Chemical Analysis Report

CEN-DIST-2017-09-15-02

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

Event Description: **SMP LVI 9 + D&B**
Request ID: **RQ-2017-08-21-39**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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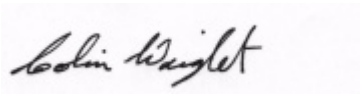
Certified by: Colin Wright, Program Administrator

Date Certified: 04-OCT-2017 13:14



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: Lake Minneola near Center **Collection Date/Time: 09/14/2017 11:15**

Field ID: G1CE0057 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929138	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P331712	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P331810	
		Sulfate	3.5		mg SO4/L	P331807	
	SM 2120 B	Color (true)	150	A	PCU	P331694	
	SM 2320 B-97	Total Alkalinity	5.5		mg CaCO3/L	P331872	
	SM 2540 C-97	TDS	89		mg/L	P332120	
	SM 2540 D-97	TSS	3	I	mg/L	P332123	
	SM 4500 F-C-97	Fluoride	0.082	I	mg F/L	P331873	
1929139	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P331843	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P331929	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P331818	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P331917	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P332047	
1929140	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331704	

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: Lake Minneola near Center_Duplicate **Collection Date/Time: 09/14/2017 11:15**

Field ID: G1CE0057_D Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929141	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P331712	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P331810	
		Sulfate	3.4		mg SO4/L	P331807	
	SM 2120 B	Color (true)	150		PCU	P331694	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P331872	
	SM 2540 C-97	TDS	95		mg/L	P332120	
	SM 2540 D-97	TSS	2	I	mg/L	P332123	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P331873	
1929143	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P331947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P331929	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P331818	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P331917	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P332047	
1929145	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331704	

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: Field Blank **Collection Date/Time: 09/14/2017 11:35**

Field ID: Field Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929142	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P331712	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P331810	
		Sulfate	0.20	U	mg SO4/L	P331807	

Field ID: Field Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1929142	SM 2120 B	Color (true)	2.5	U	PCU	P331694	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P331872	
	SM 2540 C-97	TDS	15	U	mg/L	P332118	
	SM 2540 D-97	TSS	2	U	mg/L	P332121	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331873	
1929144	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P331929	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331818	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P331917	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P332047	
1929146	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331704	

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: P331712

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331807

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331810

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331843

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331947

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331929

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331818

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331917

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331704

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

Reference Method: SM 2120 B
Batch ID: P331694

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331872

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

Reference Method: SM 2540 C-97
Batch ID: P332118

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P332120

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332121

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332123

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P331873

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332047

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: P331807

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331810

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331947

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331917

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331917

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331704

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

Reference Method: SM 2320 B-97
Batch ID: P331872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P331873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332047

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: P331807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929010	Sulfate	93.7		P	90 - 110
1929132	Sulfate	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929010	Chloride	95.6		P	90 - 110
1929132	Chloride	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929045	Ammonia-N	107	107	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929143	Ammonia-N	109	93.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929231	Kjeldahl Nitrogen	95.3	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929139	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929122	Total-P	90.3	90.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929140	O-Phosphate-P	96.5	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P331873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929132	Fluoride	96.8	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929122	Organic Carbon	92.8	94.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929138	Turbidity	4.94	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929132	Sulfate	1.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929132	Chloride	1.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929045	Ammonia-N	0.177	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929143	Ammonia-N	12.8	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929231	Kjeldahl Nitrogen	2.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929139	NO2NO3-N	0.939	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929122	Total-P	0.131	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929140	O-Phosphate-P	1.24	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P331694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929138	Color (true)	1.56	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P331872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929132	Total Alkalinity	0.303	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P332118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928872	TDS	7.24	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P332120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929038	TDS	1.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P331873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929132	Fluoride	0.495	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929122	Organic Carbon	1.08	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: A78942
Included Lab Sample IDs: 1929138, 1929141, 1929142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	105	P/P	85 - 115
Color (true)	104	103	P/P	85 - 115

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78943
Included Lab Sample IDs: 1929140, 1929145, 1929146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.8	P/P	90 - 110
O-Phosphate-P	98.8	97.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78949
Included Lab Sample IDs: 1929138, 1929141, 1929142

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78987
Included Lab Sample IDs: 1929138, 1929141, 1929142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.7	101	P/P	90 - 110
Sulfate	98.2	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78997
Included Lab Sample IDs: 1929139, 1929143, 1929144

