

Chemical Analysis Report

NE-DIST-2022-12-01-01

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

Event Description: **Gainesville 2022**
Request ID: **RQ-2022-11-28-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 22-DEC-2022 08:57

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: Bivens Arm lake

Collection Date/Time: 11/30/2022 12:05

Field ID: 20020097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372196	DEP SOP: NU-094-1	Color (true)	16		PCU	P422997	RPD
	EPA 180.1 Rev. 2.0	Turbidity	29		NTU	P423008	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P423343	
		Sulfate	12		mg SO4/L	P423345	
	SM 2320 B-2011	Total Alkalinity	84		mg CaCO3/L	P423431	
	SM 2540 C-2015	TDS	128		mg/L	P423544	
	SM 2540 D-2015	TSS	29		mg/L	P423370	
	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P423723	
2372197	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P423376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.7		mg N/L	P423101	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P423143	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P423085	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P423117	

Ref. Method and Comment:

SM 2540 C-2015: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Little Hatchet CR West at CR222

Collection Date/Time: 11/30/2022 10:00

Field ID: G1NE0947

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372206	EPA 200.7 Rev. 4.4	Calcium	33.0		mg/L	P423011	
		Iron	530		ug/L	P423011	
		Magnesium	8.07		mg/L	P423011	
		Potassium	1.1	I	mg/L	P423011	
		Sodium	6.5		mg/L	P423011	
		Strontium	255		ug/L	P423011	
		Tin	3.0	U	ug/L	P423011	
		Titanium	2.5	I	ug/L	P423011	
		Vanadium	2.0	U	ug/L	P423011	
		Zinc	5.0	U	ug/L	P423011	
	EPA 200.8 Rev. 5.4	Aluminum	87		ug/L	P423011	
		Antimony	0.11	I	ug/L	P423011	
		Arsenic	0.65		ug/L	P423011	
		Barium	13.0		ug/L	P423011	
		Beryllium	0.013	I	ug/L	P423011	
		Boron	23.2		ug/L	P423011	
		Cadmium	0.020	U	ug/L	P423011	
		Chromium	0.55	I	ug/L	P423011	
		Cobalt	0.094		ug/L	P423011	
		Copper	0.40	U	ug/L	P423011	
		Lead	0.20	U	ug/L	P423011	
		Manganese	16.0		ug/L	P423011	
		Molybdenum	0.34	I	ug/L	P423011	
		Nickel	0.50	U	ug/L	P423011	
		Selenium	0.20	U	ug/L	P423011	
		Silver	0.010	U	ug/L	P423011	
		Thallium	0.10	U	ug/L	P423011	
	SM 2340 B-2011	Hardness	116		mg/L	P423011	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Upper Little Hatchet at Airport Field

Collection Date/Time: 11/30/2022 10:25

Field ID: G1NE0949

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372194	DEP SOP: NU-094-1	Color (true)	99		PCU	P422996	
	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P423008	
	EPA 300.0 Rev. 2.1	Chloride	9.6	A	mg Cl/L	P423343	
		Sulfate	7.6	A	mg SO4/L	P423345	
	SM 2320 B-2011	Total Alkalinity	65		mg CaCO3/L	P423431	
	SM 2540 C-2015	TDS	132		mg/L	P423544	
	SM 2540 D-2015	TSS	2	I	mg/L	P423370	
2372195	SM 4500-F- C-2011	Fluoride	0.093	I	mg F/L	P423723	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P423376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P423101	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P423143	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P423066	
2372205	SM 5310 B-2011	Organic Carbon	15		mg C/L	P423117	
	EPA 200.7 Rev. 4.4	Calcium	24.7		mg/L	P423011	
		Iron	670		ug/L	P423011	
		Magnesium	4.66		mg/L	P423011	
		Potassium	1.5		mg/L	P423011	
		Sodium	5.2		mg/L	P423011	
		Strontium	48.4		ug/L	P423011	
		Tin	3.0	U	ug/L	P423011	
		Titanium	5.8		ug/L	P423011	
		Vanadium	2.5	I	ug/L	P423011	
		Zinc	5.0	U	ug/L	P423011	
	EPA 200.8 Rev. 5.4	Aluminum	244		ug/L	P423011	
		Antimony	0.086	I	ug/L	P423011	
		Arsenic	1.08		ug/L	P423011	
		Barium	17.2		ug/L	P423011	
		Beryllium	0.038	I	ug/L	P423011	
		Boron	22.9		ug/L	P423011	
		Cadmium	0.020	U	ug/L	P423011	
		Chromium	1.2	I	ug/L	P423011	
		Cobalt	0.135		ug/L	P423011	
		Copper	0.54	I	ug/L	P423011	
		Lead	0.32	I	ug/L	P423011	
		Manganese	11.2		ug/L	P423011	
		Molybdenum	0.23	I	ug/L	P423011	
		Nickel	0.50	I	ug/L	P423011	
		Selenium	0.20	U	ug/L	P423011	
		Silver	0.010	U	ug/L	P423011	
		Thallium	0.10	U	ug/L	P423011	
	SM 2340 B-2011	Hardness	80.8		mg/L	P423011	

