

Chemical Analysis Report

SO-DIST-2021-09-14-01

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

Event Description: **2021 SMP : Charlotte Harbor**

Request ID: **RQ-2021-09-13-49**

Customer: **SO-DIST**

Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 07-OCT-2021 10:30



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 groups are included in this report: Metals and 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: Trailer Park Canal

Collection Date/Time: 09/13/2021 09:55

Field ID: G3SD0072

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275712	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P403710	
	SM 2320 B-2011	Total Alkalinity	91	A	mg CaCO3/L	P403860	
	SM 2540 D-2011	TSS	3	IA	mg/L	P404003	
	SM 4500 F-C-2011	Fluoride	0.50		mg F/L	P403863	
2275713	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P403831	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P403880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P403801	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P403839	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P404048	
2275714	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.27		mg P/L	P403708	
2275732	EPA 200.7 Rev. 4.4	Calcium	126		mg/L	P403821	
		Iron	320	I	ug/L	P403821	
		Magnesium	319		mg/L	P403821	
		Manganese	20		ug/L	P403821	
		Zinc	15	U	ug/L	P403821	
	EPA 200.8 Rev. 5.4	Aluminum	61	I	ug/L	P403821	
		Antimony	0.20	U	ug/L	P403821	
		Arsenic	1.85		ug/L	P403821	
		Beryllium	0.040	U	ug/L	P403821	
		Cadmium	0.080	U	ug/L	P403821	
		Chromium	1.6	U	ug/L	P403821	
		Copper	1.6	U	ug/L	P403821	
		Lead	0.80	U	ug/L	P403821	
		Nickel	2.0	U	ug/L	P403821	
		Selenium	0.80	U	ug/L	P403821	
		Silver	0.040	U	ug/L	P403821	
		Thallium	0.40	U	ug/L	P403821	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Coral Creek (East) Upstream of Golf Course

Collection Date/Time: 09/13/2021 11:25

Field ID: G2SD0039

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275715	EPA 180.1 Rev. 2.0	Turbidity	3.0	A	NTU	P403711	
	SM 2320 B-2011	Total Alkalinity	144		mg CaCO3/L	P403860	
	SM 2540 D-2011	TSS	8	I	mg/L	P404004	
	SM 4500 F-C-2011	Fluoride	0.87		mg F/L	P403863	
2275717	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P403831	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P403880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403801	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P403839	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P403962	
2275719	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P403708	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: CoralCreekEast

Collection Date/Time: 09/13/2021 12:40

Field ID: G2SD0046

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275716	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P403711	
	SM 2320 B-2011	Total Alkalinity	167		mg CaCO3/L	P403860	
	SM 2540 D-2011	TSS	5	IA	mg/L	P404004	
	SM 4500 F-C-2011	Fluoride	0.57		mg F/L	P403863	
2275718	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P403831	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P403880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403801	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P403839	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P403962	
2275720	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403708	

Ref. Method and Comment:

SM 2540 D-2011: 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: P403710

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403711

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403821

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403821

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403831

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403801

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403839

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403708

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

Reference Method: SM 2320 B-2011
Batch ID: P403860

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

Reference Method: SM 2540 D-2011
Batch ID: P404003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404004

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403863

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403962

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

Reference Method: SM 5310 B-2011
Batch ID: P404048

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	107		P	85 - 115
Magnesium	103		P	85 - 115
Manganese	102		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.0		P	85 - 115
Antimony	99.7		P	85 - 115
Arsenic	94.0		P	85 - 115
Beryllium	90.4		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	96.4		P	85 - 115
Copper	93.2		P	85 - 115
Lead	93.0		P	85 - 115
Nickel	93.3		P	85 - 115
Selenium	95.4		P	85 - 115
Silver	96.4		P	85 - 115
Thallium	99.5		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403801

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403839

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403708

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P403860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P403863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P404048

