

Chemical Analysis Report

SO-DIST-2019-06-12-01

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

Event Description: **2019 Continuous Monitoring**
Request ID: **RQ-2019-06-03-05**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Fort Myers, FL 33901-3381
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-JUL-2019 10:09

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 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: ClevelandCemeteryDitch

Collection Date/Time: 06/11/2019 09:30

Field ID: G3SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094807	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P365512	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P365667	
	SM 2540 D-97	TSS	4	I	mg/L	P366151	
	SM 4500 F-C-97	Fluoride	0.51		mg F/L	P365675	
2094808	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P365767	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P366187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365943	
	EPA 365.1 Rev. 2.0	Total-P	0.35		mg P/L	P365801	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P365742	
2094809	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.28		mg P/L	P365514	
2094818	EPA 200.7 Rev. 4.4	Iron	260		ug/L	P365498	
		Manganese	34.0		ug/L	P365498	
		Zinc	5.0	U	ug/L	P365498	
	EPA 200.8 Rev. 5.4	Aluminum	54	I	ug/L	P365498	
		Antimony	0.20	U	ug/L	P365498	
		Arsenic	2.8		ug/L	P365498	
		Cadmium	0.080	U	ug/L	P365498	
		Chromium	1.6	U	ug/L	P365498	
		Copper	1.6	U	ug/L	P366019	
		Lead	0.80	U	ug/L	P365498	
		Nickel	2.0	U	ug/L	P365498	
		Selenium	0.80	U	ug/L	P365498	
		Silver	0.040	U	ug/L	P365498	
		Thallium	0.40	U	ug/L	P365498	

Ref. Method and Comment:

SM 2540 D-97: 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 manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Coral Creek (East)

Collection Date/Time: 06/11/2019 11:10

Field ID: G2SD0039

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094810	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P365512	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P365667	
	SM 2540 D-97	TSS	3	UA	mg/L	P366151	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P365675	
2094811	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P365767	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P366187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P365943	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P365801	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P365742	
2094812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P365514	
2094819	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P365498	
		Manganese	7.4	I	ug/L	P365498	
		Zinc	25	U	ug/L	P365498	
	EPA 200.8 Rev. 5.4	Aluminum	103		ug/L	P365498	
		Antimony	0.20	U	ug/L	P365498	
		Arsenic	3.31		ug/L	P365498	
		Cadmium	0.080	U	ug/L	P365498	
		Chromium	1.6	U	ug/L	P365498	
		Copper	1.6	U	ug/L	P366019	
		Lead	0.80	U	ug/L	P365498	
		Nickel	2.0	U	ug/L	P365498	
		Selenium	0.80	U	ug/L	P365498	
		Silver	0.040	U	ug/L	P365498	
		Thallium	0.40	U	ug/L	P365498	

Ref. Method and Comment:

SM 2540 D-97: 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 manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The sample required dilution for iron and zinc due to matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365512

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	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 200.8 Rev. 5.4
Batch ID: P366019

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366187

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365943

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: P365801

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365514

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

Reference Method: SM 2320 B-97
Batch ID: P365667

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

Reference Method: SM 2540 D-97
Batch ID: P366151

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365675

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365742

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: P365498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Manganese	97.6		P	85 - 115
Zinc	97.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.4		P	85 - 115
Antimony	96.9		P	85 - 115
Arsenic	100		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	98.0		P	85 - 115
Lead	99.1		P	85 - 115
Nickel	100		P	85 - 115
Selenium	97.9		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	99.2		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365767

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: P366187

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365943

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365801

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P365667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365742

