Chemical Analysis Report

NW-DIST-2022-11-10-03

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

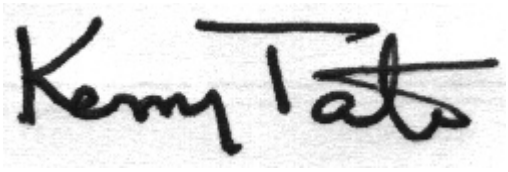
Event Description: **Escambia River Run**
Request ID: **RQ-2022-11-07-29**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-DEC-2022 11:30



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 upstream of Mitchell Creek **Collection Date/Time: 11/09/2022 10:40**

Field ID: G4NW0404 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2369153	DEP SOP: NU-094-1	Color (true)	31		PCU	P422216	
	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P422214	
	EPA 300.0 Rev. 2.1	Chloride	8.0		mg Cl/L	P422829	
		Sulfate	11		mg SO4/L	P422833	
	SM 2320 B-2011	Total Alkalinity	36		mg CaCO3/L	P422794	
	SM 2540 C-2015	TDS	76		mg/L	P422674	
	SM 2540 D-2015	TSS	9	I	mg/L	P422562	RPD
	SM 4500-F- C-2011	Fluoride	0.029	I	mg F/L	P422643	
2369155	EPA 350.1 Rev. 2.0	Ammonia-N	0.093		mg N/L	P422914	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P422450	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P422484	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P422387	
	SM 5310 B-2011	Organic Carbon	3.5		mg C/L	P422755	
2369163	EPA 200.7 Rev. 4.4	Calcium	12.4		mg/L	P422211	
		Iron	810		ug/L	P422211	
		Magnesium	1.45		mg/L	P422211	
		Potassium	1.2		mg/L	P422211	
		Sodium	12.1		mg/L	P422211	
		Strontium	42.6		ug/L	P422211	
		Tin	3.0	U	ug/L	P422211	
		Titanium	8.9		ug/L	P422211	
		Vanadium	2.0	U	ug/L	P422211	
		Zinc	5.0	U	ug/L	P422211	
	EPA 200.8 Rev. 5.4	Aluminum	186		ug/L	P422211	
		Antimony	0.050	U	ug/L	P422211	
		Arsenic	0.47		ug/L	P422211	
		Barium	27.8		ug/L	P422211	
		Beryllium	0.035	I	ug/L	P422211	
		Boron	13.2		ug/L	P422211	
		Cadmium	0.020	U	ug/L	P422211	
		Chromium	0.53	I	ug/L	P422211	
		Cobalt	0.420		ug/L	P422211	
		Copper	0.40	U	ug/L	P422211	
		Lead	0.20	U	ug/L	P422211	
		Manganese	46.3		ug/L	P422211	
		Molybdenum	0.15	U	ug/L	P422211	
		Nickel	0.55	I	ug/L	P422211	
		Selenium	0.20	U	ug/L	P422211	
		Silver	0.010	U	ug/L	P422211	
		Thallium	0.10	U	ug/L	P422211	
	SM 2340 B-2011	Hardness	36.8		mg/L	P422211	

Sample Location: Escambia River downstream of Cotton Lake **Collection Date/Time: 11/09/2022 11:50**