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79012
Included Lab Sample IDs: 1929139

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

Reference Method: SM 2320 B-97
Run ID: A79025
Included Lab Sample IDs: 1929138, 1929141, 1929142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A79025
Included Lab Sample IDs: 1929138, 1929141, 1929142

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79044
Included Lab Sample IDs: 1929143, 1929144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79044
Included Lab Sample IDs: 1929143, 1929144

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

Reference Method: SM 5310 B-00
Run ID: A79077
Included Lab Sample IDs: 1929139, 1929143, 1929144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79094
Included Lab Sample IDs: 1929139, 1929143, 1929144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79103
Included Lab Sample IDs: 1929139, 1929143, 1929144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.8	P/P	90 - 110
Total-P	98.8	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					4.94	
EPA 300.0 Rev. 2.1	Chloride	97.3	97.8	95.6		1.18	
	Sulfate	96.8	95.8	93.7		1.61	
EPA 350.1 Rev. 2.0	Ammonia-N	108	107	107			0.177
	Ammonia-N	104	109	93.4			12.8
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	95.3	97.8			2.35
EPA 353.2 Rev. 2.0	NO2NO3-N	106	103	104			0.939
EPA 365.1 Rev. 2.0	Total-P	98.2	90.3	90.4			0.131
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	96.5	97.7			1.24
SM 2120 B	Color (true)					1.56	
SM 2320 B-97	Total Alkalinity	101				0.303	
SM 2540 C-97	TDS					7.24	
	TDS					1.25	
SM 4500 F-C-97	Fluoride	95.2	96.8	97.4			0.495
SM 5310 B-00	Organic Carbon	95.8	92.8	94.6			1.08

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1929138, 1929141, 1929142
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1929138, 1929141, 1929142
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1929138, 1929141, 1929142
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1929139, 1929143, 1929144
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1929139, 1929143, 1929144
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1929139, 1929143, 1929144
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1929139, 1929143, 1929144
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1929140, 1929145, 1929146
SM 2120 B / E31780	True Color measured at 450 nm	1929138, 1929141, 1929142
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1929138, 1929141, 1929142
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1929138, 1929141, 1929142
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1929138, 1929141, 1929142
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1929138, 1929141, 1929142
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1929139, 1929143, 1929144

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	09/15/2017			09/15/2017 14:51	DeAsia Armster	1929138, 1929141, 1929142
EPA 300.0 Rev. 2.1	09/15/2017			09/19/2017	Julia Storbeck	1929138, 1929141, 1929142
EPA 350.1 Rev. 2.0	09/15/2017			09/19/2017	Sofia Elnemr	1929139
	09/15/2017			09/20/2017	Sofia Elnemr	1929143, 1929144
EPA 351.2 Rev. 2.0	09/15/2017	09/21/2017	Adrian Shelby	09/22/2017	Tanya Welborn	1929139, 1929143, 1929144
EPA 353.2 Rev. 2.0	09/15/2017			09/19/2017	Beverly Y. Sanders	1929139, 1929143, 1929144
EPA 365.1 Rev. 2.0	09/15/2017	09/20/2017	Sima Feizi	09/22/2017	Lipi Saha	1929139, 1929143, 1929144
EPA 365.1 Rev. 2.0 dissolved	09/15/2017			09/15/2017 14:50	Megan Treadwell	1929140
	09/15/2017			09/15/2017 15:04	Megan Treadwell	1929145
	09/15/2017			09/15/2017 15:05	Megan Treadwell	1929146
SM 2120 B	09/15/2017			09/15/2017 15:09	Tanya Welborn	1929138
	09/15/2017			09/15/2017 15:11	Tanya Welborn	1929142
	09/15/2017			09/15/2017 15:18	Tanya Welborn	1929141
SM 2320 B-97	09/15/2017			09/19/2017	Dale L. Simmons	1929138, 1929141, 1929142
SM 2540 C-97	09/15/2017			09/18/2017	Yijie Li	1929138, 1929141, 1929142
SM 2540 D-97	09/15/2017			09/18/2017	Yijie Li	1929138, 1929141, 1929142
SM 4500 F-C-97	09/15/2017			09/19/2017	Dale L. Simmons	1929138, 1929141, 1929142
SM 5310 B-00	09/15/2017			09/21/2017	Ping Hua	1929139, 1929143, 1929144