

Chemical Analysis Report

NW-DIST-2022-12-02-02

Florida DEP Laboratory
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DOH Accreditation E31780

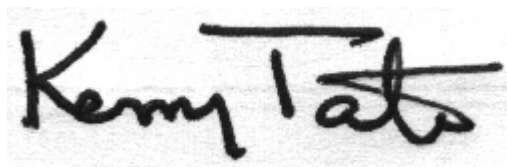
Event Description: **Escambia River Run**
Request ID: **RQ-2022-11-28-12**
Customer: **NW-DIST**
Project ID: **SMP**

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

Date Certified: 27-DEC-2022 10:03

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: Escambia River downstream of Cotton Lake

Collection Date/Time: 11/30/2022 11:20

Field ID: G4NW0403

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372425	DEP SOP: NU-094-1	Color (true)	38	Q	PCU	P423051	
	EPA 180.1 Rev. 2.0	Turbidity	21		NTU	P423058	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P423344	
		Sulfate	6.1		mg SO4/L	P423346	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P423430	
	SM 2540 C-2015	TDS	61		mg/L	P423545	
	SM 2540 D-2015	TSS	28		mg/L	P423371	
2372427	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P423841	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P423319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P423104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P423145	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P423147	
2372435	SM 5310 B-2011	Organic Carbon	6.6		mg C/L	P423117	
	EPA 200.7 Rev. 4.4	Calcium	6.72		mg/L	P423137	
		Iron	1.50E+03		ug/L	P423137	
		Magnesium	1.02		mg/L	P423137	
		Potassium	1.3		mg/L	P423137	
		Sodium	4.5		mg/L	P423137	
		Strontium	25.7		ug/L	P423137	
		Tin	3.0	U	ug/L	P423137	
		Titanium	46.3		ug/L	P423137	
		Vanadium	2.7	I	ug/L	P423137	
		Zinc	5.0	U	ug/L	P423137	
	EPA 200.8 Rev. 5.4	Aluminum	754		ug/L	P423137	
		Antimony	0.050	U	ug/L	P423137	
		Arsenic	0.80		ug/L	P423137	
		Barium	25.5		ug/L	P423137	
		Beryllium	0.099		ug/L	P423137	
		Boron	12.5		ug/L	P423137	
		Cadmium	0.020	I	ug/L	P423137	
		Chromium	1.4	I	ug/L	P423137	
		Cobalt	0.755		ug/L	P423137	
		Copper	0.66	I	ug/L	P423137	
		Lead	0.61		ug/L	P423137	
		Manganese	74.0		ug/L	P423137	
		Molybdenum	0.15	U	ug/L	P423137	
		Nickel	1.1	I	ug/L	P423137	
		Selenium	0.20	U	ug/L	P423137	
		Silver	0.010	U	ug/L	P423137	
		Thallium	0.10	U	ug/L	P423137	
	SM 2340 B-2011	Hardness	21.0		mg/L	P423137	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/16/2022.