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275732	Iron	106	104	P/P	70 - 130
2275732	Manganese	101	98.4	P/P	70 - 130
2275732	Zinc	108	107	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275732	Aluminum	106	101	P/P	70 - 130
2275732	Antimony	103	99.5	P/P	70 - 130
2275732	Arsenic	109	104	P/P	70 - 130
2275732	Beryllium	107	106	P/P	70 - 130
2275732	Cadmium	92.7	90.5	P/P	70 - 130
2275732	Chromium	103	98.6	P/P	70 - 130
2275732	Copper	103	97.7	P/P	70 - 130
2275732	Lead	101	97.1	P/P	70 - 130
2275732	Nickel	108	104	P/P	70 - 130
2275732	Selenium	102	98.3	P/P	70 - 130
2275732	Silver	90.6	87.0	P/P	70 - 130
2275732	Thallium	108	104	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276003	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276126	Kjeldahl Nitrogen	98.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275651	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276154	Total-P	98.4	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275720	O-Phosphate-P	96.1	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P403863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275712	Fluoride	101	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2274865	Organic Carbon	98.0	97.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P404048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275817	Organic Carbon	98.8	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275649	Turbidity	4.12	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275715	Turbidity	0.336	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275732	Calcium	3.20	Spike	P	0 - 20
2275732	Iron	2.26	Spike	P	0 - 20
2275732	Magnesium	3.41	Spike	P	0 - 20
2275732	Manganese	2.69	Spike	P	0 - 20
2275732	Zinc	0.750	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275732	Aluminum	4.76	Spike	P	0 - 20
2275732	Antimony	3.55	Spike	P	0 - 20
2275732	Arsenic	4.83	Spike	P	0 - 20
2275732	Beryllium	0.625	Spike	P	0 - 20
2275732	Cadmium	2.41	Spike	P	0 - 20
2275732	Chromium	4.17	Spike	P	0 - 20
2275732	Copper	5.45	Spike	P	0 - 20
2275732	Lead	4.41	Spike	P	0 - 20
2275732	Nickel	3.94	Spike	P	0 - 20
2275732	Selenium	3.30	Spike	P	0 - 20
2275732	Silver	4.08	Spike	P	0 - 20
2275732	Thallium	4.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276003	Ammonia-N	0.898	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276126	Kjeldahl Nitrogen	0.822	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275651	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276154	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275720	O-Phosphate-P	1.55	Spike	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P403860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275712	Total Alkalinity	2.70	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011

Batch ID: P403863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275712	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P403962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2274865	Organic Carbon	0.352	Spike	P	0 - 20

Reference Method: SM 5310 B-2011

Batch ID: P404048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275817	Organic Carbon	0.208	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107781

Included Lab Sample IDs: 2275714, 2275719, 2275720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	99.2	P/P	90 - 110
O-Phosphate-P	99.2	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107782

Included Lab Sample IDs: 2275712, 2275715, 2275716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107818

Included Lab Sample IDs: 2275713, 2275717, 2275718

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107830

Included Lab Sample IDs: 2275713, 2275717, 2275718

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107847

Included Lab Sample IDs: 2275712, 2275715, 2275716

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

Reference Method: SM 4500 F-C-2011

Run ID: A107847

Included Lab Sample IDs: 2275712, 2275715, 2275716

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107863

Included Lab Sample IDs: 2275713

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107874

Included Lab Sample IDs: 2275732

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107874

Included Lab Sample IDs: 2275732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Manganese	103	101	P/P	90 - 110
Zinc	105	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107880

Included Lab Sample IDs: 2275713, 2275717, 2275718

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

Reference Method: SM 5310 B-2011

Run ID: A107898

Included Lab Sample IDs: 2275717, 2275718

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107901

Included Lab Sample IDs: 2275717, 2275718

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	109	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107931

Included Lab Sample IDs: 2275713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107945

