Chemical Analysis Report

SE-DIST-2018-09-12-01

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

Event Description: **SMP- Blank**
Request ID: **RQ-2018-09-10-28**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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2199 South Rock Road
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Certified by: Colin Wright, Program Administrator

Date Certified: 09-OCT-2018 09:09

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 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: CUTLER DRIVE (C-100) (CD-06 MIAMI DADE) **Collection Date/Time: 09/11/2018 12:00**

Field ID: BLANK_11092018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024234	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P351634	
	EPA 300.0 Rev. 2.1	Chloride	0.45	I	mg Cl/L	P351985	
		Sulfate	0.20	U	mg SO4/L	P351989	
	SM 2120 B	Color (true)	2.5	U	PCU	P351515	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P351706	
	SM 2540 C-97	TDS	15	U	mg/L	P351933	
	SM 2540 D-97	TSS	2	U	mg/L	P351975	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P351709	
2024235	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P351686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P351746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P351695	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P351600	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P351878	
2024236	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351519	
2024245	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P351526	
		Iron	30	U	ug/L	P351526	
		Magnesium	0.040	U	mg/L	P351526	
		Potassium	0.30	U	mg/L	P351526	
		Sodium	0.50	U	mg/L	P351526	
		Zinc	5.0	U	ug/L	P351526	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P351526	
		Cadmium	0.020	U	ug/L	P351526	
		Chromium	0.40	U	ug/L	P351526	
		Copper	0.20	U	ug/L	P351526	
		Lead	0.050	U	ug/L	P351526	
		Nickel	0.20	U	ug/L	P351526	
		Silver	0.010	U	ug/L	P351526	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The result was confirmed on 09/12/2018.
EPA 300.0 Rev. 2.1: Chloride: The result was confirmed on 09/25/2018.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: The result was confirmed on 09/18/2018.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 09/19/2018.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351634

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351526

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351526

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351985

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351989

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351686

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351746

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: P351695

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351600

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351519

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

Reference Method: SM 2120 B
Batch ID: P351515

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P351706

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

Reference Method: SM 2540 C-97
Batch ID: P351933

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351975

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P351709

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P351878

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: P351526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	100		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	99.4		P	85 - 115
Sodium	101		P	85 - 115
Zinc	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	104		P	85 - 115
Copper	98.1		P	85 - 115
Lead	103		P	85 - 115
Nickel	97.1		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351985

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351686

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351695

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351600

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351519

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

Reference Method: SM 2120 B
Batch ID: P351515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P351706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023697	Calcium	103		P	80 - 120
2023697	Iron	101		P	80 - 120
2023697	Magnesium	105		P	80 - 120
2023697	Potassium	104		P	80 - 120
2023697	Sodium	101		P	80 - 120
2023697	Zinc	98.5		P	80 - 120
2024444	Calcium	104	104	P/P	80 - 120
2024444	Iron	103	102	P/P	80 - 120
2024444	Magnesium	107	107	P/P	80 - 120
2024444	Potassium	105	104	P/P	80 - 120
2024444	Sodium	104		P	80 - 120
2024444	Zinc	103	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023697	Arsenic	103		P	80 - 120
2023697	Cadmium	102		P	80 - 120
2023697	Chromium	105		P	80 - 120
2023697	Copper	97.0		P	80 - 120
2023697	Lead	103		P	80 - 120
2023697	Nickel	96.9		P	80 - 120
2023697	Silver	103		P	80 - 120
2024444	Arsenic	104	104	P/P	80 - 120
2024444	Cadmium	104	104	P/P	80 - 120
2024444	Chromium	107	108	P/P	80 - 120
2024444	Copper	100	99.7	P/P	80 - 120
2024444	Lead	105	105	P/P	80 - 120
2024444	Nickel	96.1	96.6	P/P	80 - 120
2024444	Silver	104	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023823	Chloride	98.6		P	90 - 110
2024371	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023823	Sulfate	97.2		P	90 - 110
2024371	Sulfate	100		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024210	Kjeldahl Nitrogen	98.9	95.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024209	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024163	Total-P	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024281	O-Phosphate-P	93.4	94.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P351709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024195	Fluoride	97.9	97.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024208	Organic Carbon	95.2	94.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024193	Turbidity	6.29	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024444	Calcium	0.294	Spike	P	0 - 20
2024444	Iron	0.613	Spike	P	0 - 20
2024444	Magnesium	0.0656	Spike	P	0 - 20
2024444	Potassium	1.08	Spike	P	0 - 20
2024444	Sodium	0.406	Spike	P	0 - 20
2024444	Zinc	1.64	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024444	Arsenic	0.199	Spike	P	0 - 20
2024444	Cadmium	0.0846	Spike	P	0 - 20
2024444	Chromium	0.454	Spike	P	0 - 20
2024444	Copper	0.281	Spike	P	0 - 20
2024444	Lead	0.0488	Spike	P	0 - 20
2024444	Nickel	0.491	Spike	P	0 - 20
2024444	Silver	0.216	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023823	Chloride	0.658	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023823	Sulfate	0.702	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024198	Ammonia-N	1.22	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024210	Kjeldahl Nitrogen	2.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024209	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024163	Total-P	4.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024281	O-Phosphate-P	1.38	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P351515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024195	Color (true)	0.513	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024195	Total Alkalinity	1.10	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P351933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024161	TDS	1.87	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P351709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024195	Fluoride	0.480	Spike	P	0 - 3.5

