

Chemical Analysis Report

SE-DIST-2022-10-27-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Sebastian Deploy and Pickup**
Request ID: **RQ-2022-10-10-33**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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Certified by: Colin Wright, Program Administrator

Date Certified: 17-NOV-2022 11:58

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

Case Narrative

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

Results for the following analytical 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: C-54 confluence with Sebastian near Mockingbird Lane Dock

Collection Date/Time: 10/26/2022 11:00

Field ID: G5SE0106

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2365795	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P421567	
	SM 2320 B-2011	Total Alkalinity	159		mg CaCO3/L	P422005	
	SM 2540 D-2015	TSS	4	I	mg/L	P421784	
	SM 4500-F- C-2011	Fluoride	0.33		mg F/L	P422019	
2365796	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P422036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P421699	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P422026	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P421935	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P421795	
2365799	EPA 200.7 Rev. 4.4	Calcium	87.7		mg/L	P421702	
		Iron	1.22E+03		ug/L	P421702	
		Magnesium	39.0		mg/L	P421702	
		Strontium	2.93E+03		ug/L	P421590	
		Tin	3.0	I	ug/L	P421590	
		Titanium	1.7	I	ug/L	P421590	
		Vanadium	2.0	U	ug/L	P421590	
		Zinc	5.6	I	ug/L	P421590	
	EPA 200.8 Rev. 5.4	Aluminum	40		ug/L	P421590	
		Antimony	0.057	I	ug/L	P421590	
		Arsenic	1.39		ug/L	P421590	
		Beryllium	0.013	I	ug/L	P421590	
		Cadmium	0.020	U	ug/L	P421590	
		Chromium	0.46	I	ug/L	P421590	
		Cobalt	0.133		ug/L	P421590	
		Copper	1.95		ug/L	P421590	
		Lead	0.20	U	ug/L	P421590	
		Manganese	34.5		ug/L	P421590	
		Molybdenum	1.63		ug/L	P421590	
		Nickel	0.50	U	ug/L	P421590	
		Selenium	0.27	I	ug/L	P421590	
		Silver	0.010	U	ug/L	P421590	
		Thallium	0.10	U	ug/L	P421590	

Ref. Method and Comment:

SM 2540 D-2015: 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: P421567

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421590

Component	Result	Code	Units
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421702

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421590

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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	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: P422036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421699

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: P422026

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421935

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

Reference Method: SM 2320 B-2011
Batch ID: P422005

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

Reference Method: SM 2540 D-2015
Batch ID: P421784

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422019

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P421795

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421567

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Strontium	111		P	85 - 115
Tin	113		P	85 - 115
Titanium	109		P	85 - 115
Vanadium	109		P	85 - 115
Zinc	109		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421702

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	102		P	85 - 115
Magnesium	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.8		P	85 - 115
Antimony	95.0		P	85 - 115
Arsenic	96.0		P	85 - 115
Beryllium	89.2		P	85 - 115
Cadmium	93.1		P	85 - 115
Chromium	101		P	85 - 115
Cobalt	102		P	85 - 115
Copper	95.2		P	85 - 115
Lead	98.8		P	85 - 115
Manganese	98.8		P	85 - 115
Molybdenum	92.7		P	85 - 115
Nickel	96.2		P	85 - 115
Selenium	93.1		P	85 - 115
Silver	95.4		P	85 - 115
Thallium	94.9		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421699