Included Lab Sample IDs: 2275732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	102	P/P	90 - 110
Antimony	99.0	99.6	P/P	90 - 110
Arsenic	96.2	95.8	P/P	90 - 110
Beryllium	95.0	101	P/P	90 - 110
Cadmium	97.3	97.5	P/P	90 - 110
Chromium	96.3	99.3	P/P	90 - 110
Copper	95.9	98.0	P/P	90 - 110
Lead	92.6	92.6	P/P	90 - 110
Nickel	96.2	97.8	P/P	90 - 110
Selenium	96.3	97.8	P/P	90 - 110
Silver	92.1	91.6	P/P	90 - 110
Thallium	97.6	98.0	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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					4.12	
	Turbidity					0.336	
EPA 200.7 Rev. 4.4	Calcium	104					3.20
	Iron	107	106	104			2.26
	Magnesium	103					3.41
	Manganese	102	101	98.4			2.69
	Zinc	105	108	107			0.750
EPA 200.8 Rev. 5.4	Aluminum	98.0	106	101			4.76
	Antimony	99.7	103	99.5			3.55
	Arsenic	94.0	109	104			4.83
	Beryllium	90.4	107	106			0.625
	Cadmium	96.6	92.7	90.5			2.41
	Chromium	96.4	103	98.6			4.17
	Copper	93.2	103	97.7			5.45
	Lead	93.0	101	97.1			4.41
	Nickel	93.3	108	104			3.94
	Selenium	95.4	102	98.3			3.30
	Silver	96.4	90.6	87.0			4.08
	Thallium	99.5	108	104			4.01
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	101	102			0.898
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	98.8	99.8			0.822
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	105	98.4	96.3			2.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	96.1	97.6			1.55
SM 2320 B-2011	Total Alkalinity	102				2.70	
SM 4500 F-C-2011	Fluoride	99.9	101	101			0.0
SM 5310 B-2011	Organic Carbon	99.3	98.0	97.5			0.352
	Organic Carbon	97.6	98.8	99.2			0.208

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2275712, 2275715, 2275716
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2275732
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2275732
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2275713, 2275717, 2275718
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2275713, 2275717, 2275718
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2275713, 2275717, 2275718
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2275713, 2275717, 2275718
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2275714, 2275719, 2275720
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2275712, 2275715, 2275716
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2275712, 2275715, 2275716
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2275712, 2275715, 2275716
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2275713, 2275717, 2275718

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	09/14/2021			09/14/2021 16:38	Sarah A Nixon	2275712, 2275715, 2275716
EPA 200.7 Rev. 4.4	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 18:57	Josef B Mick	2275732
	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 19:29	Josef B Mick	2275732
EPA 200.8 Rev. 5.4	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/22/2021 16:58	Alexander Thompson	2275732
EPA 350.1 Rev. 2.0	09/14/2021			09/16/2021 12:56	Ping Hua	2275713
	09/14/2021			09/16/2021 12:58	Ping Hua	2275717
	09/14/2021			09/16/2021 12:59	Ping Hua	2275718
EPA 351.2 Rev. 2.0	09/14/2021	09/17/2021 12:17	Benjamin T. Nordmann	09/20/2021 10:55	Alexandra J Mattheus	2275713
	09/14/2021	09/17/2021 12:17	Benjamin T. Nordmann	09/20/2021 10:57	Alexandra J Mattheus	2275717
	09/14/2021	09/17/2021 12:17	Benjamin T. Nordmann	09/20/2021 10:58	Alexandra J Mattheus	2275718
EPA 353.2 Rev. 2.0	09/14/2021			09/16/2021 09:29	Beverly Y. Sanders	2275713
	09/14/2021			09/16/2021 09:30	Beverly Y. Sanders	2275717
	09/14/2021			09/16/2021 09:31	Beverly Y. Sanders	2275718
EPA 365.1 Rev. 2.0	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/17/2021 13:25	Virginia P. Brown	2275713
	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:07	Virginia P. Brown	2275717
	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:08	Virginia P. Brown	2275718
EPA 365.1 Rev. 2.0 dissolved	09/14/2021			09/14/2021 16:01	Blanca Fach	2275720
	09/14/2021			09/14/2021 16:04	Blanca Fach	2275719
	09/14/2021			09/14/2021 16:16	Blanca Fach	2275714
SM 2320 B-2011	09/14/2021			09/16/2021 22:17	Dale L. Simmons	2275712
	09/14/2021			09/16/2021 22:32	Dale L. Simmons	2275715
	09/14/2021			09/16/2021 22:47	Dale L. Simmons	2275716
SM 2540 D-2011	09/14/2021			09/16/2021 15:25	Yijie Li	2275712, 2275715, 2275716
SM 4500 F-C-2011	09/14/2021			09/16/2021 20:37	Dale L. Simmons	2275712
	09/14/2021			09/16/2021 20:51	Dale L. Simmons	2275715
	09/14/2021			09/16/2021 20:56	Dale L. Simmons	2275716
SM 5310 B-2011	09/14/2021			09/18/2021 05:46	Touraj Touran	2275713
	09/14/2021			09/20/2021 23:58	Madeline Gruver	2275717
	09/14/2021			09/21/2021 00:11	Madeline Gruver	2275718