

Chemical Analysis Report

NE-DIST-2024-02-20-01

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

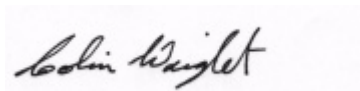
Event Description: **Callahan**
Request ID: **RQ-2024-02-19-10**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Marek Topolski, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 12-MAR-2024 09:59

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink 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: THOMAS CR 60 MI BELOW CITY PRISON

Collection Date/Time: 02/19/2024 10:45

Field ID: G4NE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2469849	DEP SOP: NU-094-1	Color (true)	320		PCU	P441706	
	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P441716	
	EPA 300.0 Rev. 2.1	Chloride	160		mg Cl/L	P442129	
		Sulfate	23		mg SO4/L	P442133	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P442206	
	SM 2540 C-2015	TDS	388	A	mg/L	P442271	
	SM 2540 D-2015	TSS	11	A	mg/L	P442080	
2469850	SM 4500-F- C-2011	Fluoride	0.076	I	mg F/L	P442210	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P441963	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P441814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P441778	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P441724	
2469858	SM 5310 B-2014	Organic Carbon	29		mg C/L	P441951	
	EPA 200.7 Rev. 4.4	Calcium	10.1		mg/L	P441742	
		Iron	810		ug/L	P441742	
		Magnesium	12.1		mg/L	P441742	
		Potassium	4.0		mg/L	P441742	
		Sodium	98.9		mg/L	P441742	
		Tin	3.0	U	ug/L	P441742	
		Titanium	5.9		ug/L	P441742	
		Vanadium	2.4	I	ug/L	P441742	
		Zinc	8.6	I	ug/L	P441742	
	EPA 200.8 Rev. 5.4	Aluminum	735		ug/L	P441742	
		Antimony	0.058	I	ug/L	P441742	
		Arsenic	0.86		ug/L	P441742	
		Barium	11.4		ug/L	P441742	
		Beryllium	0.057		ug/L	P441742	
		Boron	67.9		ug/L	P441742	
		Cadmium	0.020	U	ug/L	P441742	
		Chromium	1.8		ug/L	P441742	
		Cobalt	0.262		ug/L	P441742	
		Copper	0.59	I	ug/L	P441742	
		Lead	0.62		ug/L	P441742	
		Manganese	27.2		ug/L	P441742	
		Molybdenum	0.27	I	ug/L	P441742	
		Nickel	0.72	I	ug/L	P441742	
		Selenium	0.20	I	ug/L	P441742	
		Silver	0.011	I	ug/L	P441742	
	SM 2340 B-2011	Strontium**	87.3		ug/L	P441742	
		Thallium	0.10	U	ug/L	P441742	
		Hardness	75.0		mg/L	P441742	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: UNNAMED BRANCH ABOVE ALLIGATOR CR Collection Date/Time: 02/19/2024 12:10

Field ID: G4NE0288 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2469859	EPA 200.7 Rev. 4.4	Calcium	23.3		mg/L	P441742	
		Iron	1.0E+03		ug/L	P441742	
		Magnesium	11.1		mg/L	P441742	
		Potassium	4.8		mg/L	P441742	
		Sodium	20.1		mg/L	P441742	
		Tin	3.0	U	ug/L	P441742	
		Titanium	2.9	I	ug/L	P441742	
		Vanadium	2.5	I	ug/L	P441742	
		Zinc	13	I	ug/L	P441742	
	EPA 200.8 Rev. 5.4	Aluminum	697		ug/L	P441742	
		Antimony	0.078	I	ug/L	P441742	
		Arsenic	0.75		ug/L	P441742	
		Barium	27.3		ug/L	P441742	
		Beryllium	0.036	I	ug/L	P441742	
		Boron	22.7		ug/L	P441742	
		Cadmium	0.020	U	ug/L	P441742	
		Chromium	1.7		ug/L	P441742	
		Cobalt	0.369		ug/L	P441742	
		Copper	1.33		ug/L	P441742	
		Lead	0.58		ug/L	P441742	
		Manganese	63.4		ug/L	P441742	
		Molybdenum	0.44	I	ug/L	P441742	
		Nickel	1.3	I	ug/L	P441742	
		Selenium	0.20	U	ug/L	P441742	
		Silver	0.010	U	ug/L	P441742	
		Strontium**	99.0		ug/L	P441742	
		Thallium	0.10	U	ug/L	P441742	
	SM 2340 B-2011	Hardness	104		mg/L	P441742	