Field ID: G4NW0403 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2369154	DEP SOP: NU-094-1	Color (true)	30		PCU	P422216	
	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P422214	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P422829	
		Sulfate	11		mg SO4/L	P422833	
	SM 2320 B-2011	Total Alkalinity	36		mg CaCO3/L	P422794	
	SM 2540 C-2015	TDS	67		mg/L	P422674	
	SM 2540 D-2015	TSS	12		mg/L	P422562	RPD
	SM 4500-F- C-2011	Fluoride	0.028	I	mg F/L	P422643	
2369156	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P422915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P422450	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P422484	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P422387	
	SM 5310 B-2011	Organic Carbon	3.5		mg C/L	P422755	
2369164	EPA 200.7 Rev. 4.4	Calcium	12.1		mg/L	P422211	
		Iron	960		ug/L	P422211	
		Magnesium	1.46		mg/L	P422211	
		Potassium	1.2	I	mg/L	P422211	
		Sodium	11.5		mg/L	P422211	
		Strontium	41.7		ug/L	P422211	
		Tin	3.0	U	ug/L	P422211	
		Titanium	9.8		ug/L	P422211	
		Vanadium	2.0	U	ug/L	P422211	
		Zinc	5.0	U	ug/L	P422211	
	EPA 200.8 Rev. 5.4	Aluminum	254		ug/L	P422211	
		Antimony	0.050	U	ug/L	P422211	
		Arsenic	0.49		ug/L	P422211	
		Barium	29.4		ug/L	P422211	
		Beryllium	0.043		ug/L	P422211	
		Boron	13.3		ug/L	P422211	
		Cadmium	0.020	U	ug/L	P422211	
		Chromium	0.69	I	ug/L	P422211	
		Cobalt	0.479		ug/L	P422211	
		Copper	0.40	U	ug/L	P422211	
		Lead	0.27	I	ug/L	P422211	
		Manganese	52.4		ug/L	P422211	
		Molybdenum	0.15	U	ug/L	P422211	
		Nickel	0.61	I	ug/L	P422211	
		Selenium	0.20	U	ug/L	P422211	
		Silver	0.010	U	ug/L	P422211	
		Thallium	0.10	U	ug/L	P422211	
	SM 2340 B-2011	Hardness	36.3		mg/L	P422211	

Sample Location: FB **Collection Date/Time: 11/09/2022 11:57**

Field ID: FB_11092022 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2369157	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422216	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P422214	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P422829	
		Sulfate	0.20	U	mg SO4/L	P422833	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P422794	
	SM 2540 C-2015	TDS	15	U	mg/L	P422674	
	SM 2540 D-2015	TSS	2	U	mg/L	P422562	RPD
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P422643	
2369158	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P422915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P422450	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422485	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P422441	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P422755	
2369165	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P422211	
		Iron	30	U	ug/L	P422211	
		Magnesium	0.040	U	mg/L	P422211	
		Potassium	0.30	U	mg/L	P422211	
		Sodium	0.50	U	mg/L	P422211	
		Strontium	2.0	U	ug/L	P422211	
		Tin	3.0	U	ug/L	P422211	
		Titanium	0.75	U	ug/L	P422211	
		Vanadium	2.0	U	ug/L	P422211	
		Zinc	5.0	U	ug/L	P422211	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P422211	
		Antimony	0.050	U	ug/L	P422211	
		Arsenic	0.050	U	ug/L	P422211	
		Barium	0.20	U	ug/L	P422211	
		Beryllium	0.010	U	ug/L	P422211	
		Boron	2.0	U	ug/L	P422211	
		Cadmium	0.020	U	ug/L	P422211	
		Chromium	0.40	U	ug/L	P422211	
		Cobalt	0.020	U	ug/L	P422211	
		Copper	0.40	U	ug/L	P422211	
		Lead	0.20	U	ug/L	P422211	
		Manganese	0.10	U	ug/L	P422211	
		Molybdenum	0.15	U	ug/L	P422211	
		Nickel	0.50	U	ug/L	P422211	
		Selenium	0.20	U	ug/L	P422211	
		Silver	0.010	U	ug/L	P422211	
		Thallium	0.10	U	ug/L	P422211	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P422211	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P422216

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422214

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422211

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: P422211

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422829

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: P422833

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422915

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422450

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422484

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422387

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422441

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

Reference Method: SM 2320 B-2011
Batch ID: P422794

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: P422674

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P422562

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422755

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: P422216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.5		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422214

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	104		P	85 - 115
Strontium	105		P	85 - 115
Tin	100		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	98.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.9		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	101		P	85 - 115
Barium	104		P	85 - 115
Beryllium	95.7		P	85 - 115
Boron	104		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	103		P	85 - 115
Cobalt	101		P	85 - 115
Copper	101		P	85 - 115
Lead	94.8		P	85 - 115
Manganese	101		P	85 - 115
Molybdenum	98.6		P	85 - 115
Nickel	101		P	85 - 115
Selenium	100		P	85 - 115
Silver	98.9		P	85 - 115
Thallium	97.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422829

