

Chemical Analysis Report

CEN-DIST-2022-05-25-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Bird Lake Slough (x2) and Trib**
Request ID: **RQ-2022-05-23-22**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

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: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 17-JUN-2022 11:44



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: Bird Lake Ditches 1.2mi W of 95

Collection Date/Time: 05/24/2022 10:43

Field ID: G3CE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329938	DEP SOP: NU-094-1	Color (true)**	65		PCU	P414374	
	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P414378	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+03		mg Cl/L	P414633	
		Sulfate	230		mg SO4/L	P414636	
	SM 2320 B-2011	Total Alkalinity	187		mg CaCO3/L	P414539	
	SM 2540 C-2011	TDS	2.37E+03		mg/L	P414670	
	SM 2540 D-2011	TSS	3	I	mg/L	P414674	
2329939	SM 4500-F- C-2011	Fluoride	0.20	J	mg F/L	P415142	LCS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P415217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P414563	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P414642	
	EPA 365.1 Rev. 2.0	Total-P	0.37		mg P/L	P414411	
2329947	SM 5310 B-2011	Organic Carbon	14		mg C/L	P414517	
	EPA 200.7 Rev. 4.4	Calcium	140		mg/L	P414396	
		Iron	420		ug/L	P414396	
		Magnesium	73.6		mg/L	P414396	
		Potassium	23.7		mg/L	P414396	
		Sodium	682		mg/L	P414396	
		Strontium	3.40E+03		ug/L	P414396	
		Tin	4.4	I	ug/L	P414396	
		Titanium	0.90	I	ug/L	P414396	
		Vanadium	2.0	U	ug/L	P414396	
		Zinc	5.0	U	ug/L	P414396	
	EPA 200.8 Rev. 5.4	Aluminum	43		ug/L	P414396	
		Antimony	0.093	I	ug/L	P414396	
		Arsenic	1.35		ug/L	P414396	
		Barium	73.2		ug/L	P414396	
		Beryllium	0.010	U	ug/L	P414396	
		Boron**	259		ug/L	P414396	
		Cadmium	0.020	U	ug/L	P414396	
		Chromium	0.40	U	ug/L	P414396	
		Cobalt	0.052	I	ug/L	P414396	
		Copper	0.58	I	ug/L	P414396	
		Lead	0.20	U	ug/L	P414396	
		Manganese	13.1		ug/L	P414396	
		Molybdenum	1.10		ug/L	P414396	
		Nickel	0.61	I	ug/L	P414396	
		Selenium	0.20	U	ug/L	P414396	
		Silver	0.010	U	ug/L	P414396	
		Thallium	0.10	U	ug/L	P414396	
	SM 2340 B-2011	Hardness	652		mg/L	P414396	

Ref. Method and Comment:

SM 4500-F- C-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Unnamed Slough @ HWY 50, 225M West of Zoltan Drive

Collection Date/Time: 05/24/2022 11:12

Field ID: G3CE0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329934	DEP SOP: NU-094-1	Color (true)**	110		PCU	P414373	
	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P414378	
	EPA 300.0 Rev. 2.1	Chloride	90		mg Cl/L	P414633	
		Sulfate	54		mg SO4/L	P414636	
	SM 2320 B-2011	Total Alkalinity	128		mg CaCO3/L	P414539	
	SM 2540 C-2011	TDS	401		mg/L	P414670	
	SM 2540 D-2011	TSS	12		mg/L	P414674	
	SM 4500-F- C-2011	Fluoride	0.044	I J	mg F/L	P415142	LCS
2329936	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P415146	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P414563	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P414642	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P414411	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P414517	
2329945	EPA 200.7 Rev. 4.4	Calcium	67.9		mg/L	P414396	
		Iron	1.83E+03		ug/L	P414396	
		Magnesium	7.06		mg/L	P414396	
		Potassium	4.5		mg/L	P414396	
		Sodium	61.0		mg/L	P414396	
		Strontium	576		ug/L	P414396	
		Tin	3.0	U	ug/L	P414396	
	EPA 200.8 Rev. 5.4	Titanium	1.5	I	ug/L	P414396	
		Vanadium	4.5	I	ug/L	P414396	
		Zinc	5.0	U	ug/L	P414396	
		Aluminum	140		ug/L	P414396	
		Antimony	0.26		ug/L	P414396	
		Arsenic	4.65		ug/L	P414396	
		Barium	16.3		ug/L	P414396	
		Beryllium	0.023	I	ug/L	P414396	
		Boron**	75.6		ug/L	P414396	
		Cadmium	0.020	U	ug/L	P414396	
		Chromium	0.62	I	ug/L	P414396	
		Cobalt	0.069	I	ug/L	P414396	
		Copper	0.44	I	ug/L	P414396	
		Lead	0.54		ug/L	P414396	
		Manganese	26.4		ug/L	P414396	
		Molybdenum	2.52		ug/L	P414396	
		Nickel	0.50	U	ug/L	P414396	
		Selenium	0.20	U	ug/L	P414396	
		Silver	0.010	U	ug/L	P414396	
		Thallium	0.10	U	ug/L	P414396	
	SM 2340 B-2011	Hardness	199		mg/L	P414396	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of analytical difficulties.