Sample Location: CREEK DRAINING FORMER HAMPTON LAKE 100M ABOVE RD **Collection Date/Time: 02/19/2024 13:00**

Field ID: G4NE0292

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2469863	EPA 200.7 Rev. 4.4	Calcium	4.06		mg/L	P441742	
		Iron	690		ug/L	P441742	
		Magnesium	1.00		mg/L	P441742	
		Potassium	0.52	I	mg/L	P441742	
		Sodium	6.3		mg/L	P441742	
		Tin	3.0	U	ug/L	P441742	
		Titanium	4.9		ug/L	P441742	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P441742	
		Zinc	5.0	U	ug/L	P441742	
		Aluminum	411		ug/L	P441742	
		Antimony	0.050	U	ug/L	P441742	
		Arsenic	0.33		ug/L	P441742	
		Barium	17.3		ug/L	P441742	
		Beryllium	0.027	I	ug/L	P441742	
		Boron	19.2		ug/L	P441742	
		Cadmium	0.020	U	ug/L	P441742	
		Chromium	3.5		ug/L	P441742	
		Cobalt	0.150		ug/L	P441742	
		Copper	0.40	U	ug/L	P441742	
		Lead	0.45		ug/L	P441742	
		Manganese	10.3		ug/L	P441742	
		Molybdenum	0.15	U	ug/L	P441742	
		Nickel	0.52	I	ug/L	P441742	
		Selenium	0.20	U	ug/L	P441742	
		Silver	0.010	U	ug/L	P441742	
		Strontium**	15.7		ug/L	P441742	
		Thallium	0.10	U	ug/L	P441742	
	SM 2340 B-2011	Hardness	14.3		mg/L	P441742	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P441706

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441716

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441742

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
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: P441742

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
Strontium	0.20	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442129

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: P442133

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441963

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441778

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441724

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441870

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

Reference Method: SM 2320 B-2011
Batch ID: P442206

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

Reference Method: SM 2540 C-2015
Batch ID: P442271

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P442080

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P442210

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P441951

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: P441706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441716

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441742

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	103		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	98.9		P	85 - 115
Sodium	102		P	85 - 115
Tin	103		P	85 - 115
Titanium	104		P	85 - 115
Vanadium	105		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441742

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	101		P	85 - 115
Barium	101		P	85 - 115
Beryllium	94.7		P	85 - 115
Boron	109		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	98.1		P	85 - 115
Copper	98.1		P	85 - 115
Lead	96.1		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	98.9		P	85 - 115
Nickel	98.0		P	85 - 115
Selenium	103		P	85 - 115
Silver	102		P	85 - 115
Strontium	102		P	85 - 115
Thallium	98.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442129

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441814

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441778

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: P441724

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.0		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P442206