Field ID: G1NE0949

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 2540 C-2015: Batch relative percent difference is unavailable because of analytical difficulties.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: FB

Collection Date/Time: 11/30/2022 10:30

Field ID: FB_11302022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372198	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422996	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P423008	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P423343	
		Sulfate	0.20	U	mg SO4/L	P423345	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P423431	
	SM 2540 C-2015	TDS	15	U	mg/L	P423544	
	SM 2540 D-2015	TSS	2	U	mg/L	P423370	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P423723	
2372199	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P423376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P423128	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P423143	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P423117	
2372207	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P423011	
		Iron	30	U	ug/L	P423011	
		Magnesium	0.040	U	mg/L	P423011	
		Potassium	0.30	U	mg/L	P423011	
		Sodium	0.50	U	mg/L	P423011	
		Strontium	2.0	U	ug/L	P423011	
		Tin	3.0	U	ug/L	P423011	
		Titanium	0.75	U	ug/L	P423011	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P423011	
		Zinc	5.0	U	ug/L	P423011	
		Aluminum	5.0	U	ug/L	P423011	
		Antimony	0.050	U	ug/L	P423011	
		Arsenic	0.050	U	ug/L	P423011	
		Barium	0.20	U	ug/L	P423011	
		Beryllium	0.010	U	ug/L	P423011	
		Boron	2.0	U	ug/L	P423011	
		Cadmium	0.020	U	ug/L	P423011	
		Chromium	0.40	U	ug/L	P423011	
		Cobalt	0.020	U	ug/L	P423011	
		Copper	0.40	U	ug/L	P423011	
		Lead	0.20	U	ug/L	P423011	
		Manganese	0.10	U	ug/L	P423011	
		Molybdenum	0.15	U	ug/L	P423011	
		Nickel	0.50	U	ug/L	P423011	
		Selenium	0.20	U	ug/L	P423011	
		Silver	0.010	U	ug/L	P423011	
		Thallium	0.10	U	ug/L	P423011	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P423011	

Ref. Method and Comment:

SM 2540 C-2015: Batch relative percent difference is unavailable because of analytical difficulties.

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P422996

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P422997

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423008

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423011

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: P423011

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423343

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423345

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423376

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423101

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423128

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423143

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423066

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423085

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

Reference Method: SM 2320 B-2011
Batch ID: P423431

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P423544

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P423370

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P423723

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P423117

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: P422996

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P422997

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423008

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	108		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	107		P	85 - 115
Sodium	105		P	85 - 115
Strontium	104		P	85 - 115
Tin	104		P	85 - 115
Titanium	105		P	85 - 115
Vanadium	102		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	102		P	85 - 115
Barium	104		P	85 - 115
Beryllium	99.1		P	85 - 115
Boron	100		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	99.3		P	85 - 115
Cobalt	97.0		P	85 - 115
Copper	99.0		P	85 - 115
Lead	92.8		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	99.2		P	85 - 115
Nickel	101		P	85 - 115
Selenium	106		P	85 - 115
Silver	99.9		P	85 - 115
Thallium	99.5		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423343