Sample Location: Escambia River upstream of Mitchell Creek

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

Field ID: G4NW0404

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372426	DEP SOP: NU-094-1	Color (true)	35	A	PCU	P423051	
	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P423058	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P423344	
		Sulfate	5.8		mg SO4/L	P423346	
	SM 2320 B-2011	Total Alkalinity	18		mg CaCO3/L	P423430	
	SM 2540 C-2015	TDS	56		mg/L	P423545	
	SM 2540 D-2015	TSS	27		mg/L	P423371	
2372428	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P423841	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P423319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P423104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P423145	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P423147	
2372436	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P423117	
	EPA 200.7 Rev. 4.4	Calcium	7.41		mg/L	P423137	
		Iron	1.41E+03		ug/L	P423137	
		Magnesium	1.06		mg/L	P423137	
		Potassium	1.3		mg/L	P423137	
		Sodium	4.6		mg/L	P423137	
		Strontium	27.9		ug/L	P423137	
		Tin	3.0	U	ug/L	P423137	
		Titanium	25.3		ug/L	P423137	
		Vanadium	2.3	I	ug/L	P423137	
		Zinc	5.0	U	ug/L	P423137	
	EPA 200.8 Rev. 5.4	Aluminum	585		ug/L	P423137	
		Antimony	0.050	U	ug/L	P423137	
		Arsenic	0.77		ug/L	P423137	
		Barium	25.0		ug/L	P423137	
		Beryllium	0.088		ug/L	P423137	
		Boron	12.2		ug/L	P423137	
		Cadmium	0.020	U	ug/L	P423137	
		Chromium	1.2	I	ug/L	P423137	
		Cobalt	0.765		ug/L	P423137	
		Copper	0.64	I	ug/L	P423137	
		Lead	0.58		ug/L	P423137	
		Manganese	76.0		ug/L	P423137	
		Molybdenum	0.15	U	ug/L	P423137	
		Nickel	1.0	I	ug/L	P423137	
		Selenium	0.20	U	ug/L	P423137	
		Silver	0.010	U	ug/L	P423137	
		Thallium	0.10	U	ug/L	P423137	
	SM 2340 B-2011	Hardness	22.9		mg/L	P423137	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/16/2022.

Sample Location: FB

Collection Date/Time: 11/30/2022 12:10

Field ID: FB_11302022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2372429	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P423050	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P423058	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P423344	
		Sulfate	0.20	U	mg SO4/L	P423346	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P423430	
	SM 2540 C-2015	TDS	15	U	mg/L	P423544	
	SM 2540 D-2015	TSS	2	U	mg/L	P423370	
2372430	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P423841	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P423319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P423104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P423145	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P423147	
2372437	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P423117	
	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P423137	
		Iron	30	U	ug/L	P423137	
		Magnesium	0.040	U	mg/L	P423137	
		Potassium	0.30	U	mg/L	P423137	
		Sodium	0.50	U	mg/L	P423137	
		Strontium	2.0	U	ug/L	P423137	
		Tin	3.0	U	ug/L	P423137	
		Titanium	0.75	U	ug/L	P423137	
		Vanadium	2.0	U	ug/L	P423137	
		Zinc	5.0	U	ug/L	P423137	
		Aluminum	5.0	U	ug/L	P423137	
		Antimony	0.050	U	ug/L	P423137	
		Arsenic	0.050	U	ug/L	P423137	
		Barium	0.20	U	ug/L	P423137	
		Beryllium	0.010	U	ug/L	P423137	
		Boron	2.0	U	ug/L	P423137	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P423137	
		Chromium	0.40	U	ug/L	P423137	
		Cobalt	0.020	U	ug/L	P423137	
		Copper	0.40	U	ug/L	P423137	
		Lead	0.20	U	ug/L	P423137	
		Manganese	0.10	U	ug/L	P423137	
		Molybdenum	0.15	U	ug/L	P423137	
		Nickel	0.50	U	ug/L	P423137	
		Selenium	0.20	U	ug/L	P423137	
		Silver	0.010	U	ug/L	P423137	
		Thallium	0.10	U	ug/L	P423137	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P423137	

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.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423050

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P423051

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423058

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423137

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: P423137

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: P423344

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423346

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423319

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423104

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423145

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423147

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

Reference Method: SM 2320 B-2011
Batch ID: P423430

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

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

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P423545

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

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

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P423371

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P423841

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: P423050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: DEP SOP: NU-094-1
 Batch ID: P423051

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

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P423058

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

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P423137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	104		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	96.1		P	85 - 115
Sodium	98.1		P	85 - 115
Strontium	99.9		P	85 - 115
Tin	101		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P423137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	98.2		P	85 - 115
Arsenic	104		P	85 - 115
Barium	102		P	85 - 115
Beryllium	96.5		P	85 - 115
Boron	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	98.0		P	85 - 115
Cobalt	99.3		P	85 - 115
Copper	103		P	85 - 115
Lead	92.7		P	85 - 115
Manganese	97.5		P	85 - 115
Molybdenum	99.8		P	85 - 115
Nickel	104		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115
Thallium	92.8		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423344

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423346

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423104

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: P423145

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: P423147

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

Reference Method: SM 2320 B-2011
Batch ID: P423430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	94 - 106