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P442271

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	93.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P442080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	104		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P442210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469847	Calcium	101		P	80 - 120
2469847	Iron	103	101	P/P	80 - 120
2469847	Magnesium	102		P	80 - 120
2469847	Potassium	97.4	96.1	P/P	80 - 120
2469847	Sodium	103		P	80 - 120
2469847	Tin	101	99.9	P/P	80 - 120
2469847	Titanium	105	105	P/P	80 - 120
2469847	Vanadium	106	105	P/P	80 - 120
2469847	Zinc	100	100	P/P	80 - 120
2469863	Calcium	101		P	80 - 120
2469863	Iron	104		P	80 - 120
2469863	Magnesium	107		P	80 - 120
2469863	Potassium	100		P	80 - 120
2469863	Sodium	101		P	80 - 120
2469863	Tin	101		P	80 - 120
2469863	Titanium	102		P	80 - 120
2469863	Vanadium	107		P	80 - 120
2469863	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469847	Aluminum	100	99.9	P/P	80 - 120
2469847	Antimony	102	101	P/P	80 - 120
2469847	Arsenic	101	99.0	P/P	80 - 120
2469847	Barium	102	100	P/P	80 - 120
2469847	Beryllium	95.8	94.1	P/P	80 - 120
2469847	Boron	111	111	P/P	80 - 120
2469847	Cadmium	102	101	P/P	80 - 120
2469847	Chromium	105	102	P/P	80 - 120
2469847	Cobalt	97.8	95.9	P/P	80 - 120
2469847	Copper	95.4	94.3	P/P	80 - 120
2469847	Lead	95.6	94.6	P/P	80 - 120
2469847	Manganese	103	100	P/P	80 - 120
2469847	Molybdenum	102	99.9	P/P	80 - 120
2469847	Nickel	97.4	95.5	P/P	80 - 120
2469847	Selenium	101	101	P/P	80 - 120
2469847	Silver	101	98.7	P/P	80 - 120
2469847	Strontium	103	101	P/P	80 - 120
2469847	Thallium	99.8	99.0	P/P	80 - 120
2469863	Aluminum	99.0		P	80 - 120
2469863	Antimony	98.7		P	80 - 120
2469863	Arsenic	98.3		P	80 - 120
2469863	Barium	98.9		P	80 - 120
2469863	Beryllium	94.0		P	80 - 120
2469863	Boron	109		P	80 - 120
2469863	Cadmium	101		P	80 - 120
2469863	Chromium	85.7		P	80 - 120
2469863	Cobalt	96.8		P	80 - 120
2469863	Copper	98.0		P	80 - 120
2469863	Lead	95.5		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469863	Manganese	99.6		P	80 - 120
2469863	Molybdenum	98.3		P	80 - 120
2469863	Nickel	95.0		P	80 - 120
2469863	Selenium	99.0		P	80 - 120
2469863	Silver	98.1		P	80 - 120
2469863	Strontium	99.9		P	80 - 120
2469863	Thallium	99.8		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469844	Chloride	103		P	90 - 110
2469951	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469844	Sulfate	103		P	90 - 110
2469951	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469832	Ammonia-N	97.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469804	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469615	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469867	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469852	Total-P	97.4	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P442210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2470712	Fluoride	104	103	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2469942	Organic Carbon	97.2	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P441706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469797	Color (true)	1.70	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469796	Turbidity	9.83	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469847	Calcium	1.32	Spike	P	0 - 20
2469847	Iron	1.95	Spike	P	0 - 20
2469847	Magnesium	1.10	Spike	P	0 - 20
2469847	Potassium	1.06	Spike	P	0 - 20
2469847	Sodium	0.899	Spike	P	0 - 20
2469847	Tin	1.02	Spike	P	0 - 20
2469847	Titanium	0.222	Spike	P	0 - 20
2469847	Vanadium	0.359	Spike	P	0 - 20
2469847	Zinc	0.00178	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469847	Aluminum	0.326	Spike	P	0 - 20
2469847	Antimony	0.988	Spike	P	0 - 20
2469847	Arsenic	1.60	Spike	P	0 - 20
2469847	Barium	1.27	Spike	P	0 - 20
2469847	Beryllium	1.80	Spike	P	0 - 20
2469847	Boron	0.00828	Spike	P	0 - 20
2469847	Cadmium	1.13	Spike	P	0 - 20
2469847	Chromium	2.31	Spike	P	0 - 20
2469847	Cobalt	1.98	Spike	P	0 - 20
2469847	Copper	1.13	Spike	P	0 - 20
2469847	Lead	0.960	Spike	P	0 - 20
2469847	Manganese	1.47	Spike	P	0 - 20
2469847	Molybdenum	1.49	Spike	P	0 - 20
2469847	Nickel	2.00	Spike	P	0 - 20
2469847	Selenium	0.233	Spike	P	0 - 20
2469847	Silver	2.30	Spike	P	0 - 20
2469847	Strontium	1.95	Spike	P	0 - 20
2469847	Thallium	0.812	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P442129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469844	Chloride	3.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469832	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469804	Kjeldahl Nitrogen	0.946	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469615	NO2NO3-N	0.897	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469867	Total-P	0.470	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469852	Total-P	2.45	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P442206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2470712	Total Alkalinity	1.90	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P442271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469849	TDS	4.89	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 D-2015
Batch ID: P442080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469849	TSS	3.77	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P442210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2470712	Fluoride	0.492	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P441951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2469942	Organic Carbon	0.372	Spike	P	0 - 15

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A124270
Included Lab Sample IDs: 2469849, 2469851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A124273
Included Lab Sample IDs: 2469849, 2469851

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A124314
Included Lab Sample IDs: 2469850, 2469852

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124317
Included Lab Sample IDs: 2469850

