

Chemical Analysis Report

CEN-DIST-2017-12-19-02

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

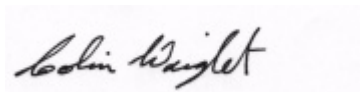
Event Description: **Dead River + HA + D&B**
Request ID: **RQ-2017-12-04-58**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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Certified by: Colin Wright, Program Administrator

Date Certified: 05-JAN-2018 09:29

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Saint John's River above Lake Harney

Collection Date/Time: 12/18/2017 11:20

Field ID: G2CE0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1954943	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P337220	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P337390	
		Sulfate	21		mg SO4/L	P337394	
	SM 2120 B	Color (true)	240		PCU	P337225	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P337380	
	SM 2540 C-97	TDS	325		mg/L	P337496	
	SM 2540 D-97	TSS	2	I	mg/L	P337663	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P337383	
1954944	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P337637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P337330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P337351	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P337364	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P337385	
1954945	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P337263	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

**Sample Location: Saint John's River above Lake Harney
(Duplicate)**

Collection Date/Time: 12/18/2017 11:20

Field ID: G2CE0118_D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1954946	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P337220	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P337390	
		Sulfate	20		mg SO4/L	P337394	
	SM 2120 B	Color (true)	240		PCU	P337225	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P337380	
	SM 2540 C-97	TDS	331		mg/L	P337496	
	SM 2540 D-97	TSS	3	I	mg/L	P337663	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P337383	
1954948	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P337637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P337330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P337351	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P337364	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P337385	
1954950	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.067		mg P/L	P337263	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 12/18/2017 10:45

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1954947	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P337220	

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1954947	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P337390	
		Sulfate	0.20	U	mg SO4/L	P337394	
	SM 2120 B	Color (true)	2.5	U	PCU	P337225	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P337380	
	SM 2540 C-97	TDS	15	U	mg/L	P337495	
	SM 2540 D-97	TSS	2	U	mg/L	P337662	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P337383	
1954949	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P337697	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P337330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P337351	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P337365	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P337385	
1954951	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P337263	

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: P337220

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P337390

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P337394

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P337637

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P337697

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337330

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337351

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: P337364

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337365

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337263

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

Reference Method: SM 2120 B
Batch ID: P337225

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P337380

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

Reference Method: SM 2540 C-97
Batch ID: P337495

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P337496

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P337662

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P337663

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P337383

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P337385

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: P337390

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337637

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337697

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337330

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P337330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P337351

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: P337364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P337365

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P337263

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

Reference Method: SM 2320 B-97
 Batch ID: P337380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P337383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P337385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P337390

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954884	Chloride	101		P	90 - 110
1954902	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954884	Sulfate	100		P	90 - 110
1954902	Sulfate	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954880	Ammonia-N	98.8	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954965	Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954983	Kjeldahl Nitrogen	94.4	90.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954908	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954965	Total-P	97.4	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954886	O-Phosphate-P	93.8	94.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P337383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954981	Fluoride	96.6	95.2	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P337385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1954905	Organic Carbon	97.6	98.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P337220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954979	Turbidity	1.77	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954884	Chloride	1.93	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954884	Sulfate	2.92	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954880	Ammonia-N	0.182	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954965	Ammonia-N	0.455	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954983	Kjeldahl Nitrogen	2.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954908	NO2NO3-N	0.697	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954880	Total-P	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954965	Total-P	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954886	O-Phosphate-P	0.495	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P337225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954901	Color (true)	0.696	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P337380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954981	Total Alkalinity	0.591	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P337495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954876	TDS	8.22	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P337496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954981	TDS	3.36	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P337383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954981	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P337385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1954905	Organic Carbon	0.402	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81014
Included Lab Sample IDs: 1954943, 1954946, 1954947

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

Reference Method: SM 2120 B
Run ID: A81015
Included Lab Sample IDs: 1954943, 1954946, 1954947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.6	P/P	85 - 115
Color (true)	99.8	99.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81037
Included Lab Sample IDs: 1954945, 1954950, 1954951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81066
Included Lab Sample IDs: 1954944, 1954948, 1954949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A81083
Included Lab Sample IDs: 1954943, 1954946, 1954947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A81083

Included Lab Sample IDs: 1954943, 1954946, 1954947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A81083