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422026

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421935

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

Reference Method: SM 2320 B-2011
Batch ID: P422005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.3		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P421784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.5		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P421590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365533	Strontium	112	110	P/P	80 - 120
2365533	Tin	117	113	P/P	80 - 120
2365533	Titanium	112	109	P/P	80 - 120
2365533	Vanadium	111	107	P/P	80 - 120
2365533	Zinc	107	105	P/P	80 - 120
2365709	Strontium	112		P	80 - 120
2365709	Tin	115		P	80 - 120
2365709	Titanium	113		P	80 - 120
2365709	Vanadium	111		P	80 - 120
2365709	Zinc	112		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P421702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366080	Calcium	99.3	102	P/P	80 - 120
2366080	Iron	98.7	104	P/P	80 - 120
2366080	Magnesium	99.1	104	P/P	80 - 120
2366164	Calcium	96.6		P	80 - 120
2366164	Iron	105		P	80 - 120
2366164	Magnesium	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P421590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365533	Aluminum	90.8	93.6	P/P	80 - 120
2365533	Antimony	93.4	96.7	P/P	80 - 120
2365533	Arsenic	94.0	96.0	P/P	80 - 120
2365533	Beryllium	88.3	92.2	P/P	80 - 120
2365533	Cadmium	91.6	95.1	P/P	80 - 120
2365533	Chromium	97.7	99.9	P/P	80 - 120
2365533	Cobalt	98.7	101	P/P	80 - 120
2365533	Copper	90.8	91.8	P/P	80 - 120
2365533	Lead	96.5	98.3	P/P	80 - 120
2365533	Manganese	98.7	101	P/P	80 - 120
2365533	Molybdenum	91.3	93.5	P/P	80 - 120
2365533	Nickel	90.1	92.1	P/P	80 - 120
2365533	Selenium	90.8	90.3	P/P	80 - 120
2365533	Silver	92.2	93.8	P/P	80 - 120
2365533	Thallium	93.6	96.7	P/P	80 - 120
2365709	Aluminum	91.4		P	80 - 120
2365709	Antimony	94.3		P	80 - 120
2365709	Arsenic	94.7		P	80 - 120
2365709	Beryllium	91.8		P	80 - 120
2365709	Cadmium	92.8		P	80 - 120
2365709	Chromium	99.7		P	80 - 120
2365709	Cobalt	101		P	80 - 120
2365709	Copper	93.8		P	80 - 120
2365709	Lead	98.9		P	80 - 120
2365709	Manganese	99.6		P	80 - 120
2365709	Molybdenum	91.4		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365709	Nickel	94.5		P	80 - 120
2365709	Selenium	92.8		P	80 - 120
2365709	Silver	93.8		P	80 - 120
2365709	Thallium	94.0		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365938	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365303	Kjeldahl Nitrogen	98.1	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365584	NO2NO3-N	107	107	P/P	80 - 120

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365943	Total-P	98.6	99.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365899	Fluoride	101	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365977	Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365809	Turbidity	8.46	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365533	Strontium	1.65	Spike	P	0 - 20
2365533	Tin	3.11	Spike	P	0 - 20
2365533	Titanium	2.63	Spike	P	0 - 20
2365533	Vanadium	3.21	Spike	P	0 - 20
2365533	Zinc	2.11	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366080	Calcium	2.57	Spike	P	0 - 20
2366080	Iron	5.23	Spike	P	0 - 20
2366080	Magnesium	4.79	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365533	Aluminum	3.05	Spike	P	0 - 20
2365533	Antimony	3.48	Spike	P	0 - 20
2365533	Arsenic	2.07	Spike	P	0 - 20
2365533	Beryllium	4.30	Spike	P	0 - 20
2365533	Cadmium	3.68	Spike	P	0 - 20
2365533	Chromium	2.20	Spike	P	0 - 20
2365533	Cobalt	2.24	Spike	P	0 - 20
2365533	Copper	1.11	Spike	P	0 - 20
2365533	Lead	1.88	Spike	P	0 - 20
2365533	Manganese	2.27	Spike	P	0 - 20
2365533	Molybdenum	2.16	Spike	P	0 - 20
2365533	Nickel	2.16	Spike	P	0 - 20
2365533	Selenium	0.528	Spike	P	0 - 20
2365533	Silver	1.79	Spike	P	0 - 20
2365533	Thallium	3.30	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365938	Ammonia-N	0.822	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365303	Kjeldahl Nitrogen	0.00519	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365584	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365943	Total-P	0.707	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P422005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365899	Total Alkalinity	1.16	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P422019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365899	Fluoride	0.463	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P421795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365977	Organic Carbon	0.0888	Sample	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A115579

Included Lab Sample IDs: 2365795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115613

Included Lab Sample IDs: 2365799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Strontium	101	100	P/P	90 - 110
Tin	102	104	P/P	90 - 110
Titanium	101	99.9	P/P	90 - 110
Vanadium	99.9	99.9	P/P	90 - 110
Zinc	99.8	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A115652

Included Lab Sample IDs: 2365799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	93.0	94.0	P/P	90 - 110
Antimony	91.6	90.1	P/P	90 - 110
Arsenic	93.3	93.6	P/P	90 - 110
Beryllium	93.2	92.6	P/P	90 - 110
Cadmium	91.8	90.5	P/P	90 - 110
Copper	91.0	92.1	P/P	90 - 110
Molybdenum	91.2	90.3	P/P	90 - 110
Nickel	91.8	93.3	P/P	90 - 110
Selenium	92.6	92.1	P/P	90 - 110
Silver	92.1	91.7	P/P	90 - 110
Thallium	90.5	90.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A115670