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 C-2015
Batch ID: P423545

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.4		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

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 2540 D-2015
Batch ID: P423371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P423841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		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: P423137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372408	Calcium	103		P	80 - 120
2372408	Iron	102	101	P/P	80 - 120
2372408	Magnesium	102		P	80 - 120
2372408	Potassium	98.3	97.5	P/P	80 - 120
2372408	Sodium	97.0	95.3	P/P	80 - 120
2372408	Strontium	101	100	P/P	80 - 120
2372408	Tin	101	99.3	P/P	80 - 120
2372408	Titanium	105	104	P/P	80 - 120
2372408	Vanadium	101	101	P/P	80 - 120
2372408	Zinc	95.0	95.2	P/P	80 - 120
2372684	Calcium	97.3		P	80 - 120
2372684	Iron	102		P	80 - 120
2372684	Magnesium	98.8		P	80 - 120
2372684	Potassium	98.6		P	80 - 120
2372684	Sodium	96.9		P	80 - 120
2372684	Strontium	101		P	80 - 120
2372684	Tin	102		P	80 - 120
2372684	Titanium	106		P	80 - 120
2372684	Vanadium	102		P	80 - 120
2372684	Zinc	97.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P423137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372408	Aluminum	100	99.1	P/P	80 - 120
2372408	Antimony	101	99.7	P/P	80 - 120
2372408	Arsenic	106	105	P/P	80 - 120
2372408	Barium	103	102	P/P	80 - 120
2372408	Beryllium	95.9	95.1	P/P	80 - 120
2372408	Boron	104	102	P/P	80 - 120
2372408	Cadmium	105	105	P/P	80 - 120
2372408	Chromium	100	98.3	P/P	80 - 120
2372408	Cobalt	98.8	97.4	P/P	80 - 120
2372408	Copper	101	99.5	P/P	80 - 120
2372408	Lead	94.2	92.5	P/P	80 - 120
2372408	Manganese	99.6	97.2	P/P	80 - 120
2372408	Molybdenum	104	102	P/P	80 - 120
2372408	Nickel	104	102	P/P	80 - 120
2372408	Selenium	103	102	P/P	80 - 120
2372408	Silver	103	100	P/P	80 - 120
2372408	Thallium	95.9	96.1	P/P	80 - 120
2372684	Aluminum	101		P	80 - 120
2372684	Antimony	100		P	80 - 120
2372684	Arsenic	103		P	80 - 120
2372684	Barium	100		P	80 - 120
2372684	Beryllium	96.2		P	80 - 120
2372684	Boron	105		P	80 - 120
2372684	Cadmium	104		P	80 - 120
2372684	Chromium	99.1		P	80 - 120
2372684	Cobalt	97.6		P	80 - 120
2372684	Copper	101		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372684	Lead	93.6		P	80 - 120
2372684	Manganese	96.8		P	80 - 120
2372684	Molybdenum	101		P	80 - 120
2372684	Nickel	102		P	80 - 120
2372684	Selenium	101		P	80 - 120
2372684	Silver	100		P	80 - 120
2372684	Thallium	93.8		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372596	Chloride	94.6		P	90 - 110
2372820	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372596	Sulfate	96.5		P	90 - 110
2372820	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372427	Ammonia-N	97.6	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372427	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372428	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372456	Total-P	100	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P423841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372397	Fluoride	101	99.9	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