SM 4500-F- C-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Unnamed Slough @ Zoltan Drive

Collection Date/Time: 05/24/2022 11:26

Field ID: G3CE0054

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329935	DEP SOP: NU-094-1	Color (true)**	66		PCU	P414375	
	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P414378	
	EPA 300.0 Rev. 2.1	Chloride	81		mg Cl/L	P414633	
		Sulfate	43		mg SO4/L	P414636	
	SM 2320 B-2011	Total Alkalinity	116		mg CaCO3/L	P414539	
	SM 2540 C-2011	TDS	372	A	mg/L	P414670	
	SM 2540 D-2011	TSS	23	A	mg/L	P414674	
	SM 4500-F- C-2011	Fluoride	0.043	I J	mg F/L	P415142	LCS
2329937	EPA 350.1 Rev. 2.0	Ammonia-N	0.093		mg N/L	P415146	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P414564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P414642	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P414411	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P414517	
2329946	EPA 200.7 Rev. 4.4	Calcium	60.0		mg/L	P414396	
		Iron	2.75E+03		ug/L	P414396	
		Magnesium	6.40		mg/L	P414396	
		Potassium	4.6		mg/L	P414396	
		Sodium	54.5		mg/L	P414396	
		Strontium	493		ug/L	P414396	
		Tin	3.0	U	ug/L	P414396	
		Titanium	1.9	I	ug/L	P414396	
		Vanadium	6.7	I	ug/L	P414396	
		Zinc	5.0	U	ug/L	P414396	
	EPA 200.8 Rev. 5.4	Aluminum	252		ug/L	P414396	
		Antimony	0.30		ug/L	P414396	
		Arsenic	7.95		ug/L	P414396	
		Barium	15.4		ug/L	P414396	
		Beryllium	0.035	I	ug/L	P414396	
		Boron**	78.7		ug/L	P414396	
		Cadmium	0.020	U	ug/L	P414396	
		Chromium	0.78	I	ug/L	P414396	
		Cobalt	0.074	I	ug/L	P414396	
		Copper	0.46	I	ug/L	P414396	
		Lead	0.79		ug/L	P414396	
		Manganese	31.9		ug/L	P414396	
		Molybdenum	2.69		ug/L	P414396	
		Nickel	0.55	I	ug/L	P414396	
		Selenium	0.20	U	ug/L	P414396	
		Silver	0.010	U	ug/L	P414396	
		Thallium	0.10	U	ug/L	P414396	
		Hardness	176		mg/L	P414396	
	SM 2340 B-2011	Hardness	176		mg/L	P414396	

Ref. Method and Comment:

SM 4500-F- C-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P414373

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P414374

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P414375

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414378

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P414396

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: P414396

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P414396

Component	Result	Code	Units
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: P414633

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414636

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415217

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414642

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414411

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P414539

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

Reference Method: SM 2540 C-2011
Batch ID: P414670

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414674

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P415142

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P414517

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: P414373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: DEP SOP: NU-094-1
Batch ID: P414374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: DEP SOP: NU-094-1
Batch ID: P414375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414378

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.9		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P414396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	105		P	85 - 115
Sodium	103		P	85 - 115
Strontium	93.9		P	85 - 115
Tin	102		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	95.2		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P414396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.9		P	85 - 115
Antimony	96.8		P	85 - 115
Arsenic	97.7		P	85 - 115
Barium	99.4		P	85 - 115
Beryllium	95.3		P	85 - 115
Boron	103		P	85 - 115
Cadmium	94.7		P	85 - 115
Chromium	95.7		P	85 - 115
Cobalt	96.9		P	85 - 115
Copper	96.2		P	85 - 115
Lead	97.8		P	85 - 115
Manganese	96.4		P	85 - 115
Molybdenum	96.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P414396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	97.6		P	85 - 115
Selenium	96.7		P	85 - 115
Silver	97.2		P	85 - 115
Thallium	98.7		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414633