Included Lab Sample IDs: 2365799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	95.0	97.0	P/P	90 - 110
Cobalt	96.4	98.3	P/P	90 - 110
Lead	94.5	94.7	P/P	90 - 110
Manganese	94.4	94.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115691

Included Lab Sample IDs: 2365796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115722

Included Lab Sample IDs: 2365796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	99.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115774

Included Lab Sample IDs: 2365795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.1	97.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115774

Included Lab Sample IDs: 2365795

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115778

Included Lab Sample IDs: 2365796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115782

Included Lab Sample IDs: 2365796

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115789

Included Lab Sample IDs: 2365796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115791

Included Lab Sample IDs: 2365799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.7	93.8	P/P	90 - 110
Iron	98.9	94.9	P/P	90 - 110
Magnesium	97.5	93.4	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	100				8.46	
EPA 200.7 Rev. 4.4	Calcium	102	99.3	102	96.6		2.57
	Iron	102	98.7	104	105		5.23
	Magnesium	102	99.1	104	102		4.79
	Strontium	111	112	112	110		1.65
	Tin	113	117	113	115		3.11
	Titanium	109	112	109	113		2.63
	Vanadium	109	111	107	111		3.21
	Zinc	109	107	105	112		2.11
EPA 200.8 Rev. 5.4	Aluminum	93.8	90.8	93.6	91.4		3.05
	Antimony	95.0	93.4	96.7	94.3		3.48
	Arsenic	96.0	94.0	96.0	94.7		2.07
	Beryllium	89.2	88.3	92.2	91.8		4.30
	Cadmium	93.1	91.6	95.1	92.8		3.68
	Chromium	101	97.7	99.9	99.7		2.20
	Cobalt	102	98.7	101	101		2.24
	Copper	95.2	90.8	91.8	93.8		1.11
	Lead	98.8	96.5	98.3	98.9		1.88
	Manganese	98.8	98.7	101	99.6		2.27
	Molybdenum	92.7	91.3	93.5	91.4		2.16
	Nickel	96.2	90.1	92.1	94.5		2.16
	Selenium	93.1	90.8	90.3	92.8		0.528
	Silver	95.4	92.2	93.8	93.8		1.79
	Thallium	94.9	93.6	96.7	94.0		3.30
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	98.0	99.0			0.822
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	98.1	98.1			0.0051
EPA 353.2 Rev. 2.0	NO2NO3-N	104	107	107			0.442
EPA 365.1 Rev. 2.0	Total-P	103	98.6	99.3			0.707
SM 2320 B-2011	Total Alkalinity	97.3				1.16	
SM 2540 D-2015	TSS	96.5					
SM 4500-F- C-2011	Fluoride	99.8	101	100			0.463
SM 5310 B-2011	Organic Carbon	97.4	99.3			0.0888	

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2365795
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2365799
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2365799
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2365796
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2365796
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2365796
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2365796
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2365795
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2365795
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2365795
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2365796

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	10/27/2022			10/27/2022 14:30	Anna M. Plaviak	2365795
EPA 200.7 Rev. 4.4	10/27/2022	10/28/2022 11:25	George D Taylor	10/29/2022 01:12	McKinley C Carter	2365799
	10/27/2022	11/01/2022 10:50	George D Taylor	11/07/2022 23:02	McKinley C Carter	2365799
EPA 200.8 Rev. 5.4	10/27/2022	10/28/2022 11:25	George D Taylor	11/01/2022 03:17	Emily M Philpot	2365799
	10/27/2022	10/28/2022 11:25	George D Taylor	11/02/2022 00:12	Emily M Philpot	2365799
EPA 350.1 Rev. 2.0	10/27/2022			11/07/2022 14:11	Ping Hua	2365796
EPA 351.2 Rev. 2.0	10/27/2022	11/01/2022 12:07	Alexandra J Mattheus	11/03/2022 12:38	Samantha L Bates	2365796
EPA 353.2 Rev. 2.0	10/27/2022			11/07/2022 10:53	Beverly Y. Sanders	2365796
EPA 365.1 Rev. 2.0	10/27/2022	11/04/2022 13:44	Adam P Silver	11/07/2022 10:31	James L Waggerby	2365796
SM 2320 B-2011	10/27/2022			11/05/2022 14:14	Dale L. Simmons	2365795
SM 2540 D-2015	10/27/2022			10/28/2022 15:58	Yijie Li	2365795
SM 4500-F- C-2011	10/27/2022			11/05/2022 14:14	Dale L. Simmons	2365795
SM 5310 B-2011	10/27/2022			11/02/2022 04:48	Khloe J Berg	2365796