

Chemical Analysis Report

CEN-DIST-2023-03-07-01

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

Event Description: **Run 11**
Request ID: **RQ-2023-02-20-15**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 28-MAR-2023 10:11



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: Lake Jane @ Center

Collection Date/Time: 03/06/2023 10:03

Field ID: G4CE0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392170	DEP SOP: NU-094-1	Color (true)	38	A	PCU	P426813	
	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P426816	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P427041	
		Sulfate	19		mg SO4/L	P427045	
	SM 2320 B-2011	Total Alkalinity	74		mg CaCO3/L	P427035	
	SM 2540 C-2015	TDS	169		mg/L	P427014	
	SM 2540 D-2015	TSS	10	I	mg/L	P427012	
	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P427162	
2392173	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P426949	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P426982	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427068	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P427062	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P426936	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Walker @ Center

Collection Date/Time: 03/06/2023 11:47

Field ID: G4CE0238

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392171	DEP SOP: NU-094-1	Color (true)	26		PCU	P426813	
	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P426816	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P427041	
		Sulfate	0.85		mg SO4/L	P427045	
	SM 2320 B-2011	Total Alkalinity	50		mg CaCO3/L	P427035	
	SM 2540 C-2015	TDS	92		mg/L	P427014	
	SM 2540 D-2015	TSS	18		mg/L	P427012	
	SM 4500-F- C-2011	Fluoride	0.057	I	mg F/L	P427162	
2392174	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P426949	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3	J	mg N/L	P426982	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427068	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P427063	
	SM 5310 B-2011	Organic Carbon	8.5		mg C/L	P426936	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Lake Catherine @ Center

Collection Date/Time: 03/06/2023 10:42

Field ID: G4CE0240

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392180	EPA 200.7 Rev. 4.4	Calcium	27.4		mg/L	P426800	
		Iron	30	U	ug/L	P426800	
		Magnesium	2.60		mg/L	P426800	
		Potassium	1.1	I	mg/L	P426800	
		Sodium	7.4		mg/L	P426800	
		Strontium	70.6		ug/L	P426800	
		Tin	3.0	U	ug/L	P426800	
		Titanium	0.75	U	ug/L	P426800	
		Vanadium	2.0	U	ug/L	P426800	
		Zinc	5.0	U	ug/L	P426800	
	EPA 200.8 Rev. 5.4	Aluminum	18	I	ug/L	P426800	
		Antimony	0.67		ug/L	P426800	
		Arsenic	0.91		ug/L	P426800	
		Barium	12.8		ug/L	P426800	
		Beryllium	0.010	U	ug/L	P426800	
		Boron	34.8		ug/L	P426800	
		Cadmium	0.020	U	ug/L	P426800	
		Chromium	0.40	U	ug/L	P426800	
		Cobalt	0.028	I	ug/L	P426800	
		Copper	0.98		ug/L	P426800	
		Lead	0.20	U	ug/L	P426800	
		Manganese	2.95		ug/L	P426800	
		Molybdenum	1.09		ug/L	P426800	
		Nickel	0.50	U	ug/L	P426800	
		Selenium	0.20	U	ug/L	P426800	
		Silver	0.010	U	ug/L	P426800	
		Thallium	0.10	U	ug/L	P426800	
	SM 2340 B-2011	Hardness	79.2		mg/L	P426800	

Sample Location: Lake Lotta at Center of southern lobe

Collection Date/Time: 03/06/2023 13:06

Field ID: G2CE0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392167	DEP SOP: NU-094-1	Color (true)	54		PCU	P426813	
	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P426816	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P427041	
		Sulfate	14	A	mg SO4/L	P427045	
	SM 2320 B-2011	Total Alkalinity	51		mg CaCO3/L	P427035	
	SM 2540 C-2015	TDS	134		mg/L	P427014	
	SM 2540 D-2015	TSS	4	I	mg/L	P427012	
	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P427162	
2392168	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P426865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P426982	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427068	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P427062	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P426936	
2392169	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P426809	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Lorna Doone @ Center

Collection Date/Time: 03/06/2023 14:04

Field ID: G4CE0239

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392172	DEP SOP: NU-094-1	Color (true)	11		PCU	P426813	
	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P426816	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P427041	
		Sulfate	6.4		mg SO4/L	P427045	
	SM 2320 B-2011	Total Alkalinity	56		mg CaCO3/L	P427035	
	SM 2540 C-2015	TDS	95		mg/L	P427014	
	SM 2540 D-2015	TSS	2	U	mg/L	P427012	
	SM 4500-F- C-2011	Fluoride	0.050	I	mg F/L	P427162	
2392175	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P427081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P426982	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427068	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P427063	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P426936	

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: DEP SOP: NU-094-1
Batch ID: P426813

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426816

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P426800

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
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 200.8 Rev. 5.4
Batch ID: P426800

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	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 300.0 Rev. 2.1
Batch ID: P427041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427045

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426865

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426949

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427081

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426982

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427068

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426809

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P427035

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

Reference Method: SM 2540 C-2015
Batch ID: P427014

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P427012

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427162

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P426936

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P426813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426816

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P426800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	106		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	103		P	85 - 115
Sodium	103		P	85 - 115
Strontium	101		P	85 - 115
Tin	104		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P426800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	101		P	85 - 115
Barium	105		P	85 - 115
Beryllium	97.0		P	85 - 115
Boron	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	99.4		P	85 - 115
Cobalt	99.3		P	85 - 115
Copper	100		P	85 - 115
Lead	98.4		P	85 - 115
Manganese	104		P	85 - 115
Molybdenum	98.5		P	85 - 115
Nickel	102		P	85 - 115
Selenium	101		P	85 - 115
Silver	99.7		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427041

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427045

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426865

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426949

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426982

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: P427068

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426809

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P427035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.1		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P427014

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

Reference Method: SM 2540 D-2015
Batch ID: P427012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	95.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P427162

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

Reference Method: SM 5310 B-2011
Batch ID: P426936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P426800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392180	Calcium	105		P	80 - 120
2392180	Iron	106	107	P/P	80 - 120
2392180	Magnesium	104	105	P/P	80 - 120
2392180	Potassium	101	102	P/P	80 - 120
2392180	Sodium	104		P	80 - 120
2392180	Strontium	101	101	P/P	80 - 120
2392180	Tin	101	102	P/P	80 - 120
2392180	Titanium	102	103	P/P	80 - 120
2392180	Vanadium	103	104	P/P	80 - 120
2392180	Zinc	102	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P426800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392180	Aluminum	101	101	P/P	80 - 120
2392180	Antimony	102	103	P/P	80 - 120
2392180	Arsenic	101	102	P/P	80 - 120
2392180	Barium	104	104	P/P	80 - 120
2392180	Beryllium	96.6	96.8	P/P	80 - 120
2392180	Boron	102	103	P/P	80 - 120
2392180	Cadmium	103	104	P/P	80 - 120
2392180	Chromium	99.6	100	P/P	80 - 120
2392180	Cobalt	98.0	99.6	P/P	80 - 120
2392180	Copper	98.8	99.1	P/P	80 - 120
2392180	Lead	102	100	P/P	80 - 120
2392180	Manganese	101	103	P/P	80 - 120
2392180	Molybdenum	99.8	99.6	P/P	80 - 120
2392180	Nickel	100	102	P/P	80 - 120
2392180	Selenium	101	99.4	P/P	80 - 120
2392180	Silver	98.1	98.6	P/P	80 - 120
2392180	Thallium	104	103	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392167	Chloride	104		P	90 - 110
2392540	Chloride	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392167	Sulfate	106		P	90 - 110
2392540	Sulfate	110		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P426865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392168	Ammonia-N	97.2	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392846	Ammonia-N	97.2	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392175	Ammonia-N	98.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392174	Kjeldahl Nitrogen	94.6	89.9	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392173	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391603	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392447	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392169	O-Phosphate-P	98.6	97.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P427162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392889	Fluoride	100	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P426936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391558	Organic Carbon	97.5	96.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1

Batch ID: P426813

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392170	Color (true)	4.96	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P426816

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392022	Turbidity	13.3	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P426800

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392180	Calcium	0.0798	Spike	P	0 - 20
2392180	Iron	0.722	Spike	P	0 - 20
2392180	Magnesium	0.796	Spike	P	0 - 20
2392180	Potassium	0.899	Spike	P	0 - 20
2392180	Sodium	0.118	Spike	P	0 - 20
2392180	Strontium	0.333	Spike	P	0 - 20
2392180	Tin	0.943	Spike	P	0 - 20
2392180	Titanium	0.297	Spike	P	0 - 20
2392180	Vanadium	0.912	Spike	P	0 - 20
2392180	Zinc	0.727	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P426800

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392180	Aluminum	0.214	Spike	P	0 - 20
2392180	Antimony	1.14	Spike	P	0 - 20
2392180	Arsenic	0.906	Spike	P	0 - 20
2392180	Barium	0.575	Spike	P	0 - 20
2392180	Beryllium	0.190	Spike	P	0 - 20
2392180	Boron	0.923	Spike	P	0 - 20
2392180	Cadmium	0.737	Spike	P	0 - 20
2392180	Chromium	0.746	Spike	P	0 - 20
2392180	Cobalt	1.64	Spike	P	0 - 20
2392180	Copper	0.302	Spike	P	0 - 20
2392180	Lead	1.53	Spike	P	0 - 20
2392180	Manganese	1.78	Spike	P	0 - 20
2392180	Molybdenum	0.166	Spike	P	0 - 20
2392180	Nickel	1.30	Spike	P	0 - 20
2392180	Selenium	1.29	Spike	P	0 - 20
2392180	Silver	0.602	Spike	P	0 - 20
2392180	Thallium	0.951	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392167	Chloride	0.888	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392167	Sulfate	1.20	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392168	Ammonia-N	3.09	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392846	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392175	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392174	Kjeldahl Nitrogen	2.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392173	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391603	Total-P	0.224	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392447	Total-P	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392169	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P427035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392889	Total Alkalinity	0.840	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P427014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392063	TDS	0.720	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P427162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392889	Fluoride	0.467	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P426936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391558	Organic Carbon	0.633	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A117833

Included Lab Sample IDs: 2392167, 2392170, 2392171, 2392172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	98.6	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A117852

Included Lab Sample IDs: 2392169

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.6	98.5	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A117853

Included Lab Sample IDs: 2392167, 2392170, 2392171, 2392172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.6	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A117854

Included Lab Sample IDs: 2392167, 2392170, 2392171, 2392172

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117875

Included Lab Sample IDs: 2392168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.9	96.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117884

Included Lab Sample IDs: 2392180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.8	101	P/P	90 - 110
Antimony	100	102	P/P	90 - 110
Arsenic	100	102	P/P	90 - 110
Barium	102	103	P/P	90 - 110
Beryllium	98.6	99.7	P/P	90 - 110
Boron	101	97.7	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Chromium	97.7	99.1	P/P	90 - 110
Cobalt	96.6	97.9	P/P	90 - 110
Copper	97.5	98.4	P/P	90 - 110
Lead	97.3	100	P/P	90 - 110
Manganese	101	103	P/P	90 - 110
Molybdenum	97.9	99.4	P/P	90 - 110
Nickel	98.5	99.3	P/P	90 - 110
Selenium	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117884

Included Lab Sample IDs: 2392180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	98.6	98.9	P/P	90 - 110
Thallium	99.0	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A117898

Included Lab Sample IDs: 2392168, 2392173, 2392174, 2392175

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117903

Included Lab Sample IDs: 2392173, 2392174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A117948

Included Lab Sample IDs: 2392167, 2392170, 2392171, 2392172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117953

Included Lab Sample IDs: 2392168, 2392173, 2392174, 2392175

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117961

Included Lab Sample IDs: 2392175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117984

Included Lab Sample IDs: 2392168, 2392173, 2392174, 2392175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	97.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A117988

Included Lab Sample IDs: 2392167, 2392170, 2392171, 2392172

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118001

Included Lab Sample IDs: 2392173, 2392174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.8	P/P	90 - 110
Total-P	98.8	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118052

Included Lab Sample IDs: 2392168, 2392175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118147

Included Lab Sample IDs: 2392180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Iron	104	104	P/P	90 - 110
Magnesium	104	104	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	102	101	P/P	90 - 110
Strontium	102	103	P/P	90 - 110
Tin	103	104	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Vanadium	102	102	P/P	90 - 110
Zinc	105	105	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		LCS	Precision SMP	MS
DEP SOP: NU-094-1	Color (true)	97.2				4.96	
EPA 180.1 Rev. 2.0	Turbidity	99.3				13.3	
EPA 200.7 Rev. 4.4	Calcium	105	105				0.0798
	Iron	106	106	107			0.722
	Magnesium	107	104	105			0.796
	Potassium	103	101	102			0.899
	Sodium	103	104				0.118
	Strontium	101	101	101			0.333
	Tin	104	101	102			0.943
	Titanium	102	102	103			0.297
	Vanadium	103	103	104			0.912
	Zinc	105	102	103			0.727
EPA 200.8 Rev. 5.4	Aluminum	101	101	101			0.214
	Antimony	101	102	103			1.14
	Arsenic	101	101	102			0.906
	Barium	105	104	104			0.575
	Beryllium	97.0	96.6	96.8			0.190
	Boron	102	102	103			0.923
	Cadmium	103	103	104			0.737
	Chromium	99.4	99.6	100			0.746
	Cobalt	99.3	98.0	99.6			1.64
	Copper	100	98.8	99.1			0.302
	Lead	98.4	102	100			1.53
	Manganese	104	101	103			1.78
	Molybdenum	98.5	99.8	99.6			0.166
	Nickel	102	100	102			1.30
	Selenium	101	101	99.4			1.29
	Silver	99.7	98.1	98.6			0.602
	Thallium	101	104	103			0.951
EPA 300.0 Rev. 2.1	Chloride	103	104	108		0.888	
	Sulfate	106	106	110		1.20	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	97.2	101			3.09
	Ammonia-N	100	97.2	97.2			0.0
	Ammonia-N	97.0	98.0	99.8			1.45
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	94.6	89.9			2.86
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	103	102	102			0.224
	Total-P	102	105	104			0.454
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.1	98.6	97.5			1.12
SM 2320 B-2011	Total Alkalinity	95.1				0.840	
SM 2540 C-2015	TDS	101				0.720	
SM 2540 D-2015	TSS	95.3					
SM 4500-F- C-2011	Fluoride	99.8	100	101			0.467
SM 5310 B-2011	Organic Carbon	96.1	97.5	96.5			0.633

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2392167, 2392170, 2392171, 2392172
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2392167, 2392170, 2392171, 2392172
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2392180

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2392180
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2392167, 2392170, 2392171, 2392172
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2392167, 2392170, 2392171, 2392172
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2392168, 2392173, 2392174, 2392175
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2392168, 2392173, 2392174, 2392175
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2392168, 2392173, 2392174, 2392175
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2392168, 2392173, 2392174, 2392175
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2392169
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2392167, 2392170, 2392171, 2392172
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2392180
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2392167, 2392170, 2392171, 2392172
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2392167, 2392170, 2392171, 2392172
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2392167, 2392170, 2392171, 2392172
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2392168, 2392173, 2392174, 2392175

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	03/07/2023			03/07/2023 14:52	Alexis Price	2392167
	03/07/2023			03/07/2023 14:53	Alexis Price	2392170
	03/07/2023			03/07/2023 14:54	Alexis Price	2392171, 2392172
EPA 180.1 Rev. 2.0	03/07/2023			03/07/2023 14:42	Anna M. Plaviak	2392167
	03/07/2023			03/07/2023 14:43	Anna M. Plaviak	2392170
	03/07/2023			03/07/2023 14:44	Anna M. Plaviak	2392171
	03/07/2023			03/07/2023 14:45	Anna M. Plaviak	2392172
EPA 200.7 Rev. 4.4	03/07/2023	03/07/2023 14:00	George D Taylor	03/22/2023 16:22	Chase Roberts	2392180
EPA 200.8 Rev. 5.4	03/07/2023	03/07/2023 14:00	George D Taylor	03/08/2023 20:28	Conrad Hartmann	2392180
EPA 300.0 Rev. 2.1	03/07/2023			03/11/2023 16:53	Judith K. Clark	2392167
	03/07/2023			03/11/2023 19:49	Judith K. Clark	2392170
	03/07/2023			03/11/2023 20:19	Judith K. Clark	2392171
	03/07/2023			03/11/2023 20:49	Judith K. Clark	2392172
EPA 350.1 Rev. 2.0	03/07/2023			03/08/2023 13:39	Khloe J Berg	2392168
	03/07/2023			03/09/2023 14:13	Khloe J Berg	2392173
	03/07/2023			03/09/2023 14:14	Khloe J Berg	2392174
	03/07/2023			03/13/2023 12:45	Khloe J Berg	2392175
EPA 351.2 Rev. 2.0	03/07/2023	03/10/2023 12:06	Simonne.V. Calhoun	03/14/2023 18:07	Judith K. Clark	2392168
	03/07/2023	03/10/2023 12:06	Simonne.V. Calhoun	03/14/2023 18:08	Judith K. Clark	2392173
	03/07/2023	03/10/2023 12:06	Simonne.V. Calhoun	03/14/2023 18:10	Judith K. Clark	2392174
	03/07/2023	03/10/2023 12:06	Simonne.V. Calhoun	03/14/2023 18:15	Judith K. Clark	2392175
EPA 353.2 Rev. 2.0	03/07/2023			03/13/2023 09:53	Beverly Y. Sanders	2392173
	03/07/2023			03/13/2023 09:59	Beverly Y. Sanders	2392168
	03/07/2023			03/13/2023 10:00	Beverly Y. Sanders	2392174
	03/07/2023			03/13/2023 10:01	Beverly Y. Sanders	2392175
EPA 365.1 Rev. 2.0	03/07/2023	03/13/2023 16:23	Adam P Silver	03/15/2023 10:29	James L Waggeberby	2392173
	03/07/2023	03/13/2023 16:23	Adam P Silver	03/15/2023 10:38	James L Waggeberby	2392174
	03/07/2023	03/13/2023 16:23	Adam P Silver	03/17/2023 10:40	James L Waggeberby	2392168
	03/07/2023	03/13/2023 16:23	Adam P Silver	03/17/2023 10:54	James L Waggeberby	2392175
EPA 365.1 Rev. 2.0 dissolved	03/07/2023			03/07/2023 15:58	Elise M. Gillis	2392169
SM 2320 B-2011	03/07/2023			03/11/2023 09:23	Dale L. Simmons	2392167
	03/07/2023			03/11/2023 09:37	Dale L. Simmons	2392170
	03/07/2023			03/11/2023 09:50	Dale L. Simmons	2392171
	03/07/2023			03/11/2023 10:02	Dale L. Simmons	2392172
SM 2340 B-2011	03/07/2023			03/22/2023 16:22	Chase Roberts	2392180
SM 2540 C-2015	03/07/2023			03/08/2023 16:30	Blanca Fach	2392167, 2392170, 2392171, 2392172
SM 2540 D-2015	03/07/2023			03/08/2023 14:30	Blanca Fach	2392167, 2392170, 2392171, 2392172
SM 4500-F- C-2011	03/07/2023			03/14/2023 23:12	Dale L. Simmons	2392167
	03/07/2023			03/14/2023 23:17	Dale L. Simmons	2392170
	03/07/2023			03/14/2023 23:23	Dale L. Simmons	2392171

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500-F- C-2011	03/07/2023			03/14/2023 23:28	Dale L. Simmons	2392172
SM 5310 B-2011	03/07/2023			03/09/2023 09:49	Khloe J Berg	2392168
	03/07/2023			03/09/2023 10:04	Khloe J Berg	2392173
	03/07/2023			03/09/2023 10:21	Khloe J Berg	2392174
	03/07/2023			03/09/2023 10:35	Khloe J Berg	2392175