Chemical Analysis Report

NW-DIST-2018-10-25-01

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-2018-10-22-11**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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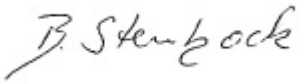
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 16-NOV-2018 17:34



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: GUM CREEK **Collection Date/Time: 10/24/2018 12:15**

Field ID: G4NW0382 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2036258	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P353685	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P353979	
		Sulfate	0.60	I	mg SO4/L	P353981	
	SM 2120 B	Color (true)	89		PCU	P353679	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P353899	
	SM 2540 C-97	TDS	26		mg/L	P354164	
	SM 2540 D-97	TSS	4	I	mg/L	P354033	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353904	
2036262	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P354172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P354148	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P353968	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P354029	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P354198	
2036266	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P353695	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BIG HORSE CREEK UPSTREAM OF OLD RIVER ROAD

Collection Date/Time: 10/24/2018 13:40

Field ID: G4NW0298

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2036259	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P353685	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P353979	
		Sulfate	0.91		mg SO4/L	P353981	
	SM 2120 B	Color (true)	33		PCU	P353679	
	SM 2320 B-97	Total Alkalinity	2.9		mg CaCO3/L	P353899	
	SM 2540 C-97	TDS	18	I	mg/L	P354164	
	SM 2540 D-97	TSS	4	I	mg/L	P354033	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353904	
2036263	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P354172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P354148	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P353968	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P354029	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P354198	
2036267	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P353695	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PANTHER CREEK ABOVE SHERMAN KENNEDY ROAD **Collection Date/Time: 10/24/2018 14:30**

Field ID: G4NW0417 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2036260	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P353685	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P353979	
		Sulfate	0.86		mg SO4/L	P353981	
	SM 2120 B	Color (true)	22		PCU	P353679	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P353899	
	SM 2540 C-97	TDS	24	I	mg/L	P354164	
	SM 2540 D-97	TSS	3	I	mg/L	P354033	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353904	
2036264	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P354172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P354148	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P353968	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P354029	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P354198	
2036268	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P353695	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BEAR CREEK @ FOREST RD 0.7MI W OF BEAR LK **Collection Date/Time: 10/24/2018 15:10**

Field ID: G4NW0380 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2036261	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P353685	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P353979	
		Sulfate	0.41	I	mg SO4/L	P353981	
	SM 2120 B	Color (true)	43		PCU	P353679	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P353899	
	SM 2540 C-97	TDS	21	I	mg/L	P354164	
	SM 2540 D-97	TSS	2	I	mg/L	P354033	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353904	
2036265	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P354172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P354148	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P353968	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P354029	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P354198	
2036269	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P353695	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353685

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353979

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353981

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354172

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354148

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353968

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354029

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353695

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

Reference Method: SM 2120 B
Batch ID: P353679

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P353899

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P354164

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354033

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353904

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P354198

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: P353979

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354148

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354029

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353695

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

Reference Method: SM 2120 B
Batch ID: P353679

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P353899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P353904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036179	Chloride	98.4		P	90 - 110
2036282	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036179	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036263	Ammonia-N	97.2	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036249	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036283	Total-P	103	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P353904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036282	Fluoride	99.5	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2036111	Organic Carbon	102	98.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036296	Turbidity	0.310	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036179	Chloride	1.93	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036179	Sulfate	0.644	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036263	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036181	Kjeldahl Nitrogen	2.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036249	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036283	Total-P	3.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036140	O-Phosphate-P	0.804	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P353679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036248	Color (true)	2.64	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P353899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036282	Total Alkalinity	0.276	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P354164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036248	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P353904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036282	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P354198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2036111	Organic Carbon	2.23	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: A87286
Included Lab Sample IDs: 2036258, 2036259, 2036260, 2036261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A87287
Included Lab Sample IDs: 2036266, 2036267, 2036268, 2036269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A87288
Included Lab Sample IDs: 2036258, 2036259, 2036260, 2036261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A87368
Included Lab Sample IDs: 2036258, 2036259, 2036260, 2036261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	105	P/P	90 - 110
Chloride	105	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110
Sulfate	103	101	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A87382
Included Lab Sample IDs: 2036258, 2036259, 2036260, 2036261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A87382
Included Lab Sample IDs: 2036258, 2036259, 2036260, 2036261

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A87412
Included Lab Sample IDs: 2036262, 2036263, 2036264, 2036265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A87487
Included Lab Sample IDs: 2036262, 2036263, 2036264, 2036265

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87504
Included Lab Sample IDs: 2036262, 2036263, 2036264, 2036265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A87522
Included Lab Sample IDs: 2036262, 2036263, 2036264, 2036265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87524
Included Lab Sample IDs: 2036262, 2036263, 2036264, 2036265

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.310	
EPA 300.0 Rev. 2.1	Chloride	101	98.4	99.1		1.93	
	Sulfate	98.7	98.0			0.644	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	97.2	98.6			1.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					2.31
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	103			0.966
EPA 365.1 Rev. 2.0	Total-P	99.6	103	99.8			3.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102					0.804
SM 2120 B	Color (true)	105				2.64	
SM 2320 B-97	Total Alkalinity	103				0.276	
SM 2540 C-97	TDS					0.0	
SM 4500 F-C-97	Fluoride	101	99.5	100			0.470
SM 5310 B-00	Organic Carbon	98.8	102	98.8			2.23