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: P423050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372332	Color (true)	3.72	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P423051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372426	Color (true)	0.0345	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372326	Turbidity	12.1	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372408	Calcium	1.62	Spike	P	0 - 20
2372408	Iron	0.718	Spike	P	0 - 20
2372408	Magnesium	1.17	Spike	P	0 - 20
2372408	Potassium	0.725	Spike	P	0 - 20
2372408	Sodium	1.05	Spike	P	0 - 20
2372408	Strontium	1.10	Spike	P	0 - 20
2372408	Tin	1.41	Spike	P	0 - 20
2372408	Titanium	0.618	Spike	P	0 - 20
2372408	Vanadium	0.483	Spike	P	0 - 20
2372408	Zinc	0.240	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372408	Aluminum	1.41	Spike	P	0 - 20
2372408	Antimony	1.13	Spike	P	0 - 20
2372408	Arsenic	1.16	Spike	P	0 - 20
2372408	Barium	1.41	Spike	P	0 - 20
2372408	Beryllium	0.774	Spike	P	0 - 20
2372408	Boron	1.31	Spike	P	0 - 20
2372408	Cadmium	0.404	Spike	P	0 - 20
2372408	Chromium	1.67	Spike	P	0 - 20
2372408	Cobalt	1.48	Spike	P	0 - 20
2372408	Copper	1.80	Spike	P	0 - 20
2372408	Lead	1.87	Spike	P	0 - 20
2372408	Manganese	2.46	Spike	P	0 - 20
2372408	Molybdenum	1.57	Spike	P	0 - 20
2372408	Nickel	1.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P423137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372408	Selenium	0.209	Spike	P	0 - 20
2372408	Silver	2.61	Spike	P	0 - 20
2372408	Thallium	0.265	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372596	Chloride	0.655	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372596	Sulfate	1.15	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372427	Ammonia-N	1.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372427	Kjeldahl Nitrogen	0.227	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372428	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372456	Total-P	1.48	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P423430

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

Reference Method: SM 2320 B-2011
Batch ID: P423430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372105	Total Alkalinity	0.0847	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P423545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372398	TDS	3.05	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P423841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372397	Fluoride	0.968	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: A116233

Included Lab Sample IDs: 2372425, 2372426, 2372429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	90 - 110
Color (true)	104	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116244

Included Lab Sample IDs: 2372425, 2372426, 2372429

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

Reference Method: SM 5310 B-2011

Run ID: A116268

Included Lab Sample IDs: 2372427, 2372428, 2372430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.1	P/P	90 - 110
Organic Carbon	98.1	96.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116272

Included Lab Sample IDs: 2372425, 2372426, 2372429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	100	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116276

Included Lab Sample IDs: 2372427, 2372428, 2372430

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116297

Included Lab Sample IDs: 2372428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116305

Included Lab Sample IDs: 2372427, 2372430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116306

Included Lab Sample IDs: 2372427, 2372428, 2372430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116336

Included Lab Sample IDs: 2372427, 2372428, 2372430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A116396

Included Lab Sample IDs: 2372425, 2372426, 2372429

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116483

Included Lab Sample IDs: 2372435, 2372436, 2372437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	99.9	P/P	90 - 110
Calcium	103	102	P/P	95 - 105
Iron	104	105	P/P	95 - 105
Iron	105	102	P/P	90 - 110
Magnesium	103	104	P/P	95 - 105
Magnesium	104	101	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Potassium	99.5	102	P/P	95 - 105
Sodium	101	99.6	P/P	95 - 105
Sodium	99.6	99.2	P/P	90 - 110
Strontium	102	101	P/P	90 - 110
Strontium	96.9	102	P/P	95 - 105
Tin	100	104	P/P	95 - 105
Tin	104	103	P/P	90 - 110
Titanium	104	102	P/P	90 - 110
Titanium	99.7	104	P/P	95 - 105
Vanadium	101	98.9	P/P	90 - 110
Vanadium	99.4	101	P/P	95 - 105
Zinc	101	95.0	P/P	95 - 105
Zinc	95.0	93.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116494

Included Lab Sample IDs: 2372435, 2372436, 2372437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Aluminum	99.5	101	P/P	90 - 110
Antimony	95.3	95.9	P/P	90 - 110
Antimony	95.9	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116494