Included Lab Sample IDs: 1954943, 1954946, 1954947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	98.1	P/P	90 - 110
Fluoride	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81085

Included Lab Sample IDs: 1954944, 1954948, 1954949

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81087

Included Lab Sample IDs: 1954943, 1954946, 1954947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	106	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81096

Included Lab Sample IDs: 1954944, 1954948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81107

Included Lab Sample IDs: 1954944, 1954948, 1954949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	107	P/P	90 - 110
Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81111

Included Lab Sample IDs: 1954949

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81195
Included Lab Sample IDs: 1954944, 1954948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81225
Included Lab Sample IDs: 1954949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	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	MS
EPA 180.1 Rev. 2.0	Turbidity					1.77
EPA 300.0 Rev. 2.1	Chloride	101	101	98.8		1.93
	Sulfate	97.4	100	95.7		2.92
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	98.8	99.0		0.182
	Ammonia-N	103	100	99.8		0.455
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.3	94.4	90.8		2.17
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	104		0.697
EPA 365.1 Rev. 2.0	Total-P	96.5				1.56
	Total-P	98.5	97.4	99.8		1.95
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	93.8	94.6		0.495
SM 2120 B	Color (true)					0.696
SM 2320 B-97	Total Alkalinity	100				0.591
SM 2540 C-97	TDS					8.22
	TDS					3.36
SM 4500 F-C-97	Fluoride	96.7	96.6	95.2		0.986
SM 5310 B-00	Organic Carbon	98.4	97.6	98.1		0.402

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1954943, 1954946, 1954947
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1954943, 1954946, 1954947
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1954943, 1954946, 1954947
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1954944, 1954948, 1954949
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1954944, 1954948, 1954949
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1954944, 1954948, 1954949

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1954944, 1954948, 1954949
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1954945, 1954950, 1954951
SM 2120 B / E31780	True Color measured at 450 nm	1954943, 1954946, 1954947
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1954943, 1954946, 1954947
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1954943, 1954946, 1954947
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1954943, 1954946, 1954947
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1954943, 1954946, 1954947
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1954944, 1954948, 1954949

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	12/19/2017			12/19/2017 16:37	DeAsia Armster	1954943, 1954946, 1954947
EPA 300.0 Rev. 2.1	12/19/2017			12/21/2017	Julia Storbeck	1954943, 1954946, 1954947
EPA 350.1 Rev. 2.0	12/19/2017			12/28/2017	Sofia Elnemr	1954944, 1954948
	12/19/2017			12/29/2017	Sofia Elnemr	1954949
EPA 351.2 Rev. 2.0	12/19/2017	12/21/2017	Adrian Shelby	12/22/2017	Joseph Suarez	1954944, 1954948, 1954949
EPA 353.2 Rev. 2.0	12/19/2017			12/21/2017	Beverly Y. Sanders	1954944, 1954948, 1954949
EPA 365.1 Rev. 2.0	12/19/2017	12/21/2017	Adrian Shelby	12/22/2017	Lipi Saha	1954944, 1954948
	12/19/2017	12/21/2017	Adrian Shelby	12/26/2017	Lipi Saha	1954949
EPA 365.1 Rev. 2.0 dissolved	12/19/2017			12/19/2017 15:16	Megan Treadwell	1954945
	12/19/2017			12/19/2017 15:17	Megan Treadwell	1954950
	12/19/2017			12/19/2017 15:18	Megan Treadwell	1954951
SM 2120 B	12/19/2017			12/19/2017 16:11	Tanya Welborn	1954947
	12/19/2017			12/19/2017 16:26	Tanya Welborn	1954943
	12/19/2017			12/19/2017 16:27	Tanya Welborn	1954946
SM 2320 B-97	12/19/2017			12/21/2017	Dale L. Simmons	1954943, 1954946, 1954947
SM 2540 C-97	12/19/2017			12/20/2017	Yijie Li	1954943, 1954946, 1954947
SM 2540 D-97	12/19/2017			12/20/2017	Yijie Li	1954943, 1954946, 1954947
SM 4500 F-C-97	12/19/2017			12/21/2017	Dale L. Simmons	1954943, 1954946, 1954947
SM 5310 B-00	12/19/2017			12/21/2017	Megan Treadwell	1954944, 1954948, 1954949