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090382	Iron	101		P	70 - 130
2090382	Zinc	101		P	70 - 130
2093165	Iron	101	98.4	P/P	70 - 130
2093165	Manganese	92.6	91.1	P/P	70 - 130
2093165	Zinc	97.8	96.4	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090382	Aluminum	98.7		P	80 - 120
2090382	Antimony	102		P	80 - 120
2090382	Arsenic	101		P	80 - 120
2090382	Cadmium	100		P	80 - 120
2090382	Chromium	93.8		P	80 - 120
2090382	Lead	99.2		P	80 - 120
2090382	Nickel	100		P	80 - 120
2090382	Selenium	99.7		P	80 - 120
2090382	Silver	97.2		P	80 - 120
2090382	Thallium	99.9		P	80 - 120
2093165	Aluminum	114	113	P/P	80 - 120
2093165	Antimony	117	118	P/P	80 - 120
2093165	Arsenic	109	109	P/P	80 - 120
2093165	Cadmium	114	112	P/P	80 - 120
2093165	Chromium	98.8	99.3	P/P	80 - 120
2093165	Lead	120	117	P/P	80 - 120
2093165	Nickel	115	115	P/P	80 - 120
2093165	Selenium	116	117	P/P	80 - 120
2093165	Silver	108	109	P/P	80 - 120
2093165	Thallium	116	117	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092244	Copper	102	84.3	P/P	70 - 130
2093164	Copper	103		P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094808	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094728	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094727	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094811	Total-P	92.5	90.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094812	O-Phosphate-P	97.7	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2093104	Fluoride	96.9	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2093105	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094807	Turbidity	3.60	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093165	Iron	2.38	Spike	P	0 - 20
2093165	Manganese	1.50	Spike	P	0 - 20
2093165	Zinc	1.42	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093165	Aluminum	0.462	Spike	P	0 - 20
2093165	Antimony	0.531	Spike	P	0 - 20
2093165	Arsenic	0.0880	Spike	P	0 - 20
2093165	Cadmium	1.95	Spike	P	0 - 20
2093165	Chromium	0.516	Spike	P	0 - 20
2093165	Lead	2.72	Spike	P	0 - 20
2093165	Nickel	0.0785	Spike	P	0 - 20
2093165	Selenium	1.31	Spike	P	0 - 20
2093165	Silver	0.830	Spike	P	0 - 20
2093165	Thallium	1.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092244	Copper	16.3	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094808	Ammonia-N	0.0777	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094728	Kjeldahl Nitrogen	0.194	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P365943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094727	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P365801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094811	Total-P	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P365514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094812	O-Phosphate-P	0.380	Spike	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P365667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093104	Total Alkalinity	0.460	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
 Batch ID: P365675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093104	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P365742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093105	Organic Carbon	0.163	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: A92052

Included Lab Sample IDs: 2094807, 2094810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92053

Included Lab Sample IDs: 2094809, 2094812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	95.8	P/P	90 - 110
O-Phosphate-P	99.8	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92113

Included Lab Sample IDs: 2094807, 2094810

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	105	P/P	90 - 110
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A92113

Included Lab Sample IDs: 2094807, 2094810

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A92128

Included Lab Sample IDs: 2094818, 2094819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	90 - 110
Manganese	99.2	99.7	P/P	90 - 110
Zinc	99.2	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A92136

Included Lab Sample IDs: 2094808, 2094811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92142

Included Lab Sample IDs: 2094808, 2094811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110
Ammonia-N	105	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A92148

Included Lab Sample IDs: 2094819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	104	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92169

Included Lab Sample IDs: 2094818, 2094819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.9	98.3	P/P	90 - 110
Antimony	99.5	99.5	P/P	90 - 110
Arsenic	98.6	99.4	P/P	90 - 110
Arsenic	98.8	98.7	P/P	90 - 110
Cadmium	97.9	97.5	P/P	90 - 110
Chromium	94.6	94.9	P/P	90 - 110
Lead	98.9	99.6	P/P	90 - 110
Nickel	97.4	96.5	P/P	90 - 110
Selenium	97.6	98.5	P/P	90 - 110
Silver	96.3	96.3	P/P	90 - 110
Thallium	94.7	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92205

Included Lab Sample IDs: 2094808, 2094811

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92217

Included Lab Sample IDs: 2094808

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92231

Included Lab Sample IDs: 2094811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	97.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92282

Included Lab Sample IDs: 2094818, 2094819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	100	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92376