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P351878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024208	Organic Carbon	0.575	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: A86442
Included Lab Sample IDs: 2024234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.5	99.4	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A86443
Included Lab Sample IDs: 2024236

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A86466
Included Lab Sample IDs: 2024245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.4	98.0	P/P	95 - 105
Iron	101	98.4	P/P	95 - 105
Magnesium	99.6	98.3	P/P	95 - 105
Potassium	99.5	99.3	P/P	95 - 105
Sodium	104	102	P/P	95 - 105
Zinc	98.9	99.6	P/P	95 - 105

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86474
Included Lab Sample IDs: 2024234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	103	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86500
Included Lab Sample IDs: 2024235

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86506
Included Lab Sample IDs: 2024235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A86511
Included Lab Sample IDs: 2024234

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A86511
Included Lab Sample IDs: 2024234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86516
Included Lab Sample IDs: 2024235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86551
Included Lab Sample IDs: 2024235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86563
Included Lab Sample IDs: 2024245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.9	97.3	P/P	90 - 110
Cadmium	94.2	95.9	P/P	90 - 110
Chromium	98.0	99.3	P/P	90 - 110
Copper	98.0	95.5	P/P	90 - 110
Lead	106	106	P/P	90 - 110
Silver	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A86566
Included Lab Sample IDs: 2024234

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

Reference Method: SM 5310 B-00
Run ID: A86574
Included Lab Sample IDs: 2024235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86628
Included Lab Sample IDs: 2024245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	95.0	93.3	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						6.29	
EPA 200.7 Rev. 4.4	Calcium	104	103	104	104			0.294
	Iron	100	101	103	102			0.613
	Magnesium	106	105	107	107			0.0656
	Potassium	99.4	104	105	104			1.08
	Sodium	101	101	104				0.406
	Zinc	98.2	98.5	103	101			1.64
EPA 200.8 Rev. 5.4	Arsenic	102	103	104	104			0.199
	Cadmium	102	102	104	104			0.0846
	Chromium	104	105	107	108			0.454
	Copper	98.1	97.0	100	99.7			0.281
	Lead	103	103	105	105			0.0488
	Nickel	97.1	96.1	96.6	96.9			0.491
	Silver	101	103	104	104			0.216
EPA 300.0 Rev. 2.1	Chloride	100	98.6	100			0.658	
	Sulfate	99.9	97.2	100			0.702	
EPA 350.1 Rev. 2.0	Ammonia-N	106						1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.9	95.0				2.75
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	102				0.990
EPA 365.1 Rev. 2.0	Total-P	104	106	102				4.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	93.4	94.7				1.38
SM 2120 B	Color (true)	97.6					0.513	
SM 2320 B-97	Total Alkalinity	102					1.10	
SM 2540 C-97	TDS						1.87	
SM 4500 F-C-97	Fluoride	97.9	97.9	97.3				0.480
SM 5310 B-00	Organic Carbon	96.0	95.2	94.2				0.575

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2024234
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2024245
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2024245
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2024234
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2024234
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2024235
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2024235
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2024235
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2024235
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2024236
SM 2120 B / E31780	True Color measured at 450 nm	2024234
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2024234
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2024234
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2024234
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2024234

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2024235

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	09/12/2018			09/12/2018 17:42	Megan Treadwell	2024234
EPA 200.7 Rev. 4.4	09/12/2018	09/12/2018 17:50	Elliott D. Healy	09/13/2018 12:56	Betina Topolski	2024245
EPA 200.8 Rev. 5.4	09/12/2018	09/12/2018 17:50	Elliott D. Healy	09/18/2018 19:01	Allison Taylor	2024245
	09/12/2018	09/12/2018 17:50	Elliott D. Healy	09/20/2018 15:06	Allison Taylor	2024245
EPA 300.0 Rev. 2.1	09/12/2018			09/19/2018 01:10	Lipi Saha	2024234
EPA 350.1 Rev. 2.0	09/12/2018			09/14/2018 12:43	Adrian Shelby	2024235
EPA 351.2 Rev. 2.0	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 11:42	Joseph Suarez	2024235
EPA 353.2 Rev. 2.0	09/12/2018			09/14/2018 12:27	Lauren Bottorf	2024235
EPA 365.1 Rev. 2.0	09/12/2018	09/13/2018 15:36	Sima Feizi	09/14/2018 13:11	Beverly Y. Sanders	2024235
EPA 365.1 Rev. 2.0 dissolved	09/12/2018			09/12/2018 15:42	Julia Storbeck	2024236
SM 2120 B	09/12/2018			09/12/2018 15:58	DeAsia Armster	2024234
SM 2320 B-97	09/12/2018			09/14/2018 00:12	Dale L. Simmons	2024234
SM 2540 C-97	09/12/2018			09/14/2018 15:32	Yijie Li	2024234
SM 2540 D-97	09/12/2018			09/14/2018 15:32	Yijie Li	2024234
SM 4500 F-C-97	09/12/2018			09/14/2018 00:12	Dale L. Simmons	2024234
SM 5310 B-00	09/12/2018			09/17/2018 18:42	Megan Treadwell	2024235