364450	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P364596	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P364290	
2087266	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P364179	

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: Wiggins Branch below Highway 29

Collection Date/Time: 05/16/2019 12:00

Field ID: G4NW0163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087259	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P364161	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P364491	
		Sulfate	1.4		mg SO4/L	P364493	
	SM 2120 B	Color (true)	36	A	PCU	P364164	
	SM 2320 B-97	Total Alkalinity	5.8		mg CaCO3/L	P364425	
	SM 2540 C-97	TDS	24	I	mg/L	P364723	
	SM 2540 D-97	TSS	3	I	mg/L	P364709	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364428	
2087263	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P364549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P364685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P364450	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P364596	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P364436	
2087267	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364179	

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: P364160

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364161

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364491

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364493

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364450

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364179

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

Reference Method: SM 2120 B
Batch ID: P364164

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364425

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

Reference Method: SM 2540 C-97
Batch ID: P364723

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364709

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364290

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

Reference Method: SM 5310 B-00
Batch ID: P364436

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: P364491

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364493

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364450

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

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: P364177

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364179

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

Reference Method: SM 2120 B
Batch ID: P364164

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P364425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087201	Chloride	96.8		P	90 - 110
2087302	Chloride	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087201	Sulfate	96.7		P	90 - 110
2087302	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087260	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087261	Kjeldahl Nitrogen	108	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087247	NO2NO3-N	97.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087155	Total-P	97.5	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087264	O-Phosphate-P	98.4	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087267	O-Phosphate-P	96.8	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086920	Fluoride	97.9	99.0	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P364290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087247	Organic Carbon	95.2	96.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087312	Organic Carbon	94.5	95.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087244	Turbidity	4.08	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087258	Turbidity	3.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087201	Chloride	1.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087201	Sulfate	0.710	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087260	Ammonia-N	0.0905	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087261	Kjeldahl Nitrogen	4.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087247	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087155	Total-P	0.163	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087264	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087267	O-Phosphate-P	1.44	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087259	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086920	Total Alkalinity	0.272	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P364723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087301	TDS	6.01	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086920	Fluoride	0.998	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087247	Organic Carbon	0.799	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P364436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087312	Organic Carbon	0.891	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A91511

Included Lab Sample IDs: 2087256, 2087257, 2087258, 2087259

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

Reference Method: SM 2120 B

Run ID: A91512

Included Lab Sample IDs: 2087256, 2087257, 2087258, 2087259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91514

Included Lab Sample IDs: 2087264, 2087265, 2087266, 2087267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.6	P/P	90 - 110
O-Phosphate-P	98.1	97.6	P/P	90 - 110
O-Phosphate-P	99.6	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91559

Included Lab Sample IDs: 2087260, 2087261, 2087262

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91614

Included Lab Sample IDs: 2087256, 2087257, 2087258, 2087259

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

Reference Method: SM 4500 F-C-97

Run ID: A91614

Included Lab Sample IDs: 2087256, 2087257, 2087258, 2087259

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

Reference Method: SM 5310 B-00

Run ID: A91620

Included Lab Sample IDs: 2087263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91626

Included Lab Sample IDs: 2087260, 2087261, 2087262, 2087263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91642

Included Lab Sample IDs: 2087256, 2087257, 2087258, 2087259

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91667

Included Lab Sample IDs: 2087260, 2087261, 2087262, 2087263

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91726

Included Lab Sample IDs: 2087260, 2087261, 2087262, 2087263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91745

Included Lab Sample IDs: 2087260, 2087261, 2087262, 2087263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	96.7	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					4.08	
	Turbidity					3.78	
EPA 300.0 Rev. 2.1	Chloride	98.1	96.8	94.6		1.09	
	Sulfate	97.9	96.7	99.3		0.710	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	101	101			0.0905
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	108	103			4.52
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	97.0	98.0			1.03
EPA 365.1 Rev. 2.0	Total-P	101	97.5	97.7			0.163
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	98.4	97.2			1.23
	O-Phosphate-P	97.9	96.8	98.2			1.44
SM 2120 B	Color (true)	100				1.26	
SM 2320 B-97	Total Alkalinity	103				0.272	
SM 2540 C-97	TDS					6.01	
SM 4500 F-C-97	Fluoride	100	97.9	99.0			0.998
SM 5310 B-00	Organic Carbon	95.2	95.2	96.5			0.799
	Organic Carbon	95.8	94.5	95.7			0.891