Included Lab Sample IDs: 2372435, 2372436, 2372437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	103	P/P	90 - 110
Arsenic	104	103	P/P	90 - 110
Barium	98.3	98.3	P/P	90 - 110
Barium	98.7	98.3	P/P	90 - 110
Beryllium	97.7	98.3	P/P	90 - 110
Beryllium	98.5	97.7	P/P	90 - 110
Boron	103	102	P/P	90 - 110
Boron	96.0	103	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	99.6	101	P/P	90 - 110
Chromium	96.6	96.9	P/P	90 - 110
Chromium	96.9	96.1	P/P	90 - 110
Cobalt	96.4	95.6	P/P	90 - 110
Cobalt	98.6	96.4	P/P	90 - 110
Copper	101	100	P/P	90 - 110
Copper	104	101	P/P	90 - 110
Lead	94.4	94.8	P/P	90 - 110
Lead	94.8	94.6	P/P	90 - 110
Manganese	96.7	95.8	P/P	90 - 110
Manganese	96.7	96.7	P/P	90 - 110
Molybdenum	100	99.4	P/P	90 - 110
Molybdenum	99.4	98.6	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Nickel	103	101	P/P	90 - 110
Selenium	100	102	P/P	90 - 110
Selenium	102	102	P/P	90 - 110
Silver	98.4	98.7	P/P	90 - 110
Silver	98.7	98.7	P/P	90 - 110
Thallium	94.8	96.8	P/P	90 - 110
Thallium	96.8	95.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116602

Included Lab Sample IDs: 2372425, 2372426, 2372429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	98.0	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)	102					3.72	
	Color (true)	104					0.0345	
EPA 180.1 Rev. 2.0	Turbidity	99.0					12.1	
EPA 200.7 Rev. 4.4	Calcium	103	103	97.3				1.62
	Iron	104	102	101	102			0.718
	Magnesium	101	102	98.8				1.17
	Potassium	96.1	98.3	97.5	98.6			0.725
	Sodium	98.1	97.0	95.3	96.9			1.05
	Strontium	99.9	101	100	101			1.10
	Tin	101	101	99.3	102			1.41
	Titanium	103	105	104	106			0.618
	Vanadium	101	101	101	102			0.483
	Zinc	101	95.0	95.2	97.7			0.240
EPA 200.8 Rev. 5.4	Aluminum	102	100	99.1	101			1.41
	Antimony	98.2	101	99.7	100			1.13
	Arsenic	104	106	105	103			1.16
	Barium	102	103	102	100			1.41
	Beryllium	96.5	95.9	95.1	96.2			0.774
	Boron	102	104	102	105			1.31
	Cadmium	103	105	105	104			0.404
	Chromium	98.0	100	98.3	99.1			1.67
	Cobalt	99.3	98.8	97.4	97.6			1.48
	Copper	103	101	99.5	101			1.80
	Lead	92.7	94.2	92.5	93.6			1.87
	Manganese	97.5	99.6	97.2	96.8			2.46
	Molybdenum	99.8	104	102	101			1.57
	Nickel	104	104	102	102			1.39
	Selenium	102	103	102	101			0.209
	Silver	102	103	100	100			2.61
	Thallium	92.8	95.9	96.1	93.8			0.265
EPA 300.0 Rev. 2.1	Chloride	103	94.6	100			0.655	
	Sulfate	103	96.5	101			1.15	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	97.6	99.4				1.18
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	103	103				0.227
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100				0.0
EPA 365.1 Rev. 2.0	Total-P	100	100	102				1.48
SM 2320 B-2011	Total Alkalinity	96.6					0.0847	
SM 2540 C-2015	TDS	92.4						
	TDS	95.4					3.05	
SM 2540 D-2015	TSS	91.5						
	TSS	92.3						
SM 4500-F- C-2011	Fluoride	98.2	101	99.9				0.968
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)	2372425, 2372426, 2372429
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2372425, 2372426, 2372429
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2372435, 2372436, 2372437
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2372435, 2372436, 2372437

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2372425, 2372426, 2372429
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2372425, 2372426, 2372429
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2372427, 2372428, 2372430
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2372427, 2372428, 2372430
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2372427, 2372428, 2372430
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2372427, 2372428, 2372430
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2372425, 2372426, 2372429
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2372435, 2372436, 2372437
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2372425, 2372426, 2372429
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2372425, 2372426, 2372429
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2372425, 2372426, 2372429
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2372427, 2372428, 2372430