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2036258, 2036259, 2036260, 2036261
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2036258, 2036259, 2036260, 2036261
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2036258, 2036259, 2036260, 2036261
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2036262, 2036263, 2036264, 2036265
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2036262, 2036263, 2036264, 2036265
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2036262, 2036263, 2036264, 2036265
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2036262, 2036263, 2036264, 2036265
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2036266, 2036267, 2036268, 2036269
SM 2120 B / E31780	True Color measured at 450 nm	2036258, 2036259, 2036260, 2036261
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2036258, 2036259, 2036260, 2036261
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2036258, 2036259, 2036260, 2036261
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2036258, 2036259, 2036260, 2036261
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2036258, 2036259, 2036260, 2036261
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2036262, 2036263, 2036264, 2036265

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	10/25/2018			10/25/2018 17:19	Julia Storbeck	2036258, 2036259, 2036260, 2036261
EPA 300.0 Rev. 2.1	10/25/2018			10/31/2018 00:35	Lipi Saha	2036258
	10/25/2018			10/31/2018 00:47	Lipi Saha	2036259
	10/25/2018			10/31/2018 00:59	Lipi Saha	2036260
	10/25/2018			10/31/2018 03:12	Lipi Saha	2036261
EPA 350.1 Rev. 2.0	10/25/2018			11/02/2018 12:25	Julia Storbeck	2036263
	10/25/2018			11/02/2018 12:30	Julia Storbeck	2036262
	10/25/2018			11/02/2018 12:47	Julia Storbeck	2036264
	10/25/2018			11/02/2018 12:48	Julia Storbeck	2036265
EPA 351.2 Rev. 2.0	10/25/2018	11/02/2018 12:30	Adrian Shelby	11/05/2018 11:15	Joseph Suarez	2036262
	10/25/2018	11/02/2018 12:30	Adrian Shelby	11/05/2018 11:17	Joseph Suarez	2036263
	10/25/2018	11/02/2018 12:30	Adrian Shelby	11/05/2018 11:18	Joseph Suarez	2036264
	10/25/2018	11/02/2018 12:30	Adrian Shelby	11/05/2018 11:20	Joseph Suarez	2036265
EPA 353.2 Rev. 2.0	10/25/2018			10/31/2018 11:44	Beverly Y. Sanders	2036262
	10/25/2018			10/31/2018 11:45	Beverly Y. Sanders	2036263
	10/25/2018			10/31/2018 11:46	Beverly Y. Sanders	2036264
	10/25/2018			10/31/2018 11:47	Beverly Y. Sanders	2036265
EPA 365.1 Rev. 2.0	10/25/2018	10/31/2018 16:00	Adrian Shelby	11/02/2018 10:12	Beverly Y. Sanders	2036262
	10/25/2018	10/31/2018 16:00	Adrian Shelby	11/02/2018 10:13	Beverly Y. Sanders	2036263
	10/25/2018	10/31/2018 16:00	Adrian Shelby	11/02/2018 10:14	Beverly Y. Sanders	2036264
	10/25/2018	10/31/2018 16:00	Adrian Shelby	11/02/2018 10:15	Beverly Y. Sanders	2036265
EPA 365.1 Rev. 2.0 dissolved	10/25/2018			10/25/2018 16:01	Lipi Saha	2036266
	10/25/2018			10/25/2018 16:02	Lipi Saha	2036267
	10/25/2018			10/25/2018 16:03	Lipi Saha	2036268
	10/25/2018			10/25/2018 16:04	Lipi Saha	2036269
SM 2120 B	10/25/2018			10/25/2018 16:02	Chelsea Hernandez	2036258
	10/25/2018			10/25/2018 16:03	Chelsea Hernandez	2036259
	10/25/2018			10/25/2018 16:04	Chelsea Hernandez	2036260
	10/25/2018			10/25/2018 16:05	Chelsea Hernandez	2036261
SM 2320 B-97	10/25/2018			10/29/2018 12:23	Dale L. Simmons	2036258
	10/25/2018			10/29/2018 12:35	Dale L. Simmons	2036259
	10/25/2018			10/29/2018 12:49	Dale L. Simmons	2036260
	10/25/2018			10/29/2018 13:03	Dale L. Simmons	2036261
SM 2540 C-97	10/25/2018			10/26/2018 14:25	Yijie Li	2036258, 2036259, 2036260, 2036261
SM 2540 D-97	10/25/2018			10/26/2018 14:25	Yijie Li	2036258, 2036259, 2036260, 2036261
SM 4500 F-C-97	10/25/2018			10/29/2018 12:23	Dale L. Simmons	2036258
	10/25/2018			10/29/2018 12:35	Dale L. Simmons	2036259
	10/25/2018			10/29/2018 12:49	Dale L. Simmons	2036260
	10/25/2018			10/29/2018 13:03	Dale L. Simmons	2036261
SM 5310 B-00	10/25/2018			11/02/2018 10:11	Megan Treadwell	2036262

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	10/25/2018			11/02/2018 10:23	Megan Treadwell	2036263
	10/25/2018			11/02/2018 10:35	Megan Treadwell	2036264
	10/25/2018			11/02/2018 10:48	Megan Treadwell	2036265