

Chemical Analysis Report

SO-DIST-2021-12-07-01

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

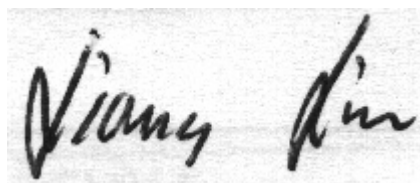
Event Description: **2021 SMP : Continuous Flopbuck**
Request ID: **RQ-2021-12-06-43**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-DEC-2021 14:37

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Flopbuck Near Pearl St.

Collection Date/Time: 12/06/2021 08:50

Field ID: G3SD0185

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2293493	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P407145	
	SM 2320 B-2011	Total Alkalinity	172		mg CaCO3/L	P407291	
	SM 2540 D-2011	TSS	3	UA	mg/L	P407698	
	SM 4500 F-C-2011	Fluoride	0.72		mg F/L	P407295	
2293494	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P407751	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P407482	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P407244	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P407170	
	SM 5310 B-2011	Organic Carbon	9.8		mg C/L	P407555	
2293495	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P407120	
2293498	EPA 200.7 Rev. 4.4	Calcium	238		mg/L	P407273	
		Iron	90	U	ug/L	P407273	
		Magnesium	505		mg/L	P407273	
		Strontium	3.94E+03		ug/L	P407273	
		Tin	60	U	ug/L	P407273	
		Vanadium	6.0	U	ug/L	P407273	
		Zinc	15	U	ug/L	P407273	
	EPA 200.8 Rev. 5.4	Aluminum	20	U	ug/L	P407273	
		Antimony	0.26	I	ug/L	P407273	
		Arsenic	1.67		ug/L	P407273	
		Beryllium	0.040	U	ug/L	P407273	
		Cadmium	0.080	U	ug/L	P407273	
		Chromium	1.6	U	ug/L	P407273	
		Cobalt	0.10	I	ug/L	P407273	
		Copper	1.6	U	ug/L	P407273	
		Lead	0.80	U	ug/L	P407273	
		Manganese	11.2		ug/L	P407273	
		Molybdenum	8.4		ug/L	P407273	
		Nickel	2.0	U	ug/L	P407273	
		Selenium	0.80	U	ug/L	P407273	
		Silver	0.040	U	ug/L	P407273	

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: Precision data and spike recoveries for tin are unavailable because sample matrix interference necessitated a high dilution. Batch matrix spike recoveries for calcium, magnesium and strontium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407145

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P407273

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P407273

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407751

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407482

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407244

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: P407170

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407120

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

Reference Method: SM 2320 B-2011
Batch ID: P407291

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

Reference Method: SM 2540 D-2011
Batch ID: P407698

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407295

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407555

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: P407273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	109		P	85 - 115
Magnesium	103		P	85 - 115
Strontium	99.2		P	85 - 115
Tin	104		P	85 - 115
Vanadium	102		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P407273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	99.0		P	85 - 115
Beryllium	96.6		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	103		P	85 - 115
Cobalt	101		P	85 - 115
Copper	100		P	85 - 115
Lead	98.2		P	85 - 115
Manganese	103		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	100		P	85 - 115
Selenium	98.7		P	85 - 115
Silver	99.5		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P407751

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P407482

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P407244

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: P407170

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: P407120

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

Reference Method: SM 2320 B-2011
Batch ID: P407291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407555

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: P407273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292820	Iron	104	102	P/P	70 - 130
2292820	Vanadium	107	106	P/P	70 - 130
2292820	Zinc	100	101	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P407273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292820	Aluminum	119	115	P/P	70 - 130
2292820	Antimony	101	101	P/P	70 - 130
2292820	Arsenic	108	106	P/P	70 - 130
2292820	Beryllium	103	102	P/P	70 - 130
2292820	Cadmium	93.2	91.5	P/P	70 - 130
2292820	Chromium	96.6	95.8	P/P	70 - 130
2292820	Cobalt	117	115	P/P	70 - 130
2292820	Copper	108	105	P/P	70 - 130
2292820	Lead	110	108	P/P	70 - 130
2292820	Manganese	96.0	94.3	P/P	70 - 130
2292820	Molybdenum	120	121	P/P	70 - 130
2292820	Nickel	115	114	P/P	70 - 130
2292820	Selenium	95.2	95.1	P/P	70 - 130
2292820	Silver	89.0	88.9	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P407751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293875	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P407482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293696	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P407244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293494	NO2NO3-N	98.7	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P407170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293696	Total-P	101	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P407120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293316	O-Phosphate-P	99.6	101	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P407295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293999	Fluoride	99.8	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P407555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293304	Organic Carbon	94.8	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P407145

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293493	Turbidity	11.2	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P407273

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292820	Calcium	2.36	Spike	P	0 - 20
2292820	Iron	2.44	Spike	P	0 - 20
2292820	Magnesium	2.23	Spike	P	0 - 20
2292820	Strontium	2.41	Spike	P	0 - 20
2292820	Vanadium	1.44	Spike	P	0 - 20
2292820	Zinc	0.757	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P407273

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292820	Aluminum	3.30	Spike	P	0 - 20
2292820	Antimony	0.270	Spike	P	0 - 20
2292820	Arsenic	1.66	Spike	P	0 - 20
2292820	Beryllium	0.326	Spike	P	0 - 20
2292820	Cadmium	1.83	Spike	P	0 - 20
2292820	Chromium	0.760	Spike	P	0 - 20
2292820	Cobalt	2.04	Spike	P	0 - 20
2292820	Copper	2.65	Spike	P	0 - 20
2292820	Lead	1.19	Spike	P	0 - 20
2292820	Manganese	1.70	Spike	P	0 - 20
2292820	Molybdenum	0.0997	Spike	P	0 - 20
2292820	Nickel	0.357	Spike	P	0 - 20
2292820	Selenium	0.159	Spike	P	0 - 20
2292820	Silver	0.192	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P407751