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	12/02/2022			12/02/2022 11:22	Chandler E Cox	2372429
	12/02/2022			12/02/2022 11:30	Chandler E Cox	2372425
	12/02/2022			12/02/2022 11:31	Chandler E Cox	2372426
EPA 180.1 Rev. 2.0	12/02/2022			12/02/2022 10:42	Khloe J Berg	2372425
	12/02/2022			12/02/2022 10:44	Khloe J Berg	2372426
	12/02/2022			12/02/2022 10:45	Khloe J Berg	2372429
EPA 200.7 Rev. 4.4	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/15/2022 15:58	McKinley C Carter	2372437
	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/15/2022 18:22	McKinley C Carter	2372435
	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/15/2022 18:30	McKinley C Carter	2372436
EPA 200.8 Rev. 5.4	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/16/2022 02:13	Emily M Philpot	2372437
	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/16/2022 04:37	Emily M Philpot	2372435
	12/02/2022	12/06/2022 11:30	Vijayalakshmi Reddy	12/16/2022 04:46	Emily M Philpot	2372436
EPA 300.0 Rev. 2.1	12/02/2022			12/09/2022 01:19	Anna M. Plaviak	2372425
	12/02/2022			12/09/2022 01:34	Anna M. Plaviak	2372426
	12/02/2022			12/09/2022 01:49	Anna M. Plaviak	2372429
EPA 350.1 Rev. 2.0	12/02/2022			12/08/2022 15:43	Ping Hua	2372427
	12/02/2022			12/08/2022 15:47	Ping Hua	2372428
	12/02/2022			12/08/2022 15:48	Ping Hua	2372430
EPA 351.2 Rev. 2.0	12/02/2022	12/05/2022 13:33	Judith K. Clark	12/07/2022 12:24	Judith K. Clark	2372427
	12/02/2022	12/05/2022 13:33	Judith K. Clark	12/07/2022 12:29	Judith K. Clark	2372428
	12/02/2022	12/05/2022 13:33	Judith K. Clark	12/07/2022 12:31	Judith K. Clark	2372430
EPA 353.2 Rev. 2.0	12/02/2022			12/06/2022 10:41	Beverly Y. Sanders	2372428
	12/02/2022			12/06/2022 10:50	Beverly Y. Sanders	2372427
	12/02/2022			12/06/2022 10:52	Beverly Y. Sanders	2372430
EPA 365.1 Rev. 2.0	12/02/2022	12/06/2022 14:05	Adam P Silver	12/07/2022 09:33	James L Waggeberby	2372428
	12/02/2022	12/06/2022 14:05	Adam P Silver	12/07/2022 13:02	Simonne.V. Calhoun	2372430
	12/02/2022	12/06/2022 14:05	Adam P Silver	12/07/2022 13:06	Simonne.V. Calhoun	2372427
SM 2320 B-2011	12/02/2022			12/13/2022 03:07	Dale L. Simmons	2372425
	12/02/2022			12/13/2022 03:17	Dale L. Simmons	2372426
	12/02/2022			12/13/2022 03:23	Dale L. Simmons	2372429
SM 2340 B-2011	12/02/2022			12/15/2022 15:58	McKinley C Carter	2372437
	12/02/2022			12/15/2022 18:22	McKinley C Carter	2372435
	12/02/2022			12/15/2022 18:30	McKinley C Carter	2372436
SM 2540 C-2015	12/02/2022			12/05/2022 16:21	Yijie Li	2372425, 2372426, 2372429
SM 2540 D-2015	12/02/2022			12/05/2022 16:21	Yijie Li	2372425, 2372426, 2372429
SM 4500-F- C-2011	12/02/2022			12/21/2022 14:07	Dale L. Simmons	2372425
	12/02/2022			12/21/2022 14:12	Dale L. Simmons	2372426
	12/02/2022			12/21/2022 14:17	Dale L. Simmons	2372429
SM 5310 B-2011	12/02/2022			12/06/2022 02:45	Khloe J Berg	2372427
	12/02/2022			12/06/2022 03:26	Khloe J Berg	2372428

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	12/02/2022			12/06/2022 03:39	Khloe J Berg	2372430