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414636

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414411

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P414539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.5		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P415142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.8		F	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P414396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329260	Calcium	103		P	80 - 120
2329260	Iron	108	108	P/P	80 - 120
2329260	Magnesium	111	109	P/P	80 - 120
2329260	Potassium	102	102	P/P	80 - 120
2329260	Sodium	102		P	80 - 120
2329260	Strontium	94.1	99.4	P/P	80 - 120
2329260	Tin	101	103	P/P	80 - 120
2329260	Titanium	103	104	P/P	80 - 120
2329260	Vanadium	98.4	99.6	P/P	80 - 120
2329260	Zinc	102	104	P/P	80 - 120
2330030	Calcium	104		P	80 - 120
2330030	Iron	111		P	80 - 120
2330030	Magnesium	114		P	80 - 120
2330030	Potassium	105		P	80 - 120
2330030	Sodium	110		P	80 - 120
2330030	Strontium	111		P	80 - 120
2330030	Tin	104		P	80 - 120
2330030	Titanium	104		P	80 - 120
2330030	Vanadium	99.7		P	80 - 120
2330030	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P414396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329260	Aluminum	102	102	P/P	80 - 120
2329260	Antimony	101	101	P/P	80 - 120
2329260	Arsenic	100	99.7	P/P	80 - 120
2329260	Barium	103	102	P/P	80 - 120
2329260	Beryllium	86.1	98.1	P/P	80 - 120
2329260	Boron	107	107	P/P	80 - 120
2329260	Cadmium	100	97.9	P/P	80 - 120
2329260	Chromium	100	98.9	P/P	80 - 120
2329260	Cobalt	99.4	97.8	P/P	80 - 120
2329260	Copper	99.6	98.9	P/P	80 - 120
2329260	Lead	102	102	P/P	80 - 120
2329260	Manganese	101	98.5	P/P	80 - 120
2329260	Molybdenum	103	101	P/P	80 - 120
2329260	Nickel	99.1	98.5	P/P	80 - 120
2329260	Selenium	96.4	98.5	P/P	80 - 120
2329260	Silver	99.0	97.4	P/P	80 - 120
2329260	Thallium	104	107	P/P	80 - 120
2330030	Aluminum	103		P	80 - 120
2330030	Antimony	99.4		P	80 - 120
2330030	Arsenic	99.6		P	80 - 120
2330030	Barium	103		P	80 - 120
2330030	Beryllium	93.3		P	80 - 120
2330030	Boron	104		P	80 - 120
2330030	Cadmium	99.5		P	80 - 120
2330030	Chromium	98.0		P	80 - 120
2330030	Cobalt	98.3		P	80 - 120
2330030	Copper	98.6		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P414396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330030	Lead	101		P	80 - 120
2330030	Manganese	104		P	80 - 120
2330030	Molybdenum	101		P	80 - 120
2330030	Nickel	99.8		P	80 - 120
2330030	Selenium	96.7		P	80 - 120
2330030	Silver	98.4		P	80 - 120
2330030	Thallium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P414633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329976	Chloride	97.2		P	90 - 110
2330088	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P414636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329976	Sulfate	97.2		P	90 - 110
2330088	Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P415146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329886	Ammonia-N	96.0	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P415217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329253	Ammonia-N	98.2	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P414563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329701	Kjeldahl Nitrogen	91.5	92.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P414564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329699	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P414642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329936	NO2NO3-N	94.4	94.8	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329939	Total-P	104	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P415142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330089	Fluoride	96.3	97.4	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329782	Organic Carbon	94.0	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P414374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329977	Color (true)	2.12	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P414375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329882	Color (true)	0.583	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329884	Turbidity	1.83	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P414396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329260	Calcium	0.719	Spike	P	0 - 20
2329260	Iron	0.126	Spike	P	0 - 20
2329260	Magnesium	0.675	Spike	P	0 - 20
2329260	Potassium	0.102	Spike	P	0 - 20
2329260	Sodium	1.48	Spike	P	0 - 20
2329260	Strontium	5.41	Spike	P	0 - 20
2329260	Tin	1.34	Spike	P	0 - 20
2329260	Titanium	1.19	Spike	P	0 - 20
2329260	Vanadium	1.22	Spike	P	0 - 20
2329260	Zinc	1.41	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P414396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329260	Aluminum	0.235	Spike	P	0 - 20
2329260	Antimony	0.545	Spike	P	0 - 20
2329260	Arsenic	0.655	Spike	P	0 - 20
2329260	Barium	0.534	Spike	P	0 - 20
2329260	Beryllium	13.1	Spike	P	0 - 20
2329260	Boron	0.398	Spike	P	0 - 20
2329260	Cadmium	2.64	Spike	P	0 - 20
2329260	Chromium	1.41	Spike	P	0 - 20
2329260	Cobalt	1.67	Spike	P	0 - 20
2329260	Copper	0.632	Spike	P	0 - 20
2329260	Lead	0.258	Spike	P	0 - 20
2329260	Manganese	1.84	Spike	P	0 - 20
2329260	Molybdenum	1.90	Spike	P	0 - 20
2329260	Nickel	0.622	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P414396