Included Lab Sample IDs: 2094808, 2094811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	104	P/P	90 - 110
Kjeldahl Nitrogen	110	107	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					3.60	
EPA 200.7 Rev. 4.4	Iron	103	101	101	98.4		2.38
	Manganese	97.6	92.6	91.1			1.50
	Zinc	97.5	101	97.8	96.4		1.42
EPA 200.8 Rev. 5.4	Aluminum	97.4	98.7	114	113		0.462
	Antimony	96.9	102	117	118		0.531
	Arsenic	100	101	109	109		0.0880
	Cadmium	98.2	100	114	112		1.95
	Chromium	98.0	93.8	98.8	99.3		0.516
	Copper	99.2	102	84.3	103		16.3
	Lead	99.1	99.2	120	117		2.72
	Nickel	100	100	115	115		0.0785
	Selenium	97.9	99.7	116	117		1.31
	Silver	98.4	97.2	108	109		0.830
	Thallium	101	99.9	116	117		1.12
EPA 350.1 Rev. 2.0	Ammonia-N	104	105	105			0.0777
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	103	103			0.194
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	104	92.5	90.8			1.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	97.7	98.1			0.380
SM 2320 B-97	Total Alkalinity	104				0.460	
SM 4500 F-C-97	Fluoride	97.9	96.9	97.6			0.473
SM 5310 B-00	Organic Carbon	102	102	102			0.163

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2094807, 2094810
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2094818, 2094819
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2094818, 2094819
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2094808, 2094811
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2094808, 2094811
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2094808, 2094811
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2094808, 2094811
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2094809, 2094812
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2094807, 2094810
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2094807, 2094810
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2094807, 2094810
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2094808, 2094811

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	06/12/2019			06/12/2019 17:23	Julia Storbeck	2094807, 2094810
EPA 200.7 Rev. 4.4	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/14/2019 20:52	Betina Topolski	2094818
	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/14/2019 20:59	Betina Topolski	2094819
	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/17/2019 14:11	Betina Topolski	2094819
EPA 200.8 Rev. 5.4	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/17/2019 19:34	Martin Acosta	2094818
	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/17/2019 23:03	Martin Acosta	2094818
	06/12/2019	06/12/2019 15:30	Elliott D. Healy	06/17/2019 23:13	Martin Acosta	2094819
	06/12/2019	06/20/2019 13:45	Elliott D. Healy	06/21/2019 19:06	Robert K Palmer	2094818
	06/12/2019	06/20/2019 13:45	Elliott D. Healy	06/21/2019 19:13	Robert K Palmer	2094819
EPA 350.1 Rev. 2.0	06/12/2019			06/14/2019 17:47	Ping Hua	2094808
	06/12/2019			06/14/2019 18:06	Ping Hua	2094811
EPA 351.2 Rev. 2.0	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 15:36	Joseph Suarez	2094808
	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 15:41	Joseph Suarez	2094811
EPA 353.2 Rev. 2.0	06/12/2019			06/19/2019 10:21	Beverly Y. Sanders	2094808
	06/12/2019			06/19/2019 10:23	Beverly Y. Sanders	2094811
EPA 365.1 Rev. 2.0	06/12/2019	06/18/2019 12:55	Sima Feizi	06/19/2019 12:32	Rosalyn Ballman	2094808
	06/12/2019	06/18/2019 12:55	Sima Feizi	06/20/2019 11:49	Lipi Saha	2094811
EPA 365.1 Rev. 2.0 dissolved	06/12/2019			06/12/2019 16:12	Jhamieka S. Greenwood	2094812
	06/12/2019			06/12/2019 17:55	Jhamieka S. Greenwood	2094809
SM 2320 B-97	06/12/2019			06/14/2019 09:33	Dale L. Simmons	2094807
	06/12/2019			06/14/2019 11:33	Dale L. Simmons	2094810
SM 2540 D-97	06/12/2019			06/17/2019 13:02	Yijie Li	2094807, 2094810
SM 4500 F-C-97	06/12/2019			06/14/2019 07:58	Dale L. Simmons	2094807
	06/12/2019			06/14/2019 08:19	Dale L. Simmons	2094810
SM 5310 B-00	06/12/2019			06/14/2019 09:56	Madeline Funaro	2094808
	06/12/2019			06/14/2019 10:08	Madeline Funaro	2094811