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423345

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423376

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423101

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423128

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423143

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P423431

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P423544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	92.4		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P423370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.5		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P423723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423117

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P423011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372033	Calcium	104		P	80 - 120
2372033	Iron	107	106	P/P	80 - 120
2372033	Magnesium	103		P	80 - 120
2372033	Potassium	110	109	P/P	80 - 120
2372033	Sodium	105		P	80 - 120
2372033	Strontium	99.8	102	P/P	80 - 120
2372033	Tin	104	106	P/P	80 - 120
2372033	Titanium	104	106	P/P	80 - 120
2372033	Vanadium	103	105	P/P	80 - 120
2372033	Zinc	98.9	100	P/P	80 - 120
2372034	Iron	106		P	80 - 120
2372034	Magnesium	102		P	80 - 120
2372034	Potassium	102		P	80 - 120
2372034	Sodium	106		P	80 - 120
2372034	Strontium	100		P	80 - 120
2372034	Tin	103		P	80 - 120
2372034	Titanium	102		P	80 - 120
2372034	Vanadium	103		P	80 - 120
2372034	Zinc	96.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P423011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372033	Aluminum	101	100	P/P	80 - 120
2372033	Antimony	107	107	P/P	80 - 120
2372033	Arsenic	103	102	P/P	80 - 120
2372033	Barium	105	104	P/P	80 - 120
2372033	Beryllium	98.7	98.5	P/P	80 - 120
2372033	Boron	99.7	97.0	P/P	80 - 120
2372033	Cadmium	108	105	P/P	80 - 120
2372033	Chromium	102	102	P/P	80 - 120
2372033	Cobalt	96.7	95.4	P/P	80 - 120
2372033	Copper	96.5	94.8	P/P	80 - 120
2372033	Lead	93.7	92.8	P/P	80 - 120
2372033	Manganese	102	103	P/P	80 - 120
2372033	Molybdenum	104	104	P/P	80 - 120
2372033	Nickel	99.4	99.0	P/P	80 - 120
2372033	Selenium	106	103	P/P	80 - 120
2372033	Silver	99.4	99.4	P/P	80 - 120
2372033	Thallium	102	102	P/P	80 - 120
2372034	Aluminum	99.3		P	80 - 120
2372034	Antimony	108		P	80 - 120
2372034	Arsenic	101		P	80 - 120
2372034	Barium	105		P	80 - 120
2372034	Beryllium	97.6		P	80 - 120
2372034	Boron	97.7		P	80 - 120
2372034	Cadmium	105		P	80 - 120
2372034	Chromium	102		P	80 - 120
2372034	Cobalt	94.4		P	80 - 120
2372034	Copper	93.4		P	80 - 120
2372034	Lead	93.4		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372034	Manganese	104		P	80 - 120
2372034	Molybdenum	103		P	80 - 120
2372034	Nickel	98.0		P	80 - 120
2372034	Selenium	104		P	80 - 120
2372034	Silver	99.9		P	80 - 120
2372034	Thallium	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372194	Chloride	99.7		P	90 - 110
2372326	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372194	Sulfate	97.2		P	90 - 110
2372326	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372138	Ammonia-N	97.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372094	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372599	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372162	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372138	Total-P	104	106	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2371329	Total-P	105	107	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P423723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374318	Fluoride	100	98.6	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372195	Organic Carbon	97.1	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P422996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372137	Color (true)	1.82	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P422997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372082	Color (true)	130	Sample	F	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372159	Turbidity	4.16	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372033	Calcium	0.838	Spike	P	0 - 20
2372033	Iron	1.03	Spike	P	0 - 20
2372033	Magnesium	1.25	Spike	P	0 - 20
2372033	Potassium	0.573	Spike	P	0 - 20
2372033	Sodium	0.561	Spike	P	0 - 20
2372033	Strontium	1.96	Spike	P	0 - 20
2372033	Tin	2.26	Spike	P	0 - 20
2372033	Titanium	1.63	Spike	P	0 - 20
2372033	Vanadium	1.92	Spike	P	0 - 20
2372033	Zinc	1.48	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372033	Aluminum	0.772	Spike	P	0 - 20
2372033	Antimony	0.0796	Spike	P	0 - 20
2372033	Arsenic	1.28	Spike	P	0 - 20
2372033	Barium	0.916	Spike	P	0 - 20
2372033	Beryllium	0.154	Spike	P	0 - 20
2372033	Boron	2.56	Spike	P	0 - 20
2372033	Cadmium	2.36	Spike	P	0 - 20
2372033	Chromium	0.663	Spike	P	0 - 20
2372033	Cobalt	1.37	Spike	P	0 - 20
2372033	Copper	1.81	Spike	P	0 - 20
2372033	Lead	1.03	Spike	P	0 - 20
2372033	Manganese	0.890	Spike	P	0 - 20
2372033	Molybdenum	0.0934	Spike	P	0 - 20
2372033	Nickel	0.396	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372033	Selenium	2.72	Spike	P	0 - 20
2372033	Silver	0.00938	Spike	P	0 - 20
2372033	Thallium	0.855	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372194	Chloride	0.347	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372194	Sulfate	0.544	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372138	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372094	Kjeldahl Nitrogen	0.0381	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372599	Kjeldahl Nitrogen	0.180	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372162	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372138	Total-P	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2371329	Total-P	1.49	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P423431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372137	Total Alkalinity	1.23	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P423723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374318	Fluoride	0.966	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P423117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372195	Organic Carbon	0.0867	Spike	P	0 - 20