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329260	Selenium	2.06	Spike	P	0 - 20
2329260	Silver	1.60	Spike	P	0 - 20
2329260	Thallium	2.72	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P414633

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329976	Chloride	0.551	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P414636

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329976	Sulfate	0.754	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P415146

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329886	Ammonia-N	0.362	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P415217

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329253	Ammonia-N	0.916	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P414563

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329701	Kjeldahl Nitrogen	0.685	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P414564

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329699	Kjeldahl Nitrogen	0.406	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P414642

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
------------	-----------	-----------	-------------------	-----------	----------------

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P414642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329936	NO2NO3-N	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P414411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329939	Total-P	1.42	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P414539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330089	Total Alkalinity	0.261	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
 Batch ID: P414670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329935	TDS	5.38	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
 Batch ID: P414674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329935	TSS	3.45	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
 Batch ID: P415142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330089	Fluoride	1.03	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
 Batch ID: P414517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329782	Organic Carbon	0.739	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: A112402

Included Lab Sample IDs: 2329934, 2329935, 2329938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	102	105	P/P	85 - 115
Color (true)	105	114	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A112403

Included Lab Sample IDs: 2329934, 2329935, 2329938

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A112457

Included Lab Sample IDs: 2329945, 2329946, 2329947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.3	P/P	90 - 110
Aluminum	99.3	99.3	P/P	90 - 110
Antimony	97.4	96.8	P/P	90 - 110
Antimony	98.6	97.4	P/P	90 - 110
Arsenic	98.3	97.4	P/P	90 - 110
Arsenic	98.4	98.3	P/P	90 - 110
Barium	97.6	96.5	P/P	90 - 110
Barium	98.5	97.6	P/P	90 - 110
Beryllium	92.7	93.2	P/P	90 - 110
Beryllium	94.3	92.7	P/P	90 - 110
Boron	100	99.8	P/P	90 - 110
Boron	102	100	P/P	90 - 110
Cadmium	98.1	97.4	P/P	90 - 110
Cadmium	98.3	98.1	P/P	90 - 110
Chromium	97.7	97.5	P/P	90 - 110
Chromium	98.4	97.7	P/P	90 - 110
Cobalt	97.0	97.5	P/P	90 - 110
Cobalt	97.5	97.2	P/P	90 - 110
Copper	97.7	97.9	P/P	90 - 110
Copper	97.9	97.7	P/P	90 - 110
Lead	98.4	96.9	P/P	90 - 110
Lead	98.9	98.4	P/P	90 - 110
Manganese	97.9	97.7	P/P	90 - 110
Manganese	98.1	97.9	P/P	90 - 110
Molybdenum	98.1	98.4	P/P	90 - 110
Molybdenum	98.4	98.5	P/P	90 - 110
Nickel	98.0	98.3	P/P	90 - 110
Nickel	98.3	97.9	P/P	90 - 110
Selenium	95.7	95.6	P/P	90 - 110
Selenium	95.7	95.7	P/P	90 - 110
Silver	98.8	99.4	P/P	90 - 110
Silver	99.4	98.7	P/P	90 - 110
Thallium	97.8	98.5	P/P	90 - 110
Thallium	98.5	95.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A112492

Included Lab Sample IDs: 2329936, 2329937, 2329939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	94.6	P/P	90 - 110
Organic Carbon	96.2	95.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A112501

Included Lab Sample IDs: 2329934, 2329935, 2329938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.6	94.0	P/P	90 - 110
Total Alkalinity	94.0	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112529