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422833

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422915

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422450

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422387

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422441

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

Reference Method: SM 2320 B-2011
Batch ID: P422794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.5		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P422674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.7		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P422562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422755

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: P422211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368645	Calcium	103		P	80 - 120
2368645	Iron	105	107	P/P	80 - 120
2368645	Magnesium	103		P	80 - 120
2368645	Potassium	102	103	P/P	80 - 120
2368645	Sodium	101		P	80 - 120
2368645	Strontium	104	105	P/P	80 - 120
2368645	Tin	96.5	99.1	P/P	80 - 120
2368645	Titanium	101	102	P/P	80 - 120
2368645	Vanadium	101	102	P/P	80 - 120
2368645	Zinc	97.2	99.0	P/P	80 - 120
2368994	Calcium	103		P	80 - 120
2368994	Iron	105		P	80 - 120
2368994	Magnesium	102		P	80 - 120
2368994	Potassium	101		P	80 - 120
2368994	Sodium	105		P	80 - 120
2368994	Strontium	107		P	80 - 120
2368994	Tin	102		P	80 - 120
2368994	Titanium	102		P	80 - 120
2368994	Vanadium	102		P	80 - 120
2368994	Zinc	96.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368645	Aluminum	98.3	99.7	P/P	80 - 120
2368645	Antimony	105	106	P/P	80 - 120
2368645	Arsenic	104	105	P/P	80 - 120
2368645	Barium	105	105	P/P	80 - 120
2368645	Beryllium	97.8	97.4	P/P	80 - 120
2368645	Boron	103	106	P/P	80 - 120
2368645	Cadmium	103	104	P/P	80 - 120
2368645	Chromium	105	105	P/P	80 - 120
2368645	Cobalt	102	103	P/P	80 - 120
2368645	Copper	103	104	P/P	80 - 120
2368645	Lead	97.3	97.1	P/P	80 - 120
2368645	Manganese	102	104	P/P	80 - 120
2368645	Molybdenum	102	104	P/P	80 - 120
2368645	Nickel	104	104	P/P	80 - 120
2368645	Selenium	101	103	P/P	80 - 120
2368645	Silver	98.0	99.4	P/P	80 - 120
2368645	Thallium	102	103	P/P	80 - 120
2368994	Aluminum	99.9		P	80 - 120
2368994	Antimony	106		P	80 - 120
2368994	Arsenic	105		P	80 - 120
2368994	Barium	106		P	80 - 120
2368994	Beryllium	97.8		P	80 - 120
2368994	Boron	106		P	80 - 120
2368994	Cadmium	104		P	80 - 120
2368994	Chromium	106		P	80 - 120
2368994	Cobalt	101		P	80 - 120
2368994	Copper	98.9		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368994	Lead	96.8		P	80 - 120
2368994	Manganese	106		P	80 - 120
2368994	Molybdenum	103		P	80 - 120
2368994	Nickel	101		P	80 - 120
2368994	Selenium	101		P	80 - 120
2368994	Silver	101		P	80 - 120
2368994	Thallium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369118	Chloride	97.0		P	90 - 110
2369236	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369118	Sulfate	94.4		P	90 - 110
2369236	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368967	Ammonia-N	95.2	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369182	Ammonia-N	94.4	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369086	Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368988	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369182	NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369156	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2369341	Total-P	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368966	Fluoride	102	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368941	Organic Carbon	96.4	96.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P422216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369118	Color (true)	9.27	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369118	Turbidity	6.32	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368645	Calcium	2.05	Spike	P	0 - 20
2368645	Iron	1.47	Spike	P	0 - 20
2368645	Magnesium	1.80	Spike	P	0 - 20
2368645	Potassium	0.693	Spike	P	0 - 20
2368645	Sodium	1.25	Spike	P	0 - 20
2368645	Strontium	1.04	Spike	P	0 - 20
2368645	Tin	2.42	Spike	P	0 - 20
2368645	Titanium	0.969	Spike	P	0 - 20
2368645	Vanadium	1.19	Spike	P	0 - 20
2368645	Zinc	1.82	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368645	Aluminum	1.38	Spike	P	0 - 20
2368645	Antimony	0.877	Spike	P	0 - 20
2368645	Arsenic	0.825	Spike	P	0 - 20
2368645	Barium	0.300	Spike	P	0 - 20
2368645	Beryllium	0.410	Spike	P	0 - 20
2368645	Boron	2.28	Spike	P	0 - 20
2368645	Cadmium	0.679	Spike	P	0 - 20
2368645	Chromium	0.159	Spike	P	0 - 20
2368645	Cobalt	0.418	Spike	P	0 - 20
2368645	Copper	0.934	Spike	P	0 - 20
2368645	Lead	0.158	Spike	P	0 - 20
2368645	Manganese	1.28	Spike	P	0 - 20
2368645	Molybdenum	1.03	Spike	P	0 - 20
2368645	Nickel	0.0915	Spike	P	0 - 20
2368645	Selenium	2.04	Spike	P	0 - 20
2368645	Silver	1.41	Spike	P	0 - 20
2368645	Thallium	0.715	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369118	Chloride	0.152	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369118	Sulfate	0.0331	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368967	Ammonia-N	3.93	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369182	Ammonia-N	0.670	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369086	Kjeldahl Nitrogen	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368988	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369182	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369156	Total-P	0.761	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2369341	Total-P	0.0241	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P422794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368966	Total Alkalinity	0.733	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P422674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368619	TDS	5.91	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P422562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368619	TSS	10.9	Sample	F	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368966	Fluoride	0.972	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368941	Organic Carbon	0.167	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A115860
Included Lab Sample IDs: 2369153, 2369154, 2369157