* 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: A116210

Included Lab Sample IDs: 2372194, 2372196, 2372198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	90 - 110
Color (true)	104	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116214

Included Lab Sample IDs: 2372194, 2372196, 2372198

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

Reference Method: SM 5310 B-2011

Run ID: A116268

Included Lab Sample IDs: 2372195, 2372197, 2372199

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116270

Included Lab Sample IDs: 2372207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Iron	103	101	P/P	90 - 110
Magnesium	102	100	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	103	103	P/P	90 - 110
Strontium	102	101	P/P	90 - 110
Tin	103	101	P/P	90 - 110
Titanium	101	99.5	P/P	90 - 110
Vanadium	98.8	97.7	P/P	90 - 110
Zinc	100	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116272

Included Lab Sample IDs: 2372194, 2372196, 2372198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	99.2	102	P/P	90 - 110
Sulfate	103	102	P/P	90 - 110
Sulfate	99.4	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116275

Included Lab Sample IDs: 2372197

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116276

Included Lab Sample IDs: 2372195, 2372197, 2372199

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116279

Included Lab Sample IDs: 2372195

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116289

Included Lab Sample IDs: 2372195, 2372197

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116306

Included Lab Sample IDs: 2372199

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116358

Included Lab Sample IDs: 2372195, 2372197, 2372199

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116379

Included Lab Sample IDs: 2372205, 2372206, 2372207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Aluminum	102	102	P/P	90 - 110
Antimony	106	107	P/P	90 - 110
Antimony	107	107	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Arsenic	103	102	P/P	90 - 110
Barium	104	105	P/P	90 - 110
Barium	105	105	P/P	90 - 110
Beryllium	103	102	P/P	90 - 110
Beryllium	103	103	P/P	90 - 110
Boron	99.5	99.2	P/P	90 - 110
Boron	99.8	99.5	P/P	90 - 110
Cadmium	104	106	P/P	90 - 110
Cadmium	106	105	P/P	90 - 110
Chromium	100	101	P/P	90 - 110
Chromium	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116379

Included Lab Sample IDs: 2372205, 2372206, 2372207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	94.5	94.7	P/P	90 - 110
Cobalt	94.6	94.5	P/P	90 - 110
Copper	97.3	98.2	P/P	90 - 110
Copper	97.7	97.3	P/P	90 - 110
Lead	93.5	94.2	P/P	90 - 110
Lead	94.2	93.8	P/P	90 - 110
Manganese	102	103	P/P	90 - 110
Manganese	103	103	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Nickel	96.9	98.0	P/P	90 - 110
Nickel	97.8	96.9	P/P	90 - 110
Selenium	108	109	P/P	90 - 110
Selenium	109	106	P/P	90 - 110
Silver	100	99.9	P/P	90 - 110
Silver	99.1	100	P/P	90 - 110
Thallium	99.8	99.8	P/P	90 - 110
Thallium	99.9	99.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A116396