Included Lab Sample IDs: 2329936, 2329937, 2329939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	99.0	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A112541

Included Lab Sample IDs: 2329945, 2329946, 2329947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	99.6	P/P	90 - 110
Iron	103	99.5	P/P	90 - 110
Magnesium	103	99.7	P/P	90 - 110
Potassium	104	102	P/P	90 - 110
Sodium	104	102	P/P	90 - 110
Tin	99.6	102	P/P	90 - 110
Titanium	101	100	P/P	90 - 110
Vanadium	101	101	P/P	90 - 110
Zinc	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A112552

Included Lab Sample IDs: 2329934, 2329935, 2329938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	98.8	P/P	90 - 110
Sulfate	99.1	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A112565

Included Lab Sample IDs: 2329936, 2329937, 2329939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A112599

Included Lab Sample IDs: 2329945, 2329946, 2329947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Strontium	91.6	96.9	P/P	90 - 110
Strontium	96.9	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112613

Included Lab Sample IDs: 2329936, 2329937, 2329939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.7	96.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A112796

Included Lab Sample IDs: 2329934, 2329935, 2329938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	95.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112802

Included Lab Sample IDs: 2329936, 2329937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112830

Included Lab Sample IDs: 2329939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	96.9	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)	99.8					
	Color (true)	100				2.12	
	Color (true)	101				0.583	
EPA 180.1 Rev. 2.0	Turbidity	96.9				1.83	
EPA 200.7 Rev. 4.4	Calcium	104	103	104			0.719
	Iron	107	108	108	111		0.126
	Magnesium	110	111	109	114		0.675
	Potassium	105	102	102	105		0.102
	Sodium	103	102	110			1.48
	Strontium	93.9	94.1	99.4	111		5.41
	Tin	102	101	103	104		1.34
	Titanium	102	103	104	104		1.19
	Vanadium	95.2	98.4	99.6	99.7		1.22
	Zinc	100	102	104	102		1.41
EPA 200.8 Rev. 5.4	Aluminum	97.9	102	102	103		0.235
	Antimony	96.8	101	101	99.4		0.545
	Arsenic	97.7	100	99.7	99.6		0.655
	Barium	99.4	103	102	103		0.534
	Beryllium	95.3	86.1	98.1	93.3		13.1
	Boron	103	107	107	104		0.398
	Cadmium	94.7	100	97.9	99.5		2.64
	Chromium	95.7	100	98.9	98.0		1.41
	Cobalt	96.9	99.4	97.8	98.3		1.67
	Copper	96.2	99.6	98.9	98.6		0.632
	Lead	97.8	102	102	101		0.258
	Manganese	96.4	101	98.5	104		1.84
	Molybdenum	96.2	103	101	101		1.90
	Nickel	97.6	99.1	98.5	99.8		0.622
	Selenium	96.7	96.4	98.5	96.7		2.06
	Silver	97.2	99.0	97.4	98.4		1.60
	Thallium	98.7	104	107	103		2.72
EPA 300.0 Rev. 2.1	Chloride	98.1	97.2	97.6		0.551	
	Sulfate	98.2	97.2	98.2		0.754	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	96.0	95.6			0.362
	Ammonia-N	96.8	97.0	98.2			0.916
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	91.5	92.2			0.685
	Kjeldahl Nitrogen	94.8	103	102			0.406
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	94.4	94.8			0.409
EPA 365.1 Rev. 2.0	Total-P	101	104	101			1.42
SM 2320 B-2011	Total Alkalinity	94.5				0.261	
SM 2540 C-2011	TDS					5.38	
SM 2540 D-2011	TSS					3.45	
SM 4500-F- C-2011	Fluoride	93.8	96.3	97.4			1.03
SM 5310 B-2011	Organic Carbon	94.6	94.0	94.8			0.739

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2329934, 2329935, 2329938
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2329934, 2329935, 2329938
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2329945, 2329946, 2329947

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2329945, 2329946, 2329947
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2329934, 2329935, 2329938
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2329934, 2329935, 2329938
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2329936, 2329937, 2329939
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2329936, 2329937, 2329939
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2329936, 2329937, 2329939
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2329936, 2329937, 2329939
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2329934, 2329935, 2329938
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2329945, 2329946, 2329947
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2329934, 2329935, 2329938
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2329934, 2329935, 2329938
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2329934, 2329935, 2329938
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2329936, 2329937, 2329939