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

Reference Method: DEP SOP: NU-094-1
Run ID: A115862
Included Lab Sample IDs: 2369153, 2369154, 2369157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	96.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A115945
Included Lab Sample IDs: 2369163, 2369164, 2369165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.5	99.5	P/P	90 - 110
Antimony	100	101	P/P	90 - 110
Antimony	98.4	99.3	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Barium	101	102	P/P	90 - 110
Barium	101	101	P/P	90 - 110
Beryllium	97.1	98.0	P/P	90 - 110
Beryllium	98.6	97.6	P/P	90 - 110
Boron	103	106	P/P	90 - 110
Boron	97.8	102	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	99.9	101	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Cobalt	101	98.7	P/P	90 - 110
Cobalt	98.5	98.4	P/P	90 - 110
Copper	102	99.2	P/P	90 - 110
Copper	99.0	98.6	P/P	90 - 110
Lead	93.5	93.9	P/P	90 - 110
Lead	94.6	95.4	P/P	90 - 110
Manganese	103	103	P/P	90 - 110
Manganese	97.4	100	P/P	90 - 110
Molybdenum	98.2	99.6	P/P	90 - 110
Molybdenum	98.3	98.5	P/P	90 - 110
Nickel	102	99.4	P/P	90 - 110
Nickel	98.8	98.6	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Selenium	98.2	99.5	P/P	90 - 110
Silver	97.2	98.7	P/P	90 - 110
Silver	97.3	96.7	P/P	90 - 110
Thallium	101	100	P/P	90 - 110
Thallium	98.8	99.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115956
Included Lab Sample IDs: 2369155, 2369156, 2369158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A115972
Included Lab Sample IDs: 2369165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.2	98.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A115992
Included Lab Sample IDs: 2369163, 2369164, 2369165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	104	P/P	95 - 105
Calcium	104	102	P/P	90 - 110
Iron	104	105	P/P	95 - 105
Iron	105	105	P/P	90 - 110
Magnesium	104	103	P/P	95 - 105
Magnesium	104	104	P/P	90 - 110
Potassium	100	104	P/P	95 - 105
Potassium	104	105	P/P	90 - 110
Sodium	102	105	P/P	95 - 105
Sodium	104	104	P/P	90 - 110
Strontium	103	108	P/P	95 - 105
Strontium	105	108	P/P	90 - 110
Tin	101	97.9	P/P	90 - 110
Tin	99.8	98.6	P/P	95 - 105
Titanium	101	102	P/P	90 - 110
Titanium	99.9	101	P/P	95 - 105
Vanadium	102	101	P/P	90 - 110
Vanadium	99.7	101	P/P	95 - 105
Zinc	99.4	97.7	P/P	95 - 105
Zinc	99.8	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116013
Included Lab Sample IDs: 2369155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116030
Included Lab Sample IDs: 2369156