Included Lab Sample IDs: 2372194, 2372196, 2372198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	91.7	97.1	P/P	90 - 110
Total Alkalinity	97.1	95.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116483

Included Lab Sample IDs: 2372205, 2372206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	101	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	102	104	P/P	90 - 110
Sodium	99.4	99.8	P/P	90 - 110
Strontium	102	96.9	P/P	90 - 110
Tin	103	97.7	P/P	90 - 110
Titanium	103	97.4	P/P	90 - 110
Vanadium	100	94.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116524

Included Lab Sample IDs: 2372205, 2372206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	101	98.7	P/P	95 - 105

Quality Assurance Report

Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A116543

Included Lab Sample IDs: 2372194, 2372196, 2372198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	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)	104				1.82	
	Color (true)	103				130	
EPA 180.1 Rev. 2.0	Turbidity	100				4.16	
EPA 200.7 Rev. 4.4	Calcium	107		104			0.838
	Iron	108	107	106	106		1.03
	Magnesium	104	103	102			1.25
	Potassium	107	110	109	102		0.573
	Sodium	105	105	106			0.561
	Strontium	104	99.8	102	100		1.96
	Tin	104	104	106	103		2.26
	Titanium	105	104	106	102		1.63
	Vanadium	102	103	105	103		1.92
	Zinc	101	98.9	100	96.9		1.48
EPA 200.8 Rev. 5.4	Aluminum	102	101	100	99.3		0.772
	Antimony	104	107	107	108		0.0796
	Arsenic	102	103	102	101		1.28
	Barium	104	105	104	105		0.916
	Beryllium	99.1	98.7	98.5	97.6		0.154
	Boron	100	99.7	97.0	97.7		2.56
	Cadmium	103	108	105	105		2.36
	Chromium	99.3	102	102	102		0.663
	Cobalt	97.0	96.7	95.4	94.4		1.37
	Copper	99.0	96.5	94.8	93.4		1.81
	Lead	92.8	93.7	92.8	93.4		1.03
	Manganese	100	102	103	104		0.890
	Molybdenum	99.2	104	104	103		0.0934
	Nickel	101	99.4	99.0	98.0		0.396
	Selenium	106	106	103	104		2.72
	Silver	99.9	99.4	99.4	99.9		0.0093
	Thallium	99.5	102	102	101		0.855
EPA 300.0 Rev. 2.1	Chloride	98.6	99.7	99.9		0.347	
	Sulfate	98.1	97.2	98.9		0.544	
EPA 350.1 Rev. 2.0	Ammonia-N	95.0	97.0	98.6			1.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	102			0.0381
	Kjeldahl Nitrogen	100	107	107			0.180
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102	102			0.489
EPA 365.1 Rev. 2.0	Total-P	107	104	106			2.03
	Total-P	107	105	107			1.49
SM 2320 B-2011	Total Alkalinity	96.4				1.23	
SM 2540 C-2015	TDS	92.4					
SM 2540 D-2015	TSS	91.5					
SM 4500-F- C-2011	Fluoride	102	100	98.6			0.966
SM 5310 B-2011	Organic Carbon	97.0	97.1	97.2			0.0867

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2372194, 2372196, 2372198
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2372194, 2372196, 2372198
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2372205, 2372206, 2372207
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2372205, 2372206, 2372207

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2372194, 2372196, 2372198
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2372194, 2372196, 2372198
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2372195, 2372197, 2372199
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2372195, 2372197, 2372199
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2372195, 2372197, 2372199
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2372195, 2372197
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2372194, 2372196, 2372198
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2372205, 2372206, 2372207
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2372194, 2372196, 2372198
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2372194, 2372196, 2372198
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2372194, 2372196, 2372198
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2372195, 2372197, 2372199