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	05/25/2022			05/25/2022 15:27	Samantha L Bates	2329934
	05/25/2022			05/25/2022 15:32	Samantha L Bates	2329938
	05/25/2022			05/25/2022 15:43	Samantha L Bates	2329935
EPA 180.1 Rev. 2.0	05/25/2022			05/25/2022 15:02	Khloe J Berg	2329934
	05/25/2022			05/25/2022 15:04	Khloe J Berg	2329935
	05/25/2022			05/25/2022 15:05	Khloe J Berg	2329938
EPA 200.7 Rev. 4.4	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/31/2022 23:20	McKinley C Carter	2329945
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/31/2022 23:27	McKinley C Carter	2329946
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/31/2022 23:33	McKinley C Carter	2329947
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/31/2022 23:40	McKinley C Carter	2329947
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	06/02/2022 19:57	McKinley C Carter	2329945
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	06/02/2022 20:16	McKinley C Carter	2329946
EPA 200.8 Rev. 5.4	05/25/2022	05/26/2022 10:15	Megan Whitefoot	06/02/2022 20:21	McKinley C Carter	2329947
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/26/2022 19:12	Alexander Thompson	2329945
	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/26/2022 20:10	Alexander Thompson	2329946
EPA 300.0 Rev. 2.1	05/25/2022	05/26/2022 10:15	Megan Whitefoot	05/26/2022 20:20	Alexander Thompson	2329947
	05/25/2022			06/01/2022 23:14	Anna M. Plaviak	2329934
	05/25/2022			06/01/2022 23:26	Anna M. Plaviak	2329935
EPA 350.1 Rev. 2.0	05/25/2022			06/01/2022 23:38	Anna M. Plaviak	2329938
	05/25/2022			06/14/2022 10:06	Ping Hua	2329936
	05/25/2022			06/14/2022 10:07	Ping Hua	2329937
EPA 351.2 Rev. 2.0	05/25/2022			06/14/2022 12:18	Ping Hua	2329939
	05/25/2022	06/02/2022 15:43	Samantha L Bates	06/03/2022 14:51	Alexandra J Mattheus	2329936
	05/25/2022	06/02/2022 15:43	Samantha L Bates	06/03/2022 14:53	Alexandra J Mattheus	2329939
EPA 353.2 Rev. 2.0	05/25/2022	06/02/2022 15:43	Samantha L Bates	06/03/2022 15:16	Alexandra J Mattheus	2329937
	05/25/2022			06/01/2022 17:03	Nathaniel J Jones	2329936
	05/25/2022			06/01/2022 17:10	Nathaniel J Jones	2329937
EPA 365.1 Rev. 2.0	05/25/2022			06/01/2022 17:11	Nathaniel J Jones	2329939
	05/25/2022	05/27/2022 16:17	Adam P Silver	05/31/2022 12:17	James L Waggeberby	2329939
	05/25/2022	05/27/2022 16:17	Adam P Silver	05/31/2022 12:26	James L Waggeberby	2329936
SM 2320 B-2011	05/25/2022	05/27/2022 16:17	Adam P Silver	05/31/2022 12:27	James L Waggeberby	2329937
	05/25/2022			05/27/2022 11:07	Dale L. Simmons	2329934
	05/25/2022			05/27/2022 11:19	Dale L. Simmons	2329935
SM 2340 B-2011	05/25/2022			05/27/2022 13:48	Dale L. Simmons	2329938
	05/25/2022			05/31/2022 23:20	McKinley C Carter	2329945
	05/25/2022			05/31/2022 23:27	McKinley C Carter	2329946
SM 2540 C-2011	05/25/2022			05/31/2022 23:33	McKinley C Carter	2329947
	05/25/2022			05/27/2022 14:56	Yijie Li	2329934, 2329935, 2329938
	05/25/2022			05/27/2022 14:56	Yijie Li	2329934, 2329935, 2329938
SM 4500-F- C-2011	05/25/2022			06/14/2022 08:01	Dale L. Simmons	2329934

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500-F- C-2011	05/25/2022			06/14/2022 08:07	Dale L. Simmons	2329935
	05/25/2022			06/14/2022 09:04	Dale L. Simmons	2329938
SM 5310 B-2011	05/25/2022			05/28/2022 00:54	Khloe J Berg	2329936
	05/25/2022			05/28/2022 05:38	Khloe J Berg	2329937
	05/25/2022			05/28/2022 05:53	Khloe J Berg	2329939