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116040
Included Lab Sample IDs: 2369158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	99.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A116057
Included Lab Sample IDs: 2369153, 2369154, 2369157

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116108
Included Lab Sample IDs: 2369153, 2369154, 2369157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.2	P/P	90 - 110
Sulfate	101	98.8	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A116128
Included Lab Sample IDs: 2369155, 2369156, 2369158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116145
Included Lab Sample IDs: 2369153, 2369154, 2369157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.3	98.0	P/P	90 - 110
Total Alkalinity	95.5	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116154
Included Lab Sample IDs: 2369155, 2369156, 2369158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	95.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116189
Included Lab Sample IDs: 2369155, 2369156, 2369158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	99.1	99.6	P/P	90 - 110
Ammonia-N	99.6	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		
						LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	97.5					9.27	
EPA 180.1 Rev. 2.0	Turbidity	101					6.32	
EPA 200.7 Rev. 4.4	Calcium	104	103	103				2.05
	Iron	104	105	107	105			1.47
	Magnesium	102	103	102				1.80
	Potassium	101	102	103	101			0.693
	Sodium	104	101	105				1.25
	Strontium	105	104	105	107			1.04
	Tin	100	96.5	99.1	102			2.42
	Titanium	103	101	102	102			0.969
	Vanadium	103	101	102	102			1.19
	Zinc	98.8	97.2	99.0	96.1			1.82
EPA 200.8 Rev. 5.4	Aluminum	99.9	98.3	99.7	99.9			1.38
	Antimony	102	105	106	106			0.877
	Arsenic	101	104	105	105			0.825
	Barium	104	105	105	106			0.300
	Beryllium	95.7	97.8	97.4	97.8			0.410
	Boron	104	103	106	106			2.28
	Cadmium	100	103	104	104			0.679
	Chromium	103	105	105	106			0.159
	Cobalt	101	102	103	101			0.418
	Copper	101	103	104	98.9			0.934
	Lead	94.8	97.3	97.1	96.8			0.158
	Manganese	101	102	104	106			1.28
	Molybdenum	98.6	102	104	103			1.03
	Nickel	101	104	104	101			0.0915
	Selenium	100	101	103	101			2.04
	Silver	98.9	98.0	99.4	101			1.41
	Thallium	97.5	102	103	103			0.715
EPA 300.0 Rev. 2.1	Chloride	99.5	97.0	98.4			0.152	
	Sulfate	98.7	94.4	95.8			0.0331	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	95.2	99.2				3.93
	Ammonia-N	98.6	94.4	95.2				0.670
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	103				1.50
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104				0.962
	NO2NO3-N	104	103	103				0.454
EPA 365.1 Rev. 2.0	Total-P	103	102	103				0.761
	Total-P	103	104	104				0.0241
SM 2320 B-2011	Total Alkalinity	95.5					0.733	
SM 2540 C-2015	TDS	97.7					5.91	
SM 2540 D-2015	TSS	93.1					10.9	
SM 4500-F- C-2011	Fluoride	99.9	102	100				0.972
SM 5310 B-2011	Organic Carbon	97.0	96.4	96.7				0.167

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2369153, 2369154, 2369157
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2369153, 2369154, 2369157
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2369163, 2369164, 2369165
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2369163, 2369164, 2369165

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2369153, 2369154, 2369157
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2369153, 2369154, 2369157
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2369155, 2369156, 2369158
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2369155, 2369156, 2369158
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2369155, 2369156, 2369158
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2369155, 2369156, 2369158
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2369153, 2369154, 2369157
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2369163, 2369164, 2369165
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2369153, 2369154, 2369157
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2369153, 2369154, 2369157
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2369153, 2369154, 2369157
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2369155, 2369156, 2369158