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	12/01/2022			12/01/2022 14:37	Chandler E Cox	2372194
	12/01/2022			12/01/2022 14:38	Chandler E Cox	2372198
	12/01/2022			12/01/2022 14:41	Chandler E Cox	2372196
EPA 180.1 Rev. 2.0	12/01/2022			12/01/2022 13:25	Khloe J Berg	2372194
	12/01/2022			12/01/2022 13:26	Khloe J Berg	2372196
	12/01/2022			12/01/2022 13:27	Khloe J Berg	2372198
EPA 200.7 Rev. 4.4	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/05/2022 18:12	McKinley C Carter	2372207
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/15/2022 22:17	McKinley C Carter	2372205
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/15/2022 22:25	McKinley C Carter	2372206
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/16/2022 11:45	Betina Topolski	2372205
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/16/2022 11:51	Betina Topolski	2372206
EPA 200.8 Rev. 5.4	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/09/2022 19:51	Emily M Philpot	2372207
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/09/2022 21:57	Emily M Philpot	2372205
	12/01/2022	12/02/2022 09:45	Megan Whitefoot	12/09/2022 22:06	Emily M Philpot	2372206
EPA 300.0 Rev. 2.1	12/01/2022			12/08/2022 16:17	Anna M. Plaviak	2372194
	12/01/2022			12/08/2022 19:48	Anna M. Plaviak	2372196
	12/01/2022			12/08/2022 20:03	Anna M. Plaviak	2372198
EPA 350.1 Rev. 2.0	12/01/2022			12/09/2022 12:16	Ping Hua	2372195
	12/01/2022			12/09/2022 12:18	Ping Hua	2372197
	12/01/2022			12/09/2022 12:19	Ping Hua	2372199
EPA 351.2 Rev. 2.0	12/01/2022	12/05/2022 13:31	Judith K. Clark	12/06/2022 14:35	Samantha L Bates	2372195
	12/01/2022	12/05/2022 13:31	Judith K. Clark	12/06/2022 14:37	Samantha L Bates	2372197
	12/01/2022	12/06/2022 10:38	Judith K. Clark	12/07/2022 13:32	Judith K. Clark	2372199
EPA 353.2 Rev. 2.0	12/01/2022			12/06/2022 10:09	Beverly Y. Sanders	2372195
	12/01/2022			12/06/2022 10:10	Beverly Y. Sanders	2372197
	12/01/2022			12/06/2022 10:11	Beverly Y. Sanders	2372199
EPA 365.1 Rev. 2.0	12/01/2022	12/05/2022 14:16	Adam P Silver	12/06/2022 09:52	James L Waggeberby	2372197
	12/01/2022	12/05/2022 14:16	Adam P Silver	12/06/2022 12:28	James L Waggeberby	2372195
SM 2320 B-2011	12/01/2022			12/13/2022 05:09	Dale L. Simmons	2372194
	12/01/2022			12/13/2022 05:35	Dale L. Simmons	2372196
	12/01/2022			12/13/2022 05:42	Dale L. Simmons	2372198
SM 2340 B-2011	12/01/2022			12/05/2022 18:12	McKinley C Carter	2372207
	12/01/2022			12/15/2022 22:17	McKinley C Carter	2372205
	12/01/2022			12/15/2022 22:25	McKinley C Carter	2372206
SM 2540 C-2015	12/01/2022			12/05/2022 16:21	Yijie Li	2372194, 2372196, 2372198
SM 2540 D-2015	12/01/2022			12/05/2022 16:21	Yijie Li	2372194, 2372196, 2372198
SM 4500-F- C-2011	12/01/2022			12/17/2022 13:37	Dale L. Simmons	2372194
	12/01/2022			12/17/2022 13:42	Dale L. Simmons	2372196
	12/01/2022			12/17/2022 13:48	Dale L. Simmons	2372198
SM 5310 B-2011	12/01/2022			12/05/2022 22:19	Khloe J Berg	2372195

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	12/01/2022			12/05/2022 23:16	Khloe J Berg	2372197
	12/01/2022			12/05/2022 23:30	Khloe J Berg	2372199