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293875	Ammonia-N	0.355	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P407482

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293696	Kjeldahl Nitrogen	3.49	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293494	NO2NO3-N	0.505	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293696	Total-P	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293316	O-Phosphate-P	1.08	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P407291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293999	Total Alkalinity	4.18	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P407295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293999	Fluoride	0.473	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293304	Organic Carbon	0.550	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: A109244

Included Lab Sample IDs: 2293495

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109254

Included Lab Sample IDs: 2293493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109290

Included Lab Sample IDs: 2293494

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

Reference Method: SM 2320 B-2011

Run ID: A109312

Included Lab Sample IDs: 2293493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109312

Included Lab Sample IDs: 2293493

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109355

Included Lab Sample IDs: 2293498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.8	99.9	P/P	90 - 110
Antimony	92.9	93.8	P/P	90 - 110
Arsenic	96.5	94.7	P/P	90 - 110
Beryllium	98.6	97.0	P/P	90 - 110
Cadmium	95.7	95.8	P/P	90 - 110
Chromium	95.1	96.4	P/P	90 - 110
Cobalt	95.3	94.7	P/P	90 - 110
Copper	95.7	95.0	P/P	90 - 110
Lead	92.4	92.5	P/P	90 - 110
Manganese	96.2	97.7	P/P	90 - 110
Molybdenum	96.3	95.2	P/P	90 - 110
Nickel	96.2	95.4	P/P	90 - 110
Selenium	95.0	94.7	P/P	90 - 110
Silver	94.5	94.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109356

Included Lab Sample IDs: 2293498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	103	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Strontium	98.3	100	P/P	90 - 110
Tin	100	100	P/P	90 - 110
Vanadium	96.1	96.8	P/P	90 - 110
Zinc	97.9	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109370

Included Lab Sample IDs: 2293494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A109430

Included Lab Sample IDs: 2293494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109450

Included Lab Sample IDs: 2293494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109511

Included Lab Sample IDs: 2293494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	102	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				11.2	
EPA 200.7 Rev. 4.4	Calcium	104				2.36
	Iron	109	104	102		2.44
	Magnesium	103				2.23
	Strontium	99.2				2.41
	Tin	104				
	Vanadium	102	107	106		1.44
	Zinc	101	100	101		0.757
EPA 200.8 Rev. 5.4	Aluminum	103	119	115		3.30
	Antimony	101	101	101		0.270
	Arsenic	99.0	108	106		1.66
	Beryllium	96.6	103	102		0.326
	Cadmium	101	93.2	91.5		1.83
	Chromium	103	96.6	95.8		0.760
	Cobalt	101	117	115		2.04
	Copper	100	108	105		2.65
	Lead	98.2	110	108		1.19
	Manganese	103	96.0	94.3		1.70
	Molybdenum	101	120	121		0.0997
	Nickel	100	115	114		0.357
	Selenium	98.7	95.2	95.1		0.159
	Silver	99.5	89.0	88.9		0.192
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	102	102		0.355
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	101		3.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	98.7	99.2		0.505
EPA 365.1 Rev. 2.0	Total-P	104	101	99.3		1.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	99.6	101		1.08
SM 2320 B-2011	Total Alkalinity	98.6			4.18	
SM 4500 F-C-2011	Fluoride	102	99.8	101		0.473
SM 5310 B-2011	Organic Carbon	96.0	94.8	94.2		0.550

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2293493
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2293498
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2293498
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2293494
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2293494
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2293494
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2293494
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2293495
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2293493
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2293493
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2293493
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2293494

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	12/07/2021			12/07/2021 17:29	Khloe J Berg	2293493
EPA 200.7 Rev. 4.4	12/07/2021	12/10/2021 10:00	Vijayalakshmi Reddy	12/13/2021 21:09	Josef B Mick	2293498
	12/07/2021	12/10/2021 10:00	Vijayalakshmi Reddy	12/13/2021 21:17	Josef B Mick	2293498
EPA 200.8 Rev. 5.4	12/07/2021	12/10/2021 10:00	Vijayalakshmi Reddy	12/13/2021 20:43	Alexander Thompson	2293498
EPA 350.1 Rev. 2.0	12/07/2021			12/21/2021 12:19	Ping Hua	2293494
EPA 351.2 Rev. 2.0	12/07/2021	12/15/2021 10:12	Alexandra J Mattheus	12/16/2021 15:44	Alexandra J Mattheus	2293494
EPA 353.2 Rev. 2.0	12/07/2021			12/09/2021 11:00	Beverly Y. Sanders	2293494
EPA 365.1 Rev. 2.0	12/07/2021	12/09/2021 14:45	Simonne.V. Calhoun	12/14/2021 11:53	Shengyu Ding	2293494
EPA 365.1 Rev. 2.0 dissolved	12/07/2021			12/07/2021 15:51	James L Waggerby	2293495
SM 2320 B-2011	12/07/2021			12/10/2021 04:39	Dale L. Simmons	2293493
SM 2540 D-2011	12/07/2021			12/10/2021 15:28	Yijie Li	2293493
SM 4500 F-C-2011	12/07/2021			12/10/2021 03:37	Dale L. Simmons	2293493
SM 5310 B-2011	12/07/2021			12/16/2021 05:50	Khloe J Berg	2293494