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	11/10/2022			11/10/2022 12:05	Chandler E Cox	2369153
	11/10/2022			11/10/2022 12:06	Chandler E Cox	2369154, 2369157
EPA 180.1 Rev. 2.0	11/10/2022			11/10/2022 11:53	Anna M. Plaviak	2369153
	11/10/2022			11/10/2022 11:54	Anna M. Plaviak	2369154
	11/10/2022			11/10/2022 11:55	Anna M. Plaviak	2369157
EPA 200.7 Rev. 4.4	11/10/2022	11/14/2022 12:25	George D Taylor	11/17/2022 12:27	Betina Topolski	2369165
	11/10/2022	11/14/2022 12:25	George D Taylor	11/17/2022 15:31	Betina Topolski	2369163
	11/10/2022	11/14/2022 12:25	George D Taylor	11/17/2022 15:39	Betina Topolski	2369164
EPA 200.8 Rev. 5.4	11/10/2022	11/14/2022 12:25	George D Taylor	11/15/2022 17:48	Megan Whitefoot	2369165
	11/10/2022	11/14/2022 12:25	George D Taylor	11/15/2022 22:01	Megan Whitefoot	2369163
	11/10/2022	11/14/2022 12:25	George D Taylor	11/15/2022 22:11	Megan Whitefoot	2369164
	11/10/2022	11/14/2022 12:25	George D Taylor	11/16/2022 13:03	Megan Whitefoot	2369165
EPA 300.0 Rev. 2.1	11/10/2022			11/22/2022 23:27	James L Waggerby	2369153
	11/10/2022			11/22/2022 23:42	James L Waggerby	2369154
	11/10/2022			11/22/2022 23:57	James L Waggerby	2369157
EPA 350.1 Rev. 2.0	11/10/2022			11/29/2022 11:39	Ping Hua	2369155
	11/10/2022			11/29/2022 11:51	Ping Hua	2369156
	11/10/2022			11/29/2022 13:30	Ping Hua	2369158
EPA 351.2 Rev. 2.0	11/10/2022	11/17/2022 10:34	Samantha L Bates	11/28/2022 13:19	Judith K. Clark	2369155
	11/10/2022	11/17/2022 10:34	Samantha L Bates	11/28/2022 13:20	Judith K. Clark	2369156
	11/10/2022	11/17/2022 10:34	Samantha L Bates	11/28/2022 13:22	Judith K. Clark	2369158
EPA 353.2 Rev. 2.0	11/10/2022			11/16/2022 11:37	Beverly Y. Sanders	2369155
	11/10/2022			11/16/2022 11:38	Beverly Y. Sanders	2369156
	11/10/2022			11/16/2022 11:51	Beverly Y. Sanders	2369158
EPA 365.1 Rev. 2.0	11/10/2022	11/16/2022 13:00	Simonne.V. Calhoun	11/17/2022 15:37	James L Waggerby	2369155
	11/10/2022	11/16/2022 13:00	Simonne.V. Calhoun	11/18/2022 13:54	Simonne.V. Calhoun	2369156
	11/10/2022	11/17/2022 13:57	Adam P Silver	11/18/2022 14:54	Simonne.V. Calhoun	2369158
SM 2320 B-2011	11/10/2022			11/21/2022 22:19	Dale L. Simmons	2369153
	11/10/2022			11/21/2022 22:29	Dale L. Simmons	2369154
	11/10/2022			11/21/2022 23:06	Dale L. Simmons	2369157
SM 2340 B-2011	11/10/2022			11/17/2022 12:27	Betina Topolski	2369165
	11/10/2022			11/17/2022 15:31	Betina Topolski	2369163
	11/10/2022			11/17/2022 15:39	Betina Topolski	2369164
SM 2540 C-2015	11/10/2022			11/14/2022 15:59	Yijie Li	2369153, 2369154, 2369157
SM 2540 D-2015	11/10/2022			11/14/2022 15:59	Yijie Li	2369153, 2369154, 2369157
SM 4500-F- C-2011	11/10/2022			11/19/2022 13:55	Dale L. Simmons	2369153
	11/10/2022			11/19/2022 14:07	Dale L. Simmons	2369154
	11/10/2022			11/19/2022 14:16	Dale L. Simmons	2369157
SM 5310 B-2011	11/10/2022			11/22/2022 07:06	Khloe J Berg	2369155
	11/10/2022			11/22/2022 07:21	Khloe J Berg	2369156

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	11/10/2022			11/22/2022 07:34	Khloe J Berg	2369158