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2087256, 2087257, 2087258, 2087259
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2087256, 2087257, 2087258, 2087259
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2087256, 2087257, 2087258, 2087259
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2087260, 2087261, 2087262, 2087263
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2087260, 2087261, 2087262, 2087263
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2087260, 2087261, 2087262, 2087263
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2087260, 2087261, 2087262, 2087263
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2087264, 2087265, 2087266, 2087267
SM 2120 B / E31780	True Color measured at 450 nm	2087256, 2087257, 2087258, 2087259
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2087256, 2087257, 2087258, 2087259
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2087256, 2087257, 2087258, 2087259
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2087256, 2087257, 2087258, 2087259
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2087256, 2087257, 2087258, 2087259
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2087260, 2087261, 2087262, 2087263

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	05/17/2019			05/17/2019 14:03	Adrian Shelby	2087256, 2087257, 2087258, 2087259
EPA 300.0 Rev. 2.1	05/17/2019			05/23/2019 16:58	Lipi Saha	2087256
	05/17/2019			05/23/2019 17:10	Lipi Saha	2087257
	05/17/2019			05/23/2019 17:22	Lipi Saha	2087258
	05/17/2019			05/23/2019 17:34	Lipi Saha	2087259
EPA 350.1 Rev. 2.0	05/17/2019			05/23/2019 11:52	Ping Hua	2087260
	05/17/2019			05/23/2019 12:12	Ping Hua	2087261
	05/17/2019			05/23/2019 12:13	Ping Hua	2087262
	05/17/2019			05/23/2019 13:51	Ping Hua	2087263
EPA 351.2 Rev. 2.0	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 11:31	Joseph Suarez	2087260
	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 11:32	Joseph Suarez	2087261
	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 11:37	Joseph Suarez	2087262
	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 11:38	Joseph Suarez	2087263
EPA 353.2 Rev. 2.0	05/17/2019			05/23/2019 11:31	Beverly Y. Sanders	2087260
	05/17/2019			05/23/2019 11:32	Beverly Y. Sanders	2087261
	05/17/2019			05/23/2019 11:34	Beverly Y. Sanders	2087262
	05/17/2019			05/23/2019 11:35	Beverly Y. Sanders	2087263
EPA 365.1 Rev. 2.0	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 13:36	Rosalyn Ballman	2087260
	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 13:37	Rosalyn Ballman	2087261
	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 13:38	Rosalyn Ballman	2087262
	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 13:39	Rosalyn Ballman	2087263
EPA 365.1 Rev. 2.0 dissolved	05/17/2019			05/17/2019 15:54	Jhamieka S. Greenwood	2087264
	05/17/2019			05/17/2019 16:06	Jhamieka S. Greenwood	2087267
	05/17/2019			05/17/2019 16:32	Jhamieka S. Greenwood	2087265
	05/17/2019			05/17/2019 16:38	Jhamieka S. Greenwood	2087266
SM 2120 B	05/17/2019			05/17/2019 15:25	Madeline Funaro	2087256
	05/17/2019			05/17/2019 15:26	Madeline Funaro	2087257, 2087258
	05/17/2019			05/17/2019 15:28	Madeline Funaro	2087259
SM 2320 B-97	05/17/2019			05/23/2019 05:18	Dale L. Simmons	2087256
	05/17/2019			05/23/2019 05:30	Dale L. Simmons	2087257
	05/17/2019			05/23/2019 05:43	Dale L. Simmons	2087258
	05/17/2019			05/23/2019 05:56	Dale L. Simmons	2087259
SM 2540 C-97	05/17/2019			05/21/2019 15:26	Yijie Li	2087256, 2087257, 2087258, 2087259
SM 2540 D-97	05/17/2019			05/21/2019 15:26	Yijie Li	2087256, 2087257, 2087258, 2087259
SM 4500 F-C-97	05/17/2019			05/23/2019 05:18	Dale L. Simmons	2087256
	05/17/2019			05/23/2019 05:30	Dale L. Simmons	2087257
	05/17/2019			05/23/2019 05:43	Dale L. Simmons	2087258
	05/17/2019			05/23/2019 05:56	Dale L. Simmons	2087259
SM 5310 B-00	05/17/2019			05/21/2019 03:04	Julia Storbeck	2087260
	05/17/2019			05/21/2019 03:17	Julia Storbeck	2087261

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/17/2019			05/21/2019 03:30	Julia Storbeck	2087262
	05/17/2019			05/22/2019 07:33	Julia Storbeck	2087263