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A124340
Included Lab Sample IDs: 2469858, 2469859, 2469863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.5	P/P	90 - 110
Aluminum	99.5	100	P/P	90 - 110
Antimony	98.3	99.0	P/P	90 - 110
Antimony	99.0	97.6	P/P	90 - 110
Arsenic	96.6	96.6	P/P	90 - 110
Arsenic	98.4	96.6	P/P	90 - 110
Barium	98.1	97.5	P/P	90 - 110
Barium	98.1	98.1	P/P	90 - 110
Beryllium	96.1	96.6	P/P	90 - 110
Beryllium	99.2	96.1	P/P	90 - 110
Boron	104	108	P/P	90 - 110
Boron	108	107	P/P	90 - 110
Cadmium	97.1	98.3	P/P	90 - 110
Cadmium	98.3	96.7	P/P	90 - 110
Chromium	95.5	96.0	P/P	90 - 110
Chromium	96.0	95.8	P/P	90 - 110
Cobalt	92.7	92.8	P/P	90 - 110
Cobalt	93.6	92.7	P/P	90 - 110
Copper	92.2	93.4	P/P	90 - 110
Copper	95.1	92.2	P/P	90 - 110
Lead	94.3	94.0	P/P	90 - 110
Lead	94.7	94.3	P/P	90 - 110
Manganese	94.3	95.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A124340

Included Lab Sample IDs: 2469858, 2469859, 2469863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Manganese	95.7	94.0	P/P	90 - 110
Molybdenum	97.2	97.2	P/P	90 - 110
Molybdenum	97.4	97.2	P/P	90 - 110
Nickel	92.1	93.5	P/P	90 - 110
Nickel	94.6	92.1	P/P	90 - 110
Selenium	101	98.8	P/P	90 - 110
Selenium	99.1	101	P/P	90 - 110
Silver	97.8	98.4	P/P	90 - 110
Silver	98.4	98.0	P/P	90 - 110
Strontium	98.3	97.9	P/P	90 - 110
Strontium	98.4	98.3	P/P	90 - 110
Thallium	97.9	99.4	P/P	90 - 110
Thallium	99.4	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A124355

Included Lab Sample IDs: 2469850, 2469852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A124373

Included Lab Sample IDs: 2469852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.4	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A124385

Included Lab Sample IDs: 2469850, 2469852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	97.0	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A124389

Included Lab Sample IDs: 2469850, 2469852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A124439

Included Lab Sample IDs: 2469849, 2469851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	107	102	P/P	90 - 110
Sulfate	106	102	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A124499

Included Lab Sample IDs: 2469849, 2469851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	95.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A124499

Included Lab Sample IDs: 2469849, 2469851

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A124585

Included Lab Sample IDs: 2469858, 2469859, 2469863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	99.4	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Iron	100	98.9	P/P	90 - 110
Iron	100	100	P/P	90 - 110
Magnesium	101	99.9	P/P	90 - 110
Magnesium	99.9	98.3	P/P	90 - 110
Potassium	98.2	99.9	P/P	90 - 110
Potassium	99.9	99.4	P/P	90 - 110
Sodium	100	103	P/P	90 - 110
Sodium	103	101	P/P	90 - 110
Tin	101	100	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	102	102	P/P	90 - 110
Titanium	99.1	102	P/P	90 - 110
Vanadium	103	103	P/P	90 - 110
Vanadium	103	103	P/P	90 - 110
Zinc	101	102	P/P	90 - 110
Zinc	102	101	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				
DEP SOP: NU-094-1	Color (true)	101				1.70	
EPA 180.1 Rev. 2.0	Turbidity	103				9.83	
EPA 200.7 Rev. 4.4	Calcium	104	101	101			1.32
	Iron	103	103	101	104		1.95
	Magnesium	103	102	107			1.10
	Potassium	98.9	97.4	96.1	100		1.06
	Sodium	102	103	101			0.899
	Tin	103	101	99.9	101		1.02
	Titanium	104	105	105	102		0.222
	Vanadium	105	106	105	107		0.359
	Zinc	102	100	100	104		0.0017
EPA 200.8 Rev. 5.4	Aluminum	102	100	99.9	99.0		0.326
	Antimony	101	102	101	98.7		0.988
	Arsenic	101	101	99.0	98.3		1.60
	Barium	101	102	100	98.9		1.27
	Beryllium	94.7	95.8	94.1	94.0		1.80
	Boron	109	111	111	109		0.0082
	Cadmium	102	102	101	101		1.13
	Chromium	102	105	102	85.7		2.31
	Cobalt	98.1	97.8	95.9	96.8		1.98
	Copper	98.1	95.4	94.3	98.0		1.13
	Lead	96.1	95.6	94.6	95.5		0.960
	Manganese	100	103	100	99.6		1.47
	Molybdenum	98.9	102	99.9	98.3		1.49
	Nickel	98.0	97.4	95.5	95.0		2.00
	Selenium	103	101	101	99.0		0.233
	Silver	102	101	98.7	98.1		2.30
	Strontium	102	103	101	99.9		1.95
	Thallium	98.2	99.8	99.0	99.8		0.812
EPA 300.0 Rev. 2.1	Chloride	106	103	104		3.12	
	Sulfate	105	103	103			
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	97.0	97.0			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	106	105			0.946
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100				0.897
EPA 365.1 Rev. 2.0	Total-P	99.9	104	105			0.470
	Total-P	95.0	97.4	101			2.45
SM 2320 B-2011	Total Alkalinity	99.9				1.90	
SM 2540 C-2015	TDS	93.2				4.89	
SM 2540 D-2015	TSS	104				3.77	
SM 4500-F- C-2011	Fluoride	102	104	103			0.492
SM 5310 B-2014	Organic Carbon	96.4	97.2	96.8			0.372

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2469849, 2469851
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2469849, 2469851
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2469858, 2469859, 2469863
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2469858, 2469859, 2469863
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2469849, 2469851
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2469849, 2469851

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2469850, 2469852
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2469850, 2469852
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2469850, 2469852
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2469850, 2469852
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2469849, 2469851
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2469858, 2469859, 2469863
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2469849, 2469851
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2469849, 2469851
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2469849, 2469851
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2469850, 2469852

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	02/20/2024			02/20/2024 15:12	Jessica K Wilks	2469849
	02/20/2024			02/20/2024 15:13	Jessica K Wilks	2469851
EPA 180.1 Rev. 2.0	02/20/2024			02/20/2024 13:35	Dipa Joshi	2469849
	02/20/2024			02/20/2024 13:36	Dipa Joshi	2469851
EPA 200.7 Rev. 4.4	02/20/2024	02/21/2024 10:50	George D Taylor	03/06/2024 16:28	Chase Roberts	2469863
	02/20/2024	02/21/2024 10:50	George D Taylor	03/06/2024 18:16	Chase Roberts	2469858
EPA 200.8 Rev. 5.4	02/20/2024	02/21/2024 10:50	George D Taylor	03/06/2024 18:24	Chase Roberts	2469859
	02/20/2024	02/21/2024 10:50	George D Taylor	02/22/2024 15:46	Emily M Philpot	2469858
	02/20/2024	02/21/2024 10:50	George D Taylor	02/22/2024 16:53	Emily M Philpot	2469859
	02/20/2024	02/21/2024 10:50	George D Taylor	02/22/2024 17:31	Emily M Philpot	2469863
EPA 300.0 Rev. 2.1	02/20/2024			02/28/2024 13:21	James L Waggeberby	2469849
	02/20/2024			02/28/2024 13:36	James L Waggeberby	2469851
EPA 350.1 Rev. 2.0	02/20/2024			02/26/2024 12:56	Kenneth H Lee	2469850
	02/20/2024			02/26/2024 12:58	Kenneth H Lee	2469852
EPA 351.2 Rev. 2.0	02/20/2024	02/22/2024 13:33	Simonne.V. Calhoun	02/23/2024 10:58	Ping Hua	2469850
	02/20/2024	02/22/2024 13:33	Simonne.V. Calhoun	02/23/2024 10:59	Ping Hua	2469852
EPA 353.2 Rev. 2.0	02/20/2024			02/21/2024 11:32	Fadila Guebre	2469850
	02/20/2024			02/21/2024 11:33	Fadila Guebre	2469852
EPA 365.1 Rev. 2.0	02/20/2024	02/21/2024 13:37	Adam P Silver	02/22/2024 09:54	James L Waggeberby	2469850
	02/20/2024	02/23/2024 13:02	Adam P Silver	02/23/2024 16:05	James L Waggeberby	2469852
SM 2320 B-2011	02/20/2024			02/29/2024 04:53	Adam P Silver	2469849
	02/20/2024			02/29/2024 05:04	Adam P Silver	2469851
SM 2340 B-2011	02/20/2024			03/06/2024 16:28	Chase Roberts	2469863
	02/20/2024			03/06/2024 18:16	Chase Roberts	2469858
	02/20/2024			03/06/2024 18:24	Chase Roberts	2469859
SM 2540 C-2015	02/20/2024			02/22/2024 16:28	Yijie Li	2469849, 2469851
SM 2540 D-2015	02/20/2024			02/22/2024 16:28	Yijie Li	2469849, 2469851
SM 4500-F- C-2011	02/20/2024			02/29/2024 04:53	Adam P Silver	2469849
	02/20/2024			02/29/2024 05:04	Adam P Silver	2469851
SM 5310 B-2014	02/20/2024			02/23/2024 02:53	Kenneth H Lee	2469850
	02/20/2024			02/23/2024 03:09	Kenneth